

Perspectives on Language and Language Development

Essays in Honor of
Ruth A. Berman

Edited by:

Dorit Diskin Ravid

Hava Bat-Zeev Shyldkrot



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**PERSPECTIVES ON LANGUAGE
AND LANGUAGE DEVELOPMENT**

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Editors

DORIT DISKIN RAVID AND HAVA BAT-ZEEV SHYLDKROT
Tel Aviv University, Israel



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THE LIFE AND WORK OF RUTH A. BERMAN

DORIT RAVID AND HAVA BAT-ZEEV SHYLDKROT

Ruth Berman's life and career are entwined with the revival of Jewish life in Israel, the consolidation of Hebrew as the native tongue of the Israelis, and the study of Modern Hebrew as a living language against the backdrop of the major schools of linguistics and psycholinguistics in the second half of the 20th century. This volume, edited and written by us – her friends, colleagues, and students – is dedicated to Ruth upon her retirement. It celebrates her prominent scientific contributions in the domains of general and Hebrew linguistics, language and literacy acquisition across the life span, narrative theory and development, and the development of text production. The diversity of the group of scholars represented in this volume testifies to the breadth and wealth of Ruth Berman's life work and its insightful relevance to linguistics, psychology, education, communications disorders, and literature. But more than that, it testifies to her warm and generous personality, to her ability to attract people of all ages, her enormous capacity to give of herself unstintingly – her knowledge, her advice, her time, and her love – over the years. For many of us, Ruth has been a dear friend, an esteemed colleague and collaborator; for many others, she has been our teacher and mentor, introducing and guiding us through the sciences of linguistics, development, and cognition.

Ruth Aronson-Berman was born and raised in Cape Town, South Africa, but has spent most of her adult life in Israel, teaching and conducting research for the last 38 years at Tel Aviv University. Her nearly 50 years of research can be described as cyclical, in the sense that she has moved into new directions every decade or so, although always focused on the theme of human language in general and the

relationship between linguistic forms and language functions in various communicative settings and different types of discourse. Her first piece of research was a dissertation submitted to the School of Applied Linguistics at the University of Edinburgh in 1958 under the supervision of the leading British linguist, M.A.K. Halliday, dealing with the differences in language structure and use in different types of texts – literature, the social sciences, and history.

During the 1960s, under her maiden name of Ruth Aronson, she made her mark in the field of English as a foreign language, following an M.A. dissertation at Columbia University's Teachers' College (1964). As part of a research group at the School of Education at the Hebrew University, she conducted a countrywide research project on the teaching of English in Israel. In 1965, with the move to Tel Aviv University, where she participated in establishing the field of Linguistics, she instituted and directed the first research-based series of texts for teaching English, based on a detailed contrastive analysis of lexical and grammatical structures in English and Hebrew.

The 1970s saw a switch in her research focus to the study of Modern Hebrew, the area in which she wrote her doctoral dissertation (1973). This was followed by a period of intensive work in lecturing and research on the morphology, syntax, and lexicon of Modern Hebrew, summed up in her classic book "Modern Hebrew Structure" (1978). This book constituted a pioneering study covering a wide range of topics in Israeli Hebrew in the framework of contemporary linguistic theory and analysis, and to this day serves as a basic reference work for scholarship involving Modern Hebrew.

The 1980s witnessed the flourishing of another field of study, focused on the acquisition of Hebrew as a first language. This research domain evolved out of her intensive contact with leading scholars in American linguistics and psycholinguistics and took advantage of her unique background in Hebrew language studies, contrastive analysis, and language learning. With the publication of her monograph on "Acquisition of Hebrew" (1985), acquisition of Hebrew as a mother tongue in the preschool, preliterate years, came into being as a legitimate and important domain of research both in Israel and abroad.

This sphere of activity deepened and expanded in the 1980s and 1990s to include concern with psycholinguistic models of language development on the one hand, and to crosslinguistic comparisons of acquisition of Hebrew and of other languages, on the other – in the domains of early syntax, new-word formation and of narrative text construction. Her stature in the field was recognized by her position as elected president of the International Association for the Study of Child Language (1993–1996). The monumental "frogstory" crosslinguistic developmental study of Berman and Slobin (1994) on children's storytelling abilities at different ages and in different languages has become a classic and the basis for worldwide further research in the domains of child language development, narrative construction, and linguistic typology.

A rich range of studies conducted by Berman and her students on developing narrative discourse abilities in Hebrew-speaking preschool and school-age children during the 1990s formed the basis for Berman's current research focus on later language development and the consolidation of text construction abilities from gradeschool age across adolescence and into adulthood. Supported by grants from the Hebrew

Science Academy and from the Spencer Foundation of Chicago, in cooperation with senior scholars from seven countries in the United States and Europe, Berman has made an indelible mark on the analysis of discourse abilities in both narrative and expository genres, in both speech and writing, across the school years and on to university level. This work, published, *inter alia*, in special journal issues, and the topic of a book Berman is currently editing in the prestigious “Trends in Language Acquisition Research” IASCL series in a way brings Berman’s interest in “Language Across the Life Span” to full circle. Her current research work re-echoes her early interest in discourse analysis, in language learning, and in school based linguistic literacy.

Ruth Berman officially retired in 2003 from Tel Aviv University after a long and distinguished career. She is currently working actively on three book-length projects; a number of her recent papers are in press in leading international journals. She continues to lead a research group on the development of text production abilities at Tel Aviv University. Most importantly, she is surrounded by her many former students, the generation of Israeli scholars that she has nurtured to full bloom, who continue to cherish her as their mentor.

RUTH ARONSON BERMAN'S LIST OF PUBLICATIONS

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INTRODUCTION

DORIT RAVID AND HAVA BAT-ZEEV SHYLDKROT

This volume brings together new perspectives on language, discourse and language development in 31 chapters by scholars from several countries with diverging backgrounds and disciplines. Since the volume is inspired by the lifework and personality of Ruth Berman and her perception of language as a rich, multifaceted and multifunctional system, the themes that run through it examine cognitive, linguistic, psycholinguistic and sociolinguistic issues from diverse though interrelated perspectives. None of the chapters takes a monolithic view on language; together, they present a variegated tapestry relating language, cognition, literacy, culture and pragmatics in intricate ways.

The multifaceted view of language is underscored in this book in numerous ways. The terms *language* and *discourse* are interpreted as covering a broad span of phenomena from phonology, morphology, semantics, syntax and the lexicon to larger segments of verbal communication. Communication takes place between children, adults, literary figures and computer agents. Literacy is highlighted as an important part of language, and is presented in both phylogenetic and ontogenetic contexts. Linguistic analyses range from bottom-up morpho-syntactic categories to top-down discourse analyses. Language and discourse are embedded in different socio-cultural and communicative contexts—conversation, various types of narratives, and expository texts, in both spoken and written modalities. While many of the chapters focus on Hebrew, Ruth Berman's homeland language, an array of other languages are represented—from English and French through Dutch, Italian, Swedish and Spanish to Tsez and Turkish, with examples and analyses from still numerous others.

Development, like language, is portrayed here in many senses, across a wide span of ages and stages, and in both real and virtual contexts. Theoretical issues are considered alongside with applied ones. Texts represent a continuum that runs from expert-written—in some cases, literary—discourse to texts produced by non-expert native and non-native language users. Language examples, texts and excerpts were elicited from children and adolescents as well as from adults. Language knowledge and proficiency is analyzed across the continuum of first, second and foreign language learning. A variety of procedures for the elicitation and analysis of linguistic samples are represented—comprehension and production, structured experiments, translation, semi-structured text elicitation and re-telling, spontaneous speech, natural peer conversation and storytelling.

The combined volume themes closely follow Ruth Berman's interests and life career—from general linguistic theory to Modern Hebrew linguistics; from the study of second/foreign language to first language acquisition; from early child language to later language and literacy development; from oral to written language investigation; and from narrative theory and development to the development of text production abilities in different communicative contexts. The book consists of two main parts: *Part I* focuses on *language and discourse* from formal, functional and pragmatic points of view; *Part II* takes a *developmental perspective on language and discourse*. In each part, chapters are clustered around a number of specific themes.

Part I. *Language and discourse*. The volume opens with Hava Bat-Zeev Shyldkrot's chapter on the far from obvious distinction between grammatical and lexical units and processes. Bat-Zeev Shyldkrot claims that both types of units and processes equally contribute to the evolution of languages. To demonstrate her claims, she examines the changes in the position of French adjectives, adverbs and prepositions, which may also entail category changes.

The first cluster of linguistic chapters revolves around *the Hebrew language in Israel*. Outi Bat El describes the morphological parsing of reduplicated Hebrew words without reference to a related word. Bat El argues that this parsing is based on constraints grounded outside the grammar with a functional motivation. Shmuel Bolozky discusses the question of whether deriving denominative verbs involves discontinuous or linear derivation devices. Bolozky further develops the idea of the “shorshan”—consonants or consonant sequences that are never split within the paradigm. Ora Schwarzwald examines a related topic—the theoretical relevance of word history to the morphological and phonological processes involved in consonant cluster avoidance in Modern Hebrew. Schwarzwald concludes that identical consonant clusters starting with gutturals are sensitive to word origin, register and morphological structure. Shlomo Izre'el discusses transcribing spoken Israeli Hebrew following a set of criteria in the context of The Corpus of Spoken Israeli Hebrew (CoSIH). Izre'el lists the various guidelines which need to be taken into consideration—the relationship between spoken and written language, language variation, the Hebrew orthography, and types of transcriptions. Tamar Sovran's chapter, grounded in Fillmore's Frame Semantics theory, traces metaphorical contacts between frames relating to the Hebrew root *x.n.n*, which is claimed to play a role in forming complex conceptual concepts in the realms of social

interaction, morality, logic and linguistics. Elena Shohamy concludes this cluster with a chapter taking a broader look at the linguistic scenario in Israel from the perspective of language rights. According to her, students speaking less ‘powerful’ languages such as Arabic and Russian are prevented from the acquisition of school knowledge as the languages of power serve as the medium of the acquisition of academic knowledge and participation in society.

A second cluster of chapters are placed in a wider multi-linguistic context, focusing on *the interrelations of language and narrative*. Bernard Comrie discusses the problem posed by personification in languages where there is some correlation between gender and the human/non-human distinction. The analysis is based on a traditional story ‘The hen and the rooster’ in the Tsez language, compared with English, German and Russian. Comrie shows that in order to be a competent story-teller in a language, it is necessary to know specific rules relating to story telling that are just as rigid as those of the grammar of the language. Dan Slobin’s chapter investigates typological factors that shape the “rhetorical styles” of narratives. Moving from picture-elicited narratives to comparing translations of Tolkien’s *The Hobbit*, Slobin delineates how the translation task gives us a window into the maximum possibilities of verb-framed and satellite-framed languages, striving to maintain or enhance the force and vividness of the source text. Yeshayahu Shen discusses characteristics and functions of evaluation devices in narratives—signaling the narrative and thematic points, and inducing affective responses in addressees. He points out that evaluation devices play central roles at both ‘lower’ and ‘higher’ levels of event hierarchical organization. Rachel Giora too examines evaluative devices in narratives, from a different perspective. Analyzing a story about rape and abuse of a young woman, she shows that the construction of the story theme is not based on the sequence of the plot events, but rather on the set of evaluative devices that instruct us as to our final interpretation of these events.

Part II. A developmental perspective on language and discourse. The second part of the volume opens with a chapter by Tzur Sayag and Sidney Strauss, which examines cognitive developmental issues from a unique perspective. Their work brings together the evolutionary perspective and the use of computational models to look into the cognitive prerequisites for teaching through the Artificial Life research paradigm.

The first cluster in this part focuses on *early language acquisition and emergent literacy* in a first language perspective. Eve Clark’s chapter reviews accounts on how toddlers talk about resultant states in causal events, what their first forms are, and when they start to use the conventional options favored by adult speakers of English and Hebrew. She shows that resultant states appear salient to young children and so emerge early in the repertoire of things they choose to talk about. Sharon Armon-Lotem highlights another aspect of early acquisition—the development of syntactic subordination. Armon-Lotem argues, based on longitudinal data of four Hebrew-speaking children, that the order of acquisition is not affected by typological differences in the complexity of the complement structure, but rather by different orders of first emergence vs. stabilization. Edy Veneziano discusses the emergence of “expressive options”—different ways of relating the same events—in young children acquiring French. Expressive options become a vehicle for overcoming the limitations of single-word utterances

and one of the ways through which the child can enter multiword speech. This cognitive achievement allows children to start building up networks of lexical items and expressions, so that language knowledge starts to take the form of an incipient mentally constructed system of possibilities. Two chapters on emergent literacy conclude the early acquisition cluster. Iris Levin and Dorit Aram examine children's knowledge of their own written name in Hebrew and the effect of this knowledge on early literacy. Specifically, they investigate to what extent children's ability to name and sound letters is facilitated by the occurrence of these letters in their own names. Daniela Fabbretti and Clotilde Pontecorvo's chapter surveys different aspects in Italian children's developing literacy skills as reflected by their ability to produce written texts based on the "Little Red Riding Hood" tale. They examine knowledge of features in the writing system such as segmentation and punctuation as well as textual facets such as narrative quality, direct speech and textuality.

A second group of chapters continues the developmental theme of first language acquisition into the school years, with papers clustering around *narrative development in the school years*. The cluster introduces later language development, the consolidation of literacy, and the evolution of narrative production abilities in children, adolescents and adults. Ayhan Aksu-Koç presents analyses of narratives produced by Turkish-speaking preschoolers and school children with different literacy backgrounds compared with adults, using various elicitation procedures. She relates literacy practices at home and in school together with socio-economic background to explain children's developing narrative, literacy and linguistic competence. Shoshana Blum-Kulka analyzes temporality in preschoolers and schoolchildren's conversational narratives. She examines the complex ways in which Hebrew-speaking children sequence the past, the present and the future against the background of two contextual frames—that of non-verbal action, and that of the co-text. A different perspective on storytelling is provided by Kenneth Holmqvist, Jana Holsanova, Victoria Johansson and Sven Strömqvist, who present a methodology and an analysis example from a new research project where computer logging of writing activity is combined with eyetracking to derive a profile of the interaction between picture viewing and writing during the production of a picture-elicited Swedish narrative. The combination of computer logged writing with eyetracking offers a window on the dynamic interplay between perception and production during textwriting based on the Frog Story. The last chapter in this cluster, written by Judy Reilly, Josie Bernicot, Stefano Vicari, Agnes Lacroix, and Ursula Bellugi, also uses the Frog Story paradigm to elicit narratives as a context to explore the intersection of affect and language in children and adolescents with Williams Syndrome. Reilly et al. find that in spite of the culture, and in spite of the resources of the language, or lack thereof, children and adolescents with Williams Syndrome are characterized by their frequent and extensive use of social evaluation in their stories.

The next cluster represents work on *later language and literacy development in the context of expository texts*. Elite Olshain and Ety Cohen report a study of reading comprehension in Israeli eighth-graders, investigating the relations between mastery

of logical connectors in expository texts and success in reading comprehension. They assess these relations using a battery of tasks testing children's knowledge of logical connectors, reading comprehension, academic proficiency and summary writing. Irit Katzenberger's chapter too deals with the expository text, this time taking a developmental viewpoint on text writing from gradeschool to adulthood. Katzenberger examines the overall organizational structure of the introduction, body and conclusion in Hebrew expositives and the flow of information between these segments. Dorit Ravid's chapter is a comparative analysis of written expository and narrative texts in Hebrew, focusing on the lexical, morphological and syntactic features that foster linguistic complexity. Ravid shows that despite the cognitive challenge they pose to speaker/writers, expository texts reveal earlier and more consistent complexity across the school years than do narratives. Harriet Jisa characterizes French children, adolescents and adults' ability to construe speaker distancing in expository texts by using various grammatical devices. She describes the developmental route to mastery of the family of grammatical voice constructions, or the options available for the expression of alternative relations between the verb and its associated nominals. Liliana Tolchinsky, Elisa Rosado, Melina Aparici & Joan Perera discuss two discourse types, personal narratives and expository discussions, as extreme points on a continuum that distinguishes genres in children, adolescents and adults. Tolchinsky et al. examine features such as elaboration, precision, and diversification of linguistic means as indicators of increasing rhetorical flexibility in these texts.

The next cluster revolves around studies of *2nd language acquisition and bilingualism*. Roni Henkin's chapter on spontaneous versus prescribed expression of tense in Arabic-Hebrew interlanguage opens this cluster. Henkin analyzes Hebrew writing in Arabic-speaking 6th and 8th graders compared with adult students, showing the influence of task on tense use in various writing contexts. Dorit Kaufman examines the acquisition, attrition, and rejuvenation of Hebrew among Israeli immigrant children in the United States through oral and written narrative production of children who were born in the U.S. or who arrived prior to literacy acquisition. Kaufman shows how immersion in the L2-dominant host society prior to literacy acquisition together with school-based formal instruction of L2 narrative conventions had a robust impact on the children's L1 narrative production. Maria Polinsky's chapter concludes this cluster with an analysis of an experimental study which investigated the knowledge of major word classes (verb, noun, adjective) in two pools of adult speakers—incomplete learners and uninterrupted learners. Polinsky shows differential comprehension abilities of verbs versus nouns in incomplete learners deriving from representational differences between these two lexical classes.

The volume is concluded with a short cluster consisting of two separate studies which take unique perspectives on *Contexts of literacy*. Ludo Verhoeven's chapter surveys the development of language and literacy in a multilingual context with special reference to the research outcomes of current and recently completed studies on minorities in the Netherlands. Verhoeven examines emergent literacy, literacy development and education in the second language and in the minority language as well as predictors of

individual variation in literacy. Joseph Shimron brings us full circle back to the roots of literacy and to Hebrew. He presents an examination of early literacy among the ancient Israelites based on Olson's criteria for the development of literacy, on the one hand, and on observations about the perception and the evidence of literacy deriving from biblical documents and archaeological exploration in the biblical era, on the other.

PART I. LANGUAGE AND DISCOURSE

1. *CATÉGORISATION, GRAMMATICALISATION ET LEXICALISATION

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INTRODUCTION

Les études portant sur l'évolution des langues et tout particulièrement sur celle du français, révèlent communément, au moins depuis les travaux de Meillet (1912), une systématique beaucoup plus rigide dans les changements d'ordre morphologique, syntaxique, et probablement phonologique, que dans ceux de nature sémantique ou lexicale. En effet, si dans l'analyse des changements morphosyntaxiques un fonctionnement plutôt régulier s'observe et l'on se contente alors d'expliquer les cas limites ou les exceptions, dans l'analyse sémantique ou lexicale par contre, on distingue un certain nombre de tendances générales, qui pourraient éventuellement se manifester mais que l'on ne découvrirait qu'*a posteriori* (Traugott, 1990).

Les tentatives d'explication de ce phénomène ont toujours considéré les unités grammaticales comme remplissant un rôle important dans la langue et les changements qu'elles subissent comme influant sur la constitution du système linguistique interne. En revanche, les changements subis par les unités sémantico-lexicales sont perçus comme ne modifiant guère ce système. Les descriptions de ces changements sont généralement tenues pour peu rigoureuses et aléatoires. De ce fait, l'étude des formes du premier type a toujours été jugée prioritaire, servant de point de départ à l'analyse. Généralement, l'ensemble des occurrences d'une certaine unité linguistique est examiné et son fonctionnement déterminé. Ce n'est que par la suite que ses diverses significations sont répertoriées et définies.

*Je tiens à remercier Hariette Jisa et Sonia Mendelson pour leurs suggestions, leurs remarques et leurs commentaires.

Cependant, depuis une vingtaine d'années, un certain nombre de travaux traçant les parcours d'évolution systématique des unités sémantiques a été publié [cf. Sweetser (1990), Hopper et Traugott (1993) *inter alia*]. Ces recherches suscitent des discussions importantes dont la source est vraisemblablement l'impossibilité d'établir une distinction catégorielle univoque entre les deux types d'unités.

Cet article suggère que les deux types d'unités, morphosyntaxique et sémantique, contribuent de la même manière à l'évolution de la langue et ne peuvent donc pas toujours être dissociés. La démarche adoptée sera celle de la grammaticalisation (Marchello-Nizia, 2001).

En premier lieu, on exposera la problématique que soulève la distinction entre éléments grammaticaux et éléments lexicaux. Dans la seconde partie, on analysera trois types de changements qui se déroulent dans la langue. Ces changements feront l'objet d'une discussion concernant l'établissement possible d'une frontière bien délimitée entre la syntaxe et la sémantique.

UNITÉS GRAMMATICALES ET UNITÉS SÉMANTICO-LEXICALES

La tradition occidentale a, depuis toujours, souscrit à la répartition des classes de mots en parties du discours¹. Selon l'optique adoptée, les listes des classes qui correspondent aux espèces de mots² varient considérablement. En effet, différents critères, souvent groupés et pas toujours cohérents, sont en usage pour ce classement. Pour ne mentionner que quelques exemples, si l'on s'en tient au critère morphologique, la variabilité des unités est généralement prise en considération, on se demande alors si les unités linguistiques d'une certaine classe sont déclinables ou indéclinables. Ainsi, en français, les conjonctions et les prépositions sont invariables et feront donc partie de la seconde classe. Dans d'autres langues, un tel classement n'est pas nécessairement pertinent. En hébreu par exemple, certaines prépositions se déclinent. On peut examiner ensuite les facteurs qui déclenchent l'un ou l'autre cas et la façon dont cette procédure se réalise. Dans cet objectif, un critère de nature fonctionnelle envisagerait des données de type syntaxique. On comparerait alors la distribution des items appartenant à différentes classes de mots, en examinant leur substituabilité et leur co-occurrence. On déterminerait si ces unités peuvent être définies comme "principales" ou, au contraire, comme "accessoires". Un critère d'ordre psychologique³ mettrait en jeu les termes "thème" ou "rhème", suivant que les unités en question désignent l'objet dont on parle ou ce qui est dit de cet objet⁴. Le nombre et la nature de ces critères changent considérablement d'une époque à l'autre, d'une école à l'autre et d'un linguiste à l'autre⁵. Bien évidemment, la diversité des critères témoigne de vues différentes, de démarches divergentes et empêche une uniformisation tant des critères utilisés que des parties de discours énumérées.

¹ Pour une description et une analyse détaillée de cette question voir par exemple le numéro de *Langages* consacré aux parties du discours, tout particulièrement les articles de Sylvain Auroux.

² Autre terme utilisé pour les parties du discours.

³ Pour une discussion et un inventaire détaillé voir (Auroux 88).

⁴ Ces termes posent un problème de terminologie. Leur nomenclature est très diverse et on rencontre beaucoup d'autres paires qui se réfèrent au même phénomène cf. topique, propos, etc.

⁵ Ce sujet préoccupe surtout la grammaire et la linguistique françaises et tout particulièrement la grammaire traditionnelle. La tradition anglo-saxonne semble moins s'intéresser à cette question.

La désignation et la délimitation de ces unités ne font l'objet d'aucun consensus. Notons que ce désaccord pourrait provenir de ce que l'inventaire des parties du discours varie d'un type de langues à un autre et d'une famille de langues à une autre. Ces variations sont fondamentales et font que le fonctionnement de diverses familles de langues n'est point semblable⁶. Il est difficile de reconstituer avec précision l'origine de ces classements. On pourrait toutefois postuler que la division catégorielle en parties du discours a incité à préférer un classement d'ordre morphosyntaxique à un classement de nature sémantique. En effet, la primauté des unités morphologiques ou syntaxiques est rarement mise en cause. Cette priorité se manifeste à plusieurs niveaux. Si la détermination de la fonction des mots d'une certaine catégorie constitue l'une des préoccupations majeures des linguistes, tout comme son agencement avec d'autres classes de mots, sa distribution et éventuellement sa formation, la définition du type d'information véhiculée par les unités d'une certaine classe n'est jamais délibérée avant que les catégories ne soient formées et délimitées. Elle est généralement formulée *a posteriori*. Ce n'est que lorsqu'une catégorie existe que l'on essaie d'analyser et d'étudier l'information qu'elle englobe. Pour ne prendre que deux exemples, mentionnons le cas de l'article défini et celui de l'adjectif démonstratif. La présence des articles en français est considérée synchroniquement comme obligatoire à la constitution d'un groupe nominal. Son absence éventuelle ne peut être justifiée que par un certain nombre de traits, généralement d'ordre sémantique. De même, un des traits sémantiques propres à l'article est la définition de la notion de "générique". Or, il semble que l'analyse de cette notion n'a été évoquée que tardivement, longtemps après la formation des articles, bien que ce trait ait pu exister déjà lors de sa constitution. L'analyse sémantique se fait ici à deux niveaux. Le premier rappelle uniquement la détermination du substantif et le second consiste en une analyse détaillée qui décompose les propriétés de ce déterminant. Il en est de même pour les adjectifs démonstratifs. La constitution ou l'usage de cet adjectif prime l'étude de ses traits ou des notions sémantiques spécifiques qu'il évoque. L'analyse des adverbes présente les mêmes difficultés. On identifie d'abord la fonction et ensuite on définit le sens de l'adverbe : manière, temps, lieu, etc.

Par ailleurs, plusieurs manières de catégoriser l'ensemble des parties du discours selon une certaine hiérarchie ont été suggérées. Outre les traits distinctifs attribués par certaines écoles linguistiques aux classes de mots, une tentative de répartition en "classes ouvertes" *vs* "classes fermées" a été proposée. Selon ce critère, qui prend déjà pour acquis la catégorisation en parties du discours, certains types d'unités à l'instar des prépositions, conjonctions ou articles feraient partie des classes fermées, alors que d'autres, tels que les verbes et les noms appartiendraient aux classes ouvertes⁷. Cette division suscite également un grand nombre de problèmes, qui proviennent probablement de l'ambivalence existant au niveau des unités linguistiques. Avant tout, les frontières entre les différentes catégories notamment les catégories ouvertes et les catégories fermées ou les unités lexicales et grammaticales, ne sont pas toujours rigides ni bien délimitées. Même synchroniquement, certaines unités peuvent se trouver en

⁶ Pour les universaux du langage voir tout particulièrement Greenberg (1966), Comrie (1991) et Croft (1990).

⁷ Voir aussi les divisions faites traditionnellement par Pottier (1962) et Moignet (1981).

marge de ces deux catégories, sans que leur appartenance soit unanimement acceptée. D'autres unités peuvent appartenir à plusieurs classes⁸. Diachroniquement, les unités linguistiques peuvent passer d'une catégorie à l'autre au sein de chaque classe à l'intérieur d'une même catégorie, et même de la classe ouverte à la classe fermée. L'article défini en français (*le, la, les*) illustre un terme qui change de classe à l'intérieur de la même catégorie (*cf.* article défini ou pronom objet)⁹. Un substantif qui devient préposition (*casa > chez*) constitue, en revanche, un cas de changement de classe (*cf.* de la classe ouverte à la classe fermée).

En outre, certains linguistes adoptent un autre classement et répartissent les parties du discours en "unités vides" et unités "pleines". Ce classement tend à associer une propriété sémantique à une forme syntaxique. Dans cette optique, certaines prépositions exigées par des contextes grammaticaux seraient de purs éléments de liaison¹⁰ et ne contribueraient en rien à l'interprétation sémantique, alors que d'autres porteraient un sens. Il s'agit par exemple des prépositions *à* ou *de*. Dans l'exemple : *Marie va à la manifestation* il est clair qu'*aller à* incarne une certaine information paraphrasable par "se rendre à un endroit quelconque de façon délibérée". Cette interprétation est obtenue par le verbe *aller* suivi de la préposition *à*. Le même verbe accompagné d'une autre préposition – *aller vers* – indiquerait "une tentative d'atteindre un endroit quelconque sans y accéder". L'ensemble verbe + préposition évoque une certaine signification qui varie en fonction de la préposition et, probablement, du rapport qui existe entre la préposition et le verbe. En revanche, dans d'autres cas (*cf.* préposition devant un infinitif) *commencer à/de crier, continuer à/de crier*¹¹, la distinction sémantique entre les deux emplois (*à* vs *de*) n'est *a priori* plus tellement évidente et exige une clarification. Cela ne veut pas dire qu'il n'existe pas de différence entre les deux formes. Cela signifie plutôt que la distinction entre ces formes n'est pas évidente à première vue et probablement pas unanime non plus.

Ces faits démontrent clairement qu'il n'existe pas de chevauchement entre les différents classements et que chaque type de classement favorise une répartition différente des unités linguistiques. Ainsi, selon la division en classes ouvertes *vs.* fermées, toutes les prépositions seraient groupées ensemble au sein des classes fermées. En revanche, la répartition en prépositions "vides" ou "pleines" rangerait les prépositions en deux groupes distincts.

UNITÉS ÉQUIVOQUES

L'appartenance d'une unité linguistique à l'une ou l'autre catégorie n'est généralement pas absolue. De ce fait, on éprouve fréquemment des problèmes à distinguer une certaine unité fonctionnelle d'une autre. Mentionnons, par exemple, la difficulté à différencier l'adjectif du participe passé ou du participe présent:

⁸ Noailly (1999) étudie "les contours flous de la catégorie" et signale plusieurs cas de double appartenance (*cf.* adjectif et substantif, adjectifs et formes verbales etc.).

⁹ Voir à ce sujet Lehmann (1995).

¹⁰ Voir par exemple Lyons (1968: 418), Kemmer et Bat-Zeev Shyldkrot (1995).

¹¹ Pour une étude de ces constructions voir Cadiot (1993).

- 1) *Un homme décidé - une allure décidée* (adjectif)
- 2) *C'est décidé - il est décidé à venir* (participe)
- 3) *Avoir l'air décidé* (adjectif ou participe?)

(Dubois et Dubois-Charlier 1990)

Signalons également les indécisions exprimées pour ce qui est de la division catégorielle substantif-préposition (Dubois et Dubois-Charlier (1990)). En effet, on sait que les substantifs tels que *côté* et *face* peuvent s'utiliser, en plus de leur emploi comme substantifs, également comme prépositions:

- 4) *Côté* météo, la pluie sera abondante aujourd'hui.
- 5) *Face* à cette situation il faut s'organiser autrement.
- 6) Elle est montée dans la voiture par *le côté* gauche.
- 7) Marie a vraiment considéré ce mariage sous toutes ses *faces*.

Une autre incertitude catégorielle existe dans le cas du participe présent et de l'adverbe (*pendant* et *pendant*), de la conjonction et de l'adverbe (*si*, *comme*) et du pronom et de l'adverbe (*y*, *en* et *où*). Dans tous les cas cités, une même forme est susceptible, à des degrés variés, de remplir différentes fonctions et d'exprimer des sens distincts¹². Qui plus est, une consultation, même superficielle, de quelques grammaires d'usage¹³, démontre bien que la catégorisation des parties du discours n'est pas univoque. Les intitulés de certains chapitres témoignent bien des hésitations de ces linguistes (*cf.* adverbe et adjectif, adverbe et préposition, adverbe et pronom, adverbe et conjonction etc.). Par ailleurs, dans certains cas l'adjectif et l'adverbe peuvent se substituer l'un à l'autre tout en exprimant le même sens¹⁴. Que l'on compare:

- 8) C'est un (*vrai + véritable*) choc culturel.
- 8') C'est *véritablement* un choc culturel.
- 9) C'est un (*vrai + véritable*) cirque avec une vraie toile de tente rayée et une grande piste circulaire.
- 9') C'est *véritablement* un cirque avec une vraie toile de tente rayée et une grande piste circulaire.

Il découle de tous ces exemples que la distinction catégorielle n'est ni toujours évidente, ni toujours pertinente et que la répartition en parties du discours n'est pas univoque.

Dans ce qui suit, nous discuterons trois cas de figure qui présentent différents types de changements. Un changement sémantique qui se déroule parallèlement à un changement de position (adjectif), un changement sémantique joint à un changement de position et à un changement de fonction (adverbe de manière—adverbe de phrase) et

¹² D'autres exemples sont mentionnés par Grevisse (1993: 953) et par la grammaire Larousse (1964: 272-273).

¹³ Wilmet (1997), Grevisse (1993), et Riegel et al. (1994).

¹⁴ Voir à ce sujet Giry-Schneider (1987, 1997).

enfin, un changement sémantique qui est accompagné d'un changement de position et d'un changement de catégorie (adverbe-préposition).

LA PLACE DE L'ADJECTIF - CHANGEMENT DE POSITION

Les changements sémantiques et discursifs des adjectifs, liés aux changements de position, ont déjà fait l'objet d'une énorme littérature (cf. Weinrich, 1966; Reiner, 1968; Waugh, 1977; Forsgren, 1978; Wilmet, 1981, 1993; Borillo, 1988; Larsson, 1994; Nolke, 1996; Giry-Schneider, 1997; Laporte, 1997; Noailly, 1999; *inter alia*). Diverses explications ont été avancées, adoptant des approches très variées. Toutefois, une tentative de dégager les causes de ces changements et la manière dont ils se produisent n'a, à notre connaissance, pas encore été faite. Dans un effort de cerner les divers paramètres qui déterminent la place de l'adjectif, Noailly se demande s'il faut vraiment postuler que les deux positions possibles de l'adjectif épithète sont déterminées au niveau du système et de ce fait, s'obstiner à dégager les règles qui régissent ce système. D'après elle, on pourrait admettre une part d'aléatoire dans la distribution de l'adjectif. Elle présente toutefois deux préalables : la position de l'adjectif est définie par une série de traits qui se réalisent en même temps; la position de l'adjectif dépend non pas de l'adjectif lui-même, elle dépend du contexte phrastique.

Nous suggérons que lorsqu'un adjectif qui est généralement placé dans une certaine position par rapport au substantif commence à osciller et apparaît tantôt comme postposé tantôt comme antéposé, il exprimera dans sa nouvelle position un sens différent de l'ancien. Ce nouveau sens sera imprimé dans la nouvelle position. Etant donné que les changements sémantiques et syntaxiques se déroulent parallèlement, le déplacement de l'adjectif apparaît donc comme un processus de lexicalisation et de grammaticalisation qui a lieu à la fois en synchronie et en diachronie.

Giry-Schneider (1997) et Laporte (1997) estiment qu'un adjectif s'interprète différemment selon le type de nom adjacent. En d'autres termes, ce sont les propriétés lexicales du nom qui déterminent le comportement de l'adjectif. En effet, le nom gouverne au niveau morphologique – l'accord est toujours déterminé par le nom – et souvent, au niveau sémantique également. Le sens attribué à l'adjectif – conversation chaude (vivacité), café chaud (température) – dépend du nom. Or, ceci est valable uniquement pour certains types de noms accompagnés de certains types d'adjectifs.

La distribution des adjectifs peut se résumer ainsi : dans certains cas, le changement de position ne modifie pas sensiblement le sens de la phrase, bien qu'une certaine position soit souvent préférée. Dans d'autres cas, le changement de position rend la phrase agrammaticale, dans d'autres encore, le sens de l'adjectif varie clairement en fonction de sa position. Le premier groupe d'adjectifs est composé des adjectifs qui peuvent se placer avant ou après le nom, sans que la différence sémantique soit perceptible:

- 10) Marie vient de faire un *généreux* geste pour ses enfants.
- 11) Marie vient de faire un geste *généreux* pour ses enfants.
- 12) Luc a écrit une *longue* histoire pour bien décrire ces événements.
- 13) Luc a écrit une histoire *longue* pour bien décrire les événements.

Il n'y a, à première vue, aucune différence sémantique entre les exemples (10) et (11) et (12) et (13). L'adjectif conserve le même sens, qu'il soit à gauche ou à droite du nom¹⁵.

Pour un autre type d'adjectifs, intitulé 'adjectifs de localisation' une seule position est acceptable. Le placement de l'adjectif dans une autre position rendrait la phrase étrange et même parfois agrammaticale. Soit les exemples suivants:

14) Pierre est venu nous voir la semaine *passée* (*la *passée* semaine).

15) Marie suit la file *gauche* de voitures (*la *gauche* file de voitures).

Les adjectifs de (14) et (15) sont obligatoirement placés à droite du nom. Un changement de position serait inacceptable.

Le troisième groupe est constitué des adjectifs qui peuvent se placer à gauche ou à droite du substantif. Le changement de position de l'adjectif va de pair avec un changement de sens. Soit les exemples:

16) Marie est *curieuse* de connaître les résultats de son enquête.

17) Luc est un *curieux* personnage. Il ne fait jamais rien comme les autres.

Dans (16) *curieuse* de connaître signifie 'avide de connaître', 'intéressé à connaître' alors que dans (17) *curieux* exprime 'étrange', 'bizarre', 'singulier'.

Le changement de position modifie, en effet, le sens de la phrase. Il en est de même dans (18) et (19):

18) Max nous a raconté une *sacrée* histoire.

19) Les anciennes tribus survivent grâce aux histoires *sacrées*.

Dans (18) il s'agit d'une histoire 'étonnante', 'inimaginable', 'pleine de verve', dans (19) par contre, il s'agit d'une histoire 'sainte', 'inviolable' 'hiératique'. Là aussi, le changement de position de l'adjectif est accompagné d'un changement de sens.

Parmi les adjectifs appartenant tantôt au premier groupe, tantôt au troisième, il existe un groupe d'adjectifs intensifs tels que: *juste*, *même*, *vrai* etc. Ce groupe permet d'illustrer ce qui a été dit au sujet du comportement de l'adjectif. Dans certains cas, leur sens ne change pas en fonction de la position. Dans d'autres cas, leur sens varie en fonction de la position, l'antéposition entraînant un sens différent de la postposition. Le comportement de ces adjectifs démontre clairement que le processus de changement de position va de pair avec un processus de changement de sens. En outre, ce même comportement dévoile bien que le processus par lequel une certaine signification s'implante dans une certaine position se fait progressivement.

Considérons les exemples suivants:

20) Les employés de cette usine préparent (une *juste* protestation + une protestation *juste*).

21) Marie a écrit (une *réponse juste* + une *juste réponse*).

¹⁵ Notons toutefois que la position préférée peut varier pour chaque adjectif. *Généreux* vient de préférence postposé au substantif alors que *longue* apparaît préférablement antéposé.

- 22) La presse estime qu'il s'agit (*d'une condamnation juste + d'une juste condamnation*).
 23) L'intervention (*d'une amitié vraie + d'une vraie amitié*) entre deux combattants.
 24) (*Les problèmes vrais + les vrais problèmes*) ne sont pas là et le gouvernement ne peut l'ignorer.

Il ressort de ces exemples que, dans certains cas, la position de l'adjectif-intensifieur est libre, bien qu'une certaine position soit plus fréquente que l'autre. Le second type d'adjectifs comporte des exemples où l'adjectif-intensifieur est acceptable en une seule position:

- 25) C'est votre *vraie place* (*c'est votre place *vraie*).
 26) C'est un *vrai choc culturel* (*c'est un choc culturel *vrai*).
 27) Le président de l'association est un *homme juste* et intègre (*un *juste* et *intègre* homme).
 28) Il a vendu cette affaire à un *juste prix* (*?à un *prix juste*).

À côté de ces exemples, on rencontre des cas où les deux positions sont admises avec deux significations distinctes:

- 29) Marie m'a donné un *vrai renseignement* (véritable).
 30) Luc a bien vérifié l'affaire : c'est un *renseignement vrai* (≠ faux).
 31) *La même voiture* vaut ici beaucoup moins.
 32) C'est *la voiture même* que je voulais.
 33) *Une juste mesure* a été appliquée à ce secteur.
 34) *Une mesure juste* a été appliquée à ce secteur.

Dans (29) *un vrai renseignement* signifie une certaine information que l'on peut qualifier de 'renseignement'. Dans (30) en revanche, il est clair que l'on a affaire à un renseignement. Ce renseignement s'avère *vrai*. Il y a donc une différence sémantique entre les deux exemples. Il en est de même dans les exemples (31) et (32). Dans la phrase (32) le locuteur se réfère probablement à une marque de voiture qu'il souhaiterait posséder. Il s'agit d'un référent qui fait partie d'une liste de référents identiques: l'un de ces référents sera choisi par le locuteur. En d'autres termes, le locuteur opte pour une des voitures de ce type, pas nécessairement une voiture particulière. Une lecture qui interprète la voiture comme une voiture spécifique (la voiture de Paul par exemple) est beaucoup moins probable, mais peut se rencontrer dans un certain contexte. Dans (31) par contre, il s'agit d'un emploi de *même* qui se réfère à une voiture spécifique (celle de Paul). Cet emploi de *même* ne présuppose donc pas une classe de référence.

Dixon (1977) et Thomson (1988) exposent l'idée qu'il existe une échelle de propriétés, intitulée "property concepts" (*cf.* mouvement, dimension, âge, valeur etc.). Selon eux, chaque type sémantique est relié à une certaine partie de discours. Comme toutes les langues semblent posséder les catégories Noms et Verbes mais pas toujours celle de l'Adjectif, certains types d'adjectifs apparaîtront plutôt comme «noms» et d'autres plutôt comme «verbes». Il semble que la position pré-nominale puisse être

qualifiée comme [+ verbe] et la position post-nominale comme [+ nom]. On pourrait suggérer que les mots en haut de l'échelle de Dixon seront plus difficilement préposés alors que ceux classés par Dixon en bas de l'échelle seront plus facilement préposés.

Une étude sémantico-historique qui comparerait le parcours suivi par les adjectifs polysémiques confirmerait probablement l'hypothèse selon laquelle la relation position-sens est à la fois du domaine de la grammaticalisation et de la lexicalisation et équivaut à la formation d'une nouvelle unité linguistique. Dans ces cas, on pourrait suggérer que la langue française a recours à la syntaxe, là où d'autres langues ont tendance à utiliser l'accent ou le lexique.

LA PORTÉE DES ADVERBES - CHANGEMENT DE FONCTION

La classe des adverbes comprend des unités de types très différents dont les traits distinctifs sont extrêmement variés (Gross, 1986; Moignet, 1981; Nolke, 1990; Wilmet, 1997). De ce fait, cette classe est l'une des plus difficiles à délimiter. Dans beaucoup de cas, un changement de position dans la place de l'adverbe va de pair avec un changement fonctionnel et un changement sémantique. On pourrait essayer d'analyser ces changements comme découlant l'un de l'autre, ce qui signifierait que l'une des formes serait considérée comme forme de base. Il faudrait alors justifier cette position. On pourrait, par ailleurs, concevoir ces changements comme se déroulant parallèlement à trois niveaux, sans qu'aucun niveau ne soit considéré comme le niveau de base. Soient les exemples suivants¹⁶:

- 35) Max n'arrive pas à distinguer *clairement* les virages de la route.
- 36) Max analyse toujours *clairement* la situation.
- 37) *Clairement*, Max n'y a rien changé.

Dans ces phrases, l'adverbe *clairement* exprime deux sens distincts, respectivement : 'nettement', 'intelligiblement' et 'de façon évidente'. Cette distinction sémantique s'associe à un changement de position et à un changement fonctionnel. Dans (35) et (36), l'adverbe *clairement* fonctionne comme un adverbe de manière qui se réfère respectivement aux verbes 'distinguer' et 'analyser'. Dans (37), il s'agit d'un adverbe de phrase qui désigne l'exacte correspondance entre une idée et un fait, détaché, en tête ou à la fin de la phrase. Contrairement aux exemples (35) et (36), il s'établit ici un rapport entre l'adverbe *clairement* et toute la proposition. Le locuteur émet son point de vue sur les faits exprimés par la proposition. L'adverbe de phrase est qualifié alors de prédicatif désignant un sens subjectif intitulé par Molinier "disjonctif".

Les mêmes traits pertinents sont perçus dans la distribution de l'adverbe *heureusement*. Considérons les phrases:

- 38) Luc est *heureusement* doué par la nature.
- 39) Les notaires ont conclu *heureusement* cette affaire.
- 40) Le roi et la reine vivaient *heureusement*.
- 41) *Heureusement*, la guerre n'aura pas lieu.

¹⁶ Voir aussi Bat-Zeev Shyldkrot (à paraître).

Les exemples (38, 39 et 40) traduisent respectivement le sens de ‘de manière avantageuse ou favorable’, ou celui de ‘dans l’état de bonheur’. Dans ces trois exemples, l’adverbe peut être défini comme un adverbe de manière, de position bien délimitée et de portée restreinte. Dans (41), *heureusement*, adverbe de phrase de nature prédicative, possède des propriétés différentes: il porte sur toute la phrase plutôt que sur le verbe. Sa mobilité est plus grande mais il ne se mettra pas dans la position de l’adverbe de manière.

A l’examen de ces phrases, il est bien clair que la fonction de l’unité (adverbe de manière \neq adverbe de phrase) est liée à sa position, à sa portée et à son sens. Il découle de ces exemples, que la dissociation des changements fonctionnels, catégoriels et sémantiques constitue une entreprise très complexe, voire même impossible à réaliser, et que les changements de position et de fonction constituent ensemble une étape dans le processus d’évolution linguistique, quelle que soit sa nature.

PRÉPOSITION ET ADVERBE - CHANGEMENT DE CATÉGORIE

Le fait que les prépositions et les adverbes présentent des formes apparentées, n’a rien d’étrange et a été reconnu depuis fort longtemps. Cette parenté sémantique et morphologique est l’une des causes de l’incertitude catégorielle que l’on rencontre entre les adverbes et les prépositions. Les unités *contre*, *pour*, *devant*, *derrière*, *depuis*, *après*, *avant*, *autour* de même que *avec* et *selon* peuvent servir d’exemples pour illustrer ce phénomène. Soit les phrases:

- 42) J’ai voté *pour* ce candidat, je ne pourrai pas voter *contre* maintenant.
- 43) Montez *devant* et descendez *derrière* (cité par Melis, 2003).
- 44) Il lui court *après*.
- 45) Combien de pourboire faut-il laisser ici? C’est *selon*.
- 46) Il lui tourne *autour*.
- 47) Comment peux-tu supporter ce long trajet? On fait *avec*.

Les grammaires d’usage, tout comme les dictionnaires de linguistique (*cf.* le *TLF*, Le *Grand Larousse de la Langue française*) mentionnent ce phénomène. Certains y voient un adverbe, d’autres, au contraire, estiment qu’avec ou sans régime, la préposition reste la même unité morphologique. Dans un ancien article, Ruwet (1982) signale que les unités *dessus*, *dessous*, *dedans* étaient utilisées comme prépositions jusqu’au XVII^{ème} siècle¹⁷. Il suggère qu’une grammaire explicite du français ne peut pas se contenter de noter la parenté entre ces diverses expressions. Il s’agit de marquer leur unité en attribuant à ces éléments une rubrique lexicale unique¹⁸. Riegel et al (1998) font remarquer que les grammaires traditionnelles considèrent cet élément comme un élément adverbial homonyme ou variante de la préposition. Ils préfèrent néanmoins une analyse qui voit dans ces constructions des effacements du groupe nominal représenté, où la préposition subsiste telle quelle ou sous une forme modifiée. Dans son ouvrage

¹⁷ Pour une discussion d’autres exemples voir également Ruwet (1982).

¹⁸ Voir aussi Berthonneau (1999).

sur la préposition, Cervoni (1991) cite Melanchton, auteur d'une grammaire latine (1560), qui déclare, déjà à cette époque, que les prépositions sans régime sont des éléments adverbiaux. Cervoni lui-même (1991), de même que Moignet (1981), et plus récemment Wilmet (1997), sont du même avis. Wilmet, qui voit dans l'emploi de la préposition sans régime un adverbe, estime que "l'adverbialisation d'une préposition ou d'une locution prépositive s'effectue selon différents mécanismes . . . effacement du SN subséquent". En revanche, Pottier (1962) s'oppose vigoureusement à cette analyse et considère que la désignation d'un même élément, même quand il change de position dans la phrase, doit être unique. Très récemment Melis (2003) a proposé d'autres critères de distinction selon le type de reconstitution possible du complément : reconstitution à partir du contexte, reconstitution à partir des informations générales que la préposition livre ou à partir des informations lexicales que fournissent la préposition et les termes dont elle dépend. Il reconnaît que l'absence de complément est souvent interprétée comme un processus d'adverbialisation, bien qu'une telle interprétation ne s'impose pas toujours selon lui. Dans une autre optique, certains linguistes (cf. Zribi-Hertz, 1984, *inter alia*) décrivent ce processus comme un effacement ou une ellipse et qualifient ces prépositions comme des prépositions orphelines.

Sans vouloir prendre position dans ce débat fonctionnel, on suggérerait que le sens de la préposition dans la position finale n'est pas le même que son sens quand elle est suivie d'un complément nominal. L'absence de complément permet de reconstituer l'information autour de la préposition de différentes façons, de manière à ce que le sens prête à confusion. Dans l'exemple (45), la réponse *c'est selon* peut s'interpréter de diverses façons : *c'est selon* les circonstances, mais les circonstances elles-mêmes peuvent varier en fonction de la situation, etc. Dans (42) voter *contre*, est en opposition avec voter *pour*. Mais, *contre* peut se référer à *contre* sa position, *contre* cette loi ou même, *contre* ce candidat, alors que *pour*, dans cette même phrase, se réfère explicitement au candidat.

CONCLUSION

Le but de cette étude était de démontrer que la distinction entre les changements syntaxiques et les changements sémantiques est souvent difficile à établir du fait que les frontières entre les deux types de changements sont indissociables. Il en est de même de la distinction entre processus grammaticaux et processus lexicaux. Les trois cas que nous avons présentés ont prouvé que chaque fois qu'un changement sémantique a lieu, il se déroule parallèlement à un changement d'ordre syntaxique. Ainsi, les processus grammaticaux se font conjointement aux processus lexicaux. Par ailleurs, nous avons vu que l'analyse en parties du discours présente des difficultés et que souvent, les grammaires ont du mal à attribuer une définition unique et unanime aux unités grammaticales tout comme les dictionnaires présentent des difficultés à définir un certain nombre d'unités polysémiques et ambivalentes. L'importance accordée aux deux types de changements devrait donc être la même. Une tentative de considérer les changements sémantiques comme secondaires et marginaux et les changements syntaxiques comme essentiels et primordiaux s'avèrerait donc peu convaincante et injustifiée.

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THE HEBREW LANGUAGE IN ISRAEL

2. PARSING FORMS WITH IDENTICAL CONSONANTS: HEBREW REDUPLICATION

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INTRODUCTION

Native speakers' knowledge of the morphology of their language is manifested by their ability to identify structural relations between words and to coin new words on the basis of existing ones. In addition, speakers are able to assign a structure, i.e. to parse a word, without reference to a related word. This capacity is manifested by parsing "orphan" complex words (i.e. complex words that do not have related non-complex counterparts), as well as nonsense words provided in experiments. In this paper, I draw attention to the latter capacity, i.e. the morphological parsing of words without reference to a related word.

The morphological construction under consideration here is reduplication, identified by one or two pairs of identical consonants on the right periphery of the stem (*xagag* 'to celebrate', *ixrer* 'to release', *kilkel* 'to spoil', *klavlav* 'little dog'). Identical consonants can appear also on the left periphery of the stem (cf. *mimen* 'to finance' vs. *minen* 'to apportion'), but only those with identical consonants on the right periphery are considered reduplicated by native speakers. To account for this right-edge preference, I propose surface ranked constraints that allow speakers to parse all and only such forms as reduplicated.

HEBREW REDUPLICATION

In the description of reduplication below I show that the structure of reduplicated forms is limited by the same prosodic and segmental restrictions imposed on

non-reduplicated forms (§1.1). I also claim that limitation of reduplication to the right periphery of the stem is contingent upon the morphology of affixation as well as general constraints on processing (§1.2).

The form and meaning of reduplication

Hebrew words may consist of a bare stem (*gadal* ‘to grow’, *gódel* ‘size’), or a stem plus affixes (*h-igdíl* ‘to enlarge’, *m-igdal* ‘tower’, *migdal-on* ‘little tower’). Structural relations among words are expressed by apophony (i.e. alternation in vocalic pattern, also called ablaut), affixation, and alternation in prosodic structure, where the latter is often accompanied by affixation.

Reduplicated forms, which can be nouns, adjectives, or verbs, are in most cases structurally identical to non-reduplicated ones, in terms of vocalic pattern, prosodic structure, and affixation (cf. *cided* ‘to side with’ vs. *gidel* ‘to raise’, *xalil* ‘flute’ vs. *sakin* ‘knife’, *m-ixlal-a* ‘college’ vs. *m-iṣtar-a* ‘police’). Reduplicated stems, like most non-reduplicated ones, are disyllabic, where a complex syllable margin (consisting of two consonants) is allowed only in word initial position (in nouns). Within these prosodic limitations on the number and structure of syllables, reduplicated forms can have one or two pairs of identical consonants: one pair in the schematic pattern $C_hV(C_i)C_jVC_j$ (*cided* ‘to side with’, *xamcic* ‘sour grass’) and two pairs in the schematic pattern $(C_h)C_iVC_jC_iVC_j$ (*gilgel* ‘to roll’, *vradrad* ‘pinkish’). Three pairs of identical consonants cannot fit into a disyllabic stem due to the impermissible medial complex onset ($*C_hC_iVC_j.C_hC_jVC_j$). Due to space restrictions, I limit the discussion here to forms with one pair of identical consonants (see Bat-El 2002a for an extended discussion).

Studies of Hebrew reduplication, in particular in denominative verbs (Bat-El 1994, Gafos 1989, Ussishkin 2000) suggest that reduplication is triggered by the requirement to form a disyllabic stem (*cad* ‘side’ – *cided* ‘to side with’). However, there are also reduplicated forms whose non-reduplicated counterpart is already disyllabic (*dover* ‘spokesman’ – *divrer* ‘to speak as a spokesman’, *ziṣer* ‘to confirm’ – *ziṣrer* ‘to reconfirm’). Thus, we cannot claim that reduplication is always triggered by prosodic restrictions.

Semantically, many reduplicated forms are associated with a diminutive property for nouns (*daqig* ‘little fish’) and, as argued in Ussishkin (2000), durative/repetitive for verbs (*kidrer* ‘to dribble’). However, we cannot claim that reduplication is triggered by these semantic properties, since there are quite a few reduplicated forms that do not carry these semantic properties (*gal* ‘wave’ – *galil* ‘cylinder’, *ṣakal* ‘to weight’ – *ṣiklel* ‘to consider relative weight’). We may attribute the semantic properties found in quite a few reduplicated forms to what Bolozky (1978) calls “sporadic analogies”. Bolozky gives examples like *himxiz* ‘to make (a novel) into a play’ (derived from *maxaze* ‘play’), which adopts the structure of the semantically related verbs *hisrit* ‘to make/shoot/project a movie’ (from *séret* ‘movie’) and *hilxin* ‘to compose a tune’ (from *laxan* ‘tune’). However, whatever the semantic property shared by these verbs is, it cannot be attributed to the structure, which hosts verbs of a garden variety of semantic

properties. The same is true for the general *-on* suffix, which appears in many different nouns (∫*abat-on* ‘sabbatical’ ∫*avir-on* ‘airplane’, *halix-on* ‘treadmill’), but also in most nouns related to newspaper (∫*it-on* ‘newspaper’, *mekom-on* ‘local newspaper’, ∫*vuʔ-on* ‘weekly newspaper’, *yarx-on* ‘monthly newspaper’). Here again, one cannot claim that the suffix *-on* assigns the meaning ‘disposable reading material’, as it appears in plenty of forms that do not carry this meaning.

I thus claim that reduplication is a strategy of stem formation not necessarily associated with a specific meaning or triggered by prosodic constraints. Its general purpose is to form a different but related word, as is the case with other strategies of templatic word formation in Hebrew (∫*émen* ‘oil’ – ∫*amen* ‘fat’ – ∫*uman* ‘grease’ – ∫*amén-et* ‘cream’).

The right edge preference

Reduplication in Hebrew is restricted to the right periphery of the stem; that is, while *simem* ‘to drug’ is reduplicated, *mimen* ‘to finance’ is not. I suggest that this right edge preference is in part due to affixation, in particular to the distinction between template-internal prefixes and template-external suffixes. Most Hebrew prefixes are internal to the disyllabic template of the stem (*h-igdíl* ‘to enlarge’, *m-igdal* ‘tower’, *γ-igdal* ‘he will grow’), while suffixes are usually external (*higdíl-u* ‘they enlarged’, *migdal-im* ‘towers’, *migdal-on* ‘little tower’).¹

When a vowel initial suffix is added to a CVCVC verb stem, a non-high vowel in the stem final syllable is deleted (*gadal-a* ---> *gadla* ‘she grew’, *gidel-u* ---> *gidlu* ‘they raised’). In nouns and adjectives, only *e* is deleted in this position (*makel-ot* ---> *maklot* ‘sticks’, *xiver-im* ---> *xivrim* ‘pale pl.’). In reduplicated forms with such prosodic structure, the vowel in the stem final syllable is replaced by *e* to rescue a violation of the Obligatory Contour Principle (OCP), which does not allow adjacent identical segments (*garar-a* ---> *garer-a* (**garr-a*) ‘she dragged’). Crucially, the *e* in *garer-a* does not demolish the template of the stem *garar*, as it occupies a position of a stem vowel.

This is, however, not the case when the two identical consonants are on the left periphery. If we take a verb with two identical consonants on the left periphery, like *mimen*, and try to fit it into binyan hiCCiC (as in *h-igdíl*), we would get **h-immin*. To rescue the OCP violation encountered by the two adjacent *m*’s we have to insert an *e*. The epenthetic *e* would demolish the template (**h-inemin*), as it requires a new position not presented in the template of this binyan. The same goes for the formation of a taCCiC (as in *t-almid*) type noun from *mimen* (**t-ammin*, **t-amemin*), or any form with an internal prefix.²

C_iVC_iVC_j stems, i.e. stems with two identical consonants on the left periphery, are thus derivationally limited, and therefore, we do not expect a language with

¹ Some affixes can be both internal and external. For example, the participle *m-*, which is internal in *m-aggdíl* ‘he is enlarging’ and external in *me-gadel* ‘he is raising’, and the agent suffix *-an*, which is internal in *nakda-n* ‘dancer’ and external in *taklit-an* ‘DJ’. See Bolozky and Schwarzwald (1992) for this distinction with respect to the suffix *-ut*.

² I know of only one case where the template is demolished, *xacoora* ‘trumpet’-*xicecer* ‘to play the trumpet’ (cf. *tiffen*). However, *xicecer* has an alternative, more common form, *xicec*.

template-internal prefixes to have reduplication on the left periphery.³ The priority of the prosodic restrictions does not allow the learner to generate left-edge reduplication.

This type of paradigmatic limitation is not restricted to reduplication. For example, the binyan pattern CaCaC, as in *gadal* ‘to grow’, has more verbs in the Hebrew lexicon than any other binyan (Berman 1989), but the binyan pattern CiCeC, as in *gidel* ‘to raise’, is more productive, i.e. it is often selected for denominative verbs (the most common way for creating new verbs in Hebrew). The reason is that many nouns that serve as the base for denominative verbs have four or more consonants, and the future form of CaCaC verbs cannot accept more than three consonants, due to its prosodic alternation in the inflectional paradigm and the prohibition against medial complex onsets.⁴ Thus, the hypothetical verb **maspar* (cf. *gadal*) would not have a future form, since **y-im.spar* (cf. *y-igdal*) has a medial complex onset, and **y-imsepar* has an epenthetic vowel which obscures the template. In CiCeC verbs, there is no prosodic alternation in the inflectional paradigm (*gidel* – *ye-gadel* ‘to raise Past – Future’) and therefore, this pattern can host any type of denominative verbs (as long as the complex onsets and codas do not violate the Sonority Sequencing Generalization or the OCP).

Beyond the language internal explanation, there is also a psycholinguistic reasoning for right edge reduplication. Models of word recognition, such as in Marslen-Wilson (1987) suggest that the lexicon is activated by the first (i.e. the leftmost) one or two segments in the input word (i.e. the word the speaker encounters) and proceeds from there until only one candidate consistent with the input remains. Thus, as suggested in Bat-El (2003), recognition of right-edge reduplicated form $\{C_iVC_jV\}C_j$, where the base (enclosed in $\{\}$) is on the left edge, would be faster than recognition of left-edge reduplicated form $C_i\{VC_iVC_j\}$, where the base is further to the right.

This view is supported by the findings reported in Berman (1990), that children often add a consonant to a derived word in order to arrive at an optimal prosodic structure. The site of the new consonant, whether a copy of an existing consonant or an independent coronal consonant, is usually at the right edge of the word (*kise* ‘chair’ ---> *me-kases*, *me-kaset*, *me-kasen*).

Steriade (1993) and Beckman (1997) argue that some positions in the word, including word initial position (and stressed syllables), are psycholinguistically more salient, and can thus be targeted by the grammar. Such positions, as claimed in Nelson (1998), are the target of affixal reduplication, and therefore, there is preference for left-edge affixal reduplication (or reduplication of stressed syllable), as in Ponapean *duu-duupek* ‘starved Durative’. However, Hebrew reduplication is not affixal but rather prosodic, as the copied material resides within the prosodic template of the stem, which, as claimed in §1.1, is the same prosodic template found in non-reduplicated forms. Nelson (2002) argues, on the basis of Yoruba emphatic ideophones (*rogodo-do* ‘of being very round and small’), that unlike affixal reduplication, prosodic reduplication prefers the right-edge.

³ Indeed, the nominal $C_iVC_iVC_j$ forms are without a prefix (e.g. *nanas* ‘dwarf’), and the verbal $C_iVC_iVC_j$ forms are in a binyan whose prefix is external (*mimen*, *me-mamen*, *ye-mamen* ‘to finance Past, Participle, Future’).

⁴ A medial complex onset is permissible only when it appears throughout the inflectional paradigm (*til.gref*—*ye-.tal.gref* ‘to telegraph Past—Future’).

This proposal is consistent with the psycholinguistic explanation given above for the prosodic right-edge reduplication in Hebrew.

THE *minen* - *mimen* PROBLEM

One of the central issues in the study of Hebrew reduplication (and Semitic in general) has been concerned with the **sasam* - *samam* legacy, according to which identical consonants appear only on the right periphery of the stem, i.e. there are no forms like *sasam* (see Greenberg's 1950 co-occurrence restrictions). McCarthy (1979, 1981) attributes this fact to the OCP, which prohibits adjacent identical root consonants, and thus excludes both {*ssm*} or {*smm*} as possible roots; the only possible root is {*sm*}.

McCarthy assumes a non-linear representation, where distinct segmental morphemes (the consonantal root and the vocalic pattern, as well as affixes) appear on different tiers and associated with a prosodic template. The root consonants are associated with the prosodic template in one-to-one left-to-right fashion. Since there are three consonantal positions in a CVCVC template, but only two consonants in the root {*sm*}, one of the consonants spreads to the third position. Since association begins at the left edge, it is always the rightmost consonant that occupies two positions (the same goes for a CVCCVC template and a triconsonantal root). Under this approach, the language can generate $C_hV(C_i)C_jVC_j$ forms, but not $C_iVC_iVC_j$ and $C_hVC_hC_iVC_j$ forms.

However, Hebrew does have $C_iVC_iVC_j$ and $C_hVC_hC_iVC_j$ forms, such as *sisgen* 'to variegate', as well as *mimen* 'to finance', which minimally contrasts with *minen* 'to apportion', and *mime*∫ 'to materialize' which contrasts with *mi*∫e∫ 'to feel with the hands'. There are not many forms of this type, but we cannot treat them as sporadic exceptions because they can freely enter the language via borrowing. The most recent example, to the best of my knowledge, is the verb *titel* 'to diaper', which has been formed from a brand name for diapers *titulim*, exactly like *mimen* 'to finance' from the Greek loan word *mamon* 'finance' (see Bolozky 1978 and Bat-El 1994 for the formation of verbs from nouns and adjectives).

There is, however, a major difference between $C_iVC_jVC_j$ (*minen*) and $C_iVC_iVC_j$ (*mimen*) forms; $C_iVC_jVC_j$ forms are reduplicated while $C_iVC_iVC_j$ are not. This is supported by fact that there is no form with identical consonants on the left periphery (i.e. $C_iVC_iVC_j$ or $C_hVC_hC_iVC_j$) that has a related form with one occurrence of the consonants (i.e. C_iVC_j or $C_hVC_iVC_j$ respectively). That is, while identical consonants can appear at either edge of the stem, only forms with identical consonants at the right edge are reduplicated. Within McCarthy's (1981) approach, this means that there are roots like {*ssm*} but not like {*smm*}. That is, the consonantal root can violate the OCP, but only at the left edge.⁵

⁵ This problem can be eliminated if we assume that the OCP holds for primary roots only, and that some nouns cannot be decomposed to a root-plus-binyan. Under this assumption, *mamon* does not have a root, and the root of *mimen*, which is derived from *mamon*, is secondary. This solution is, however, local. As lexical items can vanish through history (as happened to the bases of some orphan reduplicated forms), the possible disappearance of *mamon* from the vocabulary of (a future stage of) Hebrew would leave the verb *mimen* with a primary root {*mmn*}.

Notice also that there are forms with identical consonants at the right edge that are derived from bases with identical consonants. For example, *bises* ‘to establish’, like *mimen*, is derived from the Greek loan word *basis* ‘base’. This may suggest that *basis*, and thus *bises*, are not reduplicated. That is, that some $C_iVC_jVC_j$ forms are reduplicated (*cided*, from *cad*) and others are not (*bises* from *basis*). Also, orphan forms with identical consonants (*garar* ‘to tow’) could then be considered non-reduplicated since they do not have a related non-reduplicated counterpart.

I claim that a grammar that allows such structural ambiguity, i.e. that some $C_iVC_jVC_j$ forms are reduplicated and others are not, is unlearnable and unprocessable. Speakers overgeneralize the structure obtained from surface morphological relations to all forms with the relevant identical structure, in this case identical consonants on the right periphery of the stem. Given the vast amount of non-reduplicated—reduplicated pairs in the language, every $C_iV(C_i)C_jVC_j$ is analyzed by speakers as reduplicated. That is, a systematic structural ambiguity (i.e. not a sporadic homophony), without a semantic or syntactic correlation, is unlearnable. Moreover, speakers would not be able to determine whether a form with two identical consonants on the right periphery is reduplicated or non-reduplicated in a morphological parsing task, i.e. without reference to a base. We could posit an abstract underlying representation for the orphan reduplicated forms, but we still have to account for speakers’ ability to identify the morphological structure of nonsense words, for which abstract underlying representation is not available.

The claim that all $C_iVC_jVC_j$ forms are parsed as reduplicated gains support from experimental studies. Berent and Shimron (1997) conducted two experiments, which examined the acceptability of nonsense words with two identical consonants on the left periphery (*siseg*), on the right periphery (*sigeg*), and without identical consonants (*riseg*). One experiment involved relative rating (of triplets), and the other absolute rating (of a random list). In the relative rating, there is a significant preference $riseg > sigeg > siseg$, which suggests that when given the option, non-reduplicated forms are preferred. In the absolute rating, there is no significant difference of acceptability between *sigeg* and *riseg*, but *siseg* is still rated low; $riseg, sigeg > siseg$. The low acceptability of *siseg* reflects the effect of the OCP. The similar rating of *riseg* and *sigeg* (in the absolute rating), and the preference of *sigeg* over *siseg*, suggest that *sigeg* is parsed as a reduplicated form.

Proponents of the similarity-based model of morphology, most popular among psycholinguists, may argue that nonsense and orphan $C_iVC_jVC_j$ forms are parsed as reduplicated in analogous to existing $C_iVC_jVC_j$ forms that have a base. As Hahn and Chater (1998) emphasize, the distinction between similarity-based and rule-based models has been rather intuitive and general. One of the intuitive criteria is that similarity is some function of common properties. Berent et al. (1999), in their study of nominal Hebrew plurals, take distinctive features as the common property for similarity. For example, *vinon* is similar to *vilon* ‘curtain’, as the two differ in the value of one feature in one segment (nasality in *n* vs. *l*); the similarity of *vikon* and *vilon* is less than that of *vilon* and *vinon*, since *vikon* and *vilon* differ in the value of two features in one segment (sonority and place of articulation in *k* vs. *l*); *kixon* is, however, dissimilar from

vilon as the two differ in at least two features in two segments (continuancy and place of articulation in *k* vs. *v* and sonority and place of articulation in *x* vs. *l*). Unfortunately, such a featural basis of similarity cannot tell us whether the nonsense word *sigeḡ* is more similar to *zikek* ‘to purify’ or *sigel* ‘to adjust’, as in the former, there is voicing distinction in three segments (*s* vs. *z* and the two *g*’s vs. the two *k*’s), and in the latter, two features in one segment (place of articulation and sonority in *g* vs. *l*). Similarly, it cannot tell us whether the orphan reduplicated form *salal* ‘to pave’ is more similar to the unreduplicated form *salad* ‘to spring back’ or to the reduplicated form *sarar* ‘to be stubborn’. Moreover, as shown in Berent et al. (2002), speakers interpret nonsense $C_1VC_jVC_j$ forms with non-native segments as reduplicated, without a basis for featural similarity. Berent et al. thus argue that “a complete account of linguistic processing must incorporate mechanisms for generalization outside the representational space of trained items” (p. 113).

In what follows, I propose a mechanism based on ranked constraints, that allows speakers to parse all and only forms with identical consonants on the right periphery as reduplicated; forms with identical consonants in other sites are parsed as non-reduplicated.

SURFACE CONSTRAINTS ON HEBREW REDUPLICATION

The analysis below adopts the spirit (but refrains from the formal aspects) of the framework of Optimality Theory (Prince and Smolensky 1993).⁶ Since Optimality Theory is an output-oriented framework, it is also suitable to account for parsing, where a structure has to be assigned to a surface form. One of the theory’s components is a set of violable constraints, which are ranked on language specific grounds. The constraints often compete with each other in a given form, but as they are violable, the lower-ranked one has to be violated in order for the higher-ranked one to be satisfied. This framework thus allows maintaining a constraint like the OCP in the grammar, despite the presence of forms that violate it. However, in order for the OCP to be violated, it must be ranked below a competing constraint, which forces its violation.

A surface form has two morphological domains, a base and a stem, where the base is nested within the stem, $[\{ \dots \}_{\text{Base}} \dots]_{\text{Stem}}$ (in non-reduplicated stems the base and the stem overlap; $[\{ \dots \}_{\text{Bass}}]_{\text{Stem}}$). Crucially, the copied material must reside outside the base, and the base must consist of all and only base segments (epenthesis ignored).⁷ Thus, $[\{C_1VC_{2c}V\}C_2]$ (where the subscript *c* indicates a copied segment) is not a licit structure since a base segment (C_2) is outside the base. Similarly, $[\{C_1VC_2VC_{2c}\}]$ is not a licit structure since a non-base segment (C_{2c}) is within the base. That is, the domain restriction provides the distinction between the base segments and the copied ones, and determines which of the identical consonants is the copy. I view the domain

⁶ For a more detailed presentation of Optimality Theory see Archangeli and Langendoen (1997), Kager (1999), McCarthy (2002), and articles in Rutgers Optimality Archive (ROA) <<http://rucss.rutgers.edu/roa.html>>.

⁷ As argued in §1.1, there are cases where reduplication cannot be independently motivated by the prosodic or semantic properties. I thus assume that reduplicated forms are lexically associated with the morphological constraint COPY (see Yip 1995, Russel 1995, 1999, Adam and Bat-El 2000, Adam 2002, and Bat-El 2002b for a constraint-based approach to morphology). I ignore COPY, since the issue here is parsing rather than derivation.

restriction as an undominated constraint in Hebrew, and thus never violated (as there is no higher-ranked constraint that can force its violation).

I assume a constraint called SURFACE CORRESPONDENCE BY IDENTITY, which assigns a correspondence relation to any two identical consonants in a stem, i.e. regardless of their position. This constraint is respected when any two identical consonants in a surface form are parsed as a reduplicated pair, such that one of them is a base segment and the other is a copied segment. This constraint thus prohibits identical consonants in a base. The prohibition against identical (not necessarily adjacent) consonants in a base reduces, in a systematic way, the number of possible bases; a language does not need as many contrasting bases as provided by all the possible permutations and repetitions of the consonants. Indeed, the co-occurrence restrictions on the base consonants found in Semitic languages (Greenberg 1950) show that identical consonants across another consonant ($C_iVC_jVC_i$) are also disfavored, though not as much as identical adjacent consonants ($C_iVC_iVC_j$).⁸ Thus, SURFACE CORRESPONDENCE BY IDENTITY does the job of the OCP in earlier analyses (see §2), but it makes a stronger claim since it does not require adjacency. It is compatible with Yip's (1998) definition of the OCP, which states that "output must not contain two identical elements" (p. 221), as well as Everett and Berent's (1997) constraint *IDENTITY, which does not allow two identical consonants in a root.⁹

As claimed earlier, $C_iVC_iVC_j$ forms are not reduplicated, and thus the identical consonants are not in correspondence relation, in violation of SURFACE CORRESPONDENCE BY IDENTITY. Therefore, it is necessary to appeal to a constraint that forces the violation of SURFACE CORRESPONDENCE BY IDENTITY. I propose the constraint SURFACE CORRESPONDENCE BY POSITION, which requires corresponding consonants to appear at the right edge of a domain, i.e. one at the right edge of the stem and the other at the right edge of the base. This constraint, supported by paradigmatic and recognition considerations (§1.2), allows only identical consonants on the right periphery of the stem to be in correspondence relations, i.e. one is the copy of the other.

Reduplicated forms, $C_hV(C_i)C_jVC_j$, respect both constraints. They are parsed as $[\{C_hV(C_i)C_jV\}C_{jC}]$, where one of the corresponding identical segments is at the right edge of the base (marked with $\}$) and the other one, the copy, at the right edge of the stem (marked with $\}$). Vowels are ignored as their position is subject to independent prosodic constraints.

The competition between the two constraints is manifested in forms with identical consonants in other sites. The fact that $C_iVC_iVC_j$ forms are not reduplicated, i.e. that the two identical consonants are base consonants, suggests that the constraint SURFACE CORRESPONDENCE BY POSITION has priority over SURFACE CORRESPONDENCE BY IDENTITY. That is, since $C_iVC_iVC_j$ (*mimen*) cannot be parsed as $[C_{iC}\{VC_iVC_j\}]$ due to SURFACE CORRESPONDENCE BY POSITION (as the identical consonants are at the

⁸ See Pierrhumbert (1993) and Frisch (1996) for a gradient account of consonant cooccurrence restrictions in Arabic, based on degree of similarity and distance.

⁹ The OCP in its original version has to be maintained for local adjacency, i.e. two surface adjacent identical consonants, as Hebrew has forms that violate SURFACE CORRESPONDENCE BY IDENTITY (*mimen*), but not forms that violate the OCP (**himmin*).

left, rather than the right edges of the domains), it must be parsed as $\{[C_iVC_iVC_j]\}$ in violation of SURFACE CORRESPONDENCE BY IDENTITY. The same is true for forms with identical consonants in other sites, for example $C_hVC_iC_hVC_j$ (*safsāl* 'bench'). In the structure $[C_h\{VC_iC_hVC_j\}]$, one of the identical consonants is at the left, rather than the right edge of the stem, and the other is not at either edge. Thus, SURFACE CORRESPONDENCE BY POSITION forces the non-reduplicated parsing $\{[C_hVC_iC_hVC_j]\}$, which violates SURFACE CORRESPONDENCE BY IDENTITY.

SUMMARY

Hebrew speakers can parse forms with identical consonants on the right periphery as reduplicated, as well as forms with identical consonants in other positions as non-reduplicated, without reference to a base form. It was argued that this parsing is not based on similarity to reduplicated forms that have a base (i.e. analogy), but rather on surface constraints; one that requires correspondence between identical segments (SURFACE CORRESPONDENCE BY IDENTITY) and a higher-ranked one that restricts correspondence to the right periphery (SURFACE CORRESPONDENCE BY POSITION). Both constraints are also grounded outside the grammar, i.e. they have a functional motivation. SURFACE CORRESPONDENCE BY IDENTITY systematically reduces the number of bases in the lexicon, and SURFACE CORRESPONDENCE BY POSITION facilitates processing. Given these two ranked constraints, and the theoretical assumption that constraints are ranked and violable under competition, all forms with identical consonants on the right periphery are parsed as reduplicated regardless of their source. One vivid example is the recently coined blend *šiltet* 'to zap', which was formed as a blend from *šalat* 'remote control' plus *šotet* 'to wander around'; speakers who are not aware of this source (and there are quite a few) parse *šiltet* as the reduplicated counterpart of *šalat*.

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3. LINEAR FIRST-TIME DERIVATION OF VERBS AND CONSONANT CLUSTER PRESERVATION IN ISRAELI HEBREW

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Following a rather complex and somewhat controversial reconstruction process, Wexler (1990) claims that “genetically speaking,” Modern Hebrew is in fact not a Semitic language, but rather a Slavic one. One of the pieces of evidence he brings forth for the “latent non-Semitic traits” of the language is the derivation of *xaver* ‘friend’ > *hitxaver* ‘befriended, became friend,’ rather than the expected *hitxaber* (an independent item meaning ‘joined, intr.’). Since by definition, all verb forms are discontinuously derived in a Semitic language, this type of linear derivation, Wexler argues, betrays the underlying non-Semitic nature of Modern Hebrew.

(1) *xaver* ‘friend’ > *hitxaver* ‘befriended, became friend’ (cf. *hitxaber* ‘joined, intr.’)

Nobody would claim, of course, that the actual paradigm is linear. The only question is whether at the point of initial derivation, from a given word to a derived verb (mostly denominative), the innovator actually uses a discontinuous or linear derivation device to generate the verb for the first time.

Schwarzwald (2000) discusses a number of additional verbs, which she claims also result from first-time linear derivation; some of them are quoted in Bolozky (1978, 1999), as evidence for the innovator’s inclination to preserve the source as transparently as possible by maintaining its consonantal clusters (see also Bat-El, 1994):

(2) *flik* ‘blow (N)’ > *hiflik* ‘gave a blow’
špric ‘squirt (N)’ > *hišpric* ‘squirted’

švic ‘sweat; bragging’ > *hišvic* ‘sweated; bragged’
xrop ‘a nap’ > *laxrop* ‘to nap’ (> *xarap* ‘napped’)
bármen ‘barman’ > *lebarmen* ‘to work as barman’
tránsfer ‘transfer (N)’ > *letransfer* ‘to transfer’

Needless to say, with the increased influence of English and the large number of borrowings from it, the number of allowable consonant cluster configurations in Hebrew increases. Schwarzwald also cites a number of other cases where a base without clusters is fully transparent in the derived verb:

- (3) *níjes* ‘a nag’ > *nijes* (or *nijez*) ‘nagged’
díjey ‘DJ’ > *ledaje* ‘to work as DJ’ (instead of the expected **ledajot*)

as well as what appears to be linear derivation in the speech of bilingual Hebrew-English kids:

- (4) put > *laput* ‘to put’
 drop > *lidrop* ‘to drop’
 flush > *laflaš* ‘to flush’

She also shows that there are some instances in earlier stages of the language which appear to constitute linear derivation of verbs from non-verb stems, most of them from the Days of Awe Musaf prayer:

- (5) *šāqēṭ* ‘peaceful’ > *yiššāqēṭ* ‘become peaceful’ (**nišqāṭ*)
šālēw ‘tranquil’ > *yiššālēw* ‘become tranquil’ (**nišlāw*)
ānī ‘poor’ > *yē`ānī* ‘become poor’ (**yē`ānē*, **nē`ēnā*)
šāfēl ‘low’ > *yiššāfēl* ‘become low’ (**nišpal*)

and points out that at least from the base *`ani*, both *hif`il* and *nif`al* forms are attested in Mishnaic Hebrew:

- (6) *`ānī* ‘poor’ > *hē`ēnī* ~ *yē`ānī* ‘became/become poor’ (**hē`ēnā*, **yē`ānē*, **nē`ēnā*)

In some cases, maintaining full transparency of the base while still sticking to the intended *binyan* is achieved by reduplicating the final consonant, as in:

- (7) *faks* ‘facsimile’ > *lefakses* ‘to fax’ > *fiksés* ‘faxed’
flirt ‘a flirt’ > *flirtet* ‘flirted’
kod ‘a code’ > *koded* ‘encoded’
yon ‘ion’ > *yonen* ‘ionized’
šnor ‘schnor (N)’ > *šnorer* ‘schnorred’

Although certain inconsistency is involved, in that some of these verbs are derived via the past stem, whereas others require entry through the infinitive, they can still be seen as first-time linear derivations, which fully preserve the transparency of the base.

To determine the place of linear derivation in the initial verb formation process, one should look at its interaction with other factors involved. Bolozky (1999) claims that the primary motivation for any formation of any neologism is semantic. When the target meaning centers on the patient/theme, the primary choice is still *hitpa`el*, with some inchoatives realized in *nif`al*. When agentive verbs are involved, the primary choice is *pi`el*, with *hif`il* being selected for some *bona fide* causatives. Other factors are transparency of the base, maintained mostly through preservation of its consonant clusters intact in the derived form, and of course constraints on pronounceability. The innovator tries to select the best suited *binyan*, with preference given to the form that reflects the base best, if there is more than one option. In some cases, the similarity between the base and some *binyan* stem is so striking, that it would take preference over the semantic default choice.

The question is, whether one has to **necessarily** assume initial linear derivation to account for such cases, or the other mechanisms involved, which are independently needed, would do the same without requiring that we invoke linear derivation.

We will start with the Wexler illustration. It is impossible to tell from a case like *xaver* ‘friend’ > *hitxaver* ‘befriended’ whether discontinuous or linear derivation is at work. The pattern is *hitCaCeC*, so it could arise either way. That *v* is used instead of the expected *b* is a function of the innovator’s intention to maintain the transparency of the source (see Bolozky 1978, 1999), as well as the independence of *v* from *b* as a separate phoneme, not to mention the need to distinguish the form from homonymous *hitxaber* ‘connected.’ Furthermore, since this is a reciprocal verb, one would expect it to be realized in *hitpa`el* anyway. But it can also be viewed as linear derivation, which maximally maintains the transparency of the source. Similarly, in the case of *flirtet* ‘flirted,’ *lefakses* ‘to fax,’ *koded* ‘encoded,’ etc., the transparency of the source is fully maintained, but the forms would have been realized in *pi`el* anyway, as general agentive verbs. *Flirtet*, for instance, could potentially be realized as **hiflirt* while maintaining the original clusters, but as a non-causative agentive it should be realized in *pi`el* anyway.

Furthermore, straightforward linear derivation cannot actually **replace** the consonant cluster preservation principle. Clearly, for the vast majority of new verbs, assignment to either *pi`el* or to *hif`il* – while preserving the consonant clusters of the base – usually applies to words (with clusters) in which there is no complete identity with the base. The original vowels are ignored; consonant are extracted from the base, then reapplied onto the discontinuous canonical pattern with their original clustering maintained (reduplication may be involved, and “more inflection-like” suffixes may be ignored):

- (8) *tarbut* ‘culture’ > *tirbet* ‘acculturated’
melcar ‘waiter’ > *milcer* ‘served as waiter’
torpédo ‘torpedo (N)’ > *tirped* ‘torpedoed’
sifra ‘digit’ > *sifrer* ‘digitized’
toxnit ‘plan (N)’ > *tixnen* ‘planned’
tízmóret ‘orchestra’ > *tízmer* ‘arranged for orchestra’

maxaze ‘play’ > *himxiz* ‘turned into a play script’
kveč ‘solid matter that has become soft (sl.)’ > *hikvič* ‘made (smoothing) soft (sl.)’
floc ‘fart (N) (sl.)’ > *hiflic* ‘farted (sl.)’
knas ‘a fine’ > *hiknis* ‘fined (sl.)’
tróm(i) ‘pre(fabricated)’ > *hitrim* ‘was ahead (of his time, etc.)’

This is true of hundreds, perhaps thousands, of derived verbs – even recent ones, like the *tróm(i)* > *hitrim* case above, as well as of some **very** recent formations like those used in the hi-tech community (cf. Rosenthal 2002):

- (9) deliver > *ledalver* ‘to deliver’ forward > *lefarverd* ‘to forward’
 test > *letastes* ‘to test’ (also *tost* ‘toast’ > *letastes* ‘to toast?’)
 configure > *lekanfeg* ‘to configure’ (~ *lekanfreg?*)
 compile > *lekampel* ‘to compile’
 filter > *lefalter* ‘to filter’ refresh > *lerafreš* ‘to refresh’

Only a handful (probably only the ones mentioned above) can be claimed to be truly linear.

So the cluster preservation principle is still indispensable. So is the constraint on cluster pronounceability, which would force many long stems into *pi`el* because of its bisyllabic stem, which can accommodate more consonants; the monosyllabic *hif`il* base cannot incorporate as many:

- (10) *tarbut* ‘culture’ > *tirbet* ‘acculturated’ (**hitrbit*)
melcar ‘waiter’ > *milcer* ‘served as waiter’ (**himlcir*)
torpédo ‘torpedo (N)’ > *tirped* ‘torpedoed’ (**hitripid*)
katalog ‘catalogue (N)’ > *kitleg* ‘catalogued’ (**hiktlig*)

Thus, since a cluster preservation principle will be required anyway, and the pronounceability constraint applies universally, can one demonstrate **independent** need for linear derivation?

It appears that the answer is yes, insofar as the interaction of semantic and transparency considerations are concerned. As non-causative agentive verbs, one would have expected forms like *hišpic* ‘squirted,’ *hiflik* ‘gave a blow’ and *hišvic* ‘bragged’ to be realized in *pi`el* (**šiprec*, **filek* and **šivec*, respectively). The fact that the correspondence with *hif`il* is so striking (see Bolozky, 1978, 1999) suggests that the choice of *hif`il* is indeed motivated by transparency considerations, and that linear derivation is a plausible assumption. A similar argument may be made regarding *laxrop* ‘to nap,’ *lamuv* ‘to move,’ *laput* ‘to put,’ *lidrop* ‘to drop,’ since they use *pa`al*, which is hardly productive today. The principle of cluster preservation (to maintain transparency) can account for these derivations, but one also needs to explain why for these forms, semantic selection considerations may be outweighed by the cluster preservation principle functioning as a transparency maintenance device. The “transgression” is limited; one would not

expect, for instance, a causative verb to be realized in *hitpa`el* just because of base-pattern similarity. But attraction of a base to a pattern owing to very close phonological similarity does occur.

Bolozky (1999) accounts for these forms by suggesting that when the similarity between the base and a *binyan* stem is “striking,” the “attraction” of that *binyan* may take precedence over optimal semantically-based pattern assignment. Regarding such cases as linear derivations would simplify the account. One may introduce an additional *binyan* selection principle, which supersedes the semantic one: if a base stem is of a form that is **identical** in structure to an existing canonical *binyan* form, its derived verb will be realized in that *binyan*, e.g., $CC(C)iC$ is realized in *hif`il*, $C(C)iC(C)eC$ or $C(C)aC(C)eC$ in *pi`el*, $CCoC$ or CuC in *pa`al* (through the infinitive), CoC in *pi`el* (final consonant reduplication is required, to yield $CoCeC$).

(11)	Base Pattern	Illustration	Binyan	Verb
	$CC(C)iC$	<i>flik</i> ‘blow (N)’	<i>hif`il</i>	<i>hiflik</i> ‘gave a blow’
		<i>šprie</i> ‘squirt (N)’	<i>hif`il</i>	<i>hišprie</i> ‘squirted’
	$C(C)iC(C)eC/$	<i>flirt</i> ‘flirt (N)’	<i>pi`el</i>	<i>flirtet</i> ‘flirted’
	$C(C)aC(C)eC$	<i>bármén</i> ‘barman’	<i>pi`el</i>	<i>lebarmén</i> ‘work as barman’
	CoC	<i>kod</i> ‘code (N)’	<i>pi`el</i>	<i>koded</i> ‘encoded’
		<i>šnor</i> ‘schnor (N)’	<i>pi`el</i>	<i>šnorér</i> ‘schnorred’
	$CCoC$	<i>xrop</i> ‘a nap’	<i>pa`al</i>	<i>laxrop</i> ‘to nap’
		<i>drop</i> ‘to drop’	<i>pa`al</i>	<i>lidrop</i> ‘to drop’
	CuC	<i>put</i> ‘to put’	<i>pa`al</i>	<i>laput</i> ‘to put’

Regarding this small sub-group of verbs as manifestation of linear derivation will also enable us to incorporate the pre-modern cases (*yē`āi* ‘become poor,’ *yīššālēw* ‘become tranquil,’ etc.) as well as cases where transparency maintenance does not involve any consonant clusters (*nijes* ‘nag,’ *ledaje* ‘work as DJ’), pointed out by Schwarzwald.

So although the cluster preservation principle may account for most new verbs that look like linear derivations, it could nevertheless serve some purpose to incorporate a linear derivation option that interacts with semantically-based choice of a derivation pattern.

Looking more closely at the consonant cluster preservation principle, one should note that its validity may be questioned by derivations such as *blof* ‘bluff (N)’ > *bilef* ‘bluffed,’ as well as (the very early) *truma* ‘contribution’ > *taram* ‘contributed’ – where the (stem-initial) base cluster is **not** preserved:

(12) *blof* ‘bluff (N)’ > *bilef* ‘bluffed’ *truma* ‘contribution’ > *taram* ‘contributed’

Bolozky (1999) also shows that in productivity tests, consonant clusters tend to be preserved, but not always. There are some exceptions involving trilateral roots, e.g.:

- (13) *naxs* ‘bad luck’ > *nixes* ‘caused (one) to be unlucky’ (preferred to *nixses*)
talk ‘talcum powder’ > *tilek* ‘sprayed with talcum powder’ (preferred to *tilkek*)

Actually, by now, *nixes* and *tilek* may have become real words. The former is now apparently an established slang item, and *tilek* is commonly used in the Israeli Army’s medic lexicon (Ben Gelbart, personal communication). Bolozky (2003) suggests that there is probably no escape from assuming that trilateral bases are still going strong, and that the option of reinterpreting a trilateral base as consisting of a traditional trilateral root is always available – though it is not necessarily predictable whether it will be invoked or not. One possibility is that, in spite of *fikses* ‘faxed’ etc., reduplication is not always readily available as a cluster preservation device, particularly not when the option of straightforward trilateral interpretation presents itself. There appear to exist no violations of cluster preservation when the base contains more than three consonants.

It should be noted that whether initial derivation can be linear or not, it will have no direct bearing on determining whether the actual derivation process relies on ‘roots’ as the base for derivation, or on words. First-time derivation of neologisms cannot be attributed to abstract roots – new words can only be generated from existing words (cf. Bolozky, 1999), and the question is whether a process of consonant extraction is involved or not, which will determine whether initial derivation is discontinuous or linear. Even when extraction takes place – with as much cluster preservation as possible – it does not mean that the root necessarily plays a role in the actual derivation. Rather, the root is an “after-the-fact” construct, derived from the speaker’s awareness that related words sharing the same core. It is a perceptual, not a derivational, concept. Even as a conceptual notion, however, the traditional root concept is too abstract and often contradicted by consonant distribution on the surface. What is required is a new definition, according to which the root may be regarded as being composed of “*shorshanim*” (cf. Bolozky 1999, 2003) – consonants or consonant sequences that are never split within the paradigm (only within the verb?). The *shorshan* concept roughly corresponds to the verb pattern slot described in Goldenberg (1994). It is also functionally identical to the principle of consonant cluster preservation of Bat-El (1994) and Bolozky (1978), and may be argued to constitute its automatic corollary, except that it refers to the consonantal slot *per se* rather than to the cluster preservation principle (see comment on *xr-p* > *x-r-p* below). The *shorshan* makes it easier to distinguish the basic structure underlying seemingly complex forms, e.g. *stingref* ‘do stenography’ or *’ibtrtekt* ‘made abstract,’ as extended *pi’el* realizations. Regular *pi’el* forms, for instance, will all have three *shorshanim*, of varying sizes, which dispenses with the need for describing roots that are *meruba’im* ‘quadrilateral,’ *mexumašim* ‘quintilateral,’ etc., and with the arbitrariness of regarding each segment in a fixed consonantal slot as constituting an independent root radical – which for all practical purposes it is not. *hif’il* will only have two *shorshanim* if there are no related verb forms with three. Also note that another reason for the reduced productivity of *pa’al* and *nif’al* is that new verbs formed in them will

not have stable, or optimal, *shorshan* structure when any base cluster is involved: *laxrop* ‘to nap’ captures the *xr-p* *shorshan* structure of the stem, but *xarap* ‘napped’ immediately splits it.

Clearly, a *shorshan* may change, e.g. when *laxrop* ‘to nap’ becomes *xarap* ‘napped,’ the number of *shorshanim* is expanded from two to three. In terms of cluster preservation, a violation has occurred; the *shorshan* slot-concept, however, allows us to refer to the split as *shorhan* restructuring, *xr-p* > *x-r-p*. The same is true of *hiflik* ‘gave a blow,’ once a *filek* variant emerges, turning a *fl-k* two-*shorshan* sequence into *f-l-k*, with three. Apparently, *faks* ‘facsimile’ > *fikeses* ‘faxed’ starts with two *shorshanim*, *f-ks*, and the third is formed through autosegmental spreading to the right (cf., for instance, McCarthy, 1986), which yields *f-ks-s*. Spreading is independently needed to capture relationships such as between *dimem* ‘bled’ and *dam* ‘blood,’ where the second element in *d-m* at the consonantal tier spreads to the right, yielding *d-m-m*, which is mapped onto the *CiCeC* pattern – *dimem*. Similarly, the rightmost component of the *ks* *shorshan* in *f-ks* spreads to the right to yield *f-ks-s*, mapped onto the *CiCeC* pattern – *fikeses* ‘faxed.’ The primary *shorshan* *fl-rt* in *flirt* ‘flirt (N)’ spreads to *fl-rt-t* in *flirtet* ‘flirted.’ In *bilef* ‘bluffed, lied,’ the first *shorshan* of *blof* splits, yielding *b-l-f*, but a derived *bilfef* ‘bluffed, diminutive’ suggests restructuring into *b-lf*, which spreads into *b-lf-f*. If we derive both *galal* ‘roll, tr. (e.g. scroll)’ and *gilgel* ‘roll, tr. (e.g. wheel)’ from a two-*shorshan* *g-l*, then the former will be derived by right-spreading, whereas for the latter we will clearly need to reduplicate both *shorshanim* (cf. also Bat-El, 1989), and apply the result to the *pi`el* pattern. The restructuring yields a *g-lg-l* *shorshan* pattern, since the middle cluster always stays the same. The hi-tech test > *letastes* ‘to test’ mentioned above suggests that the reduplicating mechanism of the *gilgel* type is still available to speakers of Hebrew as a synchronic productive device. The consonant *t*, the least sonorant of all consonants, is very unstable and hardly audible at the end of the word after a fricative, and is thus ignored. A basic *t-st* *shorshan* sequence is restructured into *t-s*, and is finally realized as *t-st-s* in *letastes*. Also note that just as the number of *shorshanim* may be expanded in new verb formation, they may also be contracted, as can be seen from *katalog* ‘catalogue (N)’ > *kitleg* ‘catalogued,’ *maxaze* ‘play’ > *himxiz* ‘converted to a play’ and *xantariš* ‘nonsense’ > *xintreš* ‘spoke nonsense’ (see below). Some support for these derived *shorshanim* formation patterns may be found in child language. Berman (1990) shows that in general, children rely on triconsonantal roots as the least marked and most accessible when they form denominative verbs. Some of their *shorshan*-expansion strategies are not standard adult ones: they may reduplicate consonants in unexpected positions (e.g. *argaz* ‘box’ > *megargez*), or add consonants at the end, with a universal preference for coronals as the least marked consonants, as in *ambatya* ‘bath’ > *meamben*, *sapa* ‘sofa’ > *mesapen*, *pax* ‘trash can’ > *mepaxen*, *kir* ‘wall’ > *mekaret*. But they also use normal grown up formation devices: spreading to the right, as well as reduplication (similarly to *g-l* > *g-l-l* in *galal*, *g-l* > *g-lg-l* in *gilgel*), as in *kise* ‘chair’ > *mekases* or *mekaskes*, *sal* ‘basket’ > *mesalel*, *mesalsel*, *maslil*, *kaf* ‘spoon’ > *mekafef*.

Below are some of the data discussed above, put together in table form:

(14) Shorshanim and Derived shorshanim				Derived
Base	Shorshanim	Form	Derived Form	Shorsh.
<i>tarbut</i> ‘culture’	<i>t-rb-t</i>	<i>tirbet</i> ‘acculturated’	none	
forward	<i>f-rv-rd</i>	<i>lefarverd</i> ‘to forward’	none	
<i>švic</i> ‘bragging’	<i>šv-c</i>	<i>hišvic</i> ‘bragged’	none	
<i>špric</i> ‘squirt (N)’	<i>špr-c</i>	<i>hišpric</i> ‘squirted’	none	
<i>xrop</i> ‘a nap’	<i>xr-p</i>	<i>laxrop</i> ‘to nap’	<i>xarap</i> ‘napped’	<i>x-r-p</i>
<i>flik</i> ‘a blow’	<i>fl-k</i>	<i>hiflik</i> ‘gave a blow’	<i>filek</i>	<i>f-l-k</i>
<i>dam</i> ‘blood’	<i>d-m</i>		<i>dimem</i> ‘bled’	<i>d-m-m</i>
<i>faks</i> ‘facsimile’	<i>f-ks</i>		<i>fikses</i> ‘faxed’	<i>f-ks-s</i>
<i>flirt</i> ‘flirt (N)’	<i>fl-rt</i>		<i>flirtet</i> ‘flirted’	<i>fl-rt-t</i>
<i>blof</i> ‘bluff (N)’	<i>bl-f</i>		<i>bilef</i> ‘bluffed’	<i>b-l-f</i>
			<i>bilfef</i> ‘bluffed’	<i>b-lf > b-lf-f</i>
			(diminutive)’	
	<i>g-l</i>		<i>galal</i> ‘rolled, tr.	<i>g-l-l</i>
			(e.g. scroll)’	
			<i>gilgel</i> ‘rolled (tr.)’	<i>g-lg-l</i>
			(e.g. wheel)’	
<i>test</i> ‘test (N)’	<i>t-st > t-s</i>	<i>tistes</i> ‘tested’		<i>t-st-s</i>
<i>maxaze</i> ‘play’	<i>m-x-z</i>	<i>himxiz</i> ‘converted to a play’		<i>m-x-z</i>
<i>katalog</i> ‘catalog’	<i>k-t-l-g</i>	<i>kitleg</i> ‘catalogued’		<i>k-tl-g</i>
<i>xantariš</i> ‘nonsense’	<i>x-nt-r-š</i>	<i>xintreš</i> ‘spoke nonsense’		<i>x-ntr-š</i>

In this kind of framework, then, one may distinguish between:

- (i) an **historical root**, one which the word may have originally been more directly related to, e.g., *r-b-y* in the case of *tarbut* ‘culture,’ *x.z.y* in the case of *maxaze* ‘play’ – but which is no longer relevant synchronically;
- (ii) a **synchronic root** that reflects the base from which recent verbs have been derived, e.g., *t-rb-t* as today’s root reflecting *tirbet* ‘acculturated (V),’ *meturbat* ‘cultured, acculturated (participle),’ etc.;
- (iii) and a **derived synchronic root**, reflecting subsequent *shorshan* changes in synchronic root structure, as in *fl-k > f-l-k* to reflect *filek* emerging as an alternant to *hiflik* ‘gave a blow,’ or *x-nt-r-š > x-ntr-š* to reflect modification of the structure of the base in creating the verb form – *xantariš* ‘nonsense’ > *xintreš* ‘spoke nonsense.’ In a form like *gilgel* ‘rolled (tr.),’ the root *g.l* may be either historical (since no obvious base for derivation like *dam* ‘blood’ for *dimem* ‘bled’ is involved) or synchronic. It spreads to *g.l.l* for *galal* ‘rolled (paper etc.)’ or – alternatively – is reduplicated, yielding *g.lg.l* for *gilgel* ‘rolled (wheel etc.)’ – both of them synchronic (derived?) roots.

Needless to say, the three types of roots may all be identical in the case of regular, stable roots, but the distinctions suggested are useful for those instances in which we have a clear base for derivation that in itself may have been related to other, earlier

forms, but where the relationship has no synchronic evidence; and for cases in which the consonantal clustering of the base may have undergone recent changes.

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4. MODERN HEBREW CONSONANT CLUSTERS

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INTRODUCTION

Consonant clusters are part of the phonotactic structure of a language. Every language has certain phonetic restrictions on possible combinations of consonants in initial, medial and final position. The restriction on the occurrence of identical consonants in a cluster seems to be universal and was formulated as the Obligatory Contour Principle (OCP) by McCarthy (1981, 1986). This principle prohibits the creation of clusters of identical consonants. Modern Hebrew (MH) is no exception, and it follows the same principle. However, several other generalizations determine the prevention of consonant clusters in word lexemes in either inflected or derived forms. Several factors in MH prohibit consonants from occurring in clusters: historical “gutturals”, cluster position in the word, phonetic features of the consonants, morphological categories, word origin and word register. The paper examines the theoretical relevance of word history to the morphological and phonological processes involved in consonant cluster avoidance in MH.

The first part of the paper will demonstrate OCP conditions, followed by further MH phonetic restrictions on consonant clusters. Lexical, morphophonemic and stylistic limitations will be discussed along the lines of these restrictions, and the final part of the paper will focus on the theoretical issue of the relevance of word history on cluster formation.

IDENTICAL CONSONANT CLUSTERS

The Obligatory Contour Principle (OCP) prohibits the creation of clusters of identical consonants. Whenever two identical consonants would have naturally occurred in MH, either the vowel *e* is inserted between these consonants to prevent the cluster or the consonants are unified in fast speech. In Classical Hebrew unified consonants were assigned a *dagesh forte* that marked geminate consonants (Gesenius, 1910: 55–56). In MH there is a slight emphasis on the unified consonant, which is marked here by the elevated identical consonant.¹

- (1) a. *našxan* ‘biting’ vs. *xašēšan* ~ *xaš^šan* ‘apprehensive person’ (<CaCCan), *ʔamkut* ‘depth’ vs. *ʔanenu* ‘cloudiness’ (<CaCCut), *soxnut* ‘agency’ vs. *konenut* ~ *konⁿut* ‘state of alert’ (<CoCCut)
 b. *katfu* ‘picked/pl’ vs. *kalelu* ~ *kal^lu* ‘included/pl’ (<CaCC-u [*CaCaC-u*]); *dibra* ‘talked/3f’ vs. *dimema* ~ *dim^ma* ‘bled/3f’ (<CiCC-á [*CiCeC-a*])
 c. *hitlabášta* ‘got dressed/2m.sg’ vs. *hitlabáteta* ~ *hitlabát^ta* ‘you/2m.sg couldn’t decide’ (<hitCaCáC-ta)

The examples in (1) show that the identical consonant break can occur within the stem in either its lexical form (1a) or inflected form (1b), as well as across morpheme boundary (1c). McCarthy (1986) explains examples such as *kalelu* and *dimema* in (1b) by an “antigemination” tendency: syncope rules are prohibited from creating clusters of identical consonants (Bolzky, 1997: 293), therefore, the vowel *e* is inserted to prevent the formation of such identical consonant clusters.

According to McCarthy, the OCP does not apply across morpheme boundary, though the examples in (1c) contradict this prohibition. However, when the identical consonant across morpheme boundaries is *n*, there is no break, as in (2).

- (2) *lakáxnu* ‘we took’ vs. *yašanⁿu* ‘we slept’ (<CaCáC-nu), not **yašanenu*; but *šilma* ‘she paid’ vs. *šinena* ~ *šinⁿa* ‘she memorized’ (<CiCC-a, within the stem)

The possible consonants that begin suffixes in MH are *t*, *n* and *x*. The fact that there is no consonant-cluster break in the case of *n* across morpheme boundary means that the sonority of the consonant plays a role in identical consonant clusters.

Moreover, the OCP does not apply to prefixes. When the root starts with *t* in *hitpa’el*, there is no consonant break, but rather consonant unification, as in (3).

- (3) *hitra^xec* ‘bathed’ vs. *hit^tamem* ‘feigned innocence’ (<hitCaCeC), not **hitetamem*

¹ C stands either for a consonantal radical or any consonant. The dash sign (-) marks morpheme boundary. Stress is marked only when not in final position. The sign *x* marks phonemic *ħ* (spelled with *Het*), and *ʔ* marks phonemic ‘ (spelled with *Ayin*); they are marked distinctly from plain *x* and ‘, because they still exist in the pronunciation of many speakers of MH. Angled brackets indicate orthography. Most examples appear in standard noncolloquial register. The forms in parentheses refer to word formation, see Berman (1978: 69–117), Ravid (1990), and Schwarzwald (2001: 21–45).

Other prefixes that end in consonants, like *tat-* ‘under,’ *xad-* ‘one’ which are attached to a word starting with an identical (or homorganic, see below) consonant, do not require a cluster break either, as in (4).

- (4) *tatyami* ‘underwater’ vs. *tat^lzuna* ‘malnutrition’ (<*tat-yami*, *tat-tzuna*), not **tatetzuna*; *xadmini* ‘unisex’ vs. *xad^laⁱ* ~ *xat^laⁱ* ‘unicellular’ (<*xad-mini*, *xad-taⁱ*), not **xadetaⁱ*

The OCP that prevents identical consonants from occurring together can be extended in MH to homorganic consonants that are of the same manner of articulation, as in (5).

- (5) *šxi^lxut* ‘prevalence’ vs. *tedirut* ‘frequency’ (<*CCiC*u*t*); *patáx*t*i* ‘I opened’ vs. *lamádet*i** ~ *lamat^l*i** ‘I learned’ (<*CaCáC-ti*); *štil* ‘plant’ vs. *šezif* ‘plum’ (<*CCiC*); *ška^lim* ‘sockets’ vs. *šesa^lim* ‘slits’ (<*CCaC-im*, singular *šéka^(?)*, *šésa^(?)*)

Note that cluster unification in such cases occurs only when the suffix begins with *t*, as in *lamat^l*i**, and not in the other cases (cf. (1) above. Suffixed *x* will be discussed below along with the gutturals).

The above discussion leads us to the following generalizations regarding consonant clusters:

- I. Identical and homorganic consonants of similar manner of articulation cannot occur consecutively in MH, unless either the vowel *e* is inserted between them or they are unified (according to OCP).
- II. Identical and homorganic consonants across morpheme boundary are broken by the vowel *e* only when the suffix starts with either *t* or *x*.

The corollary of these generalizations is that identical consonant clusters are sensitive to certain morpheme affixes and their location (e.g. *n* in suffixes, *t* or *d* not in prefixes).

GUTTURALS

General

When the first consonant in a cluster is one of the gutturals ’ (phonemic <’> or <’>), *h* or *x* (orthographic <*h*>), the vowel *a* is inserted after the guttural to break the consonant cluster, as in (6).²

- (6) a. *klavim* ‘dogs’ vs. *’avanim* ‘stones,’ *’amakim* ‘valleys,’ *hafxim* ‘opposites,’ *xalakim* ‘parts’ (<*CCaC-im*, *kelev*, *’even*, *’emek*, *héfex*, *xélek* in the singular)
 b. *mizrax* ‘east’ vs. *ma’arav* ‘west’ (<*mVCCaC*); *yisrog* ‘will knit (3sg)’ vs. *yaharog* ‘will kill’ (<*yVCCoC*); *madrix* ‘instructor’ vs. *ma’amin* ‘believer’ (<*maCCiC*)

² Although ’ is pronounced by most speakers as ’, and ’, as well as *h*, is deleted in the speech of many speakers, I represent them here in the examples. Bolozky (1978) and others represent MH without ’ and *h* (and ’ (’ is nonexistent). I, however, am of the opinion that this representation does not reflect the actual pronunciation of MH, nor does it reflect speaker intuitions about the language. Nevertheless, the colloquial forms (coll) are put occasionally in parentheses.

The examples in (6a) occur in initial position, while those in (6b) appear in medial position. The lack of examples with *x* in (6b) is not accidental. Since *x* is either the realization of the spirantization rule³ in Hebrew (where *k* > *x* after a vowel in certain positions) or the phonetic realization of *ħ* (*x*), there is a tendency not to insert a vowel after *x* when it follows a vowel, as in (7).

- (7) *maxtim* ‘stain/sg,’ *maxtim* ‘get a signature/sg’; *maxteš* ‘crater,’ *maxšev* ‘computer’; *mixlala* ‘college,’ *maxma’a* ‘compliment’; *ixsen* ‘accommodated,’ *ixsen* ‘stored’

Only several forms of specific syllabic structures do follow the guttural consonant break word medially with *x*, as in (8), all of them with a final open syllable.

- (8) *mikre* ‘case’ vs. *maxaze* ‘play,’ *maxane* ‘camp,’ *maxase* ‘shelter’ (<*mVCCe*>); *pagra* ‘recess’ vs. *taxana* ‘station; mill,’ *yaxasa* ‘grammatical case,’ *maxala* ‘disease,’ *caxana* ‘stench’ (<*CaCCa*>)

The realization of both <*k*> and <*ħ*> as *x* in MH has further impact on consonant clusters:

1. The occurrence of <*k*> and <*ħ*> consecutively results in dissimilation rather than cluster break as described in section 1 above, as in (9) (see further discussion in section 4 below).

2. Similar to the guttural break presented in (6), *x* originating in <*k*> before another *x* takes the vowel *a* rather than *e* for breaking the cluster in the middle of the word, as in (10).

- (9) *mixxol* > *mikxol* ‘paintbrush,’ not **mixexol*; *hixxid* > *hikxid* ‘destroyed,’ not **hixexid*; *hixxil* > *hikxil* ‘turned blue,’ not **hixexid*; *hixxiš* > *hikxiš* ‘denied,’ not **hixexiš*
- (10) *torxa* ‘your (m.sg) turn’ vs. *moxxaxa* ‘your brain,’ but (*be*)*toxaxa* ‘within you’ (<*CoC-xa*>); *šolxim* ‘send (pl)’ vs. commonly used *šoxaxim* (formal *šoxexim*) ‘forget (pl)’ (<*CoCC-im*>)

The examples in (9) are within the stem, and they paved the way for forms such as *xokxim* ‘fricatives,’ rather than *xoxexim* or **xoxaxim* (*CoCC-im*, from <*ħokk-im*>). The form *moxxaxa* in (10) follows the expected rule of *a* insertion as stated above, and it occurs across word boundary. The vowel *a* is analogously inserted in forms like *betoxaxa* (10), as well as in *betoxaxem* ‘among you (pl)’ (<*betox-xem*>). The result is that dissimilation occurs only within the stem morphemes and not across morpheme boundary, on the one hand, and phonetic *x* assimilates *x* on the other.

Furthermore, contrary to the examples in (6), *x* is the only consonant among the gutturals that may occur word initially in a consonant cluster, as the examples in (11) show. All the words in (11a) are loan words, and their status is special; those in (11b) belong to standard colloquial MH and were formed by the new imperative formation in MH (Bolzoky, 1979, 1997: 294–295).

³ The Spirantization Rule of Classical Hebrew changed the plosives *p*, *b*, *t*, *d*, *k*, *g* into *f*, *v*, *ṭ*, *ḏ*, *x*, *g* after a vowel if not geminated. In MH only *p*, *b*, *k* spirantize into *f*, *v*, *x* in certain morphological categories (Schwarzwald, 1976, 1981).

- (11) a. **xrop** ‘deep sleep’ (from Yiddish *xrâpən* ‘to snore’), **xlor** ‘chlorine,’ **xromozom** ‘chromosome,’ **xyar** ‘old man’ (from Russian)
 b. **xtov** ‘write! (2m.sg)’ (<*ti-xtov*), **xtevi** ‘write! (2f.sg)’ (<*ti-xtevi*) (for normative *ktov*, *kitvi*)

Guttural clusters by-products

A. The discussion above showed that the vowel *a* is inserted for breaking a consonant cluster starting with a guttural. Sometimes vowel insertion involves lowering of the preceding vowel as well, as in 12, and as could be seen above in *maʔarav* ‘west’ and *yaharog* ‘will kill’ in (6b) and in *maxaze* ‘play,’ *maxane* ‘camp,’ *maxase* ‘shelter’ in (8), where V stood for any vowel. The verb forms appear in the third singular form.

- (12) a. *yigmor* ‘will finish’ vs. *yaʔamod* (coll: *yāmod*) ‘will stand,’ *yaharos* (coll: *yāros*) ‘will destroy’ (<*yiCCoC*); *mište* ‘feast’ vs. *maʔase* ‘deed’ (coll: *māse*) (<*miCCe*); *mišmar* ‘guard’ vs. *maʔagar* (coll: *māgar*) ‘reservoir’ (<*miCCaC*)
 b. *hufkad* ‘was deposited’ vs. *hoʔomad* (coll: *ōmad*) ‘was set up’ (<*huCCaC*, *hufʔal*)
 c. *nixnas* ‘entered’ vs. *neʔemad* (coll: *nēmad*) ‘stood up,’ *neheras* (coll: *nēras*) ‘was destroyed’ (<*niCCaC*, *nifʔal*); *hifkid* ‘deposited’ vs. *heʔemid* (coll: *ēmīd*) ‘set up,’ *hehedir* ‘published a new edition,’ *heʔemin* (coll: *ēmīn*) ‘believed’ (<*hiCCiC*, *hifʔil*); *yišmot* ‘will drop’ vs. *yeʔemod* (coll: *yēmōd*) ‘will evaluate’ (<*yiCCoC*)

The unmarked lowered vowel is *a*, as seen in most of the examples above and in (12a) as well. The inserted vowel in the cluster is *o* in the verbal pattern *hufʔal*, as in *hoʔomad* (12b). The inserted vowel in the cluster is *e* in two cases: a. in the verbal patterns *nifʔal* and *hifʔil*, as in *neʔemad*, *neheras*, *heʔemid*, *hehedir* and *heʔemin*; b. in the verbal pattern *paʔal* in the future tense when the first radical is ʔ. However, since ʔ and ʕ (ʔ) are pronounced similarly by many speakers of MH, one often hears *yaʔamod* (coll: *yāmod*) for *yeʔemod* ‘will evaluate,’ *yaʔasof* (coll: *yāsof*) for *yeʔesof* ‘will collect,’ etc.⁴

B. Another fact associated with consonant clusters starting with a guttural relates to the spirantization rule. In spite of the inserted vowel, the consonants *b* and *p* are not spirantized when the original cluster begins with *h* or ʕ (phonemic ʔ; not ʕ), as in (13). The asterisk forms should have been the normative ones, but if they are ever used, the second option is the one chosen, never the spirantized one.

- (13) *mahapexa* (coll: *māpexa*) ‘revolution,’ not **mahafexa* or **mahpexa*
mahabil (coll: *mābil*) ‘steamy,’ not **mahavil* or **mahbil*
maʔabara (coll: *mābara*) ‘Maabarah, transit camp in Israel,’ not **maʔavara* or **maʔbara*
maʔaboret (coll: *māboret*) ‘ferryboat,’ not **maʔavoret* or **maʔboret*
haʔapala (coll: *āpala*) ‘climbing; illegal immigration to Israel,’ not **haʔafala* or **haʔpala*

⁴ In Biblical Hebrew *yehge* ‘will pronounce’ (9 times) is commonly pronounced in MH as either *yehge* or *yahge*. This is an exceptional remnant of a classical form.

Conclusion

Several generalizations can be drawn from the data above regarding consonant clusters starting with historical gutturals in MH:

- III. Standard MH words do not have a consonant cluster word initially beginning with *x* (or *x̣*), *h*, and ' (or ʔ)
- IV. Only loan words and substandard words can have a consonant cluster word initially beginning with *x*.
- V. There are no consonant clusters word medially that start with ' (or ʔ) and *h*.
- VI. The unmarked vowel for breaking a cluster that begins with a guttural is *a*. Other vowels are morphologically determined.

The corollary of these generalizations is that consonant clusters starting with gutturals are sensitive to word origin (loan vs. original), register (standard vs. substandard) and morphological structure.

CLUSTER LOCATION

Initial clusters

Two-consonant clusters are quite common in MH, as in (14):

(14) *gdula* 'greatness,' *psólet* 'waste,' *šlulit* 'puddle,' *štut* 'nonsense,' *kfar* 'village'

Initial consonant clusters do not occur in the following phonemic conditions, in addition to the OCP and gutturals described above (Rosén, 1957: 156–60):

- a. When the first consonant is one of the sonorants *l*, *m*, *n*, *r* and *ɣ*, as in (15a)
- b. When the second consonant is ' (<'> or <' >), or *h*, as in (15b)

(15) a. *šlatim* 'signs' vs. *lekatim* 'collections,' *melaxim* 'kings,' *nešarim* 'eagles,' *remazim* 'hints,' *yeladim* 'children' (CCaC-im, cf. (6a) above)
 b. *brexá* 'pool' vs. *šē'ela* 'question,' *beʔera* 'flame,' *behema* 'animal'

The sonority of the first consonant in the cluster in (15a) and the glottal feature of the second component in (15b) prevent the cluster from occurring. As before, the vowel *e* is unmarked when breaking a consonant cluster.

The remnants of the biblical spirantization rule (mentioned above in section 2) attested in *p-f*, *k-x* and *b-v* alternation in MH prohibit *p* and *b*, but not *k*, from occurring as a second consonant in a cluster. Since *k* is the realization of both historical <*k*> and <*q*>, and the latter never spirantizes, the residues of the rule do not apply to *k-x*. Thus we have *šfaret* 'digits,' *tfila* 'prayer,' *švita* 'strike,' *dvora* 'bee,' and not **sp*, **tp*, **šb*, **db* and the like. Exceptions to the above conditions are signs of loan words or of substandard colloquial Hebrew, as in (16).

- (16) a. *spontáni* ‘spontaneous,’ *špic* ‘pointed tip,’ *zbále* ‘trash,’ *zbeng* ‘pow!’
 b. *špox* ‘throw away/ml’ (standard *šfox*), *šberi* ‘break/ft’ (standard *šivri*).

Words with a three-consonant cluster in the word-initial position are also typical of loan words, as in *špric* ‘sprinkle,’ *sprey* ‘spray.’ Historically, original Hebrew words that due to morphophonemic changes could have been formed by three-consonant cluster word initially, have the vowel *i* inserted after the first consonant in order to break the cluster, as in (17):

- (17) a. *t-ktov* > *tixtov* (*t-* ‘2nd person prefix future tense,’ *ktov*—future stem) ‘you/m.sg will write’
 b. *b-tnu₂a* > *bitnu₂a* (*b-* ‘in,’ *tnu₂a* ‘movement; vowel’) ‘with movement’ (coll: *betnu₂a*~*betnua*)

The verb forms in the future tense in the *pa’al* pattern (17a) exist in all MH registers, though in the imperative, as mentioned above, normative forms such as *šimri* ‘you (2nd f.sg) guard’ are often replaced by nonnormative *šmeri* (cf. (16b)). The former is derived from *šmor-i* > *šmr-i* (through vowel deletion before suffixed stressed vowel) > *šimri*, while the latter is derived directly from *tišmeri* ‘you (2nd f.sg) will guard’ by prefix deletion. As for the future *pa’al* forms, I believe that they are perceived by the speakers as having the underlying vowel *i* in the first syllable and not as consonant clusters with a break.

The forms in (17b) are kept only at high formal registers. The historical prefixes *l-* ‘to,’ *b-* ‘in’ and *k-* ‘as,’ are overridden by the frequent and commonly used forms *le-*, *be-*, and *ke-*, hence the normative cluster break hardly occurs (Schwarzwald, 1984).

The generalizations concerning initial consonant clusters can be formulated as follows (in addition to I, III, IV, and VI):

- VII.** Two-consonant clusters can occur in word-initial position unless either the first consonant is *l*, *m*, *n*, *r* or *γ*, or the second consonant is ’ or *h*.
VIII. Three-consonant clusters in word-initial position occur only in loan words.
IX. *P* or *b* as the second component in initial consonant clusters is typical of either loan words or substandard Hebrew words.

As previously stated, the corollary of these generalizations is that consonant clusters are sensitive either to phonetic conditions or to word origin (loan vs. original) and register (standard vs. substandard).

Medial clusters

Two-consonant clusters are also frequent in medial position in MH, as in (18).

- (18) *malben* ‘rectangle,’ *miškal* ‘weight,’ *hitragšut* ‘excitement,’ *šilton* ‘government,’ *higdil* ‘enlarged/3sg,’ *pirsem* ‘published/3sg,’ *šixpálnu* ‘we duplicated’

Two-consonant clusters are prohibited in the aforementioned OCP and guttural conditions. Three- and four-consonant clusters rarely occur and are typical of loan words. It should be noted that at least one of the consonants in the cluster is a sonorant (*m*, *n*, *r*, *l*) or semi-vowel *ɣ*, as in (19).

- (19) *sandler* ‘shoemaker,’ *ictrubal* ‘cone, acorn,’ *protékcyá* ‘pull, connections,’ *províncya* ‘province, outlying area,’ *pártner* ‘partner,’ *geocéntri* ‘geocentric,’ *maéstro* ‘maestro,’ *transkripcya* ‘transcription,’ *ekstra* ‘extra,’ *biskvit* ‘dry cookie,’ *paskvil*~*paškvil* ‘pasquinade’

The last two examples do not include a sonorant, but they were originally created with the final semi-vowel *w* in the source languages. These are the only examples in MH of three-consonant clusters that do not include a sonorant.

When a three-consonant cluster might occur due to morphophonemic rule that deletes the vowel in the syllable preceding a stressed vocalic suffix, the vowel *e* is inserted after the first two consonants. Compare the following forms in (20a) and (20b):

- (20) a. *nitan-nitná* ‘he-she was given’ (<*nitan-á*), *yikax-yikxu* ‘he-they will take’ (<*yikax-ú*), *yipol-yiplú* ‘he-they will fall’ (<*yipol-ú*), *titen-titni* ‘you/m-f will give’ (<*titen-í*)
 b. *nixnas-nixnesá* ‘he-she entered’ (<*nixnas-á*), *yilmad-yilmedú* ‘he-they will learn’ (*yilmad-ú*), *yixtov-yixteví* ‘he-they will write’ (<*yiktov-ú*), *tefarsem-tefarsemí* ‘you/m-f will publish’ (*tefarsem-í*)

The vowels *a*, *o* and *e* in the verb system are deleted before the stressed suffix in (20a), resulting in the formation of a two-consonant cluster. MH is tolerant of two-consonant clusters as also demonstrated above in (18), but not of three-consonant clusters that are typical of loan words. The insertion of the vowel *e* in (20b) after the first two-consonant cluster attempts to prevent the unacceptable three-consonant cluster. In the case of *tefarsemí*, it seems as though the vowel *e* has been retained, but comparison with other forms like *titní* in (19a) and *tešalmí* ‘you/f.sg will pay’ (<*tešalem-í*) prove that the vowel is reinserted to prevent the consonant cluster. The unmarked vowel for the vowel break is *e*, as in the case of identical or homorganic consonant clusters presented in section 1 above.

The three-consonant cluster break occurs across morpheme boundaries as well, as the examples in (21) show. When the suffix *-xV* ‘your’ is attached to nouns ending with one consonant, a two-consonant cluster is formed, however, when a two-consonant cluster occurs stem finally, the vowel *e* is inserted before the suffix.⁵

- (21) *deʔa-xa* > *daʔatxa* ‘your/m.sg opinion/f,’ *sus + xá* > *susxa* ‘your horse,’ *ben-xem* > *binxem* ‘your/m.pl son’ vs. *dérex-xá* > *dark-xa* > *darkexa* ‘your/m.sg way,’ *tilbóšet-xem* > *tilbošt-xem* > *tilboštexem* ‘your/m.pl uniform’

⁵ Some of the morphophonemic alternations include variations in stems that are beyond the scope of this paper. A full account of the alternations can be found in Schwarzwald (2001: 12–18). See discussion of the segolate forms in Bat-El (1989), Bolozky (1995).

The inflection of *nóxax* ‘in front of’ shows another peculiarity. It is inflected as *noxexi* ‘in front of me’ (<*nox*x*-i*), as expected by generalization II above, however, in *noxexa-noxexem* ‘in front of you/m.sg-pl,’ (rather than **noxexaxa*–**noxexaxem*, from *nox*x*-xa*, *nox*x*-xem*), an entire syllable is deleted. (Cf. the inflection of a parallel noun *córex* ‘need,’ *corki* ‘my need,’ *corkexa*–*corkexem* ‘your/m.sg-pl need,’ as expected.)

Morphological processes of noun formation with *-an* ending pose a problem concerning cluster formation. The ending *-an*, indicating agent or feature, is either a part of *CaCCan* nominal pattern, as in (22a), or a suffix to nouns, as in (22b) (Berman 1981).

- (22) (a) *batlan* ‘sluggard’ ($\sqrt{btl} + CaCCan$), *šadxan* ‘matchmaker’ (< $\sqrt{šdx} + CaCCan$)
 (b) *kartisan* ‘conductor, ticket seller’ (<*kartis* ‘ticket’ +*-an*), *meturgeman* ‘translator’ (<*meturgam* ‘translated’ +*-an*), *čelan* ‘cellist’ (<*čelo*-*an*)

In some cases it is unclear whether the word has been derived by root and pattern or by suffixation, as in (23).

- (23) *yaxfan* ‘barefooted person’ (< $\sqrt{yxf} + CaCCan$ or *yaxef* ‘barefoot’ +*-an*), *kazvan* ‘liar’ ($\sqrt{kzv} + CaCCan$ or *kzav* ‘lie’ +*-an*), *xadšan* ‘innovator’ ($\sqrt{xđš} + CaCCan$ or *xadaš* ‘new’ +*-an*)

In these forms and in many others, the cluster either belongs to the pattern or results from specific morphophonemic rules (Bolzky 1999: 19–33). The phonetic result is $\bullet a \bullet \bullet an$, where \bullet stands for any consonant. However, when the number of the basic consonants is four, the pattern is actually *CaCCCAn*, or the stem is *CaCCVC-an*, where *V* is deleted and consequently a three-consonant cluster should be formed ($\bullet a \bullet \bullet an$). According to the above discussion, a three-consonant cluster word medially is simplified by insertion of *e* after the first two consonants. Nevertheless, this does not follow automatically, as seen in (24). The examples are presented in three groups: (24a) with reduplicate consonants and cluster break; (24b) with four different consonants and cluster break; (24c) with four consonants and no consonant break.

- (24) a. *bazbezan* ‘spendthrift,’ *gangeman* ‘stutterer,’ *gargeran* ‘glutton,’ *kalkelan* ‘economist,’ *nanneman* ‘napper,’ *patpetan* ‘chatterbox,’ *ravrevan* ‘braggart’
 b. *pardesan* ‘citrus grower,’ *karseman* ‘rodent,’ *marpekan* ‘one who elbows people,’ *‘anvetan* ‘modest person,’ *falsefan* ‘philosophizer’
 c. *gandran* ‘dandy,’ *kantran* ‘one who jibes at others,’ *psantran* ‘pianist’

Most of the words in (24a) are root derived, except for *kalkelan*, which can also be explained as deriving from *kalkala* ‘economy.’⁶ Some of the examples in (24b) and (24c) can be explained as noun derivatives (*pardes* ‘citrus grove,’ *marpek* ‘elbow,’ *‘anava* ‘modesty,’ *psanter* ‘piano’); others are pattern derived.

⁶ There are over 20 nouns in this category, all of which have a negative connotation, unlike the other categories.

All the forms in (24c) originating as Greek or Aramaic loans are typified by a similar phonetic structure: nasal (*n*)-palato-alveolar stop (*t*, *d*)-sonorant (*r*). Contrary to the examples presented in (18), where one sonorant was enough to retain a three-consonant cluster, two sonorants occur in (24c). Some of the examples in (24a-b) also include two sonorants (*gamgeman*, *gargeran*, *kalkelan*, *nanneman*, *karseman*). Nevertheless, there is no three-consonant cluster among them, only in (24c). One could argue that the three-consonantal phonetic pattern $\bullet a \bullet \bullet an$ is replaced by four- or five-consonant structure $\bullet a \bullet \bullet e \bullet an$, except for (24c) where $\bullet a \bullet \bullet \bullet an$ is retained. The latter forms cannot be accounted for phonologically and therefore should be lexically marked because of their foreign origin and special consonant cluster.

Hence, the generalization regarding medial consonant clusters can be formulated as follows:

- X.** MH has two-consonant clusters word medially. Should a three-consonant cluster occur, the vowel *e* is inserted after the second consonant.
- XI.** Three- and four-consonant clusters (with a sonorant) occur only in MH loan words.

Once more, it is clear that the phonetic conditions as well as the source of the word determine the structure of consonant clusters.

Final clusters

Two-consonant clusters occur systematically in MH only in the verb inflection of the second person feminine singular in the past tense, as in (25). Other final consonant clusters occur only in loan words, and only when the last consonant is an obstruent, as in (26). There are no consonant clusters that end with a final sonorant, as the examples in (27) show.

- (25) *kataft* 'you/f.sg plucked,' *hišlaxt* 'you threw away,' *hitlabašt* 'you got dressed'
- (26) *neft* 'kerosine,' *bank* 'bank,' *ping-pong* 'ping pong,' *marš* 'march,' *zamiš* 'suede,' *golf* 'golf,' *nerf* 'nerve,' *boks* 'punch,' *moment* 'moment,' *proyekt* 'project,' *tekst* 'text'
- (27) *film* > *filim*~*filem*, Marxism > *marksízim*~*marksízem*, monocle > *monókel*, *jungle* > *džúngel*, *cadre* > *káder*, Yd. *streiml* > *štráymel*~*štréymel*

The last generalizations conclude the conditions for the occurrence of final consonant clusters in MH.

- XII.** Final two-consonant clusters occur in the verb system in one particular inflection (past.2f.sg) and end in *t*.
- XIII.** Final consonant clusters may occur in loan words provided they end in an obstruent.

The corollary of these generalizations is that morphological category (verb and person) as well as word source and phonetic cluster structure must be taken into account regarding consonant clusters.

CONSONANT CLUSTERING

The above examples and discussion showed that two-consonant clusters are common in word-initial and medial position. Three-consonant clusters in these positions, as well as a two-consonant cluster word finally, other than in the verb 2nd/f.sg past tense forms, are typical of loan words. Two more facts need further attention in the formation of consonant clusters: the type of consonants in the cluster and voicing assimilation.

Consonant type

We have discussed above in section 1 cases of identical and homorganic consonants, which are prohibited in clusters. In fact, other consonants cannot occur freely within the cluster either. Greenberg (1950) formulated the restrictions on the occurrence of consonants in the Semitic roots as follows: a. No identical or homorganic consonants can occur as first and second radicals. b. No homorganic consonants can occur as second and third radicals, though identical radicals can occur. c. The restriction on identical or homorganic consonant is somewhat loose in first and third radical. The explanation given for these restrictions was based on the fact that first and second radicals may occur in clusters in the various verb patterns, while the second and third radicals always have a vowel between them, except for geminate roots in which they are unified. Taking Greenberg's conclusions even further, Schwarzwald (1974) showed that these restrictions do not apply only at the root level, but at the word level as well. As seen in section 1 above, there are no identical or homorganic clusters unless either a vowel is inserted or the consonants are unified. Clusters including one sonorant in the cluster are always possible because of their special status among consonants.⁷ However, when two obstruents occur consecutively certain limitations exist depending on the manner of articulation. Two non-homorganic plosives or fricatives can occur freely within a cluster, as the examples in (28) prove. Nonetheless, if two homorganic consonants occur in a cluster, they must differ in manner of articulation. Thus, for example, if two alveolar consonants should occur within a cluster, the first must be a fricative and the second a plosive, as in (29). This is the reason why roots beginning with the alveolar fricative consonants *s*, *z*, *c*, or *ʃ* in *hitpa'el* or in *t-CaCCan* patterns undergo metathesis to fit this restriction, as in (30).

- (28) *ktiv* 'spelling,' *gdula* 'greatness,' *sfira* 'count,' *šxuna* 'neighborhood,' *gvul* 'border,' *macpen* 'compass'
- (29) *stam* 'merely,' *štut* 'nonsense,' *cdafim* 'shells,' *histir* 'hid,' *hicdía* (coll: *idzdía*) 'saluted,' *hisdir* (coll: *izdir*) 'arranged'
- (30) a. *histader* 'settled down' (<*hit-sader*), *hištalev* 'integrated' (<*hit-šalev*), *hizdaken* 'aged' (<*hit-zaken*), *hictalem* 'was photographed' (<*hit-calem*)
 b. *staglan* 'adaptable,' *štadlen* 'lobbyist,' *stapkan* 'doubter' (\sqrt{sgl} , $\sqrt{šdl}$, \sqrt{spk} + *t-CaCCan*)

This same restriction is one of the reasons for the change of *xx* sequences into *kx*, as presented in example (9) above.

⁷ As recalled, three-consonant clusters are found in loan words, and all of them except two include at least one sonorant (see (19) and (24c) above).

The following examples seem to contradict the generalization regarding fricative-plosive order of alveolar consonants. They appear in word-initial position and in all of them the plosive *t* occurs before an alveolar fricative or affricate.

- (31) a. *tzuna* > *cuna* ‘nutrition,’ *tzazit* > *cazit* ‘perturbation,’ *tsisa* > *cisa* ‘fermentation,’ *tcuga* > *cuga*~*tecuga* ‘exhibition,’ *tcura* > *cura*~*tecura* ‘formation,’ *tsümet-lev* > *cümet-lev* ‘attention’
 b. *tšuva* > *čuva* ‘answer,’ *tšuka* > *čuka* ‘lust,’ *tšišut* > *čišut* ‘exhaustion’

Unlike Classical Hebrew, MH has an affricate consonant *c* that is the new realization of the historical emphatic *š* (*Zadi*). This affricate is combination of *t* + *s* that violates the phonetic condition in consonant clusters in Hebrew words. The examples in (31a) are all realized as the single affricate *c* (with an apparent progressive assimilation), whether the second consonant is *s*, *z*, or *c*. The only words in this list that are sometimes pronounced by cluster break are *tecuga* and *tecura*. The last word in (31a) is often erroneously spelled as <*cümet-lev*> with the letter *Zadi* rather than <*tsümet-lev*> with the letters *Tav* and *Sin*, being similar in pronunciation to *cómet* ‘junction.’

MH has four new phonemes that were introduced through loan words: *č* (*t* + *š*), *ž*, *ǰ* (*d* + *ž*), and *w*, as in *čips* ‘french fries,’ *žaket* ‘blazer,’ *ǰip* ‘jeep,’ and *wiski* ‘whisky.’ The first of these consonants (*č*) phonetically violates the restriction presented above.⁸ The examples in (31b) are in fact realized as phonetic *č*, which is permissible due to massive borrowing of loan words into MH.

It appears then that only in word-initial position is the restriction being violated, but it can be explained by the new pronunciation of *Zadi* (*c*) and the absorption of the new loan affricated phoneme *č*. In word-medial position the restriction is kept intact. Therefore, perhaps these forms should be regarded as affricate consonants to begin with rather than word-initial clusters.

Voicing assimilation

Voicing assimilation occurs in clusters containing obstruent consonants, not in clusters with sonorants. The assimilation is regressive, for the first consonant is assimilated to its follower. *Hizdaken* in (30a) is an example of the process which was already formalized in the past and which also appears in Hebrew spelling. Other examples are presented in (32) (and see some of the forms in (29)).

- (32) *pxina*, *mifšan* ‘test’ (orthographic <*bħina*, *mivħan*>, cf. *bašan* ‘tested’), *mizdar* ‘parade’ (orthographic <*misdar*>, cf. *séder* ‘order’), *skena* ‘old/f’ (<*zkena*>, cf. *zaken* ‘old/m’), *xežbon* ‘calculation’ (<*hešbon*>, cf. *xišev* ‘calculated’), *midbax* ‘kitchen’ (<*mitbax*>, cf. *tabax* ‘cook’), *rifka* ‘Rebecca’, *tigva* ‘Tikva’, *tigva* ‘hope’

This assimilation process is the reason for the creation of many homophones, as in (33).

⁸ There are no MH words with possible *dž* sequence, because *dž* is a loan phoneme to begin with.

- (33) *kataft* < *kataf-t* ‘you/f.sg picked,’ *kataw-t* ‘you/f.sg wrote’
txiya < *txiya* ‘revival,’ *dxiya* ‘rejection’
maskir < *maskir* ‘rents,’ *mazkir* ‘secretary’
mafkia < *mafkia* ‘confiscates,’ *mavkia* ‘scores goal’

Barkaï and Horvath (1978) and Bolozky (1978) claim that, as is the case in Polish and Hungarian, voicing assimilation does not occur in MH before *v*. In reality, however, it does occur, as in *tigva* ‘hope’, *gviš* ‘road,’ *gvar* ‘already, yet,’ and not only in fast speech. Bolozky adds that *x* is also not assimilated when first in a cluster, as in *exzir* (*hexzir*) ‘will return’ (not **eyzir*), *exdir* (*hexdir*) ‘penetrated/trans’ (not **eydir*), though the starred forms can occur in fast speech (Bolozky, 1997: 292). Voicing assimilation always begins as a fast speech phenomenon. The more frequent the forms are, the more voicing assimilation is expected to occur. Furthermore, voicing assimilation is more frequent before plosives than before fricatives. This is probably the reason for the aforementioned limitations regarding *v* and *x*.

The phonetic restrictions presented in this section can be formulated by the following generalizations:

- XIV.** Homorganic consonants in clusters must differ in manner of articulation.
XV. Clusters containing only obstruents agree in voicing in fast speech, especially when the second consonant is a plosive.

DISCUSSION

Consonant clusters reflect a portion of the phonotactic structure of a given language, in our case MH. Various factors are involved in their creation and prohibition, as seen when examining the data above. The most significant factor is the number of consonants involved in the cluster and their phonological features; however, other factors intervene and present a complicated picture. The discussion from here on will refer in parentheses to the examples listed above.

The unmarked cluster in MH includes two different simple consonants in word-initial and medial position (7, 9, 11, 14, 20a, 23, 24a–b, 28–30, 32). If the consonants are identical or homorganic, consonant cluster is prohibited according to the OCP, namely, either the vowel *e* is inserted after the first consonant to prevent the cluster, or the consonants are unified (1, 5). If the cluster includes a special guttural consonant as its first component, the vowel *a* is inserted to prevent the cluster (6, 8, 10, 12a, 13). The phonetic feature [+Low] characterizes the gutturals, hence the choice of the low vowel *a* is anticipated.

The type of consonants occurring in the cluster is very significant. The sonorants *l*, *r*, *n*, *m* and the semivowel *y* play an important role in cluster maintenance or breaking in MH. On the one hand, these consonants enable three-consonant clusters to occur in MH loan words (19, 24c), but on the other hand they prohibit the occurrence of clusters starting or ending with them at the beginning or at the end of a word, respectively (15, 27). In both cases the vowel *e* is inserted to prevent the cluster. Clusters including one of the sonorants do not require voicing assimilation either.

The glottal consonants ' and *h* are involved in the insertion of *a* when first in the cluster (6, 12a, 13), and in the insertion of *e* when second in a cluster in word-initial position (15b). The obstruent *x* fluctuates because of its opacity in MH, being the realization of historical guttural *ħ* or spirantized *k* (7, 9, 10, 11). On the one hand, it behaves more like an obstruent than a special [+Low] consonant, both in relation to cluster break and to word-initial position; while on the other hand, it does not undergo voicing assimilation.

Consonant clusters are sensitive to morpheme boundaries. The identical and homorganic restriction applies within morphemes; nonetheless, across morpheme boundaries there are constraints regarding the location of the affixes and their types. In prefixes only consonant unification occurs (3, 4), whereas in suffixes of obstruent type (*-t V*, *-x V*) cluster break occurs (1c, 10, 21), while the suffix starting with *-n V* enforces unification (2), which strengthens the status of this sonorant, in addition to what has been mentioned above.

Some of the restrictions related to consonant clusters involve grammatical categories. Final clusters occur only in the verb system in the past tense of the 2nd feminine singular form where the suffix *-t* is added to any verb form (25). Also, verb patterns and tenses determine the vowels added to break consonant clusters beginning with a guttural (12b-c). The latter restriction is marked, and the forms need special memorization because they are not automatically predicted by the phonological conditions.

The historical spirantization rule can still be seen in normative MH Hebrew. The special status of *x* was mentioned earlier. The alternations between *p~f* and *b~v* are expected in MH words, but they do not necessarily follow suit in clusters. *P* and *b* should have occurred in word-initial position only as first in the cluster, while *f* and *v* as second in the cluster. Contrary to that, in medial position *f* and *v* should occur as first, while *p* and *b* as second, as in *mifne* 'turn,' *harbe* 'many.' However, there are many violations due to loan words and substandard newly formed words (13, 16) on the one hand, and morphophonemic changes that violate the rules, as in *sipru* 'they told' (from *siper-ū*), *katfa* 'she plucked' (from *kataf-ā*) (no **sifru*, **katpa*) on the other.

The description above shows that in addition to expected explainable phonetic circumstances for the occurrence or prohibition of consonant clusters, factors such as morphological categories, morpheme boundaries, word source (loan or original), and register (standard or substandard) exist. Their status in the linguistic theory and their weight in evaluating the description should be taken into consideration.

Natural phonological rules tend to override morphological categories and morpheme boundaries. The substandard forms show that the speakers tend to apply the phonological rules and ignore the morphological categories or the residues of the historical rules, thus simplifying the system. The fact that *k*, *x*, *p*, *f*, *b*, and *v* are independent phonemes in MH helps the spreading of these apparent violations in clusters. These violations support, in turn, the first generalization stated above, namely, that unmarked cluster in MH includes two different simple consonants in word-initial and medial position.

Loan words have a special status in MH, as demonstrated in Schwarzwald (1998), based on phonological, morphophonemic and morphological criteria. There are clear

conditions to identify them as foreign in MH. In the above discussion they demonstrate their exceptional status in MH in three-consonant and final clusters. Rules that apply to Hebrew words do not necessarily apply to loanwords. Therefore, singling out loan features does not violate a general theory of grammar. Nevertheless, the penetration of loan consonants into MH together with the new pronunciation of *Zadi* as an affricate lead to the acceptance of consonant combination in a cluster which had been unacceptable in the past (31).

In conclusion I would like to make a comment from a historical perspective. Historical *Schwa Mobile* is often realized phonetically as *e* in MH which has only five phonemic vowels /i, u, e, o, a/, as opposed to Biblical Hebrew that had seven /i, u, e, o, e, â, a/ and a *Schwa*. According to Medieval grammarians, *Schwa Mobile* was pronounced as a vowel in the following conditions: a. Word initially; b. After a consonant cluster; c. After a long vowel; d. After a geminate consonant; e. Between identical or similar consonants. Since MH has no phonemic vowel length (condition c) and gemination (condition d), these conditions do not necessitate cluster break. Cluster break word initially (condition a) occurs only according to generalizations III (gutturals) and VII (sonorants starting the cluster and glottals in second place). Cluster break after a consonant cluster (condition b) aims at preventing a three-consonant cluster in MH according to generalization X, and finally, the identical or similar consonant condition (condition e) fits the initial generalization I regarding identical and homorganic consonants of similar manner of articulation. The five conditions are not realized as such in MH pronunciation. The change of phonetic and phonemic structure caused the change in the distribution of the clusters in MH. Loan words and substandard forms gradually change the cluster distribution and the changes are still in process.

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5. TRANSCRIBING SPOKEN ISRAELI HEBREW: PRELIMINARY NOTES

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INTRODUCTION: THE CORPUS OF SPOKEN ISRAELI HEBREW (CoSIH)

In this paper I wish to share with my readers some reflections concerning transcribing spoken Israeli Hebrew (IH), reflections which are the outcome of the need to form a set of guidelines for the transcription of The Corpus of Spoken Israeli Hebrew (CoSIH). These guidelines are derived from the goals, size, features and scope of the corpus.

The Corpus of Spoken Israeli Hebrew (CoSIH) will be compiled in order to facilitate research in a range of disciplines concerned with the Hebrew language and with the general methodology of Corpus Linguistics. The corpus will be disseminated in multimedia format and in print. The multimedia format will be disseminated via electronic means including CD-ROM, DVD-ROM and the World Wide Web, and will present the recorded sound simultaneously with its transcriptions and other extensions, all linked together by software.

The size of CoSIH will be 5 million words. It will consist of the following features:

- Digital audiotaped recordings
- Full synchronized transcripts in Hebrew orthography
- Narrow phonetic transcription of selected passages
- Glossing of selected passages
- Translations (into English) of selected passages

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CoSIH is designed to include a representative sample of speakers and situations. It will consist of two complementary corpora: a main corpus and a supplementary corpus.

The main corpus, which will comprise about 90% of the entire collection, will be sampled statistically, representing both demographic and contextual variation. For analytical purposes it will use a conceptual tool in the form of a multidimensional matrix combining demographic and contextual tiers. We suggest three demographic variables: (1) ethnicity/religion, place of origin, and place of birth; (2) age; (3) education.² We suggest three main and two secondary contextual variables. The main contextual variables are: (1) interpersonal relations: intimacy vs. distance; (2) discourse structure: role driven vs. non-structured interaction; (3) discourse topic: personal vs. impersonal. The secondary contextual variables are the number of active participants in the discourse (monologue vs. dialogue) and the means of communication (face to face vs. telephone). The matrix will consist of 900 cells. A cell is the basic sociolinguistic unit of CoSIH. It is a recorded segment designated to include about 5,000 words of coherent continuous text. Each cell may consist of one or more texts produced by one or more speakers classified by the conceptual demographic-contextual matrix.

The supplementary corpus will include about 10% of the collected data, and will add to the statistically-sampled corpus some targeted demographically sampled texts and a contextually designed collection. CoSIH's design is culturally dependent to suit the special structure of the IH speech community and thus includes both native and non-native speakers of IH.

In order to get a more acute representativeness in linguistic data (of both demographic and contextual varieties), we will sample all of the textual data randomly. This will take place after all of the collected recordings from the sampled population are in hand. Each person (randomly) selected for the demographic sample will be asked to make a recording of all his or her activities over a 24 hour period. This span of time will be distributed homogeneously among the informants. Each of these one-day long recordings will be screened to remove long silent periods and long unintelligible speech passages, and from the remaining material, a 5000 words recording segment (between 30 minutes and an hour) will be randomly extracted. This will form the basis for the main, statistically balanced corpus. For a more detailed description of the CoSIH model see Izre'el (Hary and Rahav, 2001).

SPOKEN VS. WRITTEN

In a literate society like ours, where there is a long tradition of reading and writing, as well as a body of linguistic research more than a millennium old, the linguistic models we tend to construe are based on a long tradition of the study of the written medium. This is true not only for Semitic linguistics, for which the study goes back to the Middle

² The sex variable will come out as a result of the random sampling. In any case, the corpus database will enable users to retrieve data according to social and sociolinguistic variables at their will.

Ages, but also for general linguistics. Therefore, the study of the spoken language is almost exclusively based on concepts established for the study of the written language. Likewise, metalanguage leans heavily on the written medium. When we speak about components of the spoken language we always use terminology which sprung from the study of the written medium. We speak (and write) about *letters* instead of about phones or sounds,³ we speak of root letters, functional letters, and so on. We think that we talk in sentences, although the sentence seems not to be a valid unit of the spoken language (see, e.g., Miller & Weinert, 1999: chapter 2).

However, if one takes spoken language as a distinct structural system, disregarding for a moment its relationship with the written medium, one can definitely show that it has a linguistic structure of its own, which is substantially different from the structure of the written language, one that we are so used to see and work with. This is true for every domain of language, in the lexicon and in the grammar, including phonology.

One is accustomed to speak of a phonemic system of a written language, yet a written language has no phones, so that its basic distinguishing components are not phonemes but graphemes, and its graphemic system is only in partial agreement with the phonemic system of the spoken medium. Even if one reads aloud a written text, there is a constant need to transpose the written graphemes into oral phones, and this transposition does not always show a one-to-one correspondence.

The Hebrew script is basically a consonantal one, and vowels are represented only partially and ambiguously. For example, **a** and **e** are never indicated in spelling, and they are either not spelled at all or spelled by a so-called *mater lectionis* (e.g., the letter **ה**, also used for /h/), yet still with no way of telling whether **a** or **e** is to be read. Similarly, the vowels **u** and **o** are indistinguishable even when indicated by the *mater lectionis* **ו**, which, on its part, is also used to indicate consonantal /v/ (for further details see, e.g., Bolozky, 1978: §1.1; Schwarzwald, 2001: §1.1).

The difference between the graphemic system of the written language and the phonological system of the spoken medium can be illustrated for IH in several ways and by several features. For example, written IH has two graphemes, **ב** and **בּ**, which are never distinguished in speech, and must therefore be described as a single phoneme /t/. One other example is the noted pairs of **b-v**, **k-x**, **p-f**. These pairs have a complex way of transmitting them in the written language, as both **b** and **v** are written by **ב**, yet **v** can also be written by **בּ**; **k** and **x** are both written by **כ**, but **k** can also be written by **כּ**, and **x** can be written by **כַּ**; **p** and **f** are both written by **פ**. On the phonemic level, these pairs, although they may alternate systematically in some paradigms (e.g., **navax** “he barked” **jinbax** “he will bark”; Bolozky, 1997: §17.5.4), still show phonemic distinction, as in the minimal pair **hitxabev** “joined” – **hitxavev** “became friends with” (Kutscher, 1982: 248–249; cf. also Schwarzwald, 1981: 24–30).

³ Cf. the following statement, quoted from a study of awareness of the phonological system with laymen: “Speakers of English are able to manipulate phonemes only if they can read. The acquisition of the alphabetic representation of language enables the language knower to transfer this way of representation (i.e. sequences of discrete sublexical elements) to speech. In short, we know about phonemes because we know about letters” (Scholes & Willis, 1991: 220).

VISUALIZATION OF IH SPEECH

Since the spoken medium is acoustic, linear and temporally extended, visual transmission is necessary in order to enable any research, except, perhaps, for such as focused on individual, small units. Even in this latter case, one needs to transmit sound into the visual medium in order to publish the results. The linguist must therefore use a transcript of the spoken text.

Transcript types range from texts written in the standard orthography using accepted punctuation to the narrowest phonetic transcription which may include in addition intonational and other prosodic notation.

Here are examples of four types of transcription:

'maa'keʃeʊ	ma akeʃeʊ	ma hakešer	מה הקשר
'afə xaðlobɔ'baətʃəli	af əxað lo babait ʃəli	af əxad lo babait šeli	אף אחד לא בבית שלי
'əjtəno'teðle'xatamaftəax	aiti noteð lexa tamaftəax	hayiti notenet lexa et hamaftəax	הייתי נותנת לך את המפתח
a'itə'ləx	aita olex	hayita holex	היית הולך

The right hand column represents the standard Hebrew orthography. The left-most column is a narrow phonetic transcription. Next to it comes a semi-narrow transcription, and to its right a rote, intuitive Latin transcription used widely by both professionals and laymen (with some variation, e.g., *š* ~ *sh*, *x* ~ *ch*).

Any type of transcription, including the narrowest one, is based on theory, since there is no way of transforming the infinite range of acoustic features into phonetic symbols. Therefore, any type of transcription must be anchored in a theoretical ground. The theoretical ground depends on research goals (Ochs, 1978; Du Bois, 1991; Edwards, 1993: 3–5; Crowley, 1994: 25; Kennedy, 1998: §2.6.4.2; Blanche-Benveniste, 2000: 63).

As mentioned, the form in which CoSIH will be transcribed must be derived from its goals, size, features and scope. CoSIH is designed to serve many research activities, among them linguistic, sociolinguistic, cultural, educational, and language engineering (see the CoSIH web page <<http://www.tau.ac.il/humanities/semitic/cosih.html>>). In other words, we have tried to create a corpus model that will not be limited in its scope to specific linguistic investigations, but rather to meet with a wide range of linguistic and extra-linguistic interests. Its size, 5 million words, requires some serious limitations as regards project duration, human power and financing, since 5 million words is a large corpus in terms of spoken corpora (Blanche-Benveniste, 2000: 63). The texts will be recorded in natural settings, which means an often noisy environment and many overlaps between speakers, just to mention two of the most conspicuous problems for transcription. Existing corpora of similar size and scope are all transcribed in the standard orthography, and may include some additional notations, primarily of conversational features or intonation (e.g., Svartvik & Quirk, 1980; Du Bois et al., 1992, 1993). From both our experience in the pilot study and from experience of others we note that one needs many dozens of hours to transcribe one hour of a spoken conversation recorded in a natural setting. Given the above, and since CoSIH will present its texts to the user in both sound and transcript, we have decided to have

CoSIH transcribed not in a phonetic transcription of any kind but in the standard orthography.

A broad phonetic transcription is based on a prior phonological analysis and on phonological assumptions. While some phonological studies have been made on spoken IH (e.g., Bolozky, 1997), these were made in previous times, based on only a few varieties of IH, and, most importantly, were not based on data drawn from a large-scale corpus. There is definitely a need for fresh analyses of IH phonology (or, depending on the inclination of the researcher, phonologies). This will require a narrow transcription of the spoken texts. A narrow transcription endeavors to transmit to the written medium as many features of the spoken utterance as possible if the phonological system of the language is unknown, or, if it is known, to transmit allophonic variation (International Phonetic Association, 1999: §5). Offering a phonetic transcription of our own cannot be based, at least at this stage, on research, and, in any case, any future student of phonology or phonetics will often prefer to transcribe the spoken texts for his or her own needs. Since “any phonetic symbol—for vowel, consonant or prosodic feature—can be applied to a range of sound-types” (Wells and House, 1995: 2), the sound of CoSIH’s texts will be available to the end user in digital form. One other point with regard to narrow transcription, especially one that includes in addition intonational and conversational notation, is the constant gap between the need to transmit as many features as possible so that we lose no significant feature and the need to keep some ease in the reading of an overloaded text (Ochs, 1978: 44).

In the case of Hebrew, which is spelled in a script which is not based on the Latin set of characters and goes from right to left, there is still another option, which is a transcription based on native intuitions of phonology, a type of transcription used in several settings and circumstances, as in some email correspondence or telegrams, as well as by some IH linguists (notably in the four IH grammars written in English: Berman, 1978; Rosén, 1977; Glinert, 1989; Schwarzwald, 2001). This option is illustrated in the third column (from the left) of the set of transcriptions above. This solution may be beneficial for scholars who would like to use CoSIH for reference for studies such as comparative corpus linguistics rather than IH, and will also ease handling of the texts in computers, which are more apt to left-to-right English-based script manipulation. However, as much as non-Hebrew linguists form an important sector of users, they are but a fraction of the many users who can manipulate Hebrew. For these users, working with Hebrew characters is much easier than working with transcribed Hebrew. More importantly, I believe we should refrain from using any type of broad transcription, especially one that is based on intuition rather than on a prior analysis of IH phonology, since it may block insights into the phonological structure of the language, by precluding study whether consciously or unconsciously. Transcribing CoSIH in the standard orthography is the most arbitrary transcription available, and thus the least problematic. As mentioned, CoSIH will offer its users selected passages with a (relatively) narrow phonetic transcription of each of its cells, so that some idea of the IH linguistic variation will be available.

Let me illustrate the type of theoretical issues involved in transcription. In the text transcribed above there are three occurrences of the phone [x], two of which

are represented in the standard orthography as ן, one as ן (an allograph for ן at word-end). In some IH ethnolects, these two graphemes are pronounced [ħ] and [x] respectively, and are taken to represent two distinct phonemes (Blanc, 1964; Devens, 1980). Ornan (1974) claims that these two phonemes also exist in standard Israeli Hebrew. There is obviously a theoretical issue involved in the interpretation of the standard pronunciation of these two graphemes, whether it stands for two distinct phonemes or a single one, and scholars differ in their views regarding this subject (for a convenient summary see Waldman, 1989: 238–240). Obviously, any description and any explication of the system is dependent on theoretical background. It may be treated in different linguistic domains, phonological, morphological and morphophonological. Finally, it includes different points of view on language, whether one regards all varieties of IH as reflecting a single phonemic set with demographic variation in production or as two distinct sets, each defined for a distinct linguistic variety. By the same token, contextual varieties may be taken to represent a continuum within a single system, or separate, tangential systems. One last, related question is whether the written and the spoken media are to be represented as a single system or as distinct systems.

Variation

Variation is inherent to language, and IH is not excluded. There is variation dependent on demographic diversity and there is contextual variation. In the speech of a 63 year old woman of Moroccan origin one finds some neutralization of voicing; e.g.,

- (1) **baħa'la u da'jak**
Her husband is a fisherman

The standard IH pronunciation of [da'jak] is [da'jag], which is probably also the phonemic string underlying the speech of the informant in this case, and this is also reflected in the IH orthographic representation: דא'ג. Word-final devoicing is a feature of other ethnolects as well. Another feature manifest in this informant's speech is the existence of the phone ħ, interpretable as phonemic in her speech, as it is in the speech of many IH speakers of Mizrahi ("Oriental") origin, those who came from Arab countries. This feature is not necessarily lost in the speech of their descendents born in Israel (Devens, 1980).

Variation, both demographic and contextual, is manifest in the use of many forms with the pairs b–v, k–x, p–f; e.g., *xiba* ~ *kiba* "turn off (light)"; *bikef* ~ *vikef* "asked for"; *yitpos* ~ *yitfos* "he will catch", and so forth. As is expected, substantial variation is manifest mostly in vowels. Besides individual and environment-dependent variation, there is also morphophonological variation as in the cases of *mekir* ~ *makir* "be acquainted with" (Ravid, 1995: 41, 84, 163–165; Bolozky, 2003: §1.1.2).

One other type of variation is fast-speed reduction. Two notable examples are *ħsax* ~ *ħsavix* – *ħsxa* ~ *ħsvixa* – *ħxim* ~ *ħsvixim* "need (sg m, sg f, pl)" and *ta*+noun ~ *et ha*+noun (accusative-marker+definite-article+noun). As against English, IH has

not established norms for writing such forms in their short variants (except for, perhaps, the latter example, spelled 'ת in representations of speech, mostly in literature). Such reduced forms are easily handled by rules of fast speech (Boložky & Schwarzwald, 1990; Boložky, 2003: §1.2.)

Representing variation—of all types and in all domains—will not allow computer searches to be carried out on the texts without prior tagging. Since the Hebrew script is basically a consonantal one, with only a limited capability to denote vowels, it conceals variation and is therefore much more morphologically transparent than any of the phonetic transcriptions. It thus lends itself much more to easy and intuitive search operations.

On the other hand, using the written norm is contradictory to the wish to detach research of the spoken language from leaning on the written standards. Transcription in the standard orthography, precisely because it represents quite a different system from the spoken language, is not misleading as regards interpretation and analysis of the transcribed form, given that users are well aware of its arbitrariness. Such awareness will enable all users to utilize the transcript for their respective interests, after transcribing themselves the texts in a phonetic transcription that will fit their own research goals. Transcripts in standard orthography are not targeted to deal with phonetic or phonological observations, and can be used by interested phoneticians and phonologists only for quick reference. Still, there are some cases where a phonetic transcription seems to be a necessity, notably where homographs are indistinguishable and can cause ambiguity.

Homographs

Hebrew orthography may use vocalization signs and diacritics which are put either above, inside or under the letters, and may enable disambiguation of homographs (for examples 2–4 below, notice שְׁמָה *še'ma*, שְׁתֵּקִי *še'teki*, כִּבְּסָה *xib'sa* vs. כִּבְּסָה *kib'sa*). However, these vocalization marks and diacritics are inserted between the letter characters by computers and will thus inhibit comparison of letter strings for search operations.⁴ IPA notation external to the respective Hebrew strings is therefore preferable. Examples:⁵

|| בבית בחגים יהיו שהם רוצים שלהם ס: ההורים (2)
 ע: שמה {še'ma}
 ס: שהם יהיו בבית בחגים ||

S: Their parents want that during the holidays they will be home.

O: That what?

S: That they be home during the holidays.

⁴ While the software can be modified to skip such characters while searching, there are still some Hebrew vocalization characters that are inserted instead rather than between existing characters (e.g., ׀, ׀).

⁵ Symbols: | intonation unit boundary with a continuing tone; || intonation unit boundary with a final tone; \ into-
 nation unit boundary with an appeal tone; - truncated word; – truncated intonation unit (cf. Du Bois et al., 1992, 1993).

The letter string שמה can be interpreted either as 'šama “there”, as 'šema “lest” or as še'ma “that what”.

Then shut up.

{šte'ki} או שתקו (3)

The letter string שתק can be interpreted in two ways: normative šit'ki or standard colloquial šte'ki.

She washed it

כיבסה {xib'sa} אותו (4)

The string כיבסה can be read as either kib'sa or xib'sa, depending on the idiolect, and in some cases also on the sociolinguistic context.

Examples 3 and 4 are illustrative of our inclination to draw attention to forms that are not accepted as normative, although some may be standard in colloquial speech.

A special type of homographs are ones where the spoken language shows a radical transmutation of the orthographical norm to the extent of forming a different standard. This is the case, for example, in the string 'bo(ə)na in the following two examples:

Hey,
(the price of) this gas
is tearing me apart
Omer—
a whole lot!

בוא הנה {b'ona} (5)

הדלק הזה

קורע אותי

עומר

חבל על הזמן

Hey,
every other day I—

בוא הנה {boəna} (6)

אני כל יומיים—

In these examples one notices a completely different use and perception of the IPA-transcribed string from the respective standard orthographic string. The latter is to be interpreted as “come here”. In this case, probably exclusive to the spoken medium, 'bo(ə)na serves as a presentation adverb, probably indeclinable, and pronounced rather differently than the pronunciation reflected in the written form ([bo'hena]). When studying this string in the spoken language one will have to look for all its occurrences in the corpus in order to find a definitive answer to its structure, syntax, meaning and pragmatics. CoSIH cannot deal with these issues before being presented to the public, but may find this and other strings worthy of noticing.

Morphological variation is hard to compound by escaping into the standard orthography. Some notable cases are the verbal prefix-conjugation 1st person variants ?~Ø~j, gender variation in numerals, and the common plural forms with final m for normative n for the feminine. These and other such morphological variants will have to be transcribed in their colloquial forms also in the standard orthography, and some lists of variants will be given for the benefit of search operations. Examples: אשיר {a'šir / ?a'šir} ~ ישיר {j'a'šir} “I will sing”, where the latter form is a colloquial innovation; שלוש ימים {šloš ja'mim} ~ שלושה ימים {šloša ja'mim} “three days”, where the first is colloquial and the second normative and more widespread in educated speech; אתם {a'tem} “you (pl c)” ~ אתן {a'ten} “you (plf)” (see below).

DEVIATING STANDARDS AND TRANSCRIPTION

Given the above limitations, a preliminary principle must always be present in the transcriber's mind: the need to represent any spoken string as accurately as possible. While this principle may seem obvious, it is sometimes hard to implement. There are two main difficulties set by the sociolinguistic system on the way to a straightforward implementation of this principle:

- (1) Bridging the structural gap between the written and the spoken;
- (2) Rectifying the tendency to draw from the standards of the idiolect.

The structural gap between the written and the spoken languages can be illustrated by the following example:

What Don't you (2plf) think What are you (2plf) fucked up He got angry	מה (7) אתן לא חושבות מה אתן דפוקות התעצבן ⁶
---	---

This is the first draft of a transcription made by a transcriber with good awareness of the spoken medium. Still, she replaced the spoken standard form of the second person plural pronoun, which is unmarked for gender (traditionally masculine) **אתם**, pronounced **atem** (with a final **m**), with the second person plural pronoun of the feminine, **אתן**/ʔaten/ (with a final **n**), much less used in speech than in writing. This difference between the two media of IH is further enhanced by prescriptive tendencies, still widespread in Israel today (cf. Téné 1996).

Drawing from an idiolect's standard may include imposing lectal standards of the transcriber on his or her perception of the informant's language. This is expected where there are demographic differences between the respective idiolects. Such demographic differences can be of all sorts: ethnic, age, education, sex, and so on. The following example is a text of an elderly, uneducated woman of a low socioeconomic status, of Moroccan origin:

So the woman who is waiting for her to come live with her, the capable woman, the woman who has to come,	אז האישה (8) שהיא מחכה שתבוא לגור איתה האשת חיל האישה שהיא צריכה לבוא
---	--

In the second line the transcriber missed a 3 f sg pronoun between the nominalizer **ש** /ʃe/ and the verb **תבוא** ta'vo "she will come", although a similar construction occurs both immediately before and after: **שהיא מחכה** ʃi:mexʁaka "nom.+she waits"; **שהיא צריכה** ʃi:(ʁ)l'xa "nom.+she needs". Aided by the assimilation of the vowel **e** by the following **i** in the string **ʃi**: (←/ʃe+hi/; cf., with further shortening, **ʃi** in **ʃiʃs**(ʁ)l'xa),

⁶ This example is taken from a draft without prosodic notation.

the omission in writing of the pronoun is possibly caused by the difference in syntactic usage of the two dialects, that of the informant and that of the transcriber, who would not usually use a pronoun here. One may note that in Hebrew the subject is inherently expressed in a verbal form, but not in participles and adjectives. Whereas *tavo* is a verb, *mexa'ka* and *ʔs(ʔ)ixʔa* are not. Therefore, the insertion of a personal pronoun between /ʔe/ and *tavo*, which inherently includes the subject in the morpheme /t/, is less expected (at least in the transcriber's idiolect) than between /ʔe/ and *mexa'ka* or between /ʔe/ and *ʔs(ʔ)ixʔa*.

IMPLICATIONS FOR AN ACCURATE UNDERSTANDING OF LANGUAGE

To conclude my sporadic collection of notes on transcription, I wish to draw attention to one example that illustrates how transcription may bear significant implications for our understanding of the linguistic structure of a text.

But it is obvious that it will- was e – {–e }אה { i: ɛ'æ } אבל זה ברור שזה-י היה (9)

Both the Hebrew transcription and the IPA one draw from the transcriber's interpretation of the string he has heard. According to his interpretation, there is hesitation between the "future" and "past" forms of the verb "to be" here: *-i* (/j/) is the 3 sg m personal prefix of the verb, and *היה* *haja* indicates the past-tense form "he was". The IPA transcription as presented is similarly interpretative in that it shows a space between *i:* and *ɛ'æ*. However, the vocalic segments as heard are not that certain, as they can also be interpreted, at least *prima facie*, as a production of the form /jihje/: including the segment *i:* as part of the verb, and therefore interpreted as future. Given that the actual time of the referred situation is known, each interpretation has significant implications for the study of the Tense-Mood-Aspect system in this lect. Surely, both transcriptions are theory-bound. Apart from those theoretical premises which lie behind the type of transcription, there is the question of whether the string *ɛ'æ* can reflect phonemic /haja/ and whether it can reflect /jihje/. Only a profound linguistic analysis conducted on a full-scale corpus can answer these questions.

CONCLUSION

The way a spoken string recorded for use in a corpus passes from its conception to its being read by the end user is lengthy and full of transmissions. The following is a simplistic representation of it:

message > immediate context > utterance > environmental intermediate (noise) > electronic mediator > hearing > decipherment > transcribing > reading > message

There are further complications in this transmission line, of which the most important one is perhaps the cultural, personal and linguistic background of the informant as well as those of the transcriber and the end user.

As is well known, ambiguity is always on the side of the hearer, almost never on the side of the speaker. Ambiguity results from many reasons, linguistic or extra-linguistic. One example will suffice to illustrate the type of misunderstanding caused by ambiguity and its possible ramifications to linguistic analysis:

a'marti'kax'po'kax'po

This string is interpretable in two ways:

a'mar ti'kax po kax po (10a)

He said: "Turn here, turn here."

a'marti kax po kax po (10b)

I said: "Turn here, turn here."

These two interpretations are possible because the sg m imperative **kax** can be replaced by the 2 sg m "future" form **tikax**, and since the first person of the "past" form adds the morpheme **-ti** to the bare stem, used for the 3 sg m. The first interpretation of the string (10a), submitted to me by a rather experienced transcriber (from a conversation which she herself had participated in!), raises the question whether it is possible for a Hebrew speaker to use both the "future" form and the imperative in such repetitive utterances. The alternative interpretation (10b) suggests a repetition of the same string, which seems more intuitive. Further contextual analysis seems to support the second parsing.

Ambiguity may result from homonymy, linguistic context, speech interaction and linguistic practices (e.g., overlaps), noisy environment, physical dislocation, channel of communication, cultural context, cultural background, personal background, cultural or social gap, and so forth. Moreover, both the transcriber and the end user are removed from the background, the environment and the visual aids which help interlocutors understand each other. When The Corpus of Spoken Israeli Hebrew (CoSIH) will be available, its end users must be urged to always check the spoken medium and take their own stand regarding the offered transcription. Transcription is theory, and theory may be verified or refuted. In any case, it must be tested.

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6. FROM VANITY TO GRACE

A CASE STUDY OF METAPHORICAL FRAME CONTACTS*

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INTRODUCTION

In accordance with M. Johnson's thesis (1987, 1993) "The body in the mind" and Traugott's (1986, 1989), Hooper and Traugott's (1993) and Traugott and Dasher's (2002) findings concerning the directions of meaning evolution, the present diachronic and contrastive study shows hidden contacts between two complex, almost polar, concepts: 'grace' and 'vanity'. In the ongoing debate about the role of the tri-consonant morphological base of Hebrew, the study is supported by Ravid's (1995, 2002) and Berman's (1994, 1995, 1997, 1999, 2002) evidence concerning the conceptual importance of the Hebrew root system. Based also on Fillmore's Frame Semantics theory (Fillmore, 1977, 1982; FrameNet, 2000) the study displays conceptual links between remote concepts belonging to apparently remote semantic domains.

The versatile use of derivatives of the Hebrew root *x.n.n.* across semantic frames leads to the assumption of the existence of a unifying infra-frame underlying and linking these distant, sometimes polar, notions, morphologically related since they are derived from the same tri-consonant root. This is done by tracing the polysemous use of lexemes (such as *xinam* in vain), sorting out meaning relations, metaphors, and the synonymous substitution of words and idioms, and looking for parallel evidence in other languages (grace, gratitude, *gracias*, mercy, *merci* and more). The paper shows

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metaphorical contacts between frames, and points to an infra-frame based on body experience such as 'full' and 'empty', 'existent' and 'absent', 'balance', 'harmony', and 'equilibrium'. This infra-frame is shown to play a role in forming complex conceptual concepts in the realms of social interaction, morality, logic and linguistics.

AIMS

The present study focuses on tracing conceptual relations between concepts through a diachronic study of words stemming from the tri-consonant Hebrew root *x.n.n.* Morphological, semantic and conceptual changes cause morphologically related lexemes to acquire and convey remote, sometimes even opposite meanings: e.g. the adverbials *xinam* and *lexinam* (in vain) and *bexinam* (for free), the nouns *xen* (grace), and *xanina* (pardon, amnesty), and the adjectives *mixonan* (gifted) and *xinani* (graceful). These lexemes belong to remote semantic frames and the fact that they derive from the same root calls for an explanation. In the current debate about the role of the Hebrew tri-consonant root, which I discuss in section B, I follow Shimron (2002), Ravid (1995, 2002), Berman (1994, 1995, 1997, 1999, 2002), and generations of Hebrew linguists both in viewing the root as a crucial feature of the language and in its role in marking meaning relations between lexemes derived from one root. However, some of these relations are invisible to the modern Hebrew speaker.

The paper suggests three steps towards tracing the missing links and displaying the hidden meaning relations. The first is a diachronic survey of the polysemous adverbial *xinam* (in English 'in vain'; hence the morphological connection to 'vanity', also etymologically related to emptiness). The second step points out various other derivatives of the same root *x.n.n.*, showing their diversity in belonging to distant frames. The third step (section F) links these divergences by assuming a hypothetical, schematic line, the line of the NORM. It suggests that *xen* (grace, beauty) with a dropped last radical of the root, *mixonan* (gifted), and *xanina* (pardon, amnesty) are placed above the line, in the realm of voluntary, supererogatory and abundant benevolence which is beyond expectations. The three earlier stages of the evolution of the meaning of *xinam* are shown to be placed under the imagined NORM line, from the perspective of lack of fulfillment, waste and deprivation. The norms vary from one domain to the other but the basic conceptual structure remains steady. The meaning domains of *xinam* are the commercial transaction, the moral domain, and the domain of unsuccessful acts performed 'in vain' (*lexinam*) yielding no desired result. The main argument of the paper is that motivation can be found for the derivation of morphologically related lexemes that seem semantically remote and unrelated. It would lie in assuming the existence of a general infra-frame, namely the frame of NORM, which is here considered to be based on a primary perceptual experience of 'absence' versus 'existence', 'hunger' versus 'satiety', 'wanting', 'lacking' and 'missing', versus 'getting' and 'receiving'. The concept of 'norm' is related to the notions of 'harmony' and 'equilibrium' in various areas of human activity, and explains the motivation for deriving these morphologically related but semantically remote lexemes from the same root.

THEORETICAL BACKGROUND

‘Grace’ and ‘vanity’ do not seem to display any transparent meaning relation. They are by no means basic emotional states but are rather culture dependent (see Wierzbicka, 1995). We tend to predict that a vain person is not capable of showing emotions such as compassion, grace and mercy. However, classical and modern Hebrew link these two notions and some of their cognates by strong morphological ties: the polysemous Hebrew word *xen* ‘grace’ stems from the same tri-consonant root *x.n.n* as does *xinam* ‘(in) vain’. Such a relation calls for further study. Why is the root assumed to be a unifying factor pointing to meaning relations between its derived lexemes? Why, despite this morphological closeness, do some of the derived lexemes seem totally unrelated?

Some new theories consider Hebrew (and other Semitic languages) to be ‘word based’ rather than ‘root based’ (Shimron, 2002). On the other hand there is an ongoing effort to provide linguistic and psycholinguistic evidence for the crucial role the root, together with other structural properties of the Semitic languages, plays in speakers’ understanding of the structure of the language, and for its important status in their mental representations (see Ravid, 1995, 2002). Berman has shown that the morpheme of the root is available even to three-year-old Hebrew speaking children. Generations of Hebrew linguists have based their research on the centrality of the root in the structure of the language and its morpho-semantic role. As Shimron (2002: 5) puts it: “Roots and templates may be easily discerned in word stems for the same reason that eyes, a nose, and a mouth are easily discerned in every normal face because they appear invariantly in various contexts” (sic). He concludes: “Roots can be seen as a common element in the nominal, verbal, adjectival, and adverbial system of Semitic languages, so it seems justified to refer to Semitic Morphology as ‘root based’. Yet [—] there are reasons to view the templates, not the roots, as the more influential factor in determining Semitic morphology.” The notion of the root is further fortified by the method of teaching grammar at school. Although revived in a mostly secular context, and acquiring the status of a natural spoken language where native speakers have automatic reactions and linguistic intuitions, Hebrew has never lost this morphological unity. Side by side with modern morpho-syntactic and lexical developments (see Sovran & Livnat, 1998), it has preserved its morpho-semantic ties with the old written texts mainly by means of the prevailing root system. New lexemes are constantly derived from old stems and templates preserving some degree of semantic relation.

Two other lines of thought guide our research: the ‘usage based model’ (Langacker, 1988; Kemmer & Israel, 1995; Barlow & Kemmer, 2000), as well as the general assumptions and practice proposed by Frame Semantics (Fillmore, 1977, 1982; Fillmore & Atkins, 1992; FrameNet, 2000). These theories suggest that the versatile use of lexemes and idioms (over a long period of changes in language and culture) can help in tracing their underlying basic semantic-cognitive conceptual frames. A frame is defined by Fillmore (1977, 1982, 2000) as a system of concepts related in such a way that to understand any one of them it is necessary to understand the entire system. “In Frame semantics a word is understood with reference to a structured background

of experience, beliefs, or practices, constituting a kind of conceptual prerequisite for understanding the meaning” (Fillmore & Atkins, 1992: 77). Further: “In order to understand the meaning of the words of a language we must first have knowledge of the conceptual structure, or semantic frame, which provides the background and motivation for their use in discourse. It is assumed that an account of the meaning and function of a lexical item can proceed from a description of the underlying semantic frame to a characterization of the manner in which the item in question, through the linguistic structures that are built up around it, selects and highlights aspects or instances of the frame.” (FrameNet, 2000) I also follow Langacker (1988) and Barlow and Kemmer’s (1999) Usage Based Model. They see linguistic competence not as divorced from performance, but rather as a system continually shaped by linguistic usage events. A bottom-up study leads to abstractions from specific instances of the actual use of linguistic units that occur overtly. High level schemas serving as organizing functions are extracted from specific instances. (Langacker, 1998: 133)

Frames are unconscious structures that constitute the speakers’ linguistic abilities and direct their choice between possible expressions. They are abstract general and economical cognitive entities which may be traced by studying the various patterns of use through their morpho-phonological surface ties. The Hebrew language is an interesting candidate for such an endeavor, due to its long and well-documented history through a variety of cultural foci and changing cultural contexts, and its steady commitment to the tri-consonant root system as a strong morpho-phonetic link between various lexemes and sometimes remote meanings. The present diachronic study of polysemous lexemes and roots such as *xinam* and *x.n.n* may provide a contribution to the search for the conceptual links.

Early work on polysemy viewed the phenomenon as the mere results of historical change (Breal, 1964 [1897]). More recent theories have dealt with polysemy as part of a synchronic-diachronic theory, where systematic relations between meanings offer tools in the search for organizing meaning relations in the lexicon. Sweetser (1982, 1986, 1990). L. Traugott (Traugott, 1986, 1989, and also Hopper & Traugott, 1993; Traugott & Dasher, 2002) have argued that polysemy displays a systematic direction of shift, toward grammaticalization and subjectivisation. Traugott (1986) finds historical changes in the meanings of ‘since’, ‘while’, ‘will’ and other lexemes that have shifted from the concrete objective meaning of a noun denoting an external real object to more subjective, sometimes mental or emotional, discourse oriented, grammaticalized uses. The Hebrew root *x.n.n* is polysemous in Biblical as well as Modern Hebrew. Its two main semantic frames are: 1) the frame of grace, goodness, favor, benevolence and giving, especially but not exclusively in moral and religious contexts; and 2) the realm of negative, unfair or unjust treatment, and fruitless, futile, senseless efforts and deeds, expressed in the adverbials *xinam* and *le-xinam* and their close cognates *la-shav* and *la-rik* (literally: in vain, in emptiness) .

A RIDDLE – ONE ROOT FOR UNRELATED NOTIONS

In Modern Hebrew when convicted persons ask for pardon they will ask for *xanina*. The person who grants the pardon or amnesty will *yaxon oto* (future tense of the verb

with a slight expected morpho-phonetic deletion, a tendency to omit the second of two identical consonants). A *yeled mexonan* is a gifted child (an adjective derived from a participle form). The meaning of blessing and giving prevails in the old context: God is *xanun veraxum* ‘gracious and merciful’. He is the source of many kinds of bliss such as: *shalom* ‘peace’; *tova* ‘benevolence’; *braxa* ‘blessing’; *xen* ‘grace’, ‘favour’, *xesed* ‘kindness’, and *raxamim* ‘mercy’. The righteous person is supposed to follow the example set by the Lord in Psalm 37:21: “The wicked borroweth, and payeth not again: but the righteous sheweth mercy and giveth.” The *zadik*, ‘person of virtue’, *xonen* i.e. ‘shows grace and mercy’ *ve-noten* ‘and gives’. For our purpose the close juxtaposition of *xonen* ‘shows mercy and grace’ and *noten* ‘gives’, the common everyday verb still used in modern Hebrew, is important. The association with giving is also evident in the next quotation: “The children which God has graciously given (*xanan*) thy servant” (Genesis 33; 5). The noun *xen* is already polysemous in the Bible. Its basic meaning component has to do with positive qualities of beauty, adornment, and also precious gems. It occurs about forty times in the semi-idiomatic biblical syntagma: *moze-xen* ‘find favor’ which is still commonly used in every day Modern Hebrew for ‘like’, literally: ‘find favor’, and parallel to the English idiom ‘find favor’, like, prefer. “*Hasimla shelax* ‘your dress’ *mozet* ‘finds’ *xen* ‘favor’ *be’enay* ‘in my eyes’ means “I like your dress”.

The positive meaning component of grace, favor, liking, blessing, charity and benevolence prevails in old as well as Modern Hebrew. Yet the same root *x.n.n* is the base of the adverb *xinam* ‘in vain’. The suffix –am is an old Semitic *tamyim*, an ‘adverbial suffix’, that turns nouns such as *yom* ‘day’ into *yomam* ‘during the day’ or *rek* ‘empty’ into *rekam* ‘empty handed’.¹ The English and French parallels of *xinam* ‘in vain’ ‘*en vain*’, are etymologically related to the Latin *vanum* and *vanus* ‘emptiness’ and ‘empty’. These are also related to ‘vanity’ and ‘vanish’. This association is the core of our question: why does Hebrew, old and new, make strong morphological and etymological ties between the positive aesthetic and moral notions of favor, beauty, bliss, grace, and benevolence, and vanity, vain and vanishing, fruitlessness, futility and falsity?

THREE FRAMES OF XINAM (IN VAIN)

The commercial transaction frame and the concept of reward

The Hebrew collocation *xinam ein kasef* means literally: ‘for free, no money’. The adverb *xinam* meaning ‘gratis’, ‘gratuitously’, ‘for nothing’ occurs several times in the Old Testament in the context of failing to give money in return for services or goods. Here are two typical examples: Laban says (perhaps in a hypocritically priggish tone) to his nephew Jacob (Genesis 29:15):

¹ The old Semitic *am* suffix was later further affixed by adverbial prefixes such as *le* ‘for’ in *le-xinam* and even a rare *al* in *al-xinam* ‘on’, ‘about’. These developments have to do with the phenomenon that old forms lose their expressive power and call for new affixations which also hint at a shift to another frame, namely that of awareness that cause-and-effect relations actually occur in the world, and the common belief that actions have expected results and reasons. Note especially the prefix ‘*al*’ about. For Ugaritic forms of this affixation. cf. Sivan (1997).

- 1) Because thou art my brother, shouldest thou therefore serve me for nought (*xinam*)? tell me what shall thy wages be?

Regulations and conditions for freeing a slave-mistress are specified in Exodus (21:10–11):

- 2) And if he do not these three unto her (food, raiment and duty of marriage), then she shall go out free (*xinam*) without money.

Medieval Bible commentators made an impressive attempt to relate this very notion of free gifts, *matnot xinam*, to the notion of *xen*, grace and favor, saying that you get the gifts or the goods (or services) because of your being full of grace or favored, not because you deserved them by any right. You are not supposed to get something – yet by some act of grace somebody gives you gifts or services for free because of your sheer charm and grace (Kimchi, 1586). The motivation for such explanations is fairly clear. The unity of the Hebrew root system (cf. Bolozky, 1995; Ephrat, 2000) calls for an attempt to bridge the domains. It is not too difficult to provide such a unified explanation in this context of free gifts: if you work for nothing (*xinam*) it is as if you give your employer a gift. Although such an explanation can be given in the context of the commercial transaction frame, it raises some questions: First, what is the source of the presumed negative complaint associated with not getting paid? Second, and more important, *xinam* in other contexts does not lend itself so easily to the ‘favorable’ explanation.

Most of the biblical references in this frame are in negative contexts, they lack any connection to charm, favor, grace or free gifts. In several quotations *xinam* is related to evils such as hatred, persecution, and killing. One could say, as some scholars do, that we see here a separate unrelated development of meanings, But I believe that a unified conceptual explanation, supported by other evidence from parallel developments in other frames and in other languages makes such non-explanations look arbitrary and inadequate. Further polysemous shifts in the meaning of *xinam* are shown below to be well motivated.

The moral requital frame

Examining the moral contexts of *xinam* brings us closer to the realm of affections and emotions. Again I will quote only a few out of many examples. The biblical prince Jonathan, speaking to his hostile father, King Saul, demands justice for David. Saul, envious and afraid of his popular young rival, wishes for no less than his death:

- 3) Wherefore then wilt thou sin against innocent blood, to slay David without a Cause? (*xinam*)
(1 Samuel 19:5)

Other quotations relate *xinam* to bloodshed, hate, persecution etc:

- 4) Thou hast shed blood causeless (*xinam*), (1 Samuel 25:31.).

The above quotations suggest a certain association between *xinam* and the feeling of being persecuted for no reason. The innocent person feels that he is exposed to unjust

hate, evil thoughts and harassment. Why is the word *xinam* used in this context? The English translation provides a partial answer: 'causeless', yet the Hebrew reader has to find a reason why *xinam*, known in earlier occurrences mainly from its connection with money, commerce, wages and gifts, appears here as well. Polysemy, diachronic shifts, and metaphorical extensions provide an answer.

In western cultures justice is commonly pictured with a scale, as in the well known emblem of the blindfolded Goddess of Justice, who grasps a scale. She measures good deeds and evil doings and rewards or punishes accordingly, by means of her just and unbiased scale. Good deeds are recompensed by well being while evil doings deserve punishment. Many texts in the Bible and later present this concept of justice and morality, called 'the requital theory': good for good and punishment for evil. The metaphorical network of justice as payment is well entrenched in many cultures and languages. The two content frames where *xinam* occurs are instances of this well known metaphorical pattern. In a decent society, fair payment in working relations is analogous to just behavior; compensation for moral behavior and punishment for crimes are similarly expected. These two contexts are part of a larger frame, that of harmony. It is not surprising to realize that the etymology of the English word 'justice' is close to 'just' (as in 'just a moment') via the French '*juste*' and to 'adjust', and is associated with the image schema of a straight line. The Latin origin (*ius*) means 'right', 'law', 'what is fitting' (cf. Traugott, 1986). The righteous man expects to be recompensed by being treated fairly and experiencing positive attitudes in other people towards him as a reward for his own positive behavior. When the harmonious world view of fair payment and treatment is shattered, the innocent agent feels that he has become the target of unjust, causeless and unjustified, even malicious hate: *sin'at xinam* (literally: hatred for nothing). We can now begin to sketch the imaginative line of the harmonious equilibrium according to which various human actions and expectations are measured. When an expected social harmony is broken up, a sense of deprivation and abuse emerges, either in commercial or work relations or in a moral reaction where good sentiments meet hatred and bad blood; hence the sense of complaint. But when looked at from above this harmonious fairness line, one finds oneself in the supererogatory realm (the realm of beyond-duty), of grace and hence gratitude and 'gratis', overflowing benevolence.² Mercy, benevolence, God's grace and people's good deeds increase the amount of grace and pity - *xen va-xesed*. Following the strict Hebrew morphological root structure and examining use and meaning relations has helped us to detect the image schema behind the surface distinction between grace and justice. One expects and deserves fair, just and moral treatment in a civilized law-abiding society. Yet grace and mercy are beyond these expectations. They are the unique characteristics of God. When people imitate his ways they add a quality of charity and grace to the world beyond the call of duty or justice.³ Up to this point our findings may not seem surprising since the metaphorical extension from payment to morality is

² Note also that the English word 'gratitude' and the Spanish 'gracias' are used in the context of exchanging greetings for good deeds. Cf. also the etymology of the French 'merci' stemming from the Latin 'mercedem' meaning 'reward', 'pay'.

³ See also Cienki (1998) for more evidence from the English and the Russian languages for the metaphorical extensions of the image schema of the straightness to the contexts of time, events, discourse, thoughts, control, social norms, morality, truth and law. See also Johnson (1993).

a well entrenched one in several languages, yet the connection to grace appears more innovative. The next sections will lead to further, less predictable extensions of the metaphor.

A third frame?

The book of Job (1:9–10) contains an interesting conversation between God and Satan. God praises Job as the most righteous person on earth. Satan’s doubting and malicious answer is relevant to our subject:

5) Doth Job fear God for nought? Hast not thou made an hedge about him, and About his house?

Ha-lexinam (for nought) *yare I’yov elohim? Halo ata sacota ba’ado uve’ad beito.*

With this sneer of the Devil Job’s troubles begin as part of a bet where God trusts him to continue to believe even when the supposed reason for this belief, God’s material blessing, disappears. This is a rather new context for the word *xinam*, that of a general causal relation: there is a reason and a cause for Job’s being such a righteous person. In the Devil’s understanding of the world there is always a calculation, a symbolic payment, involved in becoming a believer. Once the rationale of blessing disappears, so will the belief. Although some conceptual relations between rewards, payments, reasons, and causes remain, we have here a new semantic frame of *xinam* which calls for further specification of its content and inner structure.

In the Talmud, a much later text than the Bible, dating from 250 B.C.E. to 500 C.E., we find the following saying:

6) Not for-nothing did the starling follow the crow, but it (is) of-his-kind
lo le-xinam halax zarzir ezel orev, ela she-hu ben mino.

This Talmudic saying is similar in intention to the English idiom “birds of a feather flock together”. It expresses a general truth derived from a description of an actual situation: evil birds (and others) follow other evil birds not without cause. We should look for more instances of *xinam* in these two related contexts: the actual domain of causality and purpose and the parallel epistemic content domain of reasons and interpretations.

The parallelism between causes and reasons and between causes and effects, when the perspective of time is reversed, is well known (cf. Wierzbicka, 1996; Lakoff & Johnson, 1980; especially chapter 15). Note also that the polysemous word *ta’am* in Hebrew means, among others, cause, reason and justification and explanation. This parallelism is perhaps inherited in Western thought, from Aristotle’s telic concept of aims and goals as one of the basic four causes: the material, the efficient cause (the source of change), the formal cause, and the final cause, the end for the sake of which a thing is created (Aristotle, physics, 11 (3)).

Midrash Tanxuma (Pkudey 3), is a commentary on the Biblical text dated to the fourth century C.E. It tells a moral tale about an attempt to talk God out of creating

man due to the future created man's inherent sinful nature, which will demand too much from God's forgiveness. God's answer is as follows:

- 7) "For no reason (*al-xinam*) have I been called 'gracious'?"
(referring to Exodus 22:27)

I am called 'gracious' for a reason; I will therefore have to practice this property by creating man and by being gracious and merciful even when he sins.

Here again we encounter the ties between reasons, expected results, justifications in the use of *xinam*, but also the logical reasonably expected relation between a name, as in being called 'gracious', and its counterparts in reality, being actually gracious, forgiving and merciful.

The behavior of *xinam*'s idiomatic synonyms confirms these ties by providing more instances: *la-rik* and *la-shav* are almost completely interchangeable with *le-xinam* in old as well as Modern Hebrew. Their etymologies, however, are more transparent: *rik* is emptiness, vacuum, void, vanity (note also the Latin-English etymology of 'in vain' mentioned earlier). *Shav* means nothingness, vanity, worthlessness but also lies and falsehood. The shift from *xinam* to *lexinam* and the parallelism between *xinam* and *la-rik* and *la-shav* display the direction observed by Traugott (1986): from the objective world to meta-linguistic, sometimes grammaticalized, discourse-sensitive meanings: Oaths and promises are meant to be honored. As a normative expected consequence names and words are expected to relate properly to the objects they denote. All of them are explained by the imaginary normative line of harmony and balance.

FRAMES IN CONTACT AND THE UNITY OF EXPERIENCE

From a general point of view all the contexts of *xinam*, *le-xinam* and synonymous expressions can be said to depict the schema of an equilibrium or a line between two spaces: The lower presents the perspective of a norm waiting to be fulfilled, a looked for equilibrium in commercial, moral, linguistic, logical and cause and effect relations. The part above this imaginary normative line is that of the supererogatory, that which is above the norm, which can be termed the 'saturated grace'. There we can find mercy, charity, benevolence and grace, both human and divine. The desired positive state of a fulfilled norm, for example in moral behavior, is not altered by the added dimension of the goodness of a supererogatory act. The positive becomes more positive but the presupposed demand to do something is not enforced, hence its purely benevolent nature.⁴ Below the normative line, the 'positive' has the function

⁴ There is an old theological and philosophical argument questioning the need (or will) of God to create the world: Why should a self-sufficient, whole, full entity such as God want to create anything. One of the characters, the philosopher, in the book "The Kuzari", written by the Spanish Jewish philosopher Yehuda Halevi (1075–1141) argues that God has neither desire nor passion, since he is above all desiring and intending. Any intention implies a certain absence. Perfection can be achieved only when the wishes are fulfilled. The very concept of God is incompatible with absence and imperfection. Hence God has no will. Later on Halevi provides counter arguments in the name of the 'sage', the believer. It is beyond the scope of this paper to enter into the theological answers to this question, yet the directions of these answers seem relevant to our concern: One line of thought assigns God, besides his being a complete entity, also the property of an enormous ability to give (grace) and hence his overflowing good will is reflected in his creation of the world. As Leibniz (Theodicy, 1952) saw it, creating this world as the best of all worlds, due to God's wisdom and ability, must by definition include evil

of fulfilling a demand: moral, commercial, logical or linguistic, without which the harmony is imperfect. This is why we sense a flavor of complaint in the moral usage of *xinam*: “I, being a moral agent, do not deserve this persecution, assuming morality is the norm”. This desired norm, this metaphorical equilibrium, this straight line, exists also in the social realm of fairness: due payments also have abstract parallels in the realms of logic, reason and language. Goal directed acts such as ‘travelling’, ‘searching’, ‘asking’, ‘praying’, are supposed to be fruitful and to lead to consequences, otherwise they are said to be carried out in vain (*le-xinam*, *la-rik*, for nought, for nothing, literally ‘for emptiness’). Events and actions are supposed to have reasons, otherwise the question arises: why is something done with no explanation, reason, cause, or goal (*le-xinam*)? Analogously, it is unreasonable and futile to tag something with an improper epithet. Actions and events are supposed to have explanations, otherwise they are considered unreasonable and lacking any rational justification. The logical-linguistic context of *le-xinam* is the most recent; this is shown also by its second stage affixation, the additional prefix *le*. Its tie to the straight line metaphor in a linguistic as well as moral context, suggested in its new use, is supported by idiomatic evidence in English and Russian (cf. Cienki, 1998).

A UNIFYING IMAGE SCHEMA

It is time now to draw the schema connecting the positive component of ‘grace’ with the negative sense of *xinam* ‘in vain’. Our immediate task is to depict the metaphorical extensions and contacts between the various frames of *xinam* itself, namely the commercial transaction frame, the moral behavior frame, the cause and effect logical and actual relations frame, and the frame of making sense, of language affinity and of satisfactory explanations. Diachronically the metaphorical shift is directed, as predicted, from the world to social, logical and linguistic awareness: from money transactions through moral requital to logical explanations of the world and the linguistic apparatus. We can draw an imaginative line between the godly highest stage of morality the realm of grace and mercy. Under this high standard of giving and caring one finds three related content-frames: The commercial transaction frame, the frame of justice and moral behavior, and the frame of causality. Reason, and explanation. Whatever lies below the line is governed by expectations of reaching harmony and of a ‘normative exchange’: services should be paid for; decent behavior should meet reciprocal treatment. Johnson (1987) discusses in detail the crucial role of body sensations in forming elaborate meanings of social and moral behavior, dealing with the notion of ‘balance’ and the ways the actual bodily experience is extended to various areas of human thought and behavior.

and human imperfection or not be a creating at all. Hence creating the world is an act of grace and benevolence. This is the positive direction. Some mystic Kabbalistic trends in Jewish philosophy take the other direction and describe creation as an act of reduction or disruption: God reduced his omnipresence to make place for the world, an act considered by some trends the source of all misfortune and evils in the human world as well as the way to repairing and rebuild the shattered cosmos (cf. Scholem, 1941). The relevance of this to our concern is the imaginary line between the FULL and EMPTY which may imply either superfluous abundance or affluence as shown in divine grace, and the mirrored counterpart of that which is missing and absent. The missing, the absent the non-existent and hence sought for and the full or existent are bridged by the basic notion of wanting that which is missing.

The polysemy of the Hebrew word *xinam* shows that the expectations of harmony and the norm appear to obtain also in speech obligations such as swearing an oath, promising, cursing and praying. The most revealing occurrences of *xinam* are in looking for reasons, causal relations, and explanations, and in the initial linguistic prerequisite, that words should denote objects and events in the real world in a proper and satisfying way. The various frames of *xinam* help to characterize the analogous structure and metaphorical extensions of the concept of unfulfilled norms. The infra-frame is that of full-filling, and giving, giving as much as expected in *xinam*, and giving above expectation in *xen* and *xonen*. *Xen* 'grace', 'favor' in the divine context is frequently juxtaposed and sometimes interchangeable with *raxanim* 'mercy'; it is sometimes thus translated from Hebrew to Aramaic. This also applies to the morpho-semantic derivations which relate *taxnunim* 'plea', 'asking for mercy and forgiveness' to *xanina* 'pardon', 'amnesty' implying capacity to favor, feel merciful towards, give and for-give. The concepts of missing or lacking versus overflowing mirror each other from either side of the normative harmonious line. It is not surprising that most of the *x.n.n* contexts above the norm are acts of (divine) benevolence or authoritative good will. The imaginary line of norm and harmony separates the two realms, yet at the same time it preserves the original conceptual tie between supererogatory actions beyond the call of duty and regular normative behavior. The line can also be reduced to the simple image of FULL as the intermediate stage between lacking and overflowing, again an image schema derived from bodily experience. Note also the metaphorical double meaning of 'full' in English and *male* 'full' in Hebrew, and the polysemy of 'want' between 'will' and 'absence'. This basic trio: full, empty and overflowing can be extended to a wide range of frames. In all of them an expectation exists for completion, in the social and the moral context as well as in the expectations for understanding the world by receiving an explanation. Such is the linguistic norm according to which language is a constant effort to properly denote events and objects in the real world. Names and attributes are expected to fit their counterparts in the real world.

SUMMARY

I have suggested here that the different semantic frames in which *xen* (grace) and *xinam* (in vain) appear anchor them in a more basic, unified, conceptual infra-frame, rooted in human perceptual experience. This theoretical hypothesis helped first in solving the problem of the apparent polarity in the meanings of distant lexemes stemming from the same root, and in explaining how complex concepts of developed languages evolve from simple notions based on body perceptions. The hypothetical line of NORM establishing the relation between empty, missing, needed, and full, superfluous, and overflowing suggests that apparently distant conceptual frames have analogous structures, polarized around the normative hypothetical line:

The **commercial transaction** frame: work – payment.

The **moral-emotional** frame: moral behavior – reciprocal positive attitude.

The **human actions** frame: 1) goal directed actions – completion, effects, results.

2) actions – causes, reasons.

The **speech act** frame: oath, promise, swearing, questions – effect.

The **meta-linguistic** frame: epithets, names – reality.

The list of conceptual couples is drawn from the contexts and frames of *xinam* and *le-xinam*. We pair them according to the structure suggested by the schema of norms and the basic concepts of absent – existent, and of lacking – full. Such a description of hidden interrelations in a language should be further supported by contrastive and psycholinguistic studies. The Hebrew tri-consonant morphology stimulated this present undertaking; other languages may suggest their own features for further study and discovery in the nature of norms in particular, and of frame contacts in general.

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7. LANGUAGE RIGHTS IN THE MULTILINGUAL SOCIETY OF ISRAEL

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LANGUAGE RIGHTS: THE CONCEPT

Languages are acquired in various contexts – at homes, at the workplace, in schools and ‘on the street’. A common situation is when the language(s) one acquires in these contexts are not those needed to function in other contexts of education and society. One such case is that of immigration as immigrants do not have the proficiency of the language(s) used in the country they immigrated to. They are therefore faced with great difficulties to function in the new societies especially at work and in schools. Another situation is in countries consisting of a variety of different ethno-linguistic groups who use languages different than those used by the majority and which are most often considered the languages of power. These languages are often not considered ‘official’ or ‘national’ and do not have the prestige and status that the other language(s) have, resulting in difficulties for its members. It should be noted that even in situations when languages are considered ‘official’ there is no guarantee that their speakers have any rights. Alternatively, there are cases when languages which are not considered official may have strong power and visibility and their speakers may benefit from special privileges in the society, such as in the case of English in many countries nowadays. The gap between the language(s) one knows and those considered ‘powerful’ has major ramifications to the educational systems where the language(s) of power is/are used as the mediums of instruction, used by teachers, students, textbooks, tests, etc. The main implications are the prevention of students from the acquisition of school knowledge as these languages serve as medium of the acquisition of academic

knowledge. This very gap between the language(s) known by individuals and those used in education and society create difficulties and major obstacles for proper functioning in the society at large and in the specific domains of education and the workplace in particular. Language rights are embedded in this very gap between mastery of specific language(s) by individuals and groups and those needed in society. It mainly refers to the ability of humans (citizens or not) in a given political entity to fully function in society and the inability of others to function in particular, often prestigious and powerful languages.

Language rights are rooted in this very situation when humans are prevented from participation in society because of lack of proficiency in certain language and it addresses the issue of how to overcome such barriers. Linguistic rights often refer to the strategies needed to overcome such inabilities by providing these speakers with special rights (i.e., benefits) so full participation in society would be possible. It is often expected that government and others responsible for the well being of citizens (often via specific policies) will offer compensations for the language limitations so to maximize the social, political and educational obligations and contribution needed for functioning in democratic societies. Thus, these barriers are considered violations of **civil** rights as not knowing the language prevents full participation in society given the view of Charles Taylor (1998) and others that citizens in democratic societies have the obligation of active participation in all domains of life. In this respect 'language rights' are no different than any other 'personal' and 'civic' rights that human beings are entitled to. Not having these rights imply direct discrimination.

In order to protect the language rights of individuals and groups and to avoid violations, governments or others in authority are often asked to take steps and provide these individuals and groups with specific and appropriate language services such as help in teaching the majority language, legitimacy of maintaining home languages in schools and at homes, using the home language as medium of instruction, obtaining translation of documents and messages, advertising in a number of languages and other types of services and rights, all believed to help overcome such language barriers.

LANGUAGE RIGHTS: DEFINITIONS AND TYPES

Various definitions and distinctions are offered regarding different types of 'language rights' constituting civil rights, referring to the right to understand and participate fully in societies. Examples of such rights include:

- Making public documents available in a variety of languages
- Teaching and/or testing in 'the other languages'
- Having public and private signs in the other languages
- Using 'the other' languages in the media

Kloss (1971, 1977), distinguishes between two types of rights. '*tolerance oriented*' rights referring to the protection that individuals have against government interference with their *own private* language choices in domains such as the rights to choose home

languages and to use in their own institutions. On the other hand, '*promotion oriented*' rights refer to rights that individuals have to the use of their language(s) in public institutions, in courts, in commerce and public education. Another distinction is often made between rights of individuals and those of specific ethno-linguistic groups; these are often referred to as individual vs. collective rights.

Clearly, most of the violations of language rights occur in nation states as these entities associate language with national identity; the violations occur with the various ethnolinguistic groups that reside there. As will be shown below Israel represents such a case—a nation-state in which Hebrew is its symbol of national identity, yet various ethnolinguistic groups whose home languages are not Hebrew reside. It will be shown how in this very case language rights in the multilingual society of Israel are violated specifically with the cases of Arabic and Russian speakers, being the largest ethnolinguistic groups.

Israel is a multilingual society where Hebrew plays a major role in its national identity; yet, both Hebrew and Arabic are official languages. For Arabs, Arabic is the home languages used in schools and communities while Hebrew is taught as a second language throughout school. Russian immigrants are proficient in the Russian language (and/or other languages of the former USSR) and these play major roles in their identity. Yet, given the political conflict in the Middle East, the ideology of Hebrew as a national language for Jews, a complex situation emerges that creates frequent violations of linguistic rights; these will be described below.

THE ISRAELI LANGUAGE SITUATION

While Israel is *perceived* ideologically with Hebrew as its national language and a symbol of the return of Jews to Israel, the reality is that Israel is a multilingual country consisting of large number of ethno-linguistic groups using multiple languages in a variety of contexts (Spolsky & Shohamy, 1999; Ben Rafael, 1994). While a precise count of these languages and their speakers is not available, rough approximations point to the wealth of languages used.

Out of a population of 6.3 million, approximately 20% are immigrants from the former Soviet Union with different backgrounds in terms of countries of origin, cultures and languages. 1.1 million (about 20%) are Arabs, 81% of them are Muslims while 10% are Christian and 9% are Druze who also use Arabic as their home and community language. These groups, as well, differ in terms of religion, culture, identity and language. In addition, there are about 80,000 immigrants from Ethiopia. There are also foreign workers (currently estimated as 400,000), many of them considered 'illegal' who intend to stay in Israel temporarily although many remain in the country. They do not have official status of immigrants primarily because they are not considered Jewish. As of the summer of 2003 many of the foreign workers are being deported as part of a new government policy.

In terms of the languages, Hebrew is the national language used by the largest number people. Various Arabic dialects are used as well as Modern Standard Arabic (MSA). The immigrants from the former Soviet Union use a variety of languages such as Ukrainian, Latvian, Kavkazit. The Ethiopian immigrants speak Amharic and

Tigrinic and the foreign workers use a variety of languages such as Tagalo, Romanian, Turkish, Bulgarian, Polish, Spanish and a number of African languages. Yet, in broad terms four languages – Hebrew, English, Arabic and Russian, are the languages most widely used in Israel today.

Specifically, *Hebrew* is the language with the highest status as it is both official and national and used in all government and public institutions. All schools except those in the Arab communities, use Hebrew as the language of instruction.

Arabic is used by the one million Arabs living in Israel in all domains of their own communities, including as language of instruction in Arab schools. Yet, most public documents in Israel are not written in Arabic and for Jews who are Hebrew speakers Arabic is only partially compulsory to learn in schools, for a period of three years. Further, only in rare situations public and government documents appear in Arabic. Thus, while Arabic does hold an important status among Arabs it has no prestige among Jews (Shohamy & Donitsa-Schmidt, 1998). Some of the Jewish immigrants from Middle Eastern countries continue to use various spoken dialects of Arabic but in most cases they do not pass it to the next generations. Thus, while Arabic is considered ‘official’, it is only Hebrew that has the de facto official manifestation in public life.

English is not considered official but it plays a dominant role in the educational and public life of Israeli society. It is a compulsory language in all schools and higher levels of academic institutions. It is the language most widely used in commerce, business, formal papers, academia and public interactions, public signs, road directions, names of buildings, etc. (Ben Rafael et al., 2002). English behaves ‘as if’ it were the second and official language in Israel.

Russian plays a prominent role in Israeli society especially since the vast migration from the former Soviet Union in the 90’s speak it. Its wide visibility is demonstrated in names of stores, newspapers and consumption. While Russian does follow the pattern of other immigrant languages whereby the second generation loses its proficiency, the continuous flow of immigrants from the former Soviet Union, although gradually less than in the 90’s, contributes to its continuous maintenance. While some Russian speakers maintain the language in their own private schools, there is very limited encouragement to study the language in public education.

In terms of the **educational** policy, a new document that was introduced by the Ministry of Education in 1996 stipulates that all Jewish Hebrew speakers need to learn Hebrew as a first language in schools and as a language of instruction, English from grades 4 or 5 and Arabic as a partially compulsory language in grades 7–9. For Arabs the policy stipulates Arabic as the language of instruction, Hebrew from grade 3 and English from grade 4. Immigrants are encouraged to maintain their languages but no special steps are taken to encourage it.

Thus, Israel today has a complex linguistic reality whereby certain languages are maintained for one generation or two but the continuous flow of immigration creates a situation whereby new languages are imported and contribute to the continuous/language revival. Currently, the migration of Jews from Argentina contribute to the revival of Spanish. In the Arab communities large number of dialects continue to exist.

This reality of using a large number of languages implies that many groups residing in Israel are multilingual. First, they are dominant in home languages, although with time there is strong language attrition. Then, there is the language of power and status, which is Hebrew and often English, used for wider, international communication. Thus, Arabs are tri-or four linguals; they were born to spoken Arabic, acquire literal Arabic (MSA), and learn Hebrew and later English. The immigrants from the former Soviet Union become trilingual, speaking Russian at home, learn Hebrew and English in schools. The situation results from the different purposes of the languages. Arabs need to acquire Hebrew to function in the Israeli society, especially in academic institutions and the workplace. Arabic is essential for local matters and English for international communication, science and technology.

Given the above situation, a number of cases will be described below which point to violations of linguistic rights resulting from this ideological vs. multilingual reality. It will be shown that when the complex linguistic context is embedded in the political conflict and the expectation that Jewish immigrants will assimilate to promote Zionist identity and language is a major symbol of belonging, violations of language rights are bound to occur and these may prevent some citizens from full participation in society. These cases are by no means exhaustive, yet they provide a small sample indicative of the situation.

CASES OF VIOLATIONS OF LANGUAGE RIGHTS FOR ARABIC SPEAKERS

a. In the educational domain

As has been noted, Arabic is an official language in Israel. It is also the language of instruction in all Arab schools – rural, urban and in Arab schools in mixed Jewish–Arab towns. Hebrew, the national language and the language of power in Israel is taught in Arabs schools from grade 3. Thus, Israeli Arabs do have the linguistic and civil right to study in their own language, a right that is very helpful in the acquisition of academic knowledge as well as a for maintaining identity. This right could be perceived by Kloss as a ‘tolerant right’. Yet, as will be shown below, this very right becomes a liability in later phases of the educational process.

Specifically, one of the main entrance criteria for Arab students to Israeli universities is high proficiency in Hebrew. Since there are no universities in Israel where the language of instruction is Arabic these requirements are in contradiction to the tolerance rights granted to Arab schools, eventually leading to low motivations of the Arab student to use and maintain their own language. Thus, this very right turns to be discriminatory and to work against those Arabs who plan to continue their studies at university levels. Thus, Arab students who are entitled to study in Arabic in elementary and secondary education achieve relatively low proficiency in Hebrew while it is the only language of instruction at Israeli universities. Moreover, most Israeli universities impose entrance examinations in Hebrew which demand high levels of proficiency as a condition of acceptance. Thus, these tests become gatekeeping devices for full participation in academic institutions. In other words, the language that receives recognition

throughout public schools receives no recognition in higher education. Further, the high proficiency that Arab students gain in Arabic, does not grant them any reward in later phases of their educational process and it becomes an obstacle and a discriminatory device for successful academic studies in comparison to students for whom Hebrew is their first language. One consequence of this linguistic discrimination is that in mixed towns such as Jaffa or Acre Arab students prefer to study in Jewish/Hebrew speaking schools to ensure high levels of Hebrew proficiency and thus maximize their opportunities to enter Israeli universities. Further, in a growing number of Arab schools a number of subjects, such as mathematics, physics, chemistry, are being taught in Hebrew in order to maximize the opportunities for entrance and success in higher education.

The conflict between schools and higher education with regards to language contributes to a feeling of marginalization; the right to study in one's own language becomes a lip service as there are no meaningful benefits in terms of mobility. Moreover, it may contribute to the loss of the Arabic language in the long run as it tends to lead to low motivation for Arab students to study Arabic in schools as they perceive it as a language of low status, prestige and hindrance for upward mobility. It is often the case that only later in life students realize that this right becomes a liability. This policy leads also to a subtractive language model which in the long run, indirectly and covertly, discourages learning of home languages in favor of 'the power' language.

b. In the public domain

Situations of language discriminations and lack of linguistic rights also exist in the public domains with regards to the limited representation of the language in the public landscape. In Israel there are hardly any government documents which appear in Arabic and it has extremely limited representation in public signs. This is clearly discriminatory given the fact that Arabs speaker make up 20% of the Israeli population. Even in neighborhoods such as Jaffa where the majority of the population uses Arabic as its first language, there are no signs in Arabic, especially in top-down, those posted by the state or the municipality, i.e. names of streets. This situation happens not only in Hebrew speaking towns, or in mixed towns of Arabs and Jews but also in Arab towns. A study of the linguistic landscape of Israel indicated that the dominant pattern of language representation is Hebrew-English (Ben-Rafael et al., 2004). It should be noted that English is not an official language in Israel while Hebrew is.

It is important to focus on the role taken by legal institutions in managing language rights. In Israel a decision by the Supreme Court in 1999 stipulated that all public road signs of the main freeways in Israel need to be displayed in two languages – Hebrew and Arabic. A similar decision was made with regards to six mixed towns where Arabs and Jews reside.

Another dimension of public display of languages can be observed in names of products. The only use of Arabic is in instructions of medical products, as there is a Ministry of Health regulation requiring it. Regarding other products the use of Arabic names is actually non-existent. Tables 1(a) and 1(b) point to the representation of Arabic in instructions and names of medications due to that regulations Yet, Arabic

Table 1(a). Language representation on food products

The product	Hebrew	Arabic	English	Russian
Bottled water <i>Eden</i>	*		*	
Coca Cola	*		*	
Nes Café <i>Elite</i>	*	*	*	
Bitter chocolate, Galil	*	*	*	
Argaliyot Osem	*	*	*	
White chocolate <i>Elite</i>	*	*	*	
<i>Osem Lachmit</i> (crackers)	*	*	*	
Crackers 'Telma'	*		*	
Chocolate <i>Uhashaxar</i>	*			
Milk 'Tnuva'	*			
Cottage cheese	*	*		
Milk 'Straus'	*			
Cake 'Osem'	*	*	*	
Margarine	*		*	
Mustard	*		*	
Green olives'	*		*	
Sweet corn	*		*	
Turkish coffee	*	*	*	
Apropo ' <i>Osem</i> '	*	*	*	
Salt	*		*	
Sugar	*		*	
Ketchup <i>Osem</i>	*	*	*	
Light tuna	*		*	
Bamba <i>Osem</i>	*		*	
Spagetti <i>Osem</i>	*		*	
Total	25	10	21	0

Data taken from Abramson, Janax, Garba and Shaadi, 2001, Representation of languages on consumers' products (food, medications, cleaning and cosmetic products).

was not included in any of the other products, except in some food products because the Ministry of Health required it. Tables 1(c) and 1(d) show that in most of the other products there is representation of the Arabic language.

The lack of language rights is also manifested in Israeli courts which use Hebrew as the only legitimate language in trials including cases involving Arab speakers and Arab lawyer. In fact Israeli Arab lawyers who obtained their law education in Hebrew admit that they do not have the appropriate Arabic language proficiency to use in courts. One wonders about the implications of such a situation to justice.

FOR RUSSIAN SPEAKERS

a. In the educational domain

The lack of linguistic rights for students whose home language is Russian is exemplified in a number of ways: First, all school subjects are taught only in Hebrew and Russian speaking students are expected to acquire it in the shortest time in order to function in the educational system on the academic level. No steps are taken to encourage immigrants students whose home language is Russian to maintain it or to use it as a language of instruction in schools. The only language of instruction is Hebrew

Table 1(b). Language representation on medications and drugs products

The product	Hebrew	Arabic	English	Russian
<i>Rafapen</i>	*	*	*	
<i>Elrin</i>	*	*	*	
<i>Siran 200</i>	*	*	*	
<i>Raktozerin</i>	*	*	*	
<i>Rinokwart</i>	*	*	*	
<i>Hydroagistan</i>	*	*	*	
<i>Triolon</i>	*	*	*	
<i>Akomol</i>	*	*	*	
<i>Drambot</i>	*	*	*	
<i>Agistan 3</i>	*	*	*	
<i>Triyod</i>	*	*	*	
<i>Harmonet</i>	*	*	*	
<i>Optalgin</i>	*	*	*	
<i>Streosils</i>	*	*	*	
<i>Xizukit</i>	*	*	*	
<i>Nistatin</i>	*	*	*	
<i>Dexomodolad</i>	*	*	*	
<i>Trenlin</i>	*	*	*	
<i>Ventolin</i>	*	*	*	
<i>Robbitosin</i>	*	*	*	
<i>Klotrimadram</i>	*	*	*	
<i>Veromal</i>	*	*	*	
<i>Flixonise</i>	*	*	*	
<i>Vibrosil</i>	*	*	*	
Total	25	25	25	0

and the support that those students get in acquiring Hebrew is very limited. Clearly, these students have no language rights in terms of full participation in the educational system. The ideologist subtractive view that Jews coming to Israel are expected to lose their language and function fully in Hebrew, still holds today. At the same time the opportunities to acquire Hebrew are limited to one year of language support provided by teachers with very limited background of second language teaching to immigrants.

Thus, Russian students, who are enrolled in the Israeli school system are faced with serious problems with regards to language rights. A recent national study (Levin, Shohamy and Spolsky, 2003) demonstrated that it takes 7–9 years for students in grades 5, 9, and 11 to function academically in a level similar to those of native Israelis in both Hebrew and Mathematics. At the same time, there are no opportunities for those students to maintain and use their Russian native language in schools, not even in neighborhood where a large number of Russian speakers reside. In other words, these immigrant groups are expected to study all school subjects in Hebrew, perform well academically even in situations where all the students in the class/school are Russian speakers. This lack of language proficiency is exemplified in tests, textbooks, teacher talk and other activities used in schools. The cost in terms of rights is low academic achievement and limited participation in society as a whole.

Table 1(c). Language representation on cleaning products

The product	Hebrew	Arabic	English	Russian
<i>Fantastic</i>	*			
<i>Palmolive</i>	*		*	
<i>SanoGel</i>	*		*	
<i>Polinoy</i>	*			
<i>Sano Rahit</i>	*		*	
<i>Sano Jet</i>	*		*	
<i>Ajax</i>	*		*	
<i>Sano supper polish</i>	*			
<i>Enskatel</i>	*	*		
<i>Super-sod</i>	*			
<i>Parsil-color</i>	*		*	
<i>Sano-Exigin</i>	*		*	
<i>Shamposer</i>	*		*	
<i>Shamposon</i>	*			
<i>Ritpaz</i>	*	*	*	*
<i>XSano</i>	*		*	*
<i>00 Menake Aslot</i>	*	*	*	
<i>Badio laundry detergent</i>	*			
<i>Polish-wax</i>	*			*
<i>Pisga cleaning detergent</i>	*		*	
<i>Magen Crystal</i>	*			*
<i>Sano Clear</i>	*		*	*
<i>Sanobon</i>	*		*	
<i>Sano Hakol Yaxol</i>	*		*	
<i>Kliya</i>	*			
Total	25	3	14	5

b. In the public domain

The 1 million Russian speakers (close to 20% of the Israeli population) have no language rights as there are no public or official documents that are displayed in Russian in the linguistic landscape and not even instruction for using medical products. The only places where Russian is displayed in some 'bottom-up' locations such as when private agencies (e.g., store owners or banks) decide to include Russian as part of their marketing strategies. As can be seen in Tables 1(a) to 1(d), the Russian language is rarely displayed in medical or in food products. Further, Russian speakers are often faced with situations in which they cannot communicate orally in a variety of public domains such as in communicating with doctors in hospital and clinics, police, government offices and courts. These are situations which have strong negative consequences in terms of participation as it can lead to restricted benefits from the services that society offers its residences, both in terms of rights and obligations. The implications, once again, are lack of full participation in society, in terms of obligations and benefits for those Russian immigrants who did not manage to acquire Hebrew for a variety of reasons (e.g. age, availability of courses, cost, etc.). The lack of language rights is especially harmful for aging immigrants who have no access to learn Hebrew and thus cannot fulfill their civil rights and obtain personal rights in terms of duties and obligations.

Table 1(d). Language representation on cosmetic products

The product	Hebrew	Arabic	English	Russian
<i>Skin protection Ultra Sol</i>	*		*	
<i>Aqua fresh tooth paste</i>	*		*	
<i>Skin guard protection</i>	*		*	
<i>Pinuk shampoo</i>	*	*	*	*
<i>Dove shampoo</i>	*		*	*
<i>Hair color Laurel</i>	*		*	
<i>Natural formula</i>	*		*	
<i>Gilletter raising blades</i>	*		*	
<i>Speed Deodorant</i>	*		*	
<i>Colgate tooth paste</i>	*		*	
<i>Protein Shampo</i>	*		*	
<i>Hair Color Viva</i>	*	*	*	*
<i>Sun screen</i>	*		*	
<i>XERYUS perfume</i>	*		*	
<i>FA Deodorant</i>	*		*	
<i>Carline lipstick</i>			*	
<i>Pitz-Boyn body lotion</i>	*		*	
<i>Lady speed stick deodorant</i>	*		*	
<i>Colgate shaving cream</i>			*	
<i>Colgate mouthwash</i>	*		*	
<i>Nivea body lotion</i>	*		*	
<i>Whalla hair gel</i>	*		*	
<i>Liquid soap Hawaii</i>	*		*	
<i>Neka soap</i>	*		*	
<i>Tooth paste oral B</i>	*	*	*	
Total	22	3	25	3

For other languages

The violations of language rights for Jewish immigrants are even worse for non-Jewish groups who reside in Israel such as foreign workers. The educational system does not support them in terms of using their languages in schools, nor in terms of teaching Hebrew. For them, not being Jewish, and not being 'official' (i.e., 'illegal') implies no language services whatsoever. In fact, these less commonly used languages are rarely used neither in education nor in public domains.

SUMMARY

While the above represent a small number of cases of violations of language rights, it still provides an indication of the phenomenon in the domains of education and society for groups whose home language is not Hebrew, primarily for Arabic and Russian speakers but also others groups such as the foreign workers.

It is not clear whether these examples represent tolerance or promotion rights, but they do have a connection to norm vs. officiality and refer to collective rather than to individual rights. It is clear from these cases that the lack of language rights restrict participation in society. The main reason is the view of nations of 'otherness' as leading

to demands of territories and statehood and can threaten the existence of the nation (Kymlicka, 2003).

The situation in Israel is very similar to other nation-states where groups in authority and power are eager to maintain their language and identities and thus their power. In Israel, like in other countries, there is a still continuous policy and practice of using language in service of ideology and creating situations of 'us' and 'them'. Language is therefore still used as a means for creating 'Jewish Israeli identity' and the Hebrew language continues to be used as an ideological tool that perpetuates different identities including negative attitudes to 'other' languages as they are being viewed as threatening to the existence of the nation-state. This attitude is not just typical to the foreign languages which are spoken in Israel by the immigrants but also towards Jewish languages such as Yiddish and Ladino. In this respect the current situation is not at all different than the policies and practices argued by Shohamy (1994) where 'the other languages' are perceived as threats to the dominant and powerful languages, in this case, the authority of the Hebrew language as a symbol of ideology. Thus, there is a continuation of this approach as the dominant language is perpetuated on the account of the other languages spoken in the state. In that respect the situation in Israel offers a very interesting case as the two main ethnolinguistic groups, Arabs and Russians are viewed differently.

The *Arabic* speakers do have the right to maintain their home language as the language of instruction in primary and secondary schools (i.e., Modern Standard Arabic). Yet, the prime motivation for that is not inclusion but rather exclusion as Arabs are not viewed as integral to the Jewish national ideology. Thus the language right can easily be interpreted as a strategy of exclusion—us vs. them. The *Russian* speakers, on the other hand, who are viewed as part of the Zionist and Jewish ideology, are not allowed to maintain their language or to use it as a language of instruction as it is viewed as a violation of national ideology and group loyalty. It is assumed that these immigrants, who automatically become citizens, according to the *law of return* (being Jewish immigrants) are obligated to acquire Hebrew as the main indicator of national identity, thus have no language rights as their home languages are perceived as interference with this agenda and as a betrayal of this ideology (May, 2002). Thus, in Israel language rights are directly related to the status of each of the groups within the national ideology.

Kymlicka and Patten (2003, p. 9) raise the question "... why do we need a theory of language rights at all? From a liberal point of view, why isn't the appropriate solution simply a hands-off approach, leaving the choice of language use to individuals?" In other words that the state should refuse to do anything that would encourage or discourage particular linguistic choices by its citizens and that it does not have to recognize, endorse, or support particular language or language groups any more than it should recognize or support a particular church. Thus, "they can respect a set of tolerance oriented rights, but should they be required to support promotion rights as well?"

Yet, they admit that it is not possible to avoid taking a stand on language policy issues as language rights are an integral part of other public services such as public education. It

is evident that not providing language rights have ramifications that hurt certain groups in society, as was exemplified in the above cases. In the educational context of Israel, as in other place, it is clear that the lack of sufficient language proficiency prevents people from entering higher educational institutions, obtaining jobs and academic knowledge and other services that the state provides its citizens. As was noted above, this is especially true for Arabic speakers who study in their own languages but are then rejected by the system for not being proficient 'enough' in the power language in higher education. This is similar to the situation of the Russian immigrants who are required to function fully in the national language in the academic and public domains but lack the needed proficiency.

Given the above, what should the obligations of the state be? If major groups in society obtain limited services, this creates a situation whereby they are denied basic services and rights and that has major ramification for civil rights. This means that the lack of proficiency in a given language prevents them from functioning in the most basic levels such as reading instructions or directions of how to get to their homes, read the languages of signs, instructions of medical products so they cannot benefit from a variety of services and not fulfill government requirements or reading forms or paying their taxes, in other words, they cannot function as full and involved citizens. In this case the state has the obligation to provide them with such services. Similarly, in the domain of education, it is the obligation of the state to provide those who cannot function academically with such services so to maximize their academic achievements and obtain language services, school accommodations (especially in tests) and intensive language classes as well as ability to maintain their languages, at least to some degree.

It is important to note that in most cases when speakers are not proficient in the hegemonic languages it does not originate from their *unwillingness*, but rather from other factors such as age, lack of pedagogical resources and economic means or lack of instructional facilities. Yet, speakers of the hegemonic languages often interpret the lack of proficiency in that language as symbolizing lack of motivation, loyalty and identification with the national agenda, especially since language is viewed as an important criterion of national loyalty.

In most societies it is expected that minority groups will study the languages of the majority while the majority is rarely expected to study the language of the minority. In Israel, this implies that Arab speakers are expected to study Hebrew while Russians speakers are expected to study Hebrew. While the Israeli educational system requires that Hebrew speakers should study some Arabic and this is only partially implemented, no such demands are being made with regards to Russian. The success of these Arabic programs is low and with regards to Arabic the focus is mostly on Modern Standard Arabic and not on spoken Arabic, a language used as a means for successful interpersonal communication. Yet, Russian or any of the other of the languages used by other groups, are rarely taught in the Israeli school system. It is important to note that a number of Russian speaking schools and courses are emerging in different places in the country sponsored only by Russian speaking private organizations.

In a multicultural/multilingual societies like Israel and in periods when the nation state ideology is losing its traditional validity, there is a need to grant a variety of

language rights to the different ethno-linguistic groups in a large number of domains. If the only way to do so is through granting official status to the languages then there is a need to do so, but there is also a need to ensure that the officiality is implemented in a variety of domains.

Yet, there are those who claim that granting officiality to certain languages result in situations when other languages are being discriminated against those which are not official. Thus, the preferred policy should be to recognize the language rights as human/personal rights so they can function as equal humans with specific rights in education and society, the right to understand and to express oneself. Certainly, the groups, themselves should be actively participating in demanding such rights and engaging in language activism.

If the choice is in declaring certain languages as official, there is a need to understand that officiality is not a threat to the language of power but rather its main meaning is functionality and granting rights to those who do not speak the power language(s), i.e., an additive approach. The direct implication in terms of language rights is that the use of official forms and documents, signs, products and translation of important documents to a number of languages and allowing the use and study of these languages in schools in addition to the main language.

Minority groups are clearly aware of the fact that acquiring the power language is essential but it is not always that they can actually do so successfully and rarely can they reach the level they have in their own language. In many cases minority groups hesitate to demand and request language rights, especially in situations of political tension. For example, Arabs in Israel prefer to request other collective and individual rights and not necessarily demand language rights, although this has changed lately, especially with the demand of Arabs, through the group *Adalla* demanding bilingual signs (Hebrew-Arabic) in public freeways and in mixed towns. In fact the Supreme Courts provided protection of language rights by ensuring that individuals' have the rights to participate fully in society from a language perspective as well as from the perspective of freedom of expression. Courts can ensure that violation of freedom of expression is penalized.

Groups should be aware of the fact that knowledge of languages is an asset in terms of identity, culture and economic and does not represent a threat, but rather a basic human right and respect to its speakers. At the same time not knowing the language deprives them from basic rights. In the same way that nations can exist with multiple groups, they can exist with multiple languages. Preventing such rights represents discrimination and lack of respect towards the speakers and this has both symbolic and functional implications and ramifications.

The main claim of this chapter has been to demonstrate that in spite of the multilingual reality of Israel, the dominant view is still very ideological resulting in violation of language rights and discrimination towards those who do not possess the currency of the Hebrew language, which has the power, domination, status and prestige. The political conflict with the surrounding Arabs countries and the low prestige and attitudes towards the Arabic language intercept with those issues in different ways. The main ramifications are inability to fully function in schools and society. In this way the majority group (those who speak Hebrew and for whom Hebrew is their home

and first language) blocks the entrance of minority groups to major symbols of power in the society of those who do not possess adequate proficiency in that hegemonic language. In other words, it is the situation whereby Hebrew has such an important symbolic status in society, it results in violations of language rights.

WHO SHOULD BE ENTITLED TO LANGUAGE RIGHTS AND WHAT ARE THESE RIGHTS?

In some societies a differentiation is made among different groups of those who do not speak the dominant languages. The most common differentiation is with regards to place of birth. Specifically, there is often a distinction between individuals who were born *out* of the very country in which they presently reside, referred to as immigrants or migrants, and those who were born *in* the country they reside but represent a different ethnic group, i.e., indigenous groups, and that often use different languages as their home languages and of the official/national languages. In most countries it is argued that the latter deserve more rights than the first as 'birth' grants a special advantage in terms of rights. Yet, it is argued here that 'birth' is a biological factor that is considered discriminatory, i.e., why should a biological trait as 'birth' give special advantage to people and at the same time there is apparent discrimination towards second generation immigrants who had already been born in the new country but insist on maintaining their heritage. At the same time, it is often the case that certain indigenous groups do not obtain any advantage especially in situations when they pose a threat to the ideology of the nation. The main claim here is that they are all human beings who are entitled to human rights and they all are expected to participate in society (e.g., pay taxes and participate in elections); thus not granting them language rights is a very strong form of discrimination. Not having language rights affects the ability of the different groups to perform duties and obligations and enjoy the rights and benefits that individuals are entitled to in democratic societies. Since in democratic societies the ability to read, write, comprehend and produce languages is needed for civil participation, the language inability is a major obstacle that has major ramifications for functional participation of individuals. Thus, the questions that arise in terms of language rights are: how can such language gaps be minimized, how can these language gaps be compensated so that the full participation of individuals in democratic societies not be hampered? From a human right perspective, what language rights are and should individuals be entitled to? and what are the best strategies that need to be used so that such rights be guarded and not violated? A recent question that is coming up in multilingual societies, especially those consisting of large number of immigrants, is what rights are speakers of majority language entitled to, especially with regards to high stake situations such as medical services and education? In schools, if it is the right of individuals to participate fully in the educational system how can these rights be manifested and what should these rights be? and how can schools best facilitate these rights? Similarly, how can democratic societies facilitate and promote these needs so the rights of individuals will become more evenly distributed for a better and more civil functioning societies. Language is such a very basic human need. Democratic societies can and should do much more to promote these rights. The last word of this chapter

is addressing linguists who often get immersed in linguistic issues while overlooking the issues of discrimination based on language. Thus, this chapter calls on linguists and others working in the research on language to become more involved and active in these issues by examining the uses and ramifications of language in education and society. Being experts in this field, we need to examine the consequences and uses of the subject we so deeply investigate. The social activity within the domain of language needs to be addressed because language is not a neutral entity, but rather is used by politicians, educationalist and bureaucrats to take steps which are often in violation of human and personal rights. By ignoring this reality language researchers may indirectly contribute to such situations. Thus, language activism is urgently called for.

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THE INTERRELATIONS OF LANGUAGE AND NARRATIVE

8. GRAMMATICAL GENDER AND PERSONIFICATION

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Any language deciding to have a grammatical category of gender is likely to create problems for itself, as even a perusal, and certainly a careful reading of the standard work Corbett (1991) will easily demonstrate. Assigning genders to nouns can be problematic even for native speakers (not to mention second language learners), and even languages that make the job easier by using exclusively or primarily semantic assignment criteria will fall foul of borderline cases. (Are vampires human or non-human? As far as the Polish language is concerned, they are non-human, and my ignorance of this once caused some amusement as I tried to engage in a discourse on Roman Polanski's *Dance of the Vampires*.) Conjoining nouns of different genders requires a decision as to the gender of the conjoined noun phrase, and gender resolution rules, one of the solutions, are, in Corbett's (1991: 261) words, "often surprising". And nouns may be "essentially" of one gender but actually refer to an entity which would suggest a different gender: For instance, in Russian the noun *vrač* 'doctor' is traditionally masculine and indeed belongs to a declension class all of whose members are (traditionally) masculine. What to do, then, linguistically when confronted with a female doctor, a not unlikely event given that the vast majority of doctors in Russia are women? In fact, both masculine and feminine gender are found, with complex conditions and preferences (see, for instance, Comrie et al. 1996: 242–248). Of course, such problems are precisely why linguists find grammatical gender such a fascinating category.

A particular problem is posed by personification, in languages where there is at least some correlation between gender and the human/non-human distinction. A noun that normally denotes a non-human entity and therefore belongs, at least grammatically, to

the non-human gender (or one of the non-human genders) now denotes an entity that has human properties and may even function as fully human. In several languages that have grammatical gender that partially correlates with sex for humans, a tendency has been noted for speakers to personify inanimate nouns according to their grammatical gender. An early and famous exposition of this is in Jakobson (1966), who noted that Russian names of the weekdays, three of which are masculine and three of which are feminine (plus one neuter), tended to be personified as male and female respectively. Some further examples, not all by any means clear-cut, are discussed by Corbett (1991: 92–97).

The case of inanimate nouns has its own peculiarities, since in general, unless the denotatum of the inanimate noun is playing a particularly sex-specific role, there is no obvious reason other than grammatical gender why the denotatum should be personified as being of the one sex or the other. Languages with grammatical gender may force a choice. English doesn't, and a small experiment produced the following results. I consulted ten or so web sites on the internet that summarize the story of Snow White and the Seven Dwarfs. My interest centered on the mirror, which is in a sense inanimate, but since it can speak and has at least sufficient cognitive ability to compare physical beauty, it is also substantially personified. The sites I consulted all either avoided pronominal reference by repeating *the mirror* (a minority) or used the neuter pronoun *it*, i.e. the personification of the mirror does not extend to assigning it a sex. No site of those I consulted used *he* or *she*. In Russian the situation might seem to be more complex, since the word for mirror, *zerkalo*, is of neuter gender, and in general Russian lacks nouns of neuter gender with human reference. So what to do in personifying a mirror? In a modern version of Snow White, which I believe I owe to Richard L. Leed, the savvy mirror knows better than to annoy the Queen and replies with the non-committal (1).¹

(1) Ja o politike predpočlo by ne govorit'.

I about politics-PRP prefer-PST-NT CND not speak-INF

'I would prefer not to talk about politics.'

The mirror, which has native-speaker abilities in Russian, clearly knows that the noun that denotes mirrors is of neuter gender, and therefore uses a neuter verb form in referring to itself. Russian past tense verb forms (which are also used, accompanied by the particle *by*, in the conditional) distinguish masculine, feminine, and neuter forms in the singular. Many grammars list all three genders in the third person, but only masculine and feminine in the first and second, on the assumption that speakers and addressees will only be referents of masculine or feminine nouns. But native speakers

¹ The following abbreviations are used: ABL – ablative, AD – location at, ALL – allative, ANTCVB – anterior converb, APUD – location near, CAUS – causative, CND – conditional, CONT – location within, CSL – causal, CVB – present converb, DIST – distal, EMPH – emphatic, ERG – ergative, GEN1 – genitive 1, GEN2 – genitive 2, IMP – imperative, INDEF – indefinite, INF – infinitive, INT – interrogative, LAT – lative, LNK1 – linker 1, NEG – negative, NT – neuter, OBL – oblique, PL – plural, POSS – location on vertical surface, PRP – prepositional, PRS – present, PST – past, PSTCVB – past converb, PSTPRT – past participle, PSTUNW – past unwitnessed, PSTWIT – past witnessed, QUOT – quotative, RES – resultative, SUPER – location on.

I have consulted assure me that (1) is not only possible, but is actually the best or only way for them of resolving the gender problem.

Let us now turn to the personification of animals, a technique that is probably known to all cultures, but gets interestingly different treatments as one moves from one culture and language to another. The main empirical basis of the following discussion is a traditional story ‘The hen and the rooster’ from the Tsez people of the Republic of Dagestan in the North Caucasus. The Tsez language belongs to the Tsezic group of the Nakh-Daghestanian or Northeast Caucasian language family. The particular version of the story reproduced in the Appendix was collected by Isa Abdullaev, a native speaker of Tsez, in the mid-1990s. The linguistic analysis of the text was carried out by me in collaboration with another native speaker of Tsez, Arsen Abdulaev.² The framework of the story is simple: A rooster and a hen are husband and wife. The rooster has an affair with a frog. The hen finds out and beats up the frog. The rooster is upset and goes off in a huff, but eventually asks the hen to take him back, which she eventually does after he promises not to see the frog any more. Crucial to the story is the fact that the participants, though animals, have clearly defined social sex roles: The rooster is the husband, the hen is the wife, the frog is the mistress. How do different languages deal with this personification?

In English, the only natural solution seems to be to treat the participants as if they were human, i.e. the rooster is ‘he’ and the hen and the frog are ‘she’, and this is what I have done in the free translation of the Tsez text in the Appendix. Referring to any or all of the participants as ‘it’, though rarely if ever causing reference-tracking problems, seems artificial. As an empirical comparison, I leafed through a recent English translation of Aesop’s *Fables* (Temple & Temple, 1998). In general, personified animals are referred to by the pronouns ‘he’ and ‘she’, usually the former unless there is a clearly defined sex role (e.g. a mother looking after her young).

In Russian, the story of the hen and the rooster poses no problems of gender assignment, though partly by accident. The word for ‘rooster’, *petux*, is of masculine gender, and the word for ‘hen’, *kurica*, is of feminine gender, as is the general rule for sex-specific animal names. The word for ‘frog’, *ljaguška*, does not have separate forms for male and female frogs, but the word happens to be of feminine gender, and so there is no conflict between the grammatical gender of the word and the personified role of its referent.

In German the situation is different, though not with the domestic fowl participants, since German here has the same generalization as Russian: the noun *Hahn* ‘rooster’ is of masculine gender, while the noun *Henne* ‘hen’ is of feminine gender. The problem is with the frog, since the German noun *Frosch* is of masculine gender. Using feminine singular pronouns to refer to the masculine singular noun is considered inappropriate, and while one might try to get away with it in a context like explaining the Tsez text

² Although I have provided an interlinear gloss, in part to enable the reader to follow the agreement markers on verbs, the full linguistic analysis would of course require much more explanation than would fit into the space available here. I would note just one point that might cause perplexity: The normal meaning of the time adverb *hudäyziko* is ‘the day after tomorrow’, but in this text it seems to have been consistently intended to have the interpretation ‘the following day’, and was consistently so interpreted by Arsen Abdulaev.

to a group of German students taking a class in the structure of a non-Indo-European language, as I once did, it is clearly not a natural solution. Derived feminine forms of the word for 'frog' such as *Froschin* or *Fröschin* are at best marginal in German, and rejected outright by some speakers, at least as a natural solution. If one wanted to give a natural German rendering of the story, something has to be changed. One solution would be to replace the frog with some similar animal that happens to be denoted by a feminine noun, and the obvious choice is *Kröte* 'toad', slightly changing the story but not really distorting it. The alternative would be to have the rooster enter into a homosexual relationship with a male frog, in which case there would be no problem with masculine pronouns referring back to the frog, though the Tsez community would consider this a departure from their interpretation of the story.

Let us now turn to Tsez. Tsez has a gender system with four genders in the singular, referred to here by means of the roman numerals I to IV. In the plural, genders II–IV are collapsed, but gender I remains distinct. Gender assignment is at least partly semantically determined. All nouns denoting male humans belong to gender I. All nouns denoting female humans belong to gender II. All nouns denoting animals belong to gender III. Inanimate nouns, however, are distributed among genders II, III, and IV. In the text in the Appendix, gender, which is not marked overtly on the noun itself, is most clearly followed by looking at the single-consonant prefixes on most vowel-initial verb forms; in the singular, these prefixes are \emptyset - for gender I, γ - for gender II, b - for gender III, and r - for gender IV. Consonant-initial verbs show no agreement. Tsez verbs can agree with at most one argument, and this is the single argument in the absolutive case (the same as the citation form, with no affix) of intransitive verbs and the patient-like argument of transitive verbs, also in the absolutive case. In other words, as a practical rule of thumb, agreement can be tracked by linking the verb prefixes to noun phrases in the absolutive case.

In Tsez, the rule seems to be absolute—it is certainly maintained in all animals fables I have come across—that personified animals remain, for the purposes of Tsez grammar, as animals, and therefore take consistently agreement forms appropriate for gender III, i.e. b - in the singular. This is true even in a story like 'The hen and the rooster' where the three participants have such well-defined sex roles. It is even true when the participants are speaking themselves and verb forms agree with the first and second person pronouns. A personified animal in a Tsez fable not only knows the Tsez language but also knows the convention that animals remain in gender III even if personified.

One thing that follows from this is that the Tsez version of the story does not actually make explicitly linguistically which sex the participants belong to. In the case of the hen and the rooster, we know from world knowledge. In the case of the frog, the question is in principle open, so that the Tsez story is, strictly speaking, neutral between an interpretation where the rooster's affair is heterosexual and one where it is homosexual. I can only report that the former interpretation is the only one to my knowledge assigned by members of the Tsez community.

The material that I have reported in this article can be interpreted on two levels. On the one, it is a detailed contribution to our understanding of one small aspect of

Tsez story-telling, in comparison and, as it turns out, in contrast to what happens in parallel situations in three major European languages (English, German, Russian). On the other, it teaches us that in order to be a competent story-teller in a language, it is necessary not only to know the language, but also to know specific rules relating to story telling that are just as rigid as those of the grammar.

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APPENDIX

THE HEN AND THE ROOSTER (A TSEZ FOLK TALE)

Line 1

onoču-n mamalay-no
 hen-and rooster-and
 ‘The hen and the rooster’

Line 2

zew-no- λ ax zew-č’ey- λ ax onoču-n mamalay-no
 be-PSTUNW-QUOT be-NEG . PSTUNW-QUOT hen-and rooster-and
 ‘Once upon a time there were a hen and a rooster.’

Line 3

žed-ā ŋumru b-iži-x zew-no zenzi
 they-ERG life III-carry-CVB be-PSTUNW together
 ‘They lived together.’

Line 4

mamalay Yuddes b-ik’i-x zew-no qaci-x ciq-x-ār
 rooster every.day III-go-CVB be-PSTUNW firewood-AD forest-AD-ALL
 onoču b-eynoy-xo zew-no idu-zā
 hen III-work-CVB be-PSTUNW home-DIST
 ‘Every day the rooster went to the forest for firewood, and the hen did the housework at home.’

Line 5

mamalay-ā netintow r-ay-ir-xo zew-no at’iy qaca
 rooster-ERG always IV-come-CAUS-CVB be-PSTUNW wet firewood

onoča-r za ĥmat r-oq-xo zew-no c'i er-a
 hen-LAT difficulty IV-become-CVB be-PSTUNW fire put-INF
 'Every time the rooster brought wet firewood and the hen found it difficult to light the fire.'

Line 6

onoču c'ok'inay-za^λ' šid-ā mi yaq^ʃu^λ-gon at'iy qaca
 hen swear-CSL why you today-also wet firewood
 r-ow-ā λin
 IV-bring-PSTWIT · INT QUOT
 'The hen used to chide him saying: "Why have you brought wet firewood today again?"'

Line 7

mamalay-ā eλi-n di kec-no λexu-n λin
 rooster-ERG say-PSTUNW I sleep-PSTCVB stay-PSTUNW QUOT
 'The rooster said: "I slept in."'

Line 8

onoč-ā ĥukmu b-oy-no ne^λo-^λ xiz-āz b-oq-a
 hen-ERG decision III-do-PSTUNW it-CONT behind-DIST III-begin-INF
 'The hen decided to set out after him.'

Line 9

hudāyziko onoču b-iy-č'ey b-ik'i-n
 day· after-tomorrow hen III-know-NEG.PSTUNW III-go-PSTUNW
 mamalay-i^λ xiz-āz
 rooster-CONT behind-DIST
 'The next day, the hen secretly followed the rooster.'

Line 10

iĥu-xo-r b-ay-nosi mamalay-ā q^ʃaλi-n
 stream-AD-LAT III-come-ANTCVB rooster-ERG shout-PSTUNW
 c'iw-li-wit' λin λox
 tsiwliwit QUOT thrice
 'Coming to a stream, the rooster shouted "Tsiwliwit" three times.'

Line 11

onoč-ā rok'-λ'o r-iči-r-no mamalay-is rož-bi
 hen-ERG heart-SUPER IIPL-sit-CAUS-PSTUNW rooster-GEN1 word-PL
 ari-λ'o-r-no ažo-z b-izi-n
 twig-SUPER-LAT-and tree-GEN2 III-sit-PSTUNW
 'The hen remembered the rooster's words and sat on the branch of a tree.'

Line 12

wit'-wiš λin āλi-ru rož-bi-n eλi-n
 witwish QUOT say-PSTPRT word-PL-and say-PSTCVB
 b-oλix-no λo ĥro
 III-appear-PSTUNW frog
 'Saying the words "Witwish", a frog appeared.'

Line 13

xeci-n žedi-n sadaq onoču b-iy-č'ey
 leave-PSTCVB they-and together hen III-know-NEG.PSTUNW
 xizo-r b-uti-n idu-Ÿor b-od-a b-oq-no
 back-LAT III-return-PSTCVB home-ALL III-do-INF III-begin-PSTUNW
 neŸ-ā neŸo-s beyni
 it-ERG it-GEN1 work
 'Leaving them together, the hen secretly returned home and started doing her work.'

Line 14

neširu xizo-r b-uti-n b-ay-no mamalay
 at.night back-LAT III-return-PSTCVB III-come-PSTCVB rooster
 at'iy qaca-n r-ow-no
 wet firewood-and IV-bring-PSTUNW
 'At night the rooster returned, bringing wet firewood.'

Line 15

onoč-ā eŸi-n žaq'ũ-gon šid-ā mi r-ow-ā at'iy
 hen-ERG say-PSTUNW today-also why you IV-bring-PSTWIT.INT wet
 qaca dew-qo-r Ÿon zew-zaŸ'
 firewood you-POSS-LAT ax be-CSL
 'The hen said: "Why did you bring wet firewood again today, since you had the ax?"'

Line 16

kec-no Ÿexu-n Ÿin eŸi-n mamalay-ā
 sleep-PSTCVB stay-PSTUNW QUOT say-PSTUNW rooster-ERG
 "I slept in," said the rooster.'

Line 17

sasaq di b-ik'-a yoŸ Ÿin eŸi-n onoč-ā
 tomorrow I III-go-INF be.PRS QUOT say-PSTUNW hen-ERG
 "Tomorrow I'll go," said the hen.'

Line 18

hudāyziko č'ur-qo-tow b-ik'i-n onoču
 day.after.tomorrow light-POSS-EMPH III-go-PSTUNW hen
 qaci-Ÿ'o-r
 firewood-SUPER-LAT
 'Early the next morning the hen went for firewood.'

Line 19

iŸu-x q'aŸi-n Ÿox: c'iw-li-wit' Ÿin
 stream-AD shout-PSTUNW Ÿox: tsiwliwit QUOT
 'By the stream she shouted "Tsiwliwit" three times.'

Line 20

b-oλix-no ɬo hr-ā eλi-n wit'-wiš λin
 III-appear-PSTCVB frog-ERG say-PSTUNW witwish QUOT
 'The frog appeared and said "Witwish."'

Line 21

onoč-ā buλ'i-n b-ok'-no r-oV-no ozuri
 hen-ERG beak-and III-hit-PSTCVB IV-remove-PSTCVB eye
 b-ok'-no k'ox eλa-gon y-ecu-r-no k'onč'u
 III-hit-PSTCVB again time-EMPH II-break-CAUS-PSTUNW leg
 'The hen struck with her beak and put out the frog's eye and then struck again and broke her leg.'

Line 22

r-esu-r-no quq-āsi qaca-n xizo-r
 IV-be.found-CAUS-PSTCVB dry-RES firewood-and back-LAT
 b-uti-n idu-Vor
 III-return-PSTCVB home-ALL
 'She found dry firewood and returned home.'

Line 23

onoča-qo-r p^ses-kin b-oV-č'ey-tow
 hen-POSS-LAT shoo-even III-remove-NEG.PSTUNW-EMPH
 hudāyziko mamalay b-ik'i-n ɬo hro-de-r
 day.after.tomorrow rooster III-go-PSTUNW frog-APUD-LAT
 'Without saying anything to the hen, the next day the rooster went to the frog.'

Line 24

q^saλi-n ɬox c'iw-li-wit' λin
 shout-PSTUNW thrice tsiwliwit QUOT
 'He shouted "Tsiwliwit" three times.'

Line 25

teλ-no žawab wit'-wiš y-ecār-u k'onč'u-n
 give-PSTCVB answer witwish IV-break-CAUS-PSTPRT leg-and
 r-āV-ru ozuri-n b-oλix-no ɬo hro
 IV-remove-PSTPRT eye-and III-appear-PSTUNW frog
 'Answering "Witwish", the frog appeared with a broken leg and a missing eye.'

Line 26

ɬu mi nediy b-od-ā λin esir-no mamalay-ā
 who.ERG you thus III-do-PSTUNW.INT QUOT ask-PSTUNW rooster-ERG
 "Who did this to you?" asked the rooster.'

Line 27

deb-ez onoč-ā λin eλi-n ɬohr-ā huɬ neɬ-ā
 you-GEN2 hen-ERG QUOT say-PSTUNW frog-ERG yesterday it-ERG
 b-oy-si λin
 III-do-PSTWIT QUOT
 ‘‘Your hen,’’ said the frog. ‘‘She did it yesterday.’’

Line 28

duri b-oV-no b-ik’i-n qaca ānu-si
 race III-remove-PSTCVB III-go-PSTUNW firewood be.NEG.PRS-LNK1
 y-ecu-r-no onoča-s k’onč’u-n b-oq-no bat’a
 II-break-CAUS-PSTUNW hen-GEN1 leg-and III-begin-PSTUNW separate
 ‘He ran off without any firewood, broke the hen’s leg, and they separated.’

Line 29

mamalay b-ik’i-n neɬ-ā neɬo-z idu-Vor
 rooster III-go-PSTUNW it-ERG it-GEN2 home-ALL
 ‘The rooster went to his own room.’

Line 30

šomo-ra-λa Yud-λ’-āy b-ik’-a b-ay-no
 how.many-OBL-INDEF day-SUPER-ABL III-go-INF III-come-PSTUNW
 mamalay onoča-de-r
 rooster hen-APUD-LAT
 ‘A few days later the rooster came to the hen.’

Line 31

onoč-ā b-egir-xo zew-č’ey mamalay neɬ-de-r-tow
 hen-ERG III-send-CVB be-NEG.PSTUNW rooster it-APUD-LAT-EMPH
 b-ik’i mi yaq’uɬ-no λin
 III-go.IMP you today-and QUOT
 ‘The hen wouldn’t let the rooster in, saying, ‘‘Go to her again today.’’

Line 32

mamalay-ā teλ-no roži t’ok’ow netinkin b-ik’-a ānu
 rooster-ERG give-PSTUNW word more never III-go-INF be-NEG.PRS
 ɬohro-de-r λin
 frog-APUD-LAT QUOT
 ‘The rooster made a promise, saying, ‘‘Never again will I go to the frog.’’

Line 33

xomi-tow čaranay-zaλ’ onoč-ā b-egir-no že idu-r
 much-EMPH request-CSL hen-ERG III-send-PSTUNW it home-LAT
 ‘Since he begged for a long time, the hen allowed him home.’

Line 34

ne ɬ -λ'-āy	soder	mamalay-ā	netintow	r-ay-ir-xo	
it-SUPER-ABL	after	rooster-ERG	always	IV-come-CAUS-CVB	
zew-no	quq-āsi	qaca	netinkin	b-ik'i-nč'ey	
be-PSTUNW	dry-RES	firewood	never	III-go-NEG.PSTUNW	
iħu-xo-r	ħoħro-de-r-no		p ^ʕ es-p ^ʕ aq	ānu-si	^ʕ umru
stream-AD-LAT	frog-APUD-LAT-and		shoo-RED	be · NEG · PRS-LNK1	life
b-oy-no	zenzi				
III-do-PSTUNW	together				

'After this the rooster always brought dry firewood and never went to the frog by the stream, and they lived peacefully together.'

9. RELATING NARRATIVE EVENTS IN TRANSLATION¹

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Crosslinguistic studies of language . . . , are motivated by the goal of comparing shared, universal features of language structure and use with patterns attributable to language-particular properties of a given language or group of languages.

—Ruth A. Berman (2002: 25)

BEGINNING WITH FROGS

About two decades ago, Ruth Berman and I set out to explore the development of “the ability to relate events in narrative” (Berman, 1988; Berman & Slobin, 1987, 1994). We devoted a great deal of research attention to a seemingly simple task: oral narratives elicited by a picture storybook created for children, *Frog, where are you?* (Mayer, 1969), originally discovered as a research tool by Michael Bamberg (1985, 1987). The “frog story” has proven to be an exceptionally useful tool, used by now in dozens of languages and fueling far more research than we could have imagined (see recent papers, and a full bibliography of frog story studies, in Strömquist & Verhoeven, 2004). The strength of the frog story lies in the wordless presentation of a readily understood plot, with sufficient complexity to allow for detailed analysis of temporal, causal, and spatial dimensions of events.

¹ This chapter is dedicated to my friend and colleague, Ruth Berman, who has been a faithful companion along the path sketched out here. Our work together, over many years, has been crosslinguistic and typological (and lively and fun). Here I offer a glimpse of how the search for the frog led to the adventures of hobbits and how they are seen through translations into some of the languages that we studied together.

Our original study was both developmental and crosslinguistic. We collected narratives from children aged 3, 4, 5, and 9, as well as adults, in English, German, Hebrew, Spanish, and Turkish. Although we found common developmental patterns across languages, we also found many patterns that were characteristic of individual languages and typological groups of languages. In this chapter, I focus on typological factors that seem to shape the “rhetorical styles” of narratives. The issue of rhetorical style was already anticipated in our first working paper on the frog story project: “The exact same scene is described by speakers of all five languages in ways which are peculiarly suited to the perspectives most naturally encoded in each language” (Berman & Slobin, 1987: 17). This theme is presented in detail in *Relating events in narrative: A crosslinguistic developmental study* (Berman & Slobin, 1994). Together with an international group of colleagues,² we explored plot structure and form–function relations in the development of narrative, in a framework of contrastive rhetoric. Each of the five languages presented a distinctive style, especially in representations of time and space. With regard to temporal relations, three of the languages—English, Spanish, and Turkish—have systems of morphological marking of aspect, whereas Hebrew and German have no grammatical categories of either progressive/nonprogressive or perfective/imperfective. Narratives in the three “aspect rich” languages showed greater attention to temporal overlap between events as well as to differing temporal contours of events. The five languages group differently with regard to spatial relations, particularly in the expression of motion events. Hebrew, Turkish, and Spanish are “verb–framed” (Talmy, 1991, 2000), in that they rely on monomorphemic path verbs, such as ‘enter’ and ‘ascend’, to encode direction of movement. English and German are “satellite–framed,” using verb particles to encode direction. Compare, for example, English *go in* and *go down*, with Hebrew *nixnas* ‘enter’ and *yarad* ‘descend’. Two consequences of this typological distinction were found in the frog stories. With regard to **manner of movement**, a verb–framed language requires some sort of adjunct expression, such as *nixnas b’rica* ‘enter in a run’, whereas a satellite–framed language has access to the main verb slot for this function, e.g., *run in*. For this reason, among others, narratives in satellite–framed languages contain significantly more information about manner of motion (for a detailed account of these patterns, see Slobin, 2000, 2004). With regard to **paths of movement**, again there is a typological contrast. If a path has several components, each is typically expressed by a separate verb in a verb–framed language: schematically: ‘exit the house—cross the field—enter the forest’. This “heavy” sequence of clauses can be compacted in a clause with a single verb in a satellite–framed language: ‘run—out of the house, across the field, into the forest’. Frog stories in English and German tend to have more extended path descriptions than frog stories in Hebrew, Turkish, and Spanish. By contrast, stories in the latter three languages tend to have richer scene–setting descriptions, allowing for inference of both path and manner. In the course of the past decade, these patterns have been found in frog stories in numerous languages (for the most recent compilation, see Strömquist & Verhoeven, 2004).

² Chapters in Berman and Slobin (1994) were written in collaboration with Ayhan A. Aksu-Koç (Turkey), Michael Bamberg (USA), Lisa Dasinger (USA), Virginia Marchman (USA), Yonni Neeman (Israel), Philip Rodkin (USA), Eugenia Sebastián (Spain), Cecile Toupin (USA), Tom Trabasso (USA), and Christiane von Stutterheim (Germany).

One may wonder whether typological contrasts in rhetorical style found in frog stories are restricted to this limited genre of picture-elicited narratives intended for children. In the years since *Relating events in narrative*, I have been searching out similar patterns in novels, newspaper reports, and conversations. Most of this work is still unpublished (but see Slobin, 1996, 2000), however, there is strong evidence that the frog story is not special with regard to typological differences in narrative style. The contrasting typological patterns of the language of space, briefly summarized above, turn up across genres and languages.³

MOVING ON TO HOBBITS: ANALYZING AND CODING MOTION EVENTS

In order to compare the encoding of motion events across languages, it is necessary to identify and categorize the range of concepts and linguistic devices pertinent to this domain. Clearly, more is involved than verbs and particles: to use the felicitous term introduced by Sinha and Kuteva (1995), we are dealing with “distributed spatial semantics.” That is, information about the movement of protagonists requires specification of physical locations and paths; and further information relevant to movement can be provided by descriptions of inner states, terrain, weather, and so forth. Our first task, at Berkeley in 1995–97, was to create a framework for the coding of motion events in narrative texts. This coding system has not yet been published, and a rough outline of its major components follows.⁴

In order to carry out this task, we decide to focus on a single English text and examine its translation in a number of languages. This preliminary exercise proved fruitful in identifying the basic conceptual elements of motion events, along with the available forms in various languages. We chose *The hobbit* (Tolkien, 1937), because it has been widely translated and is full of vivid motion events. And we worked with Chapter 6, which narrates the movements of hobbits, elves, goblins, humans, wolves, and eagles. The sample of translations included:

- *Satellite-framed languages*
 - *Germanic*: English (original text), Dutch, German
 - *Slavic*: Russian, Serbo-Croatian
- *Verb-framed languages*
 - *Romance*: French, Portuguese, Italian, Spanish
 - *Semitic*: Hebrew
 - *Turkic*: Turkish

³ Other verb-framed languages in the larger sample of novels, newspapers, and conversations, as well as more frog stories, include a range of Romance languages (French, Spanish, Galician, Portuguese, Italian), Germanic languages (English, Dutch, German, Yiddish, Danish, Swedish, Icelandic), Slavic languages (Russian, Polish, Serbo-Croatian, Ukrainian), as well as Basque, Korean, Japanese, Mandarin Chinese, and Thai.

⁴ The following people participated in various phases of the work, bringing expertise from a great range of languages: Rutie Adler, Collin Baker, Heike Behrens, Lucinda Camões, Eve Clark, Lisa Dasinger, Aleksey Dumer, Jane Edwards, Joe Grady, Roni Henkin, Annette Herskovits, Jelena Jovanović, Reyna Lindert, Kevin Moore, Kyoko Ohara, Şeyda Özçalışkan, Enrique Palancar, Natalia Perelman, Alain Samson, Jonathon Segal, Sarah Shull, Gail Solomon, Sabine Stoll, and Sarah Taub.

In the present chapter, I summarize rhetorical styles with regard to the movements of these various creatures as they are described in this collection of languages. The goals of this brief presentation are to present the elements of distributed semantics in the domain of motion events, and to compare and contrast the styles of languages representing the two major typological groups identified by Talmy and studied in *Relating events in narrative*.

The conceptual categories of the motion coding system extend and elaborate the basic components of Talmy's (1985) analysis. Talmy analyzed locative situations as consisting of: (a) a moving figure, (b) the fact of stasis or motion, (c) path of motion, (d) manner of motion, and (e) the physical grounds with respect to which the figure is located or moving. (He also considered the factor of self- versus caused-change of location; our analysis applies to both conditions. That is, the same motion elements are present in *he fled from the room* and *he was expelled from the room*). The following conceptual categories emerged as essential in coding our English text and set of translations:

- *Figure*
 - individual or group
 - type (human, animal, bird, etc.)
 - posture (change of posture at beginning or end of path)
- *Path*
 - direction of movement (forward, up, north, etc.)
 - deixis (direction with regard to viewpoint of narrator)
 - contour (curved, zigzag, etc.)
- *Extent*
 - spatial extent of motion
 - temporal/aspectual duration, limits of motion (initiation, conclusion)
 - relation of motion event to another point in space (far, high, etc.)
- *Manner*
 - motor pattern required to execute movement
 - force dynamics
 - rate
 - means of conveyance (by animal, car, airplane, etc.)
- *Ground*
 - source (initial location \pm boundary)
 - goal (final location \pm boundary)
 - milestone (location passed along path)
 - linear substrate (path, bridge, etc.)
 - medium, terrain (field, river, etc.)
 - non-solid environment (air, fog, storm, darkness, etc.)

These factors provide a schematic summary of the *functions* of motion event descriptions. The other half of the picture, of course, is the set of *forms* made available by the language for form-function mapping in this domain. The relevant linguistic elements often conflate several of the conceptual notions, and some notions are mapped across several linguistic elements. The most interesting part of the analysis lies in the varying

patterns of distributed semantics. Again, there is room for only a schematic summary of the formal elements:

- verb or verbal noun
 - transitive
 - intransitive
- directional verb particle
- adverbial expression
- adjectival expression
- noun or pronoun
- locative term
 - locative noun or nounphrase
 - adpositional phrase
- adverbial

Information about path and manner can be arrayed in various combinations of these elements. As already pointed out, a path verb like ‘enter’ can correspond to a verb–satellite construction such as ‘go in’, and a manner path expression like ‘run in’ can correspond to a construction with a path verb and manner adverbial, such as ‘enter at a run’. Motion verbs can also be nominalized, as in ‘his running’ or ‘the escape’. However, this list of parts of speech and construction types does not exhaust the means for providing information about motion events. Narratives contain information that allow the listener or reader to *infer* path and manner. For example, if we know that the protagonist was walking in the street and later is in a café, we can infer that he entered the café. If we know that he was tired or angry or restless, or that the path was steep and muddy, we can infer his manner of motion. A full comparison of linguistic descriptions of motion events across languages, therefore, must go beyond coding of lexical categories and their semantics. Such considerations are included in the coding system discussed here, and have proven valuable in more extended, ongoing analyses of novels, newspaper reports, and conversations.

DEALING WITH PATHS AND MANNERS OF MOTION IN TRANSLATION

This is not the place to present the formalism of the codes. Suffice it to say that there is a full set of notations that can be easily used and that can be subjected to computer analyses. Consider only a simple example from *The hobbit*. Dori, a hobbit, moves downward from a location in a tree. (A hobbit is a small, human-like creature.) Tolkien writes that, “Dori climbed out of the tree.” The motion event is thus directed in a descending path, in a grasping manner, from a source defined as the tree to an unspecified goal that is not in the tree. The figure is designated by a noun (*Dori*), the main verb presents a manner of motion (*climb*), a particle (“satellite”) gives the path (*out*), and a prepositional phrase gives the source (*of the tree*).⁵

⁵ The formal notation for the motion segment, “climb out of the tree,” is: V:m=climb P:d=out PP:s=of the tree. (V:m=intransitive manner verb, P:d=directional particle, PP:s=prepositional phrase marking source.) Note that syntactic categories are in upper case, conceptual categories are in lower case following a colon, and lexical items are indicated

When we compare translations of this clause across languages, the ten languages fall into two groups. The four satellite-framed languages (Dutch, German, Russian, Serbo-Croatian) use a manner verb equivalent to ‘climb’ together with a path satellite (Germanic particles or Slavic prefixes). For example, Russian *s-lezt* ‘down-crawl’. The six satellite-framed languages (French, Italian, Portuguese, Spanish, Hebrew, Turkish) all use a verb meaning ‘descend’. For example, in Hebrew, *yarad legamrey min ha’ec* ‘descended totally from the-tree’. In these languages, a verb is required to encode direction and there is no verb of grasping movement that is available for downward movement; that is, equivalents of ‘climb’ are only used for upward movement. Thus manner of movement is eliminated in all six translations. Furthermore, because the translators are obliged to pick a main verb meaning ‘descend’, there is no convenient way of also indicating the totality of exit conveyed by the English *climb out*. Some of the translators, as in the Hebrew example, add some adverbial expression of totality, whereas others leave this aspect to inference, as the Spanish *bajó del árbol* ‘descended of/from the tree’. In all ten languages, source is encoded by a prepositional phrase or noun with some kind of ablative marker.

The purpose of this mini-example is simply to indicate what can be learned about typologies of rhetorical style by careful analysis of form–function relations in a set of target-language texts in comparison with each other and the source-language text from which they derive. We have already seen that path satellites are retained in target languages that match the source language in typology but are replaced with path verbs in the opposite type of target language, and that manner verbs disappear when a verb is required to encode path.

KEEPING TRACK OF PATH AND MANNER IN COMPLEX EVENTS

When the English original presents more complex paths, together with a manner verb, the translators are faced with decisions about how to array path and manner, and whether to retain all of the distinctions in the original. Consider a typical satellite-framed example that occurs at the beginning of the chapter. Bilbo the hobbit is lost and is searching for his companions. Tolkien tells us:

(1) *He still wandered on, out of the little high valley, over its edge, and down the slopes beyond.*

Here we have a single verb—the manner verb *wander*—with three path segments, indicated by *out*, *over*, and *down*.

Translations into Germanic languages follow this model exactly; for example, the Dutch version reads:

(2) *Hij zwierf verder, het kleine hoge dal uit, over de rand en daarachter gelegen hellingen af.*

‘He wandered further, out of the little high valley, down over the edge and the slopes lying beyond.’

by an equal sign. These conventions make it possible to search for each of the formal and functional components, separately or in combination. And, across languages, comparisons can be systematically made of arrays of forms, functions, and form–function relations. (The full coding scheme is available on request: slobin@socrates.berkeley.edu.)

The Slavic languages are also satellite-framed, but present a problem that we will return to after examining the problems faced by verb-framed translators. All of these are forced to make changes of one sort or another, because some of the segments must be encoded by path verbs. The French translator picks a separate verb for each segment, using an adverbial expression to indicate manner:

- (3) *Il continua d'avancer au hasard, sortit du haut vallon, en franchit le bord et descendit la pente au-delà.*
 'He continued to advance aimlessly, exited from the high small valley, crossed the edge of it and descended the slope beyond.'

The Portuguese translator omits manner as well as one of the path segments:

- (4) *Continou avançando, saiu do vale alto e estreito, e desceu as ladeiras além.*
 'He continued advancing, exited from the high and narrow valley, and descended the slopes beyond.'

And the Turkish translator manages to retain an indication of manner, using a manner verb, but reducing the path description:

- (5) *Küçük, yüksek vadiden çıkıp, kenarında ve arkasındaki eğimlerden aşağı gezindi.*
 'Exiting from the little high valley, he strolled on the edge and from the slopes (that were) behind.'

Returning to Slavic, we find solutions that lie between the two broad language types.⁶ The path satellites in Russian and Serbo-Croatian are verb prefixes, rather than separable verb particles as in Germanic languages; and only one prefix occurs per verb. Slavic languages, therefore, like verb-framed languages, are forced to use separate verbs for path segments. But they also have a rich lexicon of manner verbs that are freely combined with path prefixes. In the *Hobbit* translations they retain manner distinctions while also retaining full path elaboration. Serbo-Croatian, for example, uses one manner verb and two path verbs:

- (5) *Švrljao je dalje, izišao iz male doline, preko ivice, i spustio se niz padinu iza nje.*
 'He strolled further, exited from the little valley, over the edge, and descended down the slope behind it.'⁷

This sentence provides an instructive example of what can be learned by comparing translations in the cognitive grammar framework developed by Talmy. Table 1 summarizes the translations of this sentence in the ten languages, and Table 2 schematizes the data in terms of linguistic elements. (A dashed line separates satellite- and verb-framed

⁶ In a recent paper on typology in a broad range of frog stories, I propose that various additional morphosyntactic and lexical factors interact with satellite- and verb-framed typologies in shaping rhetorical style, specifically the factor of "manner salience" (Slobin, 2004).

⁷ The path verbs *iz-ai* 'out-go/exit' and *s-pustiti se* 'down-go/descend' have transparent path prefixes, but are treated as monomorphemic path verbs by native speakers (Jelena Jovanović, personal communication). The Slavic languages thus seem to be on a diachronic plane away from satellite-framing, although the path prefixes are fully productive with manner verbs. (For a detailed analysis of motion events in one Slavic language, Serbo-Croatian, see Filipović, 2002.)

Table 1. Components of the hobbit's trajectory expressed in 11 languages

Lang	wander	exit	cross	descend
EN	wander on	out of the valley	over its edge	down the slopes beyond
DU	wander further	out of the valley	over the edge	down the slopes lying beyond
GE	march further	out of the valley	down over the slope	down the slope beyond
RU	walk and walk	go up from the valley	wobble across over its edge	start to go down
S-C	stroll further	go out from the valley	over its edge	go down the slope behind it
FR	continue to advance aimlessly	exit from the valley	cross the edge	descend the slope beyond
IT	wander again	out of the valley	cross it	descend down along the slope on the other side
PO	continue advancing	exit from the valley		descend the slope beyond
SP	continue walking	out of the valley	along the edge	then descending the slopes
HE	continue to walk	pass the edge of the valley		descend on the slopes beyond it
TU		exit from the valley	stroll on its edge	down from the slopes behind it

Table 2. Linguistic elements of the hobbit's trajectory in 11 languages

Lang	wander	exit	cross	descend
EN	manner verb	path + ground	path + ground	path + ground
DU	manner verb	path + ground	path + ground	path + ground
GE	manner verb	path + ground	path + ground	path + ground
RU	verb	path-verb + ground	manner verb + path + ground	path-verb
S-C	manner verb	path-verb + ground	path + ground	path-verb + ground
FR	path verb + manner adverb	path verb + ground	path verb + ground	path verb + ground
IT	manner verb	path + ground	path verb + ground	path verb + ground
PO	path verb	path verb + ground		path verb + ground
SP	manner verb	path + ground	path + ground	path verb + ground
HE	manner verb	path verb + ground		path verb + ground
TU		path verb + ground	manner verb + ground	path + ground

languages. The languages are abbreviated in the first column as: EN = English, DU = Dutch, GE = German, RU = Russian, S-C = Serbo-Croatian, FR = French, IT = Italian, PO = Portuguese, SP = Spanish, HE = Hebrew, TU = Turkish.) Note that the three Germanic languages use a single verb, whereas the other languages require 2–4 verbs. Note, too, that there are some empty cells among the verb-framed languages: the Portuguese, Hebrew, and Turkish translators have left out some information provided in the English original. Where manner verbs are used, they differ in their “vividness”—a factor that turns out to be especially striking in comparing the two types of languages (Slobin, 2004). Compare ‘wander’, ‘march’, ‘wobble’, and ‘stroll’ in the satellite-framed languages, with ‘wander’, ‘stroll’, and ‘walk’ in the verb-framed languages.

DEALING WITH MANNER INFORMATION IN TRANSLATION

One of the most striking differences between the two sets of translations overall lies in the use of manner verbs. (There are also striking differences in temporal expressions, but that would be a topic for another chapter.) As I have suggested earlier (Slobin, 1996, 2000, 2004), satellite-framed languages are “manner salient languages,” apparently because they provide a ready slot in sentence structure for the encoding of manner—that is, the main verb in a clause—leaving it to satellites to encode path. Verb-framed languages, by contrast, tend to commit the main verb slot to path verbs. Translators of *The hobbit* are faced with particular challenges with regard to this dimension of motion events, because the book is a dynamic and dramatic quest narrative involving confrontations between a range of creatures. There is, therefore, a compelling reason to retain Tolkien’s rich and often fanciful verb lexicon in this domain. However, verb-framed translators generally lack a comparably elaborate lexicon upon which to draw, and they are also faced with the need to avoid non-native heaviness of motion event descriptions that—in separate phrases or clauses—would serve to spread out details of path and manner that were conveniently compacted in the English original. The set of translations provides graphic evidence of this issue of comparative rhetoric.

There are several ways to examine the issue of manner descriptions in the source and target languages. Overall, through Chapter 6, Tolkien uses 26 different types of manner verbs. Translations into the four satellite-framed languages use an average of 25.6 types—that is, matching the original. (Russian actually surpasses the original, with 30 types.) However, the verb-framed translations use an average of 17.2 types, with only Italian approaching Tolkien’s diversity.⁸ The figures for each language are presented in the second column of Table 3.

Another comparison looks at the total number of manner expressions in Chapter 6, including adverbials and descriptions of terrain and inner states of protagonists. This comparison gives each translator ample leeway to encode manner by whatever means seem suitable to the task and the style of the language. For example, the Portuguese translator renders Tolkien’s *limp along* as *ir avançando com dificuldade* ‘go advancing with difficulty’. Or where Tolkien has wolves *trot into the clearing*, the Italian translator uses a path verb with an adverb: *arrivare di corsa nella radura* ‘arrive at a run in the clearing’. Here there is more diversity between the languages, as translators decide how true to be to the nuances of Tolkien’s English while attending to the stylistic preferences of the target language. Note, however, that ‘advancing with difficulty’ is rather different from *limp*, and ‘arrive at a run’ is rather different than *trot*. But again—even with the possibility of augmenting path verbs with manner expressions—the mean values are clearly different, with about 62 expressions in the satellite-framed and 52 in the verb-framed languages. (See column three of Table 3.)

⁸ There is some evidence that Italian is moving in the direction of satellite-framing in its use of a range of path adverbials with manner verbs (Schwarze, 1985; Slobin, 2004). Note, too, that although the Slavic languages approach verb-framed languages with regard to the encoding of complex paths, they are fully in line with the Germanic languages with regard to the diversity of manner verbs. Thus Talmy’s typology is best seen as a cline, with the Slavic languages and Italian somewhere between the poles.

Table 3. Manner-of-motion expressions in Chapter 6 of *The Hobbit*

	Number of types of manner verbs	Total number of manner expressions
Satellite-framed languages		
English	26	64
Dutch	22	62
German	24	63
Russian	30	57
Serbo-Croatian	26	65
<i>MEAN VALUE</i>	25.6	62.2
Verb-framed languages		
French	17	48
Italian	22	54
Portuguese	12	46
Spanish	19	59
Hebrew	17	49
Turkish	16	56
<i>MEAN VALUE</i>	17.2	52

The differences in lexical diversity between the languages are most clearly revealed by an examination of the actual verbs used. Tables 4a and 4b give the full list of types of verbs used in each language for describing the motions of human-like creatures (human, hobbit, elf, goblin). The verbs are grouped by a rough categorization of sorts of manners of motion. Table 4a shows satellite-framed verbs and 4b verb-framed. It does not matter, for the purpose of this overview, what the actual lexical items mean. What is striking is that, with rare exceptions, the diversity of the English original is matched or surpassed by the satellite-framed translations, but not by the verb-framed translations. For example, *climb* and *clamber* are matched by two Germanic verbs, and by three Slavic verbs, but by only one verb in Romance, Semitic, and Turkic. Note, too, that there are two empty cells in 4a, but twelve empty cells in 4b—that is, sorts of manners that found no translation equivalent at all in a particular target language. These comparisons give clear evidence of the differing degrees of manner salience (Slobin, 2004) in the two types of languages.

ADDITIONAL MORPHOSYNTACTIC FACTORS

Grammatical marking of path elements

Although path verbs, in themselves, encode minimal directional information, they combine with nominal elements to convey more detailed path information. For example, Table 1 shows various uses of prepositional phrases and casemarked nounphrases that provide elements of source and goal. The satellite-framed languages freely combine a number of path phrases with a single motion verb—either a neutral verb like ‘go’ or a manner verb. Verb-framed languages differ, however, in how many path elements typically cooccur with a single motion verb. The norm seems to be the use of a separate verb for each element, as in the French example in (3): ‘exit’—‘cross’—‘descend’. By contrast, Basque is a verb-framed language with rich morphological means for encoding of path elements. Nouns and pronouns are inflected for five

Table 4. Types of manner-of-motion verbs used for human-like creatures in Chapter 6 of *The Hobbit*:

4a. Satellite-framed languages

Manner of motion	English	Dutch	German	Russian	Serbo-Croatian
RAPID	run scramble scuttle	rennen	rennen hüpfen	begat' kinut'sja	trčati leteti kaskati
SLOW, CAUTIOUS	creep crawl	kruipen	kriechen	krast'sja polzat' probirat'sja bresti	puzati vlačiti se
SACCADIC	jump	springen	springen	prygat' skočit'	bacati se
IMPAIRED	limp	stropelen	humpeln	kovyľjat'	hramati
CONTINUOUS	march	lopen	marschieren	xodit'	hodati
ASCENDING	climb clamber swarm	klimmen klauteren	klettern krabbeln	lez't karabkat'sja vzobrat'sja	pentrati peti se koprcati se
SLIDING	slide	gljiden	rutschen schlittern	katat'sja	
WANDERING	wander	dolen zwerfen slingeren	wandern		lutati švrljati
FOOT MOVEMENT	step	treden	stapfen	stupat'	koraknuti
<i>TOTAL</i>	14	12	12	16	15

4b. Verb-framed languages

Manner of motion	French	Portuguese	Spanish	Italian	Hebrew	Turkish
RAPID	courir	correr	correr	correre	rac dileg	koşmak
SLOW, CAUTIOUS	ramper	arrastrarse	arrastrarse	strisciare	zaxal	sürünmek sokulmak
SACCADIC	bondir	saltar	saltar	saltare	kafac	atlamak zıplamak
IMPAIRED	clopiner		cojear	zoppicare		sendelemek
CONTINUOUS	marcher		marchar caminar	marciare	ca'ad	
ASCENDING	grimper	trepar	trepar	arrampicarsi	tipes	tırmanmak
SLIDING	se glisser	deslizarse escorregar	deslizarse	sdrucchiolare slittare scivolare	galaş	kaymak
WANDERING	errer			girovagare	şat	gezinmek dolanmak
FOOT MOVEMENT						
<i>TOTAL</i>	8	6	8	10	8	10

locational cases, and there are more than 30 postpositions, also inflected with these cases. Ibarretxe-Antuñano has suggested that this morphological richness leads Basque speakers and writers to elaborate path descriptions—for example, using a single verb with an ABLATIVE-marked noun to indicate source and an ALLATIVE-marked noun for goal. She first noticed this Basque tendency toward path elaboration in an analysis of frog stories (Ibarretxe-Antuñano, 2004) and has now turned her attention to *The hobbit* (Ibarretxe-Antuñano, 2003). Because the book has not yet been translated into Basque, she engaged four professional translators to translate portions of Chapter 6 into Basque, thus providing a larger range of options for Basque than the other languages considered here. In the trajectory analyzed in Table 1—the Hobbit’s exit from the valley—Basque seems to pattern rather differently from other verb-framed languages. Although two of the four translators use more than one path verb, the other two use a single verb (a manner verb or a neutral verb) with three casemarked path segments, such as:

- (6) *Bera oraindik noraezean zebilen, goiko bailara txikitik kanpo, bere mugaz gain eta bestaldeko aldapan behera.*
 he:ABS still aimlessly walk:3S:IMPF top:AND valley small:ABL outside it:GEN limit:INST top and other.side:AND slope:LOC below:ALL
 ‘He was still walking aimlessly, out of the small high valley, over its edge and down the other slopes.’

The translation in (6) is typical of Basque, both in frog stories and *Hobbit* translations, leading Ibarretxe-Antuñano (2004) to propose a “complete path hypothesis” for Basque—that is, “a tendency to provide an extensive and detailed elaboration of path.” She notes, however, that Basque, like other verb-framed languages, tends to provide little information about manner of movement (overall, even less than the Spanish *Hobbit* translations and frog stories). However locative morphology places Basque in a different position with regard to path encoding:

Similarly to other satellite-framed languages like English, [Basque’s] morpho-syntactic characteristics allow it to compact to the verb several pieces of path information, and it is therefore only natural that Basque offers more detailed information about this semantic component than other verb-framed languages. (Ibarretxe-Antuñano, 2003: 3).

Additional lexical means for encoding manner

Translations of *The Hobbit* have recently been examined in two other verb-framed languages, Japanese (Sugiyama, 2000) and Korean (Oh, 2003). Both of these languages have extensive means of verb compounding, but the resulting patterns with regard to manner expressions seem to be rather different, at least with regard to *Hobbit* translations.

Sugiyama reports that the Japanese translation has far fewer manner verbs than the English original, but that it exceeds English in variety of manner expressions when compounds are considered. She lists three major types of compounds:

- *te*-forms, e.g., *mai-ori-te-kuru* ‘flutter-descend-and-come’ (=fly down to)
- *i*-forms, e.g., *nori-koeru* ‘ride-cross’ (=ride across)
- main verb—secondary verb, e.g., *tobi-tsuku* ‘jump-attach’ (=jump onto)

These several means of verb compounding are reported to be colloquial and greatly exploited in the translation. Sugiyama concludes with a pointed comparison of Japanese with another type of verb-framed language, French:

It seems that French and Japanese take the opposite choice in describing Manner. Following the characteristics of a language that does not syntactically require Manner to appear in the main verb, French does not elaborate in expressing Manner of motion. On the other hand, Japanese has developed a way of expressing Manner by making use of compounds. Compared to English that necessitates speakers of the language to think of Manner when they talk about motion events, the concept of Manner may not play a significant role for the speakers of Japanese. Nonetheless, the ubiquity of compounds that encode Manner in a compound suggests that expression of Manner is readily available in Japanese. (Sugiyama, 2000: 15)

Korean is typologically similar to Japanese, and also has means of verb compounding. However, the Korean translation of *The hobbit* does not make comparably rich use of this option. Oh (2003) reports that although the translation maintains the overall number of manner expressions presented in the English original, it contains both fewer types and fewer tokens of manner verbs than the original, and “the vividness of manner expressions in the English original seems to be lost in Korean translation.” Verb compounds are used sparingly and often do not distinguish nuances provided by Tolkien. For example, the verb *kita* ‘crawl’, which Oh glosses as ‘move carefully not to be seen’, is used to translate *crawl*, *creep*, *climb*, and *clamber*:

- *crawl into* → *kita-kata* ‘crawl-go’
- *creep down* → *kita-narita-kata* ‘crawl-descend-go’
- *climb down* → *kita-narita-ota* ‘crawl-descend-come’
- *clamber off into* → *kita-oruta-kata* ‘crawl-ascend-go’

Further research is needed to determine the extent to which the differences between these two translations are indicative of broader differences between Japanese and Korean. But the comparison certainly demonstrates that a full analysis of manner information in translation goes beyond the typology of lexicalization patterns of motion events in single-verb expressions.

An additional lexical means of manner expression can be found in the use of ideophones or mimetics. In a crosslinguistic examination of manner expressions in frog stories (Slobin, 2004), I have suggested that ideophones can provide a rich lexicon of manner distinctions. This issue has not been systematically explored in *Hobbit* translations, but it is noted in passing by both Sugiyama and Oh. Examples are not provided for Japanese, but it is well known that mimetics play an important role in that language (e.g., Hamano, 1998; Kita, 1997). Oh provides several Korean examples, such as

ttvuuita kkenchungkkengchung ‘run/jump up.and.down.in.leaping.motion’ (=translation of *leap*).

Typological considerations

A consideration of factors of morphosyntax, verb compounding, and ideophones points to a conclusion that also emerges from crosslinguistic studies of the frog story:

Rather than put languages into typological categories, it might be more profitable to lay out the collection of factors that, together, interact to contribute to particular rhetorical styles. . . . Typologies are useful in sorting out the multifarious dimensions that characterize human languages. But just because of this diversity of dimensions, each language is an intersection of many interacting patterns (Slobin, 2004).

In over-viewing the frog story, I proposed some typological refinements that go beyond this brief exploration of *The hobbit* and its vicissitudes (see Slobin, 2004, for details). For now, let us assess what can be learned from relating narrative events in translation.

SUMMARY: COMPARING LANGUAGES THROUGH TRANSLATION

We must assume that translators strive to maintain or enhance the force and vividness of the source text. Thus the use of translations provides a particularly stringent test of each language’s capacities (within the limits, of course, of the skills of individual translators). The translation task gives us a window into the maximum possibilities of a language, as it strives to adapt to the demands of a source language. Even under these strong demand factors, verb-framed languages apparently are less concerned with the domain of manner of motion than are satellite-framed languages (though with some possibilities of expanded attention to manner using special means). And verb-framed languages break paths up into somewhat different sorts of segments. Nevertheless, each of the translations of *The hobbit* provides a great and gripping story—the same essential story that Tolkien must have had in mind. The last sentence of Berman and Slobin’s *Relating events in narrative* is an appropriate conclusion to this little study of translation as well: “We are left, then, with a new respect for the powerful role of each individual language in shaping its own world of expression, while at the same time representing but one variant of a familiar and universally human pattern” (1994: 641).

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10. WHY DO WE NEED EVALUATION DEVICES ANYWAY?*

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INTRODUCTION: EVALUATION AND STORIES

The theory of evaluation devices has been one of the most influential theories in the area of narrative structure and comprehension. Labov's (1972) seminal study of the phenomenon has generated a huge amount of research regarding the use of evaluation devices in various social contexts, (Polanyi 1978), in literary as well as non-literary narratives (e.g., Reinhart, 1995; Shen, 1985), and in its role in development (e.g., Peterson & McCable, 1983).

In general, this theory, which forms part of Labov's theory of oral narratives, assumes that relating the sequence of events is not the only function the story fulfills. Another central function is the evaluative function, i.e., conveying to the reader the purpose or the 'point' of the story – its *raison d'être*, why it is being told at all, and what the narrator intends. This function is essential, since the sequence of events by itself is not necessarily interesting. Furthermore, the sequence does not allow one to infer the story's *raison d'être*, a function fulfilled by what Labov defines as evaluation devices.

Most studies of these evaluation devices have focused on their formal aspects as well as on their distribution along the text continuum (e.g., Labov, 1972; Polanyi, 1978). However, the very function of "evaluation" remains somewhat vague. What exactly does one mean by the idea of "signalling the 'point' of the story", or its *raison d'être*? I would like to elaborate on various aspects of the evaluative function.

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EVALUATION DEVICES THEORY: A BRIEF INTRODUCTION

Let me start (for the sake of readers less acquainted with Labov's notions), with a brief description of the major evaluation devices. (The reader familiar with these devices may skip the present section). This brief description is based on Reinhart (1995), who introduces a redivision of Labov's original set of evaluation devices. Recall that Labov's general distinction is between **external evaluations** (that is, direct commentary of the narrator about the importance of a certain event), and **internal** ones. The latter consist of two major groups (see Reinhart, 1995), namely, **I. Equivalence;** **II. Comparatives**

I. **Equivalences** are of two sorts: (a) semantic equivalences: e.g., synonyms, and (b) repetitions, e.g., lexical repetitions of the same lexical item, syntactic and prosodic repetitions. These repetitions stress certain meanings which are thus marked and can be assigned to the neutral events in the story. Consider, for example, the following sentences excerpted from a fight story generated by one of Labov's informants (that will be analyzed later on). These sentences are full of lexical, syntactic and semantic repetitions (bolded in the following pairs of sentences):

JJ **I tried to kill 'im—over one cigarette!** KK **I tried to kill 'im.** Square business

Or:

MM You know, all of a sudden **I went crazy!** NN **I jus' went crazy.**

Or:

OO An' I jus' **wouldn't stop hittin** the motherfucker.

PP Dig it, **I couldn't stop hittin' 'im,** man, till the teacher pulled me off o' him.

II. **Comparatives** are of two sorts: (a) metaphorical expressions in which there is a comparison between two states or objects, one of which actually exists, and (b) modalities, a term referring to comparisons between an actual state and a state which is wished for, feared, existed in the past, or is morally condemned, etc. Both in metaphorical expressions and modalities, the actual situation (state or event) is evaluated by the non-existing situation through the comparison. For example, an actual event is interpreted not merely as a neutral event – which would be the case without the comparison – but rather as one which has never happened, or a highly desired one, etc. This is the sense of evaluation used here. For example, in the previously mentioned story one of the characters says:

- I mean – I mean we **supposed** to be brothers, an' shit . . . ”

Here, the speaker compares the actual state (in which he refuses to share his last cigarette with his rival) with a state he wishes for (in which the narrator would share with him the cigarette). Furthermore, this sentence also uses a metaphorical comparison between the relation he expects to have with the narrator and that between two brothers.

Distribution of the evaluative devices: the evaluation focus

Another major characteristic of the use of evaluative devices, has to do with their distribution in the text. Labov points out that evaluative devices, tend to be concentrated in specific regions of the story, notably, between the complicating event of the story and its resolution. These concentrations can be called “the evaluation focus” (see Labov, 1972; Reinhart, 1995).

The function of evaluation devices: Reinhart’s distinction between narrative and thematic ‘point’

A systematic attempt to address the issue of defining the evaluative function in more precise terms has been proposed by Reinhart (1995). In this study Reinhart, who further developed the study of evaluation devices and their function, classifies these devices in a somewhat different manner than that of Labov. Moreover, Reinhart suggests a sharper distinction between two basic functions of the evaluation mechanism (not distinguished explicitly by Labov or by Polanyi (1978), who developed Labov’s theory): 1. building (or marking) the meaning of the story. Since the assumption is that events by themselves are usually neutral, we need devices to mark their meaning. 2. marking the important (or central) points in the sequence of events. These points are marked by what might be called evaluation focus, i.e., a concentration of evaluation devices at a given point which specify the point as an important one.

This proposal undoubtedly makes some progress towards clarifying the notion of the story point. However, let me point out that further clarification and elaboration of this notion is required, given the complex nature of the notion of the story ‘point’. In particular, I would like to address the following question: why do readers need linguistic-textual markers for the construction of the thematic and narrative points of the story?

Why do readers need evaluation devices for constructing the thematic and narrative points of the story

Let me start by addressing this issue with respect to the ‘narrative point’. The ‘narrative point’ can roughly be described as revolving around the main or important events of the story. The ‘important’ or ‘central’ events in the story are better recalled in memory, comprise summaries of stories, and, constitute the discourse topic of stories (as argued in van-Dijk, 1980; Shen, 1988, 1989, and so forth).

This last notion, the Discourse Topic (DT), namely, what the discourse is “about”, is central to theories of discourse processing. Following van-Dijk (1980), Giora (1985) it is assumed that the DT functions as an information organizer throughout the processing of discourse, and is based on processes of abstraction and summarization of the story events. Consider, for example, the following typical story:

There was once a king who had three lovely daughters. One day, the daughters went walking in the woods. They were enjoying themselves so much that they forgot the time and stayed too long. A dragon kidnapped the three daughters. As they were being dragged off, they called for help. Three heroes heard the cries and decided to rescue the daughters. The heroes came and fought the dragon. They killed the dragon and

rescued the maidens. The heroes then returned the daughters safely to their palace. When the Czar heard of the rescue, he rewarded the heroes handsomely.

Arguably, the central events of the story, those that might constitute its 'narrative point', are the kidnapping of the girls by the dragon and their rescue by the three heroes. So, from the standpoint of its narrative structure, the story could be described as something like: "the kidnapping of the girls and the rescue" or similar descriptions.

Under various cognitive and structuralist theories of story (e.g., Rumelhart 1975; 1977; van-Dijk 1980 *inter alia*) what makes these events central has to do with the role they play in the story schema. These theories assume that underlying short stories is a schema, comprising a SETTING, followed by an INITIATING EVENT (in this case the kidnapping of the girls by the dragon) that triggers the plot by creating a PROBLEM (how the girls are to be saved) for the protagonist (the three heroes), followed by an ATTEMPT to solve this problem (the heroes' fight against the dragon), yielding a certain (positive or negative) OUTCOME (the heroes rescue the girls). Now the major components of this schema are the initiating event and the final outcome (see Shen 1988; 1989 for an elaboration of this point). These will be better recalled, and are more likely (compared with other events in the story) to become part of the discourse topic of the story in question.

The important point (no pun intended) to note here is that the 'narrative point' is being derived from the actual events and the role they play in the schema. In other words, under this view, the 'narrative point' and its derivation by the reader relies on the structural organization of the story events, and is totally unrelated to the linguistic instantiation or realization of that set of events. This is typical of many traditional theories of story structure and comprehension (mainly within the structuralist school (Prince, 1973), story grammar approaches (Rumelhart, 1975; van Dijk & Kintch, 1977; Mandler & Johnson, 1977), and artificial intelligence approaches (e.g., Wilensky, 1982)). The reader may recall that these theories assume a distinction between the 'expression' or 'surface' level of the text (a level that includes linguistic aspects, order of presentation and so forth), and the "story", that is the structure of events. Thus, a given story can be narrated in various ways, namely, in various orders of presentation, and in alternative verbal (or for that matter non-verbal) modes, but still remain the same "story". In this view, theories dealing with story structure do not include reference to the expression level (e.g., Prince, 1973: 13).

Therefore, since the "expression level" is not an integral part of the story *per se*, and since we can assume, as do these theories, that part of the narrative-structure description (in Prince's terms the story grammar) has to reflect the hierarchical organization of narrative units, we can conclude that the hierarchical organization is not dependent on such elements as evaluation devices.

Turning back to the issue of the evaluative function, which clearly belongs to the 'expression level' of the text, the question that now arises is: if the reader can derive (at least for simple narratives) the major events (and episodes) on the basis of structural considerations, are the evaluation devices redundant (at least regarding their 'narrative point marking' function)?

What I would like to propose is that (contrary to the view that evaluation devices are redundant) evaluation devices play a significant and indispensable role both at the level of ‘narrative point marking’ function, as well as two other levels of the ‘point’, namely, the ‘thematic’ and ‘affective’ points of the stories.

NARRATIVE AMBIGUITY

The above position applies to the kind of stories told by Labov’s informants. Note that the important events in those stories are not important due to their content (although this also might in some cases be the case), but rather due to the position they occupy in the structural organization of the story. For example, in many of the stories analyzed by Labov the central events revolves around those action(s) which directly reflect the ‘**conflict**’ between the narrator and its opponent.

However, in many other cases, this structural organization cannot yield a clear-cut hierarchical organization of the story events. A case in point is what might be called ‘narrative ambiguity’ (see Shen, 1985, 2002). These are cases in which the same set of events can be organized along two (or even more) narrative structures, and the evaluative devices signal the reader which of these several structures is the relevant one, and thus, “disambiguate” the story. A case in point is the following Jewish folk tale in the oral tradition, told by a Libyan Jew which relates the events that have to do with the attempt by a group of Arab fishermen to kill a Jewish fisherman, called Halafu. One day, they invited him to go fishing with them, and in the middle of the sea, while Halafu was swimming in pursuit of a big fish, they abandoned him. He began to drown, but after an hour and a half of fighting the stormy sea, suddenly recalled the Jewish prayer, “The Song on crossing the Red Sea”, and started to recite it; by so doing, he was saved. Later, the Halafu’s friends in the village prosecuted the Arab fishermen, and the court punished the Arabs severely.

Now, we hypothesized that this set of events can be organized according to two possible structures, which can roughly be described as follows: 1. “A religious miracle structure”, in which the initiating event is the attempt to get the Jewish fisherman to drown, and the resolution is his salvation through prayer. 2. “Evil doers get punished” structure, in which the initiating event is the attempt to kill the Jewish fisherman, and the (main) outcome is the severe punishment meted out to the Arab fisherman by the court .

Clearly, these two structures yield different ‘narrative points’ of the story. Note, however, that the evaluation focus of that story marks the first of these two structures as the main structure of the story (for details see Shen, 1985). In order to test the influence of the evaluative devices on the disambiguation of this story, Shen had two groups of subjects read two different versions of the story, namely, the “story with the evaluative devices” version and the “no evaluative devices” version (which was identical to the former, save for the fact that those evaluation devices were completely removed). The subjects’ task was to identify which among two possible structures of the same story is the more central.

The findings clearly showed that subjects who read the original version, revealed a strong tendency towards a clear-cut and decisive determination of the central structural

organization that was compatible with the one signaled by the evaluation focus; in contrast, subjects who read the “story without evaluation focus” version, were less decisive in their judgment.

To conclude, these findings provide initial support for the claim that in cases of ‘narrative ambiguity’ the evaluation devices play a crucial role in determining the ‘narrative point’ of the story in question.

THEMATIC AMBIGUITY

So far for the ‘narrative point’. Let us turn now to the case of ‘thematic point’. In order to address this issue let us consider the following two fight stories excerpted from Labov 1972.

- A An’ then, three weeks ago I had a fight with this other dude outside.
 B He got mad ’cause I wouldn’t give him a cigarette.
 C Ain’t that a bitch? (Oh yeah?)
 D Yeah, you know, I was sittin’ on the corner an’ shit, smokin’ my cigarette, you know
 E I was **high**, an’ **shit**.
 F He walked over to me,
 G “Can I have a cigarette?”
 H He was **a little taller** than me, **but not that much**.
 I I said, “I ain’t got no more, man
 J ’cause, you know, all I had was **one left**.
 K An’ I ain’t gon’ give up my **last cigarette** unless I got some more.
 L So I said, “**I don’t have no more**, man.”
 M So he, you know, dug on the pack, ’cause the pack was in my pocket.
 N So he said, “Eh man, I can’t get a cigarette, man?”
 O **I mean – I mean** we supposed to be **brothers**, an’ shit.”
 P So I say, “Yeah, well, you know, man, **all I got is one, you dig it?**”
 Q **An’ I won’t give up my las’ one to nobody**.
 R So you know, **the dude**, he looks at me,
 S An’ he – I ‘on’ know – **he jus’ thought he gon’ rough that motherfucker up**.
 T He said, “**I can’t get a cigarette**.”
 U I said, “Tha’s what I said, my man”
 V You know, so he said, “What you supposed to be **bad**, an’ **skill**?
 W What, you think you **bad an’ shit**?
 X So I said, “Look here, my man,
 Y I don’t think I’m **bad**, you understand?
 Z But I mean, you know, if I had it, you could git it
 AA I like to see you with it, you **dig it**?
 BB But the **sad part** about it,
 CC You got to do without it.
 DD That’s all, my man.”

- EE So **the dude**, he 'on' to pushin' me, **man**. (Oh he pushed you?)
 FF **An' why he do that?**
 GG **Every time somebody fuck with me, why they do it?**
 HH I put that cigarette down,
 II An' boy, **let me tell you, I beat the shit outa that motherfucker.**
 JJ **I tried to kill 'im—over one cigarette!**
 KK **I tried to kill 'im. Square business**
 LL After I got through stompin' him in the face, man,
 MM You know, **all of a sudden I went crazy!**
 NN **I jus' went crazy.**
 OO An' I jus' **wouldn't stop hittin the motherfucker.**
 PP **Dig it, I couldn't stop hittin' 'im, man**, till the teacher pulled me off o' him.
 QQ **An' guess what? After all that I gave the dude the cigarette, after all that.**
 RR **Ain't that a bitch?** (How come you gave 'im a cigarette?)
 SS I 'on' know.
 TT I jus' gave it to him.
 UU An' he smoked it, too!

The 'thematic point' of the above story can be described as the 'absurdity of the action taken', 'acting inadequately', and so forth. Thus, rather than viewing the story as the conflict between the just protagonist and his evil opponent or the villain, as is common in many fight stories— (we will present another example shortly), —the present story highlights the discrepancy between the demand of the narrator's rival for a cigarette, and the attempt to almost 'kill' him in a fight, which, ironically enough, resulted in his eventually giving the cigarette to him. So the 'point' here is that, indeed there was no 'point' in this absurd fight over a cigarette. This is a 'thematic point' in that it provides the thematic dimension (e.g., absurdity) along which the conflict between the two rivals is 'colored'.

Let us turn now to another typical fight story introduced by Labov.

(What was the most important fight that you remember, one that sticks in your mind...).

- a Well, one (I think) was with a girl.
- b Like I was a kid, you know.
- c And she was the **baddest girl**, the **baddest girl** in the neighborhood.
- d If you didn't bring her candy to school, she would punch you in the mouth;
- e And you had to kiss her when she'd tell you.
- f This girl was only about 12 years old, man,
- g But she was a **killer**.
- h She **whupped** all her brothers.
- i And I came to school one day
- k and I didn't have **no money**.
- l My ma wouldn't give me **no money**.
- m And I **played hookies** one day,

n (She) put something on me.
 o I **played hookies**, man,
 p so I said, you know, I'm not gonna **play hookies** no more.
 'cause I don't wanna get a whupping.
 q So I go to school
 r And this girl says, "Where's the candy?"
 s I said, "I don't have it."
 t She says, powwww!
 u So I says to myself, "There's gonna be times my mother **won't give me money**
 because (we're) **a poor family**
 v And I can't take this all, you know, every time she don't give me **any money**."
 w So I say, "Well, I just gotta fight this girl.
 x She gonna hafta **whup** me.
 y I hope she don't **whup** me."
 z And I hit the girl: powwwww!
 aa and I put something on it.
 bb I win the fight.
 cc That was one of the most important.

Note, that here the thematic point differs radically from that of the previous one. In this story a similar conflict is described, between the narrator and the girl. The initiating event has to do with an attempt by the girl to force him to give her a candy, by threatening to beat him. He then gets into a fight with her, and wins the fight by hitting her. Note, however, that the thematic point of the story differs totally from the previous one.

Unlike the previous thematic point, which revolved around the absurdity of the fight over a cigarette, here the fight represents the battle between evil and justice, between the strong, evil oppressor and his poor, weak victim. Note that this thematic point is highlighted by the evaluation devices (some of which are emphasized in bold letters in the above text. Thus, there is a repetition of verbal expressions emphasizing the theme of the strong and evil oppressor ("the baddest girl", "killer" and "whupped"), and the poor narrator ("no money", "any money", "poor family" and so forth). Notice, that without this highlighting, the reader would find it difficult to assign a thematic point to the story.

The two stories share many similarities at various levels of description: the social background of the two narrators (adolescents from the inner city of New York); the specific context in which the two stories were told (stories elicited at the request of an experimenter); almost all the specific content details described in the story (the age of the main characters, the value and even the size of the object the two characters were fighting over, the consequences of the fight, i.e., the victory of the narrator), and so forth. Despite these similarities, however, these stories differ radically from each other, with respect to their respective thematic points. While the candy story deals with themes of injustice, and the victory of the poor, just, and

innocent over the evil oppressor, the cigarette story is about an absurd fight over a cigarette.

Clearly, these different thematic points cannot be derived from the different set of events that comprise these two stories, as these events are very similar. This points to an important characteristic of events (see also Reinhart 1995), that is, to the fact that the thematic significance is derived from a source external to the set of events in itself.

Literary critics (e.g., Perry 1985, Greimas 1966, 1971, Rimmon-Kenan 1983) generally assume that in our cultural repertoire there are various thematic dimensions or basic ‘themes’ (sometimes defined on the basis of semantic oppositions, such as “internal-external”, “life-death”, and so forth (see e.g., Rimmon-Kenan 1983, pp. 11–13, for a description of the relevant theories in this area)). These critics, however do not provide a systematic description as to how the reader is to detect the relevant thematic dimensions instantiated in a given story. This process is very intricate and complex, and far from being understood.

Given all of these considerations, then, the role played by evaluation devices becomes a crucial one. It appears that every story is open to a large number of thematic interpretations, and therefore, the narrator has to highlight certain themes rather than others. In this respect, the use of evaluation devices becomes crucial, by signaling the reader which themes are instantiated in a given story. Returning to our initial question, then, I would like to suggest that stories are open to thematic interpretation that cannot be derived from the set of events in themselves, in which case evaluation devices clearly play a central role in indicating to the reader which thematic points are relevant to the story in question.

THE AFFECTIVE POINT

In addition to the signaling of the narrative and thematic points of the story, evaluation devices play a central role at another important level of text comprehension, namely, the affective level (see Brewer & Lichtenstein, 1981). Stories induce certain affective responses in their readers, a phenomenon that has gained some interest in various theories of story comprehension (e.g., Brewer & Lichtenstein, 1981). Clearly, part of the ‘point’ of reading a story has to do with these affective responses.

Now, in dealing with the affective level (see e.g., Tan, 1994; Oatley, 1994; Davis & Andringa, 1995), a major distinction that has been drawn between ‘artefact’ (or artistic) and ‘Fiction’ (or non-artistic) emotional responses.

Artistic emotional responses are the result of certain manipulations on part of the author of the narrative, such as particular arrangements of the text continuum, arousing affective responses like suspense or surprise. This type of response has been investigated, experimentally, by various theories of story comprehension. Notably, Brewer Lichtenstein (1981) have developed the ‘structural-affect’ theory of stories, which addresses this issue. According to their theory, stories are designed for entertainment, a function carried out by eliciting particular affective states in the reader (e.g., suspense, surprise, curiosity). These types of affective responses are produced by the inclusion of certain types of events and by particular arrangements of the discourse form with

respect to the underlying events. In sum, the “point” of a given story is defined here in terms of the affects it gives rise to in their readers’ minds.

The other type of responses, namely, ‘Fiction’, or “world” type responses do not necessarily involve artistic manipulation on the part of the narrator, but, rather, rely on the very content of the story. (See e.g., Tan, 1994; Oatley, 1994; Davis & Andringa, 1995; for a detailed discussion of this distinction). Thus, typical ‘Fiction’ or ‘World’ emotional responses that stories may invoke are anger, sympathy for the protagonist(s), disgust, and similar responses which reflect the readers’ reaction towards the events and characters described in the story world.

Note, however, that most studies of these two types of emotional responses to stories (e.g., Brewer & Lichtenstein, 1981) have not related the affective responses to evaluation devices. For example, according to the ‘structural affect’ theory of Brewer & Lichtenstein (1981), the affects are produced by manipulating the order of presentation of the events, while affective responses of the ‘world’ or ‘non-artistic’ type, are assumed to be induced the events depicted in the story.

Following Reinhart (1995), it should be emphasized that evaluation devices play a central role in this respect as well.

Labov, for example, suggests that “The narrators of most of these stories were under social pressure to show that the events involved were truly dangerous and unusual, or that someone else really broke the normal rules in an outrageous and reportable way. Evaluation devices say to us; this was terrifying, dangerous, weird, wild, crazy, or amusing, hilarious, wonderful . . .” (371). Here we can see that at least part of the function of the evaluative devices is to signal and create certain ‘non artistic’ or ‘world’ type **affects** in the recipients of the respective stories.

Furthermore, it has been noted (see e.g., Reinhart, 1995) that evaluative devices tend to concentrate around “an evaluation focus”, typically, between the complicating event of the story and its resolution. This may induce certain affective responses on part of the reader, and in particular, suspense (see also Labov, 1972).

So, we see that evaluative devices signal and create affect-states in the reader, a function which is also conceived of in terms of the signaling of the story ‘point’.

SUMMARY

Several conclusions can be drawn from the previous discussion. The first conclusion concerns the relation between the “surface” or “expression” level of the story text (to which the evaluation devices belong) and the “deeper” or underlying structural organization (at which the ‘point’ of story resides). For most theories of narrative and stories (at least within the ‘structuralist’ tradition, but also within other frameworks of research) these two levels are divorced from each other in that the event organization is independent from its verbal realization: the same story can be realized in many ways, and, in fact, in many mediums, while still remaining the ‘same’ story. Prince, for example, states explicitly: “A grammar of stories does not have to be concerned with the description of the expression side of the stories” (1973: 13).

So the “story”, according to this widely held view, is an abstraction or a construct, , and therefore, its ‘point’ is also constructed by the reader as was previously suggested.

In contrast, the present article has pointed out some of the major roles played by evaluation devices (which form part of the “expression” level of the story text), in signaling and establishing the various aspects of the ‘point’ of the story (which is part of the deeper, constructed aspect of the text).

This analysis supports the view that those elements which functionally contribute to the signaling of the story point are, by no means, redundant or marginal, but rather constitute a central part of the study of the event–organization.

Let me also point out that, as a single linguistic–textual set of devices, evaluation devices play a unique role in coordinating various major subprocesses of story comprehension. Thus, evaluation devices play a key role at the ‘lower’ level of event hierarchical organization, namely, the identification of the ‘narrative center’ of the events in the story; they also play a key role at a higher level, namely that of identification of the thematic center of the story in question; and, finally, they direct the readers’ affective responses towards the story events. One can hardly point to another linguistic–textual set of devices that fulfills such a variety of central functions in story comprehension.

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11. ON INTERPRETING: A TUTORIAL

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INTRODUCTION

How do we make sense of discourse? How do we home in on the point a speaker is trying to get across. How do we detect a stance¹? In the following examples (1 and 2), it is rather easy to come up with an interpretation: The stance made explicit at the end of the text provides for a guideline. It tells us how to conceive of the 'brute facts' presented earlier. For instance, in (1), the explicit stance is that of gratification. It makes us view the speaker as endorsing the simplicity and minimalism of the elements described. In (2), however, the explicit stance is that of dismay. The objects described here are presented as dissatisfying – as devoid of human warmth and feelings. The highly similar texts thus convey different points, depending on the evaluation of the facts described:

- (1) Clear water in a brilliant bowl,
Pink and white carnations . . .

¹ *Stance* is defined by Du Bois (2002) as:

- “a public act by a social actor,
- achieved through overt means,
- of evaluation, positioning, and alignment
- with respect to any salient dimension of the sociocultural landscape”.

“... *evaluation* is the broad cover term for the expression of the speaker or writer's *attitude* or *stance* towards, *viewpoint* on, or *feelings* about the entities or propositions that he or she is talking about” (Thompson & Hunston, 2000: 5 cited in Du Bois, 2002, emphasis added).

Pink and white carnations – one desires
No much more than that.

- (2) Clear water in a brilliant bowl,
Pink and white carnations . . .
Pink and white carnations – one desires
So much more than that.

Taken from *The Poems of Our Climate*
by Wallace Stevens

Example (3) may get the message across indirectly, by means of metaphors and ironies, which highlight the speaker's point. In this example, a stance is conveyed toward views and attitudes and determines how we perceive them:

- (3) Take Care, Soldier²
Yitzhak Laor

Soldier, don't die, wear a helmet, a flak vest, surround
the village with a ditch of crocodiles, starve
it if necessary, eat Mom's goodies, don't
die, shoot sharp, take care of the armored
Jeep, the bulldozer, the land, one day it will be
yours, little David, sweetie, don't die, please.

Watch out for Goliath the peasant, he's trying to sell his
pumpkin at the nearby market, to buy a gift
for his grandson is what he's plotting, erase the bleeding of Eva Braun
when you checked if she was faking her labor pains, silence
her screams, that's how every delivery room sounds, it's not easy
with your humane values, be strong, take care, forget
your deeds, forget the forgetting.

That thy days may be long, that the days of thy children
may be long, that one day they shall hear of thy deeds
and they shall stick their fingers in their ears and they shall scream
with fear and thy son's/daughter's scream shall never fade. Be strong,
sweet David, live long, and see thy children's eyes, their backs shall
hasten to flee from thee, stay in touch with thy comrades at arms, after
thy sons deny thee, a covenant of the
shunned. Take care, soldier boy.

Ha'aretz, 13 April 2001

The care for the soldier may seem sincere at the outset. It might indeed be sincere even throughout. But, then, the ironic stance toward the clichéd metaphors, portraying the Israeli oppressor as “little David” and the oppressed Palestinian as the mighty “Goliath” and as a Nazi, is revealing of the speaker's criticism of the oppressors' self-image. This

² Translated from Hebrew by Vivian Eden. The poem was dedicated to Haggai Matar – a young Israeli who refused to serve in the Israeli Occupation Forces.

implicit attitude alongside the explicit dissociation from that soldier's deeds ("one day they shall hear of thy deeds/and they shall stick their fingers in their ears and they shall scream/with fear") affect the way we make sense of the point the speaker is trying to bring out.

In his seminal work, Labov (1972) looked carefully into linguistic devices serving to highlight the *raison d'être* – the point – of narratives. His work was extended by researchers such as Reinhart (1984, 1995), Shen (1985), Polanyi (1978), and Giora (1990, 1993, who applied it to non-narrative texts).

In this chapter, I am using Labov's (1972) paradigm in order to highlight its contribution to the theory of narrative interpretation and at the same time to lay out some of the limitations of the theory as a single theory of story comprehension. To do that, I am analyzing Alice Walker's (1971: 21–26) story *How did I get away with killing one of the biggest lawyers in the state? It was easy* (see Appendix) in a tutorial manner. Taking the whole story as an object of analysis and doing it step by step should shed light on the role of the devices Labov termed "evaluative" in guiding our 'online' interpretation.

EVALUATIVE DEVICES

Labov (1972) views a story as a linguistic string consisting of two kinds of clauses. One type of clause, termed "narrative", describes a punctual, non-habitual, temporally bounded act or event. The order of presentation of such clauses is constrained by the actual, temporal order of these events in real-life situations. The chain of events temporally ordered constitutes the 'foreground' of the story (see also Reinhart, 1984).

The other type of clause is considered "free" in that it is not constrained by the actual order of the events and can appear anywhere in the text. These free clauses constitute the non-narrative material of the story. They include clauses that carry "background" information as well as information destined to "evaluate" the 'brute facts' described in the narrative clauses.

Narrative clauses have linguistic properties that help identify them. They are affirmative, main clauses that involve punctual, transitive verbs, describing past events in the active voice and in the simple past tense (or narrative present).

Likewise, non-narrative, free clauses are linguistically identifiable. They make up subordinate clauses; they involve non-punctual, at times repetitive, or aspectual verbs denoting continuous (past progressive) or perfective (past perfect) events, or some irrealis. They may further involve stative verbs, modal, existential, and affective verbs as well as negation, passive voice, metaphoric, and analogical aspects. They make up all that is not narrative.

According to Labov (1972) and Reinhart (1984, 1995), non-narrative clauses have a dual role: They provide for background information and for "evaluation" of the narrative information conveyed by the narrative clauses. In this paper, I will only consider their evaluative role and indicate the way evaluative clauses cue the reader as to the theme or the point of the story.

ANALYSIS

Walker's (1971) story *How did I get away with killing one of the biggest lawyers in the state? It was easy* can be divided into two. The first part involves the first five paragraphs,

which constitute the background section of the story and include only non-narrative clauses. The second part begins with the sixth paragraph—the point in the story in which the chain of events, ordered on a temporal axis, is unfolded. The shift from the story's background to its foreground is indicated by a temporal adverb (“One time”), suggesting that from here onwards, the story is displaying its set of narrative clauses (intertwined of course with evaluative material).

The first paragraph (see 1 below) does not contain only background information such as who the heroine is or where and when the events take place etc. It also has an evaluative role: It displays one of the major contrasts of the story to be attended to as one proceeds with the reading, namely the stark difference between the social, economical, and mental states of the two conflicting parties – the rich whites and the poor blacks. It is against this background information that the future events and developments involving the black heroine should be weighed. This means, among other things, that a psychological or psychoanalytical analysis is ruled out. Instead, the story should be read along sociological and political lines, that is, from a social and political perspective and its point or theme should be likewise constructed:

1. My mother and father were not married. I never knew him. My mother must have loved him, though; she never talked against him when I was little. It was like he never existed. We lived on Poultry street. Why it was called Poultry street I never knew. I guess at one time there must have been a chicken factory somewhere along there. It was right near the center of town. I could walk to the state capitol in less than ten minutes. I could see the top – it was gold – of the capitol building from the front yard. When I was a little girl I used to think it was real gold, shining up there, and then they bought an eagle and put him on top, and when I used to walk up there I couldn't see the top of the building from the ground, it was so high, and I used to reach down and run my hand over the grass. It was like a rug, that grass was, so springy and silky and deep. They had these big old trees, too. Oaks and magnolias; and I thought the magnolia trees were beautiful and one night I climbed up in one of them and got a bloom and took it home. But the air in our house blighted it; it turned brown the minute I took it inside and the petals dropped off.

The background information conveyed by the story's background part tells of a young girl who is raised by a single black mother. The abject poverty of the neighborhood the heroine lives in is reflected by the street's name – “Poultry street”. A chicken factory must have given the street its name. The chicken is thus the emblem of a class the heroine belongs in that is kept for purposes of sheer exploitation. The blacks resemble the bird that is raised in confinement and is robbed of its products to the extent that eventually it is slaughtered to provide for its proprietor. No wonder the whites are represented by a free, powerful, and actually a ruling bird – the eagle – which is placed in a superior position – on top of the golden dome of the capitol building – a powerful dominating position.

The second to fifth paragraphs constituting the second section of the background part disclose information about the mother, which has an evaluative impact as well.

This information should guide our reading of the daughter's future conduct to be compared to her mother's:

2. "Mama worked in private homes. That's how she described her job, to make it sound nicer. 'I work in private homes,' she would say, and that sounded nicer, she thought than saying 'I'm a maid.'
3. "Sometimes she made six dollars a day, working in private homes. Most of the time she didn't make that much. By the time she paid the rent and bought milk and bananas there wasn't anything left.
4. "She used to leave me alone sometimes because was no one to keep me—and then there was an old woman up the Street who looked after me for a while—and by the time she died she was more like a mother to me than Mama was. Mama was so tired every night when she came home I never hardly got the chance to talk to her. And then sometimes she would go out at night, or bring men home—but they never thought of marrying her. And they sure didn't want to be bothered with me. I guess most them were like my own father; had children somewhere of their own that they'd left. And then they came to my Mama, who fell for them every time. And I think she may have had a couple of abortions, like some of the women did, who couldn't feed any more mouths. But she tried.
5. "Anyway, she was a nervous kind of woman. I think she had spells or something because she was so tired. But I didn't understand anything then about exhaustion, worry, lack of a proper diet; I just thought she wanted to work, be away from the house. I didn't blame her. Where we lived people sometimes just threw pieces of furniture they didn't want over the railing. And there was broken glass and rags everywhere. The place stunk, especially in the summer. And children were always screaming and men were always cussing and women were always yelling about something. . . . It was nothing for a girl or woman to be raped. I was raped myself, when I was twelve, and my Mama never knew and I never told anybody. For, what could they do? It was just a boy, passing through. Somebody's cousin from the North.

The mother is portrayed as a struggling woman, making an effort to live and even love. Through her struggles, the author further criticizes the black men, who take no responsibilities over their deeds: "I guess most them were like my own father; had children somewhere of their own that they'd left" (p. 22).

At the end of the paragraph about the mother we are introduced to the heroine's rape when she was twelve. This rape is described nonchalantly. It is described in the passive voice ("I was raped"); the offender has no identity ("It was just a boy, passing through. Somebody's cousin from the North"). And there was nothing anyone could do about it (p. 22). Against the background of this rape, with which she had made up, and which stirred no protest on her behalf having resigned to the fact that the powerless can do nothing in an oppressive society, even one in which she is an in-group member, the rape in the foreground should be weighed (the verbs of the narrative clauses are in bold):

6. “One time my Mama was doing day’s work at a private home and **took** me with her. It was like being in fairyland. Everything was spotless and new, even before Mama started cleaning. I met the woman in the house and played with her children. I didn’t even see the man, but he was in there somewhere, while I was out in the yard with the children. I was fourteen, but I guess I looked like a grown woman. Or maybe I looked fourteen. Anyway, the next day, he **picked me up** when I was coming from school and he **said** my Mama had asked him to do it. I **got in** the car with him . . . he **took** me to his law office, a big office in the middle of town, and he **started** asking me questions about ‘how do you all live?’ and ‘what grade are you in?’ and stuff like that. And then he **began** to touch me, and I **pulled** away. But he **kept** touching me and I was scared . . . he **raped** me. But afterward he **told** me he hadn’t forced me, that I felt something for him, and he **gave** me some money. I was crying, going down the stairs. I wanted to kill him.

This is the first rape event occurring in the foreground of the story—in fact, the event that triggers the story’s chain of events. It is directly evaluated by an explicit mention of emotions (“I was scared”), by an indirect, kind of ‘speechless’ stance projected by the use of three dots, and indirectly, by the passive voice of the rape in the background, which brings out the active voice and transitivity (Hopper & Thompson, 1980) of the specific verb in question (“he raped me”). The use of a narrative clause here, that is, of a simple past tensed, active voice verb, carves the doer as an identifiable agent, points to his responsibility for his crime and to his overt aggression. Here, the child no longer ignores her feelings. Rather than being repressed, her feelings surface and are in the open: She wants to kill him! This evaluation of the rape also registers her emotional autonomy at this stage. At this point, she does not react as an oppressed victim but as a victim who is still in touch with her emotions: She realizes the full significance of his violence, without attempting to underestimate it.

This sense of anger is not going to last, though. An act of aggression turns a victim into a powerless patient. Next time the man rapes her, this meets with no objection or protest on her part. Like other rape victims, the heroine now acts mechanically. This consequence is mimicked by the lack of evaluative material whose unexpected absence stresses the ‘cause and effect’ connection between the events.³ This absence, thus, where some emotional reaction or hesitation is anticipated is highly surprising: “he stopped his car again, and I got in”:

7. “I never told Mama. I thought that would be the end of it. But about two days later, on my way from school, he **stopped** his car again, and I **got** in. This time we **went** to his house; nobody was there. And he **made** me **get** into his wife’s bed. After we’d been doing this for about three weeks, he **told** me he loved me. I didn’t love him, but he had begun to look a little better to me. Really, I think, because he was so clean. He bathed a lot and never smelled even alive, to tell the truth. Or maybe it was the money he gave me, or the presents he bought. I told Mama I had

³ On the evaluative effect of the unexpected see also Polanyi & Strassmann (1996).

a job after school baby-sitting. And she was glad that I could buy things I needed for school. But it was all from him.

Indeed this rape (“he **made** me **get** into his wife’s bed”, p. 23) is met with no protest. However, the evaluative information further prepares us for the final act of murder. The wishes from the previous paragraph (“I wanted to kill him”), which make us anticipate the aggressor’s death, are seconded here by an insinuation that that person is already ‘dead’, in that he does not smell ‘alive’ even. And killing a dead person is much easier than killing a living one.

However, at this stage the awareness of the heroine is muted. She contemplates her good luck. Unlike her mother, she has someone who loves her, who would not let her get pregnant and who furnishes her with money:

8. “This went on for two years. He wouldn’t let me get pregnant, he said, and I didn’t. I would just lay up there in his wife’s bed and work out algebra problems or think about what new thing I was going to buy. But one day, when I got home, Mama was there ahead of me, and she saw me get out of his car. I knew when he was driving off that I was going to get it.

Though paragraph 8 involves material that should be registered as narrative, the linguistic markers of narrative clauses are hardly there. Indeed, the adverbial phrase “one day”, signals the return to the foreground of the narrative and makes us expect the next chain of temporally ordered events. But the events that follow don’t assume the linguistic forms of narrative clauses. “Mama was there ahead of me, and she saw me get out of his car”. ‘Seeing’ is not a punctual verb. And though it implies that the heroine ‘got out of the car’, the event itself is narrated as if it were a background event. Here is where Labov’s theory fails to account for our intuitions.

The next paragraph involves further theoretical problems. For instance, though we consider “had one of her fits” narrative, the verb would not justify it. And worse even: While “That night she **told** me something . . .” is a narrative clause, the following—“She said”—which looks just as narrative is not, because it is either an instance of ‘told’ or a repetition of that generalization:

9. “Mama **asked** me didn’t I know he was a white man? Didn’t I know he was a married man with two children? Didn’t I have good sense? And do you know what I told her? *I told her he loved me.* Mama was crying and praying at the same time by then. The neighbors heard both of us screaming and crying, because Mama beat me almost to death with the cord from the electric iron. She just **hacked** it off the iron, still on the ironing board. She **beat** me till she couldn’t raise her arm. And then she had one of her fits, just twitching and sweating and trying to claw herself into the floor. This scared me more than the beating. That night she **told** me something I hadn’t paid much attention to before. She said: ‘On top of everything else, that man’s daddy goes on the t.v. every night and says folks like us ain’t even human.’ It was his daddy who had stood in the schoolhouse door saying it would be over his dead body before any black children would come into a white school.

The evaluative clauses are interesting here. There is a direct evaluation of what she “told” her mother, addressed to the listener: “And do you know what I told her? *I told her he loved me.*” These evaluative clauses are also italicized to indicate their significant role in the story as a whole. Unlike her mother, the daughter did not act out of free will or authentic emotions. She wasn’t attached to her oppressor because *she* loved him. Like many other women, she was involved with him because *he* loved her. This lack of inner motivation for her acts, highlighted by the evaluative devices, should cue the readers to the intended interpretation: This is a story about the descent of an autonomous mind out of an oppressive state; it is about growing up in an oppressive society, and about becoming conscious of one’s social identity as a black, poor woman. The next paragraph goes on elaborating on her ‘anesthetized’ state of mind that is the theme of the story:

10. “But do you think that stopped me? No. I would look at his daddy on t.v. ranting and raving about how integration was a communist plot, and I would just think of how different his son Bubba was from his daddy! Do you understand what I’m saying. I thought he *loved* me. That *meant* something to me. What did I know about ‘equal rights’? What did I care about ‘integration’? I was sixteen! I wanted somebody to tell me I was pretty, and he was telling me that all the time. I even thought it was *brave* of him to go with me. History? What did I know about History?”

Paragraph 10 is indeed about how the heroine conceives of her personal experiences as detached from any social or historical context. This is the starting point from which her more developed social and political awareness is about to emerge (as is obvious from her state of mind as the story-teller). Since the story is told from the point of view of the grown up person, these evaluative perspectives allow us to compare her two different states of mind and construct the point of the story. At this stage of the story, however, the evaluative clauses make us focus on the process of maturation of an oppressed state of mind. This becomes even more obvious in the following paragraph:

11. “I began to hate Mama. We argued about Bubba all the time, for months. And I still slipped out to meet him, because Mama had to work. I **told** him how she beat me, and about how much she despised him—he was really pissed off that any black person could despise him—and about how she had these spells. . . . Well, the day I became seventeen, the *day* of my seventeenth birthday, I **signed** papers in his law office, and I **had** my mother **committed** to an insane asylum.

Though she has come of age and is legally mature, emotionally she is still unaware of her motives and of her ‘voluntary’ subjugation. Her mother, on the other hand, will not give up – yet another evaluative contrast:

12. “After Mama had been in Carthage Insane Asylum for three months, she **managed** somehow to **get** a lawyer. An old slick-headed man who smoked great big black

cigars. People laughed at him because he didn't even have a law office, but he was the only lawyer that would touch the case, because Bubba's daddy was such a big deal. And we all **gathered** in the judge's chambers—because he wasn't about to let this case get out. Can you imagine, if it had? And Mama's old lawyer **told** the judge how Bubba's daddy had tried to buy him off. And Bubba **got up** and **swore** he'd never touched me. And then I **got up** and **said** Mama was insane. And do you know what? By that time it was true. Mama *was* insane. She had no mind left at all. They had given her shock treatments or something. . . . God knows what else they gave her. But she was as vacant as an empty eye socket. She just sat sort of hunched over, and her hair was white.

At this stage of lack of social awareness, the heroine acts as the agent of her abuser, complying with his interests while acting against the interests of her in-group members, that is, against herself. The evaluative clauses here highlight the significance of the trial as a landmark in the heroine's inner growth. The judge "wasn't about to let this case get out. Can you imagine, if it had?". Why is such an obscure event receiving our attention? After all, this is a trial with a highly predictable consequence? Why is the trial evaluated as a turning point, while the rape, for instance, is not? What makes this 'uninteresting' event so crucial to the theme of the story? This event, as we will see soon, is instrumental in shaping the heroine's mental transformation. It is this event that triggers her process of liberation from an oppressed state of mind:

13. "And after all this, Bubba wanted us to keep going together. Mama was just an obstacle that he felt he had removed. But I just suddenly—in a way I don't even pretend to understand—woke up. It was like everything up to then had been some kind of dream. And I **told** him I wanted to get Mama out. But he wouldn't do it; he just kept trying to make me go with him. And sometimes—out of habit, I guess—I did. My body did what it was being paid to do. And Mama **died**. And I **killed** Bubba.

Paragraph 13 is certainly one of the most central segments of the story. The most crucial event is presented here—the heroine's breakthrough—her 'waking up'. However, because this is an emotional event described metaphorically it cannot be viewed as a narrative event, despite its other 'narrative' features (e.g., a punctual, simple past event). Here again lies one of the weaknesses of Labov's theory. Still this event is highly evaluated.

As earlier, here too, central narrative events are not evaluated: "And Mama **died**. And I **killed** Bubba".⁴ Recall that the lack of evaluation where it is expected, is by itself evaluative. Here the consecutive sequence of events, undisrupted by any evaluation, forces use to see the death of the mother and the killing of the abuser as a cause and effect chain of events. Given that no justice is done in court, the heroine acts to practice justice out of court. The powerless have to have a justice mechanism of their

⁴ It's questionable, though, whether 'died' would qualify as a narrative event.

own. The state's institutions are serving only the powerful. In a way, then, she kills the wrongdoer because he killed her mother. What would she do for herself, then? How would she compensate herself?

14. "How did I get away with killing one of the biggest lawyers in the state? It was easy. He kept a gun in his drawer at the office and one night I **took** it out and **shot** him. I shot him while he was wearing his thick white overcoat, so I wouldn't have to see him bleed. But I don't think I took the time to wipe off my fingerprints, because to tell the truth, I couldn't stand it another minute in that place. No one came after me, and I read in the paper the next day that he'd been killed by burglars. I guess they thought 'burglars' had stolen all that money Bubba kept in his safe—but I had it. One of the carrots Bubba always dangled before me was that he was going to send me to college: I didn't see why he shouldn't do it.

For once we have a heroine who is going to benefit from her crime. Now she is going to invest in herself. She takes the money he has promised he would give her to enable her to get an education, which indeed might guarantee her progress in this abject reality. Investing in herself indicates that the heroine has reached a full fledged social awareness. This development is culminating in the final paragraph:

15. "The strangest thing was, Bubba's wife **came over** to the house and **asked** me if I'd mind looking after the children while she went to Bubba's funeral. I **did** it, of course, because I was afraid she'd suspect something if I didn't. So on the day he was buried I was in his house sitting on his wife's bed with his children, and eating fried chicken his wife, Julie, had cooked."

In this final scene, it is the powerful white who is asking the underprivileged heroine a favor, in a manner that allows the heroine to refuse, thus recognizing her autonomy and newly gained powerfulness. In addition, the heroine is now symbolically in a superior position: While her abuser is buried down there, she is up there, in his house, sitting on his wife's bed, with his children and eating fried chicken that has been cooked for her. It's not just that she is alive and her abuser is dead and powerless; it's not only that now she is in control of his most precious things and in a superior position in the scene of his crime; it is also the total reversal of roles that is taking place in front of our eyes. The young, poor, black woman has gained control over her life, and at least momentarily, she is doing it through controlling her abuser's life. Sheer saturnalia!

How did I get away with killing one of the biggest lawyers in the state? It was easy is not about killing the abuser. It's about growing up and achieving autonomy and control. The killing of the abuser is only a stage, whether symbolic or real, in achieving that goal. The construction of this theme, then, is not based on the series of events that might make up a plot, but by the set of evaluative devices that instruct us as to our final interpretation of these events.

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APPENDIX

How did I get away with killing one of the biggest lawyers in the state? it was easy

Alice Walker

My mother and father were not married. I never knew him. My mother must have loved him, though; she never talked against him when I was little. It was like he never existed. We lived on Poultry street. Why it was called Poultry Street I never knew. I guess at one time there must have been a chicken factory somewhere along there. It was right near the center of town. I could walk to the state capitol in less than ten minutes. I could see the top – it was gold – of the capitol building from the front yard. When I was a little girl I used to think it was real gold, shining up there, and then they bought an eagle and put him on top, and when I used to walk up there I couldn't see the top of the building from the ground, it was so high, and I used to reach down and run my hand over the grass. It was like a rug, that grass was, so springy and silky and deep. They had these big old trees, too. Oaks and magnolias; and I thought the magnolia trees were beautiful and one night I climbed up in one of them and got a bloom and took it home. But the air in our house blighted it; it turned brown the minute I took it inside and the petals dropped off.

“Mama worked in private homes. That's how she described her job, to make it sound nicer. ‘I work in private homes,’ she would say, and that sounded nicer, she thought than saying ‘I'm a maid.’

“Sometimes she made six dollars a day, working in private homes. Most of the time she didn't make that much. By the time she paid the rent and bought milk and bananas there wasn't anything left.

“She used to leave me alone sometimes because there was no one to keep me—and then there was an old woman up the Street who looked after me for a while—and by the time she died she was more like a mother to me than Mama was. Mama was so tired every night when she came home I never hardly got the chance to talk to her. And then sometimes she would go out at night, or bring men home—but they never thought of marrying her. And they sure didn’t want to be bothered with me. I guess most of them were like my own father; had children somewhere of their own that they’d left. And then they came to my Mama, who fell for them every time. And I think she may have had a couple of abortions, like some of the women did, who couldn’t feed any more mouths. But she tried.

“Anyway, she was a nervous kind of woman. I think she had spells or something because she was so tired. But I didn’t understand anything then about exhaustion, worry, lack of a proper diet; I just thought she wanted to work, be away from the house. I didn’t blame her. Where we lived people sometimes just threw pieces of furniture they didn’t want over the railing. And there was broken glass and rags everywhere. The place stunk, especially in the summer. And children were always screaming and men were always cussing and women were always yelling about something. . . . It was nothing for a girl or woman to be raped. I was raped myself, when I was twelve, and my Mama never knew and I never told anybody. For, what could they do? It was just a boy, passing through. Somebody’s cousin from the North.

“One time my Mama was doing day’s work at a private home and took me with her. It was like being in fairyland. Everything was spotless and new, even before Mama started cleaning. I met the woman in the house and played with her children. I didn’t even see the man, but he was in there somewhere, while I was out in the yard with the children. I was fourteen, but I guess I looked like a grown woman. Or maybe I looked fourteen. Anyway, the next day, he picked me up when I was coming from school and he said my Mama had asked him to do it. I got in the car with him . . . he took me to his law office, a big office in the middle of town, and he started asking me questions about ‘how do you all live?’ and ‘what grade are you in?’ and stuff like that. And then he began to touch me, and I pulled away. But he kept touching me and I was scared he raped me. But afterward he told me he hadn’t forced me, that I felt something for him, and he gave me some money. I was crying, going down the stairs. I wanted to kill him.

“I never told Mama. I thought that would be the end of it. But about two days later, on my way from school, he stopped his car again, and I got in. This time we went to his house; nobody was there. And he made me get into his wife’s bed. After we’d been doing this for about three weeks, he told me he loved me. I didn’t love him, but he had begun to look a little better to me. Really, I think, because he was so clean. He bathed a lot and never smelled even alive, to tell the truth. Or maybe it was the money he gave me, or the presents he bought. I told Mama I had a job after school baby-sitting. And she was glad that I could buy things I needed for school. But it was all from him.

“This went on for two years. He wouldn’t let me get pregnant, he said, and I didn’t. I would just lay up there in his wife’s bed and work out algebra problems or think about what new thing I was going to buy. But one day, when I got home, Mama was

there ahead of me, and she saw me get out of his car. I knew when he was driving off that I was going to get it.

“Mama asked me didn’t I know he was a white man? Didn’t I know he was a married man with two children? Didn’t I have good sense? And do you know what I told her? *I told her he loved me.* Mama was crying and praying at the same time by then. The neighbors heard both of us screaming and crying, because Mama beat me almost to death with the cord from the electric iron. She just hacked it off the iron, still on the ironing board. She beat me till she couldn’t raise her arm. And then she had one of her fits, just twitching and sweating and trying to claw herself into the floor. This scared me more than the beating. That night she told me something I hadn’t paid much attention to before. She said: ‘On top of everything else, that man’s daddy goes on the t.v. every night and says folks like us ain’t even human.’ It was his daddy who had stood in the schoolhouse door saying it would be over his dead body before any black children would come into a white school.

“But do you think that stopped me? No. I would look at his daddy on t.v. ranting and raving about how integration was a communist plot, and I would just think of how different his son Bubba was from his daddy! Do you understand what I’m saying. I thought he *loved* me. That *meant* something to me. What did I know about ‘equal rights’? What did I care about ‘integration’? I was sixteen! I wanted somebody to tell me I was pretty, and he was telling me that all the time. I even thought it was *brave* of him to go with me. History? What did I know about History?

“I began to hate Mama. We argued about Bubba all the time, for months. And I still slipped out to meet him, because Mama had to work. I told him how she beat me, and about how much she despised him—he was really pissed off that any black person could despise him—and about how she had these spells. . . . Well, the day I became seventeen, the *day* of my seventeenth birthday, I signed papers in his law office, and I had my mother committed to an insane asylum.

“After Mama had been in Carthage Insane Asylum for three months, she managed somehow to get a lawyer. An old slick-headed man who smoked great big black cigars. People laughed at him because he didn’t even have a law office, but he was the only lawyer that would touch the case, because Bubba’s daddy was such a big deal. And we all gathered in the judge’s chambers—because he wasn’t about to let this case get out. Can you imagine, if it had? And Mama’s old lawyer told the judge how Bubba’s daddy had tried to buy him off. And Bubba got up and swore he’d never touched me. And then I got up and said Mama was insane. And do you know what? By that time it was true. Mama *was* insane. She had no mind left at all. They had given her shock treatments or something. . . . God knows what else they gave her. But she was as vacant as an empty eye socket. She just sat sort of hunched over, and her hair was white.

“And after all this, Bubba wanted us to keep going together. Mama was just an obstacle that he felt he had removed. But I just suddenly—in a way I don’t even pretend to understand—woke up. It was like everything up to then had been some kind of dream. And I told him I Wanted to get Mama out. But he wouldn’t do it; he just kept trying to make me go with him. And sometimes—out of habit, I guess—I did. My body did what it was being paid to do. And Mama died. And I killed Bubba.

“How did I get away with killing one of the biggest lawyers in the state? It was easy. He kept a gun in his drawer at the office and one night I took it out and shot him. I shot him while he was wearing his thick white overcoat, so I wouldn’t have to see him bleed. But I don’t think I took the time to wipe off my fingerprints, because to tell the truth, I couldn’t stand it another minute in that place. No one came after me, and I read in the paper the next day that he’d been killed by burglars. I guess they thought ‘burglars’ had stolen all that money Bubba kept in his safe—but I had it. One of the carrots Bubba always dangled before me was that he was going to send me to college: I didn’t see why he shouldn’t do it.

“The strangest thing was, Bubba’s wife came over to the house and asked me if I’d mind looking after the children while she went to Bubba’s funeral. I did it, of course, because I was afraid she’d suspect something if I didn’t. So on the day he was buried I was in his house sitting on his wife’s bed with his children, and eating fried chicken his wife, Julie, had cooked.”

**PART II. A DEVELOPMENTAL PERSPECTIVE
ON LANGUAGE AND DISCOURSE**

12. TEACHING AND ARTIFICIAL LIFE

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INTRODUCTION

This chapter is being written with Ruth Berman in mind. It deals with aspects of cognition and its development that have captured her heart and mind over the course of her academic career in Israel. Her pioneering work in the structure of the Hebrew language has inspired two generations of students and colleagues, both in Israel and abroad who are continuing to develop theory and research in that area. The purview of her work also includes language acquisition, which was an important departure from her prior research area, not only for her, but also for the area of the acquisition of Hebrew as a first language. And then she made yet another change, this time to children's understanding and production of texts. Ruth was virtually alone in Israel, a pioneer, in all these endeavors, something that motivated many to follow the path she set. Along with her groundbreaking work on the Hebrew language, she forged research communities both in Israel and abroad. And she did so with an easy smile on her lips and friendship in her heart.

Our work looks at theory concerning a natural cognition – not language, but teaching. We are attempting to establish the nature of the cognitive prerequisites for teaching, and much of what Ruth has done serves as a guide for us, as it has for so many.

Teaching is a domain that can be investigated under the examining eyes of cognitive scientists. Strauss (in press; Strauss, & Ziv, 2001; Strauss, Ziv, & Stein, 2002) argued that because teaching is remarkably complex, universal, evolutionarily beneficial, typically found in human beings, mostly invisible, not taught, and easily learned by young children, it can be thought of as a natural cognition. We believe that these claims

along with the everlasting interest in human learning, some of which is, at least at first glance, a mirror image of teaching, make a strong case for formal research focused on this remarkable social phenomenon – teaching.

Strauss (in press) proposed a wide-ranging research agenda whose purpose was to pinpoint the cognitive prerequisites that enable teaching. A part of the research agenda includes the evolutionary perspective, where teaching could be speculated to be an evolutionary solution for survival. A second part of this agenda involves the use of computational models that might bring about rigorous definitions and descriptions of teaching that are currently lacking. Our work in this chapter brings these two strands together in the case of teaching, and we do so through the Artificial Life (ALife) research paradigm.

ALife is the study of all phenomena of the living world through their reproduction in artificial systems (Langton, 1995). It is a relatively new research paradigm that is based on computer-based experiments in which virtual populations of living creatures, that are capable of perceptual input, can interact with and evolve in virtual environments. The special properties of this paradigm allow the scientist massive flexibility rarely found in other non-analytical research methods. ALife experiments combine both a computational model approach and a strong relation with models of evolution. The core engine upon which an ALife individual changes is learning and an ALife population changes is natural selection.

The main point in this short chapter is that ALife could be used to investigate some issues in teaching theory and research. Furthermore, we suggest that using ALife could potentially reveal hidden properties of teaching, properties that are difficult to observe in our natural environment. The idea to use ALife models of learning and evolution as a set of tools for the investigation of cognitive developmental issues, such as aspects of Piaget's theory, was recently suggested by Parisi and Schlesinger (2002). Our arguments closely follow some of their ideas.

This chapter has five sections. Section 1 gives a brief description of teaching research and formal methods. In section 2, we describe neural nets, artificial life, and evolutionary algorithms. Section 3 presents both the benefits and pitfalls of the formal approach to human behavior research. In section 4 we show how ALife can be used for teaching research. And we summarize the chapter in section 5.

TEACHING RESEARCH AND FORMAL METHODS

Teaching is a complex and elusive concept. One indication of its ambiguity is that, from the time of the ancient Greeks to this day, there is no single, widely accepted definition of teaching. Along with the advantages of ambiguity, this state of affairs presents a drawback for research, e.g., the lack of a rigid, accepted working definition makes it difficult to compare results from experiments because they are sometimes based on different definitions. One example that comes to mind is the on-going debate about whether teaching exists among non-human primates. Surely, with an agreed-upon definition of teaching, this debate would be reduced to a trivial problem. Of course, the definition one chooses is based on one's theoretical framework, which complicates matters.

As opposed to the natural language, intuitive and flexible way of defining concepts, formal methods postulate a different approach. In a formal framework, concepts and terms are carefully stated in a symbolic and non-ambiguous manner. While a formal approach avoids some of the problems just mentioned, it is far from being ideal. Nevertheless, despite its attendant problems, as we note in Section 3, the formal method is unquestionably an extremely powerful research approach.

One interesting area, where using formal methods made major breakthroughs, is research on language and language acquisition. By using *formal language theory* as a mathematical description of language and grammar, and integrating results from this theory and linguistics research, Chomsky was able to develop his Universal Grammar theory, which is one of the seminal achievements in the cognitive sciences over the past 50 years. These achievements were also based on the availability of detailed descriptions of natural languages that scholars from linguistics and developmental psychology, such as those by Berman (1978), made available.

When comparing the task of initiating a formal computational research program on teaching to building a computational model for, say, language, we face a decidedly challenging task. In language research, at least some of the basic building blocks are well defined, which lend themselves to formalization. Teaching theory and research, on the other hand, lag far behind. Currently, we have no clear idea about the nature of teaching, what it is comprised of, and what the basic components are of any teaching event or behavior, not to say how teaching is learned.

EVOLUTION, NEURAL NETS LEARNING, ARTIFICIAL LIFE AND GENETIC ALGORITHMS

ALife is the study of all phenomena of the living world through their reproduction in artificial systems (Langton, 1995). This means that one can simulate living phenomena in a computer, although sometimes physical artifacts (robots) are constructed that exhibit some of the behaviors of real organisms. Simulations are a new way of expressing scientific theories and hypothesis about the causes, mechanisms, and processes that underlie observed phenomena and, as such, they allow us to explain those phenomena.

The typical ALife experiment is based on two distinct processes, individual learning and evolution. Within the ALife framework, learning is the process in which an agent's neural network adjusts its internal synaptic weights according to a combination of the current network input, output and a learning rule, which may vary. The second process is the evolutionary one. In a nutshell, we allow this process to select each generation's best fit individuals and create the next generation from them. The new generation is created by applying two sub-processes. The first is the combination of the synaptic weights of the parents' network into a new set of weights, and the second is the usage of mutation, a small random change that also changes the network's weights. These two processes interact. For a detailed discussion of the interaction between these two processes see David, Ackley, and Littman (1991) and Nolfi, Elman, and Parisi (1990).

ALife simulations address all sorts of phenomena of the living world, including the behavior, cognitive abilities and mental life of organisms. We cannot provide a detailed descriptions of all aspects artificial life, so instead, we focus on three main components

of the framework. A more detailed description is found in Ruppin (2002) and Mitchell and Forrest (1995).

The typical ALife framework is composed of three main objects: a population of agents, an environment (sometimes called an arena), and a fitness function.

Agents are neural networks (NNs). Briefly, a NN is a naïve implementation of a nervous system. A NN has at least 3 layers of basic units: (1) An input layer (sometimes connected to actual sensors) that receives the perceptual input, (2) one or more hidden layers that can be seen as a processing layer, and (3) an output layer which is usually connected to external controls, such as motors.

The internal units of the NN are connected to each other with virtual wires. Each wire has what is called a weight (some real number). Input is received via the input units and is transmitted via the hidden internal units to the output layer that, in turn, causes some action to be performed. NNs learn to compute functions. For every input pattern accepted by the input neurons, the hidden layer performs some rather simple combination of its connection weights and produces an output to be carried to the output units. Sometimes, the network is trained by allowing it to compare its response with the “correct” response to the specific input. In this case, the connection weights are updated via a learning rule, with future similar input resulting in “correct” output.

The second component in the ALife framework is the environment. This is usually some sort of bounded arena where agents live. Its exact description must be given. As noted above, this is a computer program, and it cannot cope with partially defined terms.

The third component of an ALife experiment is called the fitness function. Understanding what the fitness function is requires explaining how the typical ALife simulation works. Initially, a population of agents with randomly initialized connection weights is placed in the environment. They are called generation0. At every time step, each agent performs one action (move forward for instance). After a predefined number of steps, agents are evaluated and receive a fitness score according to the fitness function. The top two agents are selected and allowed to reproduce, thus creating a new agent. And much like in real life, the newly created agent’s NN is a combination of its parent’s networks. Before reproduction is completed, the agent is duplicated and a small part of his NN is randomly mutated. The newly created agents are similar to their ancestors because they inherited most of their networks; however, they are different since a combination and mutation was performed. The new population, called generation1, is placed in the environment and the process continues. The simulation stops when the fitness function no longer shows signs of improving. The fitness function is some computable function, such as the number of times the agent has slammed itself into a wall when the task is to avoid walls and obstacles.

The ALife framework’s simplicity along with the comparable simplicity of the genetic algorithm may lead to a somewhat misleading conclusion about its ability to solve complex tasks. Below is a short list of three remarkably sophisticated behaviors that agents perform resulting from these frameworks.

Avoiding obstacles

Consider the task of moving around some arbitrary flat space at high speed trying to avoid external walls and other obstacles. Initially, you have no idea what your orientation is, where in that space you are or the location of the obstacles. Agents have been shown to perform extremely well in this task after proper training. These agents seem to first adjust their orientation to a point where the wall is to their right and then proceed at full speed keeping the external wall at a constant distance. For a detailed description of a similar experiment, see Kodjabachian and Meyer (1998).

Flocking behavior in birds

Reynolds (1987) investigated how flocks of birds fly, without central direction; i.e., a leader. He created a virtual bird with basic flight capabilities, called a boid. The computerized world was populated with a collection of boids, flying in accordance with the following three rules:

- Collision Avoidance: avoid collision with nearby flock-mates.
- Velocity Matching: Attempt to match velocity with nearby flock-mates.
- Flock Centering: Attempt to stay close to nearby flock-mates.

Each boid comprises a basic unit that sees only its nearby flock-mates and “flies” according to these rules.

These three rules were sufficient for the emergence of flocking behavior. The boids flew as a cohesive group, and when obstacles appeared in their way they spontaneously split into two groups, without any central guidance, rejoining again after clearing the obstruction.

Reynolds’ (1987) model demonstrates the basic architecture of ALife systems, i.e., a large number of elemental units that are relatively simple can interact with a small number of nearby neighbors with no central controller. High-level, emergent phenomena resulting from these low-level interactions are observed.

Predator-prey

Floreano, Nolfi, & Mondada (1998) report an extremely interesting co-evolution based EAA experiment where two different populations (different basic skills) evolve and compete (see Floreano et al., 1998; Nolfi et al., 1993 for detailed technical descriptions of this experiment). The complexity of predator and prey strategies observed in the resulting population is remarkable. Predators seem to wait for prey agents to come closer before they attempt to attack; prey and predator seem to change their strategies in accordance to their opponent’s strategy.

ALIFE BENEFITS AND PITFALLS

A major advantage of the ALife framework over traditional research tools is that if one expresses one’s theory or hypotheses in the form of a computer program, one is

forced to be explicit, complete, and detailed. Otherwise the program won't run or the simulation will not produce the expected results. And because teaching is such an ambiguous concept, the use of the ALife framework forces us to avoid this ambiguity.

One pitfall of the ALife approach is that there are many simplifications involved in these models. While enabling one to address systems that would be otherwise too complex to investigate formally, it may well be that interesting and even vital components of a system are missed in that simplification.

ALife is a sophisticated search procedure within the task solution space. But as powerful as it is, it can never break the optimal performance boundary of the controlling network. It can be shown that a neural network simply cannot learn some tasks.

It should also be noted that an evolutionary search for optimal solution within the ALife framework does not perform magic. An agent which is not equipped with wings that allow flying will not spontaneously start gliding in the air no matter how patient we are for this to occur. It will also not build wings by itself or develop an arbitrary perceptual ability. These are far beyond the capabilities of these rather simple controlling networks that are commonly used in typical ALife experiments. As computational power grows, we can expect to see increasingly more powerful networks allowing more and more complex behaviors to emerge; however, many tasks will always be beyond the reach of even the most sophisticated networks available, given the computational model currently used.

A COMPUTATIONAL APPROACH TO DESCRIBE THE NATURE OF TEACHING AND HOW TEACHING IS LEARNED

We now attempt to explore an ALife approach to teaching, in which we propose to explore idealized teaching situations and evaluate the effectiveness of various teaching methods. That is, we adopt the perspective of an artificial intelligence researcher or engineer in such a way that we can both explore designs for machines that are effective in solving teaching problems of scientific interest and evaluate these designs through mathematical analysis or computational experiments.

In the following section we propose to investigate the nature of teaching within the ALife framework. This topic encapsulates many smaller questions, some of which we believe can be addressed within that framework.

The nature of teaching

The questions we propose here deal with teaching both as a concept and a behavioral phenomenon. We suggest that, given a definition of teaching, the following questions, and others, may be addressed concerning the *concept* of teaching: What does it take for an agent to identify teaching behaviors in others? Is the task of identifying teaching behaviors a learnable task? What are the prerequisites for the identification of teaching potential situations?

Concerning the nature of teaching as a *behavioral phenomenon*, here are several questions that could be tested in an ALife context: What are the prerequisites (environmental- and agent-related) for teaching to take place? Does teaching behavior

emerge spontaneously, given what its cognitive prerequisites are? What is the relationship between teaching and learning, e.g., is teaching an accelerator for learning?

Mapping teaching onto artificial life

In this section we discuss and develop an example to show that applying the methodology advocated by ALife research can be used to address some of the questions about teaching we just raised. In particular, we deal with the issue of mapping.

This section is organized as follows: First, we define mapping. Then we describe a common real life teaching scene – teaching to ride a bike. That is followed by presenting a partial mapping operator of some of the objects and actions that play a role in mapping bike-riding onto ALife A-objects and A-actions. And, finally, we complete the mapping to include some complex notions that were omitted before.

Mapping

Intuitively, a mapping transforms notions, objects and actions such as people and “learning” from real life into ALife notions, A-objects and A-actions that are precisely defined. Mapping is a projection of concepts from real life terms onto ALife terms.

A mapping M is called an improper or invalid mapping if one can point at least one relevant relationship between objects in real life that are not preserved in ALife, e.g., mapping two different people in real life onto one single undistinguished agent in ALife would be improper. While we hope that the direction from real life to ALife can be accounted for (it is under our control, after all), the opposite direction, i.e., accounting for relationships between objects in ALife to those in real life, is not trivial. Let’s see how mapping can work in an example of teaching.

Teaching someone to ride a bicycle

One of the many tasks parents undertake is teaching their children to ride a bicycle. Let us observe some of the events occurring while Ron is teaching his six-year-old child, Danny, to ride a bike. Below is a typical incomplete description of the entire task:

1. Danny has seen his best friend riding his new bike.
2. He approaches his father, Ron, asking him to teach him to ride a bike.
3. Ron considers and replies that the weekend would be a good time to start.
4. Over the weekend, they go to the bike shop, buy a new bike and head to a nearby park for the teaching session.
5. Ron is not a professional bike trainer but he does have his own bike and can ride it. He spends some time planning how to teach Danny to ride, and he considers different aspects of riding such as balancing, safety and control that he believes are necessary for Danny to learn in order to ride his new bike.
6. Ron must also integrate his knowledge about Danny’s physical, cognitive and learning abilities into his teaching plan.

7. At some point, the teaching session starts, and Ron starts executing his teaching plan. While doing that, he has to make sure that Danny's attention is not drawn away, so he picks a quiet place in the park.
8. In the instructional part, Ron demonstrates some techniques and accompanies his demonstrations with verbal explanations. When he spots misunderstanding or confusion he repeats his demonstration, sometimes demonstrating a different technique more adequately. He is also attentive to Danny's frustration or fatigue and tries to deal with it. He foresees the obstacles and relaxes the balancing task by holding the bike while Danny tries to balance himself.
9. Danny, on the other hand, is watching, asking questions, listening to his father and tries to extract as much as possible. He wants to be taught. He has confidence that his father can teach him, and he attempts to follow his father's instructions.
10. Finally after a number of hours, Danny is skilled enough to ride his bike on his own, and both Ron and Danny are satisfied with the results.

Given the above ride-a-bike teaching example, consider the following description of a human teaching event. We argue that there are at least 5 different distinct sub-tasks performed by the teacher along the timeline:

1. *Identification* of a potential teaching situation. (start condition)
2. *Creating* the required environment for the knowledge transfer to be feasible (bike, park, Danny and Ron) (prerequisites)
3. *Planning* a teaching strategy.
4. *Executing* a teaching strategy while dynamically evaluating and adjusting it according to expected and unexpected events. (teaching actions)
5. *Evaluating* the learner's final knowledge to measure the success of the knowledge transfer event, and to decide that no more teaching is necessary. (stop condition).

Note that some of these sub-tasks may be trivial and take practically no time for certain tasks, e.g., the environment is set up properly.

We suggest that although teaching is an extremely complex task, at least some of the different sub-tasks can be naturally mapped onto an ALife experiment in a way that will preserve some of our intuitive notions of teaching. If we are able to show a proper mapping of these 5 sub-tasks onto ALife, we will then have the benefits of using ALife as a research tool for careful, rigid analysis of teaching.

For simplicity sake, we now concentrate on finding a valid mapping only for executing a teaching strategy (task 4 above). The mapping of the other four is omitted. To be more explicit, we present a valid mapping between the objects and actions that play a role within the task of executing a teaching plan in real life onto ALife. More specifically, we have to come up with a mapping that precisely states for each object or action involved in Ron's execution of his teaching strategy, an A-object or an A-action in the ALife environment.

At first glance, the task of mapping seems extremely difficult. Ron's execution of the teaching strategy is remarkably complex. It is dynamic in that it changes according

to Danny’s performance, and involves numerous different actions and sophisticated cognitive processing in Ron’s mind. It would be very helpful if we could, say, create a ride-a-bike ALife experiment and use it as basis for the mapping. However, its extreme complexity makes a full description impossible here, given space constraints. Instead, we make a slight detour from the ride-a-bike example and briefly describe a typical, relatively simple and well-studied ALife experiment that will serve as a ride-a-bike analogy to base our mapping upon.

Ruppin (2002) describes a prototypical ALife experiment in which simple agents live in a 30×30 cell arena. “Poison” is randomly scattered all over the arena. Consuming “Poison” results in a negative reward. “Food”, the consumption of which results in a positive reward, is randomly scattered in a restricted “food zone” in the southwest corner of the arena.

The agents’ behavioral task is to “eat” as much of the food as they can while avoiding the poison. The agents are equipped with a set of sensors, motors, and a fully recurrent artificial neural network controller. The agents have 5 sensor systems, 4 of which sense the grid cell the agent is located on and the three cells immediately ahead of it. Each of these probes can sense the difference between an empty cell and a cell containing a resource (either food or poison, with no distinction between them). The fifth probe can be thought of as a smell probe, which can discriminate between food and poison if either is present in the cell occupied by the agent.

The motor system allows the agents to go forward, turn 90 degrees in each direction, and attempt to “eat”. Eating is a costly action, as it requires a time-step in a lifetime of limited time-steps. It has been shown that from the evolutionary algorithm agents emerge that learn to find food and avoid poison in this environment.

A partial mapping

Table 1 explicitly defines a partial mapping between the ride-a-bike example in real life and the food-poison experiment in ALife. We now spend some time explaining the details and rationale of this partial mapping, leaving the more complicated task of completing the mapping for later.

Table 1. Mapping from real life to ALife

Role	Real life	ALife
Task	Ride-A-Bike	Find “food”, avoid “poison”
Participants	Ron (teacher)	A-ron – an agent from generation 10000
	Danny (Learner)	A-danny – an agent from generation 0
Environment and utility objects	Park, bicycles	Arena, food and poison
Learning	Sophisticated human learning	Artificial Neural Network learning algorithm
Teaching strategy	Explaining, Demonstrating, other teaching activities	To be shown later

The mapping described in Table 1 preserves three important relationships between the participants and the task, namely:

1. Ron can initially ride-a-bike. A-ron can initially find food and avoid poison (A-ron is a member of an already trained population).
2. Danny initially does not know how to ride-a-bike. A-danny is initially a poor finder of food (since he is of generation 0).
3. Danny is capable of learning to ride-a-bike. A-danny has been shown in food-poison ALife experiments to be skillful enough to eventually learn to find food.

This mapping preserves the relationship between the participants, Ron and Danny, who are two distinct figures in real life, and A-ron and A-danny are two distinct agents in ALife. The park and the bicycle are mapped to the ALife arena as are the food-poison items. Finally, the learning process and activities Danny is undergoing in real life is mapped to the A-learning process that A-danny is undergoing in the ALife experiment. Fortunately, learning in ALife is rigidly defined as the change of connection weights in A-danny's neural network, so the mapping is, therefore, still valid.

Completing the mapping

We believe that the partial mapping described is proper; however, we still haven't accomplished what we are really after, i.e., creating a mapping that will enable us to observe the execution of teaching in ALife. We now face the complicated task of mapping the set of actions and available perceptual input that the teacher, Ron, has to his representative in ALife, A-ron.

While we cannot present a complete solution, we suggest one approach that may yield a feasible, proper mapping for this part. The idea is this: we set some constraints on Ron's teaching strategy, simplifying it as much as possible. To be more explicit, we try to simplify Ron's actions and perceptual input in real life as much as possible, while keeping his now-simplified behaviors within the confined domain of what we intuitively think of as teaching.

The first constraint we suggest is that Ron executes a very basic teaching strategy, namely, a sequence of demonstrations. Let's analyze what a demonstration is in real life. A demonstration is an explicit act that is similar to, yet different from, a non-demonstration action in the following ways:

1. The demonstration's goal is different from the non-demonstration's action's goal. Let's take opening a jar as an example. The goal of a demonstration is to show another how to perform an action, such as how to open the jar, whereas a non-demonstration action's goal is to achieve an end (opening the jar) that the action is performed to reach. The actions may be similar and in both cases the jar is opened, but the goal of the demonstration was to show how to do it to someone else, whereas the goal of the non-demonstration actions was to do it.
2. The demonstration actions may, in all likelihood, be slightly different than the non-demonstration action, e.g., it might be slower, emphasizing important aspects of how to perform the task at hand.

3. The demonstration actions sometimes require special technical alterations of equipment in order to deliver the important aspects of what is being demonstrated.

The above is obviously too complex to preserve all these properties of differences, so we decided to build a mapping that will preserve the following differences:

1. A demonstration will give no reward to the performer.
2. A demonstration will retain its distinction from the non-demonstration action it is aimed to demonstrate.

For simplicity, let's further constrain Ron's teaching strategy to be composed of only a finite set of demonstration steps. For example, assume that holding the handlebar, riding in a straight line and turning right or left safely are the four available demonstrations Ron can perform during his execution of teaching.

We are now ready to complete our mapping. Specifically, we show a mapping between demonstrating in real life and A-demonstrating in ALife. Note that as opposed to the partial, rather trivial mapping in Table 1, which did not require any changes in the ALife experiment, this part does require some technical changes and rewiring of the ALife agents.

In real life, Ron has 4 distinct demonstration actions, and these are clearly distinguished from the non-demonstration actions. Following this property, we extend A-ron, such that for each action it can perform, it can also perform a demonstration action. For example, if A-ron can perform a Go-Left, we can tweak its neural network to allow it to also perform another distinct action namely A-Demonstrate-go-left. All in all, the altered, extended version of A-ron has exactly twice as many distinct actions compared to the original A-ron. Table 2 partially illustrates these categories.

What remains for us to do is to alter the ALife experiment in such way that: (1) if A-ron takes one of the demonstration actions, it will not be explicitly rewarded and (2) if A-ron takes a demonstration action, it can be identified and distinguished from the non-demonstration action.

Dealing with the reward issue is relatively simple to accomplish. The ALife environment allows us to simply ignore food items eaten in an A-demonstration action, and the same applies to his demonstrating a movement action. We can simply make

Table 2. Original and altered A-ron for A-demonstrations

Original A-ron behavioral repertoire	Altered A-ron behavioral repertoire
Go-Right	Go-Right A-Demonstrate-Go-Right
Go-Left	Go-Left A-Demonstrate-Go-Left
Go-Forward	Go-Forward A-Demonstrate-Go-Forward
Eat-Resource	Eat-Resource A-Demonstrate-Eat-Resource

sure the environment and his location are rolled back as if the action never occurred. Distinguishing the A-demonstration actions and the A-non-demonstration actions in a-Ron is a by-product of the non-trivial technical alterations in the neural network. It is worth noting that the technical alterations we omit here are non-trivial and may turn to be rather complex; however, a review of different neural networks used in ALife experiments lead us to believe that these alterations are feasible.

Let's sketch a review of what we have done here. We have two extended agents: A-ron and A-danny. One is skilled in finding food, and the other doesn't know how but can learn to find food in the arena. A-ron can also A-demonstrate every action in his behavioral repertoire.

In sum, we mapped the notion of demonstrating onto ALife, and argued that since demonstrating is a very basic teaching strategy, the notions of teaching are preserved. Furthermore, the relationship between Ron and demonstrating is kept across the mapping (since A-ron is able to perform an A-demonstrate action).

Although we are almost done, some things are still not quite right. For example, how can we make sure that A-danny is even aware of these demonstration steps and uses them as input for his learning process? Fortunately, ALife is not real life. Recall that in ALife we have full control over the perceptual input of every agent, so we can, for instance, implement some wiring such that whenever A-ron decides to take an A-demonstration action, A-danny's input and output units receive the exact input and output a-Ron was subject to. This will allow A-danny the ability to benefit from A-ron's demonstration. We emphasize, again, that while the technicalities of doing these alterations are non-trivial, these problems are solvable within the ALife framework.

Let's assume these technical problems are solvable. We now have an ALife experiment with notions of a teacher, a learner, a simple teaching strategy (demonstration) and a learnable task. We have created a well-defined computational model that preserves, at least partially, the notions of teaching. We can now explore some of the questions raised earlier regarding teaching. For instance, we can explore whether evolution favors teaching over finding food with different fitness functions. We can evaluate the evolutionary benefits of teaching for the learner, e.g., is teaching helpful for the teacher? Is teaching an accelerator for learning? Will our teacher agents converge to interesting demonstration sequences? This is just a small sample of questions that are well defined within ALife. It is not idle speculation as to whether or not we can get answers to these questions. These questions should be fully answered by running the ALife experiment. The questionable part of our analysis is the validity of the reverse mapping of these results. We argue that while the mapping we described is simplistic, at least for the moment, it is rigid and feasible. Furthermore, we believe it is relatively easy to expand this mapping or similar mappings to a more complex and interesting one.

SUMMARY

We suggested that by using the research tools provided by the ALife framework, a better understanding of teaching could be obtained. Mapping teaching research topics onto the ALife framework is a non-trivial and challenging task that encourages formalization

and concrete, rigid definitions. Furthermore, the process itself is an incredible opportunity to rethink and better state the actual research questions in terms that may be used for other research approaches. We also believe that if our mapping is sufficiently sophisticated and carefully crafted, some results obtained in the virtual ALife framework may possibly hold in the real world. That could give us an understanding of a most remarkable social phenomenon – teaching. And we might, perhaps, gain an understanding of whether or not teaching is a natural cognition that is learned by individuals and if it evolves in populations across many generations.

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EARLY LANGUAGE ACQUISITION AND EMERGENT LITERACY

13. RESULTANT STATES IN EARLY LANGUAGE ACQUISITION*

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INTRODUCTION

Children talk about changes of state from the earliest stages of first language acquisition. These early utterances often appear as precursors to parts of fuller expressions of causation that include agents, actions, and objects affected. In this chapter, I review accounts how one- and two-year-olds talk about goals and resultant states, and describe some elicited production data from English and Hebrew in a task where children were asked to describe states that had resulted from a prior, inferred action. In many languages, speakers use participial or adjectival forms of the verb to convey end-states; these provide a critical link in the causal chain, connecting instigators of actions that cause change to the outcomes of these actions for the objects affected.

When children start to talk, they talk about a variety of objects and events. Among the event-types are those where an instigator performs an action on some object that produces a change in state in the object. This event-type then involves causation and change of state. (Vendler (1967) called the verbs for the actions in such events ‘accomplishment verbs’.) The participants in such events are the instigator or agent of the causal action and the object-affected. The change observable is the change of state for the object-affected, from its initial state, prior to the action, to its final state

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that results from the action. This event-type provides the topic for the present chapter. I focus in particular on the final state of the object-affected, which results from the action. Do children notice the changes involved? How soon do they talk about them? And what means do they choose for this? For example, they might encode only the agent and the object-affected, or they might focus on the causal action that produces the change, or they could look for some means to encode information about the resultant state itself. At the same time, the typology of the language being acquired may affect the range of options available and the preferred means for talking about the result of an action that produces a change of state. In a language like French, for example, one typically talks about the causal action and the resultant state in two separate clauses, e.g., *Il a essuyé la table; la table est propre* 'he wiped the table; the table is clean'. In contrast, in a language like English, speakers often include both action and resultant state in a resultative construction, e.g., *He wiped the table clean*. In both languages, the resultant state is conveyed through various adjectival forms for the state involved, either in a resultative construction, where this is available, or in a separate clause.

When young children attend to changes of state, they appear at first to fix on what has changed—whether a plate is cracked, a page torn, a drawing scribbled over, a stick broken, a biscuit reduced to crumbs, or a button pulled off. At around age two, in fact, young children begin to be particularly attentive to how things are, to notice details, and to comment on any departures from the normal state—cracks, breaks, wear, and so on (Kagan 1981). And the earliest states children comment on tend to be states that result from some prior action. Their words for these in English may be adjectives like *wet, hurt, hot, tired, or sleepy*, or past participles like *broken, torn, dropped, or spilt* (Clark, 1983; Nelson, 1976). Interestingly, many of these terms pick out precisely the kinds of departure from canonical (or normal) states that Kagan suggested two-year-olds are particularly attentive to. For example, they will focus on and even get upset over a broken cup, a missing button, or a torn page—all departures from the canonical state for cups, buttons, and book-pages.

Children this age also appear to distinguish inherent properties of an object from temporary ones. This may show up, for example, in their coinage of new adjectives: some children distinguish two types of novel adjective—those denoting a permanent or inherent characteristic of the object talked about versus those denoting a temporary state resulting from an action that the child has observed. This can result in the construction of contrasting adjective forms in *-y* like *crummy*, said of cookies that typically produce many crumbs when eaten, versus adjective forms in *-ed* like *crumbed*, said of the child's foot after he stepped on some crumbs on the floor (Clark, 2001). Where there was no prior action to observe that could have produced the state on display, the favoured form for a new adjective ended in *-y*. But where there was a prior action observable, the favoured form would end in *-ed*, as shown in Table 1.

Adjectives and adjectival participles are not the only option to consider. One change of state that appears to be particularly salient for young children is change of location in space. From around 1;6 on, children comment on the locations of objects, usually following some deliberate displacement. In English, they typically rely on locative particles to indicate the goal of the prior motion, and hence the current state of the

Table 1. Percent of innovative adjectives coined in settings with and without a prior observable action (based on Clark, 2001: 394)

Age:	Novel adjectives in <i>-ed</i>		Novel adjectives in <i>-y</i>	
	+prior action	-prior action	+prior action	-prior action
2;4-3;0	78	18	20	75
3;1-3;6	80	20	25	75
3;7-4;0	75	25	7	85

Note: Where percentages do not sum to 100, the remaining cases could not be categorized.

object (e.g., *up*, *out*, *in*, *off*). These particles are later combined with a past tense verb, as in *pick up* or *turn off* for the causal actions involved.¹ When they talk about the effects of motion and action with one-word utterances like *Down*, after throwing an object down the stairs; *Outside*, as a request to go outside, or *On*, after turning on a light switch or a tap, it may be impossible to tell whether they are focussing on the causal action per se, on the resultant state, or on some combination of the two as a unified event (Farwell, 1975). They also sometimes use locative nouns (e.g., *floor*, *chair*, *box*, later within a prepositional phrase), again in one-word utterances, to indicate current location (Farwell, 1975, 1977; Greenfield & Smith, 1976; see also Bowerman, de Léon, & Choi, 1995).

At the same time, children start learning how to talk about events with actions of different types—activities, accomplishments, and achievements—and about states. In their talk about accomplishments, where the instigator's action produces a change of state, children begin to build up more complex expressions by combining terms for goals or results with terms for the causing act, as in *put on*, *turn off* (Farwell, 1975). When they begin to use both intransitive and transitive verb forms, they start to mark some verb-types for completion of the action. This completion is typically marked with a past tense suffix in English. e.g., *spilled*, *drinked*, *wiped up*, or a past participle in Italian, e.g., *slacciate* 'unlaced-masc.sg.', *caduta* 'fallen-fem.sg.', *fatto* 'done-masc.sg.' (Antinucci & Miller 1976). Accomplishment verbs, where there is a change of location, tend to be the first verbs children mark for the notion of completion (Antinucci & Miller, 1976; Bloom, Lifter, & Hafitz, 1980).

Children may also mark the affectedness of the object, as in early Italian, by agreement in gender of the past participial form with the noun for the object affected. With verbs that form their past tense with *essere* 'be' + past participle, the participle always agrees in number and gender with the subject or agent of the action. With verbs that take *avere* 'have', the participle remains invariant. Children acquire those participial forms that agree with the subject first, as in (1):

- (1) a. Claudia (1;5.20) *Utaa* [= *seduta* 'seated-fem.sg.', of herself, sitting on a chair]
 b. Claudia (1;7.10) *Duto lì* [= *caduto lì* 'fallen-masc.sg. there', talking about a pebble]

¹ In English, verb + particle constructions are also readily used as resultatives, e.g., causative *He turned off the light* vs. resultative *He turned the light off*.

Only after they produce *essere* in combination with a participle do children acquiring Italian start to produce past participles with *avere* for accomplishment verbs. When they do so, they often incorrectly produce a participial form that agrees with the direct object, the object-affected, as in (2):

- (2) a. Claudia (1;8.24) *A sioa ha cuitta a potta* [= la signora ha chiusa-fem.sg. la porta 'the lady shut the door']
 b. Iola (1;6.6) *Uè hai messa la sedia?* [= dove hai messa la sedia 'where did you put the chair']
 c. Francesco (1;11.18) *Pesa Checco panta* [= Francesco ha presa-fem.sg. la campana 'F. took the bell']

In effect, children acquiring Italian treat past participles as if they are adjectives, making them agree in gender and number with the relevant noun. Data like these strongly suggest that in events described by transitive, causative verbs, children connect the resultant state directly with the object-affected conceptually. This is reflected in their language use prior to mastery of the conventions for the auxiliary *avere* 'have' with a past participle (Volterra, 1976).²

Once children begin to mention both the agent and the object-affected as they use verbs in causative frames in English, they often extend this causative frame to intransitive verbs and so impose on them a transitive, causative meaning too (Bowerman, 1974), as in the examples in (3):

- (3) a. Christy (2;3, pulling a bowl closer to her as she sits on kitchen counter): *I come it closer so it won't fall.* [= make it come closer, bring it closer]
 b. Christy (2;9, holding a piece of paper over baby-sister's head, then dropping it): *I'm gonna just fall this on her.* [= make this fall, drop this]
 c. Mother (holding a broken musical cow-toy; music no longer plays):
 The cow would like to sing but he can't.
 Christy (3;1, pulling the string that used to make the music play):
I'm singing him. [= making him sing]

At the point where they have begun to form causatives from intransitives³ like this, they also start using periphrastic causative verbs like *make* or *get* for causation. By around age three, they distinguish lexical causative verbs from periphrastic causatives. When children acquiring English are asked to match lexical and periphrastic causative verbs to pictures in an array, for example, they associate lexical causatives with conventional

² Note that such forms are ungrammatical in standard adult Italian: since the past participle is invariant for past tense forms with *avere* 'have' as the auxiliary, the gender of the noun for the direct object should have no effect on the form of the past participle for such verbs. The critical data therefore come from plural marking (masculine or feminine), and from gender marking for the feminine (singular or plural), since the unmarked form of the past participle is equivalent to the masculine singular (see further Volterra, 1976).

³ Children acquiring English, as well as other languages, also make the reverse error of constructing intransitive verbs from causatives, but tend to do so less often and with fewer verb-types (see Clark, 2003; Figueira, 1984; Lord, 1979).

manner pictures (direct causation) as young as 2;8, and will choose a picture of someone squeezing a toothpaste tube—the agent acting directly on the object—for *squirts toothpaste*. By the age of 3;8, they reliably associate periphrastic causatives like *makes the toothpaste squirt* with an unconventional manner such as hitting a toothpaste tube with a hammer, where the agent acts indirectly on the object-affected (Ammon, 1981).

Children acquiring other languages also first express causation lexically and periphrastically at around the same age, and they make similar errors—for instance, over-extending intransitives as if they were causative in meaning (e.g., Hebrew / Berman, 1982; Cantonese / Cheung, 1998; Portuguese / Figueira, 1984; Japanese / Morikawa, 1991; Nomura & Shirai, 1995; Thai / Yumitani, 1998). This progression in their expression of causativity in the verb is consistent with children's comprehension of causative verb forms in English, Italian, Serbo-Croatian, and Turkish (Ammon 1981, Ammon & Slobin 1979).

Overall, these observations suggest that children attend to the results of actions and encode them early on in their attempts to talk about events involving an instigator (agent), an action that accomplishes a change, and a result affecting the object. They also suggest that two-year-olds are already able to represent certain causes and effects within the causal chain, and that they understand the general relation between a causing action and the result it produces. Nonlinguistic evidence for this understanding is found in several studies of very young children. At 18 months, for example, children are surprised when one of the supporting columns for an arch is removed and the arch fails to fall (Keil, 1979). At age two, children are good at establishing sequences of cause and effect: when shown a picture of a whole cup (canonical state) and then a hammer, for instance, they can select a picture of a broken cup (noncanonical state) as the effect (Gelman, Bullock, & Meck, 1980; see also Bullock & Gelman, 1979). But they may not make reliable inferences about more complex, less canonical, cause-effect relations until around age four (Das Gupta & Bryant, 1989).

Once children have some understanding of cause and effect, and have begun to encode this in their verbs, it becomes possible to look at the options favoured in different languages as they express their understanding. I turn next to how children acquiring English talk about results, and compare their options to those available to children acquiring Hebrew.⁴

OPTIONS IN ENGLISH AND HEBREW

In English, the state resulting from an action that produces a change is generally encoded by a past participle, the same participle used in the formation of the passive. If Rod ate an apple, the apple was or has been *eaten*, and if Kate breaks a plate, the plate is now *broken*. Both regular and irregular verbs rely on the past participle for these adjectival forms. In regular verbs, the participle is identical to the past tense form, and relies on the suffix *-ed* as in *boil/boiled*, *splash/splashed*, *tie/tied*. In irregular verbs, the past participle is formed in one of several ways: it may be identical to the present stem (*cut/cut*); it may

⁴ The English and Hebrew data reported here form part of a more extensive study in collaboration with Ruth A. Berman and Sik-Lee Cheung (see Berman, 1994; Berman, Cheung, & Clark, in preparation).

be formed by adding the suffix *-en* to the past tense form (*break/broke/broken*), or to the present tense form (*eat/ate/eaten*); or it may take a form distinct from both present and past (*sink/sank/sunk*, *write/wrote/written*) (see Ackerman & Goldberg 1996, Levin & Rappaport 1986). Finally, resultant states can be encoded with bare adjectives such as *wet*, *dry*, *clean*, *smooth*.

Even when children understand the effect of the relevant action on an object (Gelman et al. 1980, Keil 1979), they still have to acquire the relevant linguistic means for encoding what they know. In English, they could choose adjectival forms where these are available, but adjectives like *wet* or *clean* don't offer any template for constructing new adjectives for states that result from still other actions. So children could instead construct participial forms from the verb for the action that produces the change. Although children begin to produce regular past tense and past participial forms from around age two to two-and-a-half, there has been little systematic study of their construction of past participles for verbs derived from nouns and adjectives. At the same time, they are known to coin such verbs freely from around age two and appear to treat them as regular in form (Clark, 1993). However, the past tense forms and past participles of many irregular verbs are late acquisitions in English (e.g., Maratsos, 2000; Moder, 1989). Since they are still learning how to construct past tense forms for some verbs as late as age five or six, younger children are likely to make mistakes with irregular verbs, and may over-regularize the system by forming all participles with the suffix *-ed*. They also (correctly) construct regular forms for the participles of verbs constructed from nouns or adjectives.

In Hebrew, children start to produce resultative participles for talking about resultant states or end states between age three and four (Berman, 1994, 1997). In their spontaneous speech, for instance, they construct novel resultative forms from around age three on, e.g., *takun* 'fixed' for conventional *metukan* (Keren 2;11), or *meshutaf* 'rinsed' for conventional *shatuf* (Hagar 2;10). Yet children as old as six do not always produce the relevant participial verbal forms in contexts where the passive is obligatory. This seems surprising since the adjectival resultative and passive verbal forms rely on the same derivational patterns. (Note that the resultative is what resulted from an action, while the verbal passive can refer to present, past, or future activity; at the same time, it is difficult on occasion to distinguish resultative adjectival uses from passive verbal forms.) But children acquiring Hebrew typically use other options early on in place of the passive verb, namely middle verbs and impersonal constructions, both of which serve to downgrade agency, and therefore produce an effect similar to that of passivization.

Among the resultative forms for different verb types, the first option children are likely to learn is the P1 (pa'al) passive participial resultative form, CaCuC. This adjectival form is reserved almost exclusively for the meaning of resultant state, as in the established *shavur* 'broken' or *ganuv* 'stolen'.⁵ This should make the meaning of the CaCuC pattern relatively transparent, compared to other, related, forms that can convey several different meanings. Two other verb conjugations have passive participial

⁵ Hebrew also has a few conventional adjectives without resultative meaning that take the same form, e.g., *tsanid* 'hoarse', *radud* 'shallow'.

forms with resultative meaning—P3 or pi'el (meCuCaC) and P5 or hi'fil (muCCaC)—but only as one of several meanings that are associated with these patterns. Since the passive in Hebrew is itself acquired relatively late (Berman, 1985), children are likely to identify the vowel pattern (–a–u–) in the CaCuC form first with the meaning of resultant state. Some CaCuC forms such as *shavur* are familiar even to very young children, and others are likely to be accessible early on because of the root consonants shared with the base verb (Berman, 1982). This suggests that in Hebrew, children may start with the CaCuC pattern and apply it not just to verbs from the P1 conjugation, but also to verbs from the P3 and P5 *binyanim* or verb-patterns as well.

ELICITING EXPRESSIONS FOR RESULTANT STATES

Children's knowledge of the options in English and Hebrew was explored using an elicitation technique based on the procedure developed by Gelman and her colleagues (1980) in their study of knowledge about causes and effects. In the present study, children ranging in age from two to five (with 12 at each age level) were given two tasks. The first was designed to assess their nonlinguistic understanding of cause and result sequences where they had to infer that the action produced a particular change of state. The second task elicited forms for talking about resultant states. Children were shown a series of cause-effect sequences, using triples of pictures; the experimenter described each one as she placed it on a small horizontal stand, designed to hold three cards, facing the child, e.g., 'Here's an apple [1]. And here's a knife to cut it with [2], and now [3] the apple's ———,' pausing with an unfinished intonation contour as a prompt for the child to fill in the missing information. In the English version of this elicitation task, the verb was always supplied in its basic infinitive form with the middle picture [2], as in the sample instructions just cited.

The English verbs were drawn from five sources: (a) verbs from basic adjectives (e.g., *to dry, to cool, to empty*), (b) verbs formed from adjectives using the suffix *–en* (e.g., *to sharpen, to blacken, to shorten*), (c) verbs from nouns (e.g., *to water, to comb, to paint*), (d) regular verbs (e.g., *to wipe, to tie, to chop*), and (e) irregular verbs (e.g., *to catch, to sew, to hide*), with each child hearing 20 verbs in all (four of each type) from one of two lists.

In the Hebrew version of the task, the verbs were also supplied in their infinitive form, again along with the second of the three pictures in each triple. The verbs were drawn from four sources: (a) P1 (pa'al) verbs that form the passive resultative participle in CaCuC. For instance, from the root *x-t-x*, 'cut', with present tense *xotex* 'he cuts', children would hear the infinitive *la-xtox* 'to cut' for the target form *xatux* 'cut-pp = in pieces'; (b) P3 (pi'el) verbs with a passive participle in meCuCaC, where, for example, the source infinitive form *le-sarek* 'to comb' would yield *mesaruk* 'combed'; (c) P5 (hi'fil) verbs with a passive participle in muCCaC: where the source infinitive form *le-hastir* 'to hide' yields *mustar* 'hidden'. The last type, (d), consisted of P3 and P5 verbs with related adjectives already established in the lexicon, e.g., for P3 *le-katser* 'to shorten', the existing *katsar* 'short' in contrast to participial *mekutsar* 'shortened', or P5 *le-hartiv* 'to wet', with existing *ratov* (or *ratuv*) 'wet' in contrast to participial *murtav* 'wetted'. Children heard 16 verbs each (four of each type) from one of two lists (see Berman, 1994).

Table 2. Percent appropriate completions in the nonlinguistic cause-result task (based on Berman, Cheung, & Clark, in preparation)

Age groups (12 ea)	English	Age groups (12 ea)	Hebrew
2's (mean 2;3)	53	2's (mean 2;3)	49
3's (mean 3;5)	59	3's (mean 3;3)	79
4's (mean 4;4)	78	4's (mean 4;3)	84
5's (mean 5;2)	95	5's (mean 5;3)	88
Adults	100	Adults	97

Note: Percentages are based on 120 data points for the English-speaking 2's, and 240 for 3's, 4's, and 5's; and on 96 data points for each of the Hebrew-speaking groups.

UNDERSTANDING CAUSE AND EFFECT

This task was used to establish a rough measure of the children's ability to understand cause-effect sequences independently of the linguistic forms that might be used for talking about the new state resulting from a specific action (Gelman et al., 1980).

In this task, the experimenter showed children two picture cards, starting with the first on the left, then adding a second to it on a horizontal stand, and then asked them to choose, from a further three cards on the table, one that would complete the sequence. For example, they might be shown a picture of an apple, followed by a picture of a knife, and then be asked, say, "Which one goes here? (pointing at the right hand side of the stand). Children then chose from pictures of another apple, a fork, or some slices of apple, say, to complete the sequence.

The results showed that children did quite well on this task in both language groups by age three, as shown in Table 2. Even the two-year-olds appeared to understand the task and succeeded in choosing the appropriate card half the time. By age three to four, children were choosing the appropriate card for the relevant change of state most of the time and were virtually at ceiling by age five.

PRODUCING RESULTANT STATE FORMS IN ENGLISH

The production task used a similar technique but children filled in the term for the resultant state depicted in the third picture on the stand. Their responses were considered first from the point of view of the meanings being expressed—were they semantically appropriate? And next from the point of view of the actual forms children constructed—were the child forms produced the conventional ones being targeted?

The percentage of semantically appropriate responses at each age is shown in the last column of Table 3. These totals combine the target forms children produced correctly and any other possible forms they produced. These consisted mainly of adjectives with meanings related to the meanings of the verbs used by the experimenter (e.g., *dripping* in place of *wet* or *wetted*); prepositional phrases (e.g., *with drops of water on*), or full sentences (e.g., *he's got water on him*) that offered descriptions of the resultant states.

Two-year-olds offered semantically appropriate forms 74% of the time. This shows that they were attending to the elicitation task and understood what the experimenter

Table 3. Percentage of semantically appropriate responses in English

Age group	Correct forms	Other possible forms (Adj, PP, Ss)	Total
2;3	26	48	74
3;5	32	61	93
4;4	54	42	96
5;2	49	51	100

Note: Percentages are based on 120 data points for 2's, and on 240 for 3's, 4's, and 5's.

Table 4. Percentage of semantically appropriate responses for each source-verb type in English

Age group	V < Adj	V-en < Adj	V < N	V regular	V irregular
2;3	83	75	79	71	62
3;5	96	81	92	100	96
4;4	96	94	96	98	96
5;2	100	100	100	100	100

Note: Percentages are based on 24 data points for 2's, and on 48 for 3's, 4's, and 5's. This table also includes forms where children did not use the input verb but did use a semantic equivalent.

was asking. The same two-year-olds produced the target conventional participial forms only 26% of the time; by age four to five, children had increased their percentage of correct (adult-like) responses, but only to around 50%. This suggests that children still have a considerable way to go before they master the appropriate past participial forms for describing the states that result from specific actions.

In English, the target forms for the first four source-verb types are all formed with the *-ed* suffix. The last verb-source type, irregular verbs, is more disparate in character: past participles may end in *-t* (e.g., *sweep/swept*), or in *-en* (e.g., *sew/sewn*, *hide/hidden*), or their form remains identical with the present stem (e.g., *cut/cut*, *burst/burst*). The general prediction was that children would over-use the *-ed* suffix in forming the adjectival past participle for all five source-verb types. Tables 4 and 5 compare the percentages of semantically appropriate responses for each source-verb type with the percentages of *-ed* uses in the formation of adjectival participles.

As Table 4 shows, even the youngest children gave semantically appropriate responses most of the time to all five types of source-verb. As one might expect, they did least well on irregular verbs (e.g., *catch*, *write*) at 62%. They did best on verbs derived from basic adjectives (e.g., *wet*, *clean*) and from nouns (e.g., *comb*, *water*), at 83% and 79%. By age three, children were near ceiling on all source-verb types semantically, except for verbs in *-en* formed from adjectives (e.g., *reddden*, *flatten*). And from age four on, children had no difficulty in producing semantically appropriate responses to all the source-verbs they heard, regardless of type.

Table 5. Percentage uses of *-ed* for each source-verb type in English

Age group	V < Adj	V-en < Adj	V < N	V regular	V irregular
2;3	8	38	54	50	42
3;5	25	33	69	50	77
4;4	31	54	67	65	85
5;2	25	48	73	54	90

Note: Percentages are based on 24 data points for 2's, and on 48 for 3's, 4's, and 5's. This table also includes forms where children did not use the input verb but did use a semantic equivalent.

Yet as Table 5 indicates, the same two-year olds did much less well in forming participial adjectives, the targetted conventional form in this task. Although past participial forms in *-ed* were heavily favoured overall, children differentiated among source-verb types in their production of this form. They favoured it more heavily for regular and for denominal verbs (52%) overall, than they did for irregular verbs (42%) or for either category of de-adjectival verb (8% and 38%).

With verbs derived from adjectives, children generally opted for the base form of the adjective, with no adjustment to mark the resultant state as such. When told that the bucket of water was to wet the boy, for the resultant state, they said the boy was *wet*. Although the use of *-ed* on forms like *flatten* and *sharpen* is roughly double the number of uses on forms like *clean*, *empty*, and *dry*, both four and five-year-olds were still only at around 50% in their production of an overtly-marked past participial form in *-ed*. The older children made much more use of *-ed* on regular verbs (60%) and denominal verbs, also regular (70%); and on irregular verbs, where they averaged 87% use of *-ed*.

In summary, by age five, children appear to have identified the *-ed* suffix as the appropriate affix for talking about a resultant state, but they haven't yet mastered the relation that may hold between a basic adjective and a participle derived from a de-adjectival verb from the same root.

PRODUCING RESULTANT STATE FORMS IN HEBREW

The elicitation task in Hebrew was designed in the same way as that for English, although a number of the verbs used were necessarily different in meaning. There were four source-verb types: P1 verb infinitives with the participial resultative in CaCuC; P3 verb infinitives with participial meCuCaC; P5 infinitives with participial muCCaC, and a final group of P3 and P5 verbs with existing adjectives from the same roots. With the latter, speakers could construct the relevant participial forms or use the existing adjectives.

The general prediction for the first three types was that children would over-use the CaCuC form since it is the participial resultative form with the greatest specialization for resultative meaning. The P3 and P5 participial forms, in meCuCaC and muCCaC respectively, typically carry other meanings in addition to the resultative, so they may be less transparently connected to the notion of resultant state in the causal chain as exemplified by the commoner CaCuC resultative form. (P1 verbs, with the CaCuC

Table 6. Percentage of semantically appropriate responses in Hebrew

Age group	Correct forms	Other –u- forms (non-conventional)	Phrasal responses	Total
2;3	4	6	21	31
3;3	27	32	19	78
4;3	39	27	20	86
5;3	59	22	15	96

Note: Percentages are based on 192 data points.

Table 7. Percentage of semantically appropriate responses for each source-verb type in Hebrew

Age group	P1 (pa'al)	P3 (pi'el)	P5 (hif'il)
2;3	38	35	27
3;3	85	77	67
4;3	94	92	78
5;3	100	96	97

Note: Percentages are based on 144 data points (not included are the P3 and P5 verbs with existing adjectives).

resultative form, are among the most frequent in child-directed speech and in young children's speech.) At the same time, all three participial forms are characterized by the –u– vowel in the derived adjectival participles.

Children's responses to the production task were analyzed first for their semantic appropriateness—whether they produced the predicted forms, other semantically appropriate adjectives (usually from roots other than those of the target verbs), prepositional phrases, or sentences, as the English-speaking children did (Table 2). As Table 6 shows, two-year-olds did poorly, producing semantically appropriate forms only 31% of the time, but the older groups all produced large numbers of semantically appropriate forms to describe resultant states, at levels similar to those found in English. Besides correct forms like *sagur* 'closed' (from *lisgor* 'to close') or *menupax* 'inflated' (from *lena-peax* 'to inflate'), they also constructed some non-conventional adjectival forms with –u–, as in *namux* 'low' (in response to *lekatser* 'to shorten') or *mekurav* 'neared' (in response to *leharkiv* 'to assemble'). Phrasal responses included prepositional phrases like *bli zakan* 'without (a) beard' (in response to *legaleax* 'to shave'), and clauses like *lo ro'im oto* '(we) don't see him' (in response to *lexasot* 'to cover').

Children produced similar numbers of semantically appropriate forms in response to the first three source-verb types, as shown by the percentages in Table 7. But from age three on, they tended to do better with P1 verbs than with P5 ones; forms produced in response to P3 verbs fell in between the other two. By age five, though, children did equally well in finding a semantically appropriate form or phrase for the resultant state, regardless of the target verb type.

Although children produced many semantically appropriate responses to all three source-verb types, the younger children produced many fewer participial resultative

Table 8. Percentage uses of participial patterns for each source-verb type in Hebrew

Age group	CaCuC < P1	meCuCaC < P3	meCCaC < P5
2;3	8	4	0
3;3	52	37	4
4;3	83	52	16
5;3	94	73	44

Note: Percentages are based on 48 data points.

forms. The percentages of conventional forms produced in response to each of the three source-verb types are given in Table 7. The pattern mastered earliest is that for the P1 (pa'al) verb *binyan*, CaCuC: although the two-year-olds produced very few instances, threes produced this 50% of the time, and fours over 80% of the time. The P3 (pi'el) pattern, meCuCaC, lagged behind CaCuC, and only at age four did children produce this 50% of the time. The P5 pattern appeared even harder to master, as indicated by the low levels of use for both four- and five-year-olds.

Children not only mastered the CaCuC pattern first, they also over-used it on occasion in their construction of resultative participles for P3 and P5 verbs. For example, fours and fives produced CaCuC forms in response to P3 verbs 12% of the time, and in response to P5 verbs 5% of the time. Children also produced meCuCaC forms (P3) in response to P5 verbs: threes and fours did this on average 14% of the time. But none of the children ever produced either meCuCaC or muCCaC forms in response to P1 verbs (see also Clark & Cohen, 1984). The general patterns displayed in Table 8 show that the CaCuC form is the first mastered, as predicted. Of the other two forms, the P3 meCuCaC pattern is mastered well before the P5 muCCaC pattern, with both lagging rather far behind the P1 pattern.

In summary, children acquiring Hebrew understand the notion of resultant state and can produce semantically appropriate forms for talking about such states some time before they learn the specific participial forms for each verb type that conventionally convey that meaning. The most specialized of the participial forms, the one carrying only a resultant-state meaning (CaCuC), is the first to be acquired; it is also on occasion extended for use with other verb types. By age five, children have mastered the CaCuC form, and are on their way to mastering the meCuCaC and muCCaC forms.

For each language, children have to learn how to talk about a range of event-types and the elements that constitute them. Among these are causal events where the instigator of an action, by acting, produces a change of state in the object affected by the action. In some languages, the options available allow speakers to talk about the agent, the action, and the object-affected, generally identifying each role connected to the causing action through case-marking or word-order. The resultant state itself may be represented in the same clause as the causing action (as is often the case in English), or separately in another clause (as in French or Hebrew). Compare the typical two-clause sequence required in French, e.g., *Le garçon a peint les murs. Les murs sont rouges*, with the resultative construction typical in English, e.g., *The boy painted the walls red*. Other

languages may make use of still other options to mark the state resulting from a causal action. Cantonese, for instance, relies on compound verbs, the first part designating the action and the second part the resultant state, to combine action and result in the same clause. And with constructions like the passive, where the speaker takes the perspective of the object-affected, the action and resultant state may be difficult to separate from each other. Both the action in the passive and the resultant state are conveyed with the passive participial form. This is true for both English, with the past participle in *-ed*, and for Hebrew, with passive participial forms like CaCuC.

RESULTANT STATES

The first resultant states children talk about in English tend to involve changes of location, with motion to a goal, encoded with a particle or a locative noun (Farwell, 1977). Are children focussing here on the completed motion or on the goal-state? The same question can be put for a language like Cantonese, where children acquire a particle used to mark completed aspect very early (Cheung, 1997). By age two, children begin to use past participles of intransitive verbs of motion, but their application may be indeterminate between the completed action and the current state of the object affected. Children then gradually extend their use of past participles for resultant states to lexical causative verbs in general. The argument that they are picking out resultant states rather than some amalgam of action-and-end-state comes from several other sources. For example, at around this point, children acquiring English may contrast inherent properties with temporary ones resulting from some observable action. The evidence for this comes from their choices of derivational ending for novel adjectives (Clark, 2001; see also Sera, 1997). Data from Italian offer further evidence that children by now use past participles to pick out resultant states as a distinct part of the causal chain: two-years-olds often produce nonconventional agreement of past participles with direct objects of transitive verbs, forms that are ungrammatical for adult speakers of standard Italian (Volterra, 1976).

States can be sorted into subtypes. One important one is the state of being at a place. So when an entity changes location, from starting point (or source) to endpoint (or goal), one can view both starting point and end point as states. This type of state appears to be the most salient to young children. They attend to motion, and, as a result, to the goals of motion—the end points of entities that have moved or been moved. The state of being at a goal appears to be one of the first states young children talk about in languages as diverse as Cantonese, English, and Hungarian (e.g., Cheung, 1997; Farwell, 1977; Pléh, 1998).

Children also attend early on to whether a property is inherent (a characteristic state) or whether it is temporary (resulting from some prior action). In the latter, they rely on the past participial form in *-ed* to construct new adjectives for the relevant state (Clark, 2001). In fact, children's uses of the past participle more generally have been identified as going from early adjectival uses to later true verbal passives where the participle denotes a dynamic event (Israel, Johnson, & Brooks, 2000). Their early uses of participles are typically ambiguous between a stative and an eventive interpretation. Only as they master the syntax of the passive construction in English do they start

to use the passive participle in unambiguously passive constructions. Children's uses of participles in Italian suggest a similar history. Their earliest past participles are used with intransitive verbs of motion and agree in number and gender with the noun (the subject) for the entity moving. In this respect, their earliest past participles agree in the same ways that adjectives do. But when children begin to use past participles with transitive (causative) verbs, they continue to make past participles agree with the nouns for the entities affected (direct objects), a pattern *not* reflected in the speech children hear (Antinucci & Miller, 1976).

Central to these early uses is the structure of causal events where the instigator initiates some action, and by so doing causes a change of state in the object affected by the action. Causative events, then, can be decomposed into instigator (agent), action, object-affected, and resultant state of the object-affected. In many languages, the emergence of forms for the resultant state is hard to separate from the development of forms for talking about causal events more generally. In others, the forms used for talking about resultant states may be somewhat more specialized, and so distinct from the verb forms used for marking cause and completion in accomplishments (transitive, causative events). This appears to be the case in Hebrew where children start to acquire the causative and non-causative verb conjugations (Berman, 1982, 1994) before they produce many adjectival participial forms used for talking about resultant states. At the same time, the resultant state pattern, CaCuC, is more readily identified as marking a resultant state—its only meaning for P1 verbs—than is *-ed*, say, in English, where the past participial form also marks the past tense on regular verbs, provides the default past tense form for innovative verbs, and is used in the formation of the passive.

Other factors in children's acquisition of forms for resultant states include productivity—the general availability of the relevant affixes or word-patterns for adult speakers in the speech community. Other things being equal, children should find more productive forms more available early on than less productive ones. Another factor is simplicity of form—here, possible reliance on a diagnostic *-u-* vowel in Hebrew, in the CaCuC pattern, as well as the *-u-* in the meCuCaC and muCCaC patterns; and reliance in English on the *-ed* suffix. And yet another factor may be transparency of meaning—one meaning for the CaCuC form in Hebrew versus several for the meCuCaC and muCCaC patterns; and several meanings for *-ed*, in English (Clark, 1993). Children are influenced by all three factors as they learn how and when to construct new adjectival participles.

SUMMARY

One element in children's early expressions of causation within the clause is the resultant state that affects the object of the action. Casual events link the instigator or agent of the causal action to the object-affected through the action and the change it produces in the object (Clark & Carpenter, 1989). In this chapter, I have explored how children begin to talk about resultant states in causal events, what their first forms are, and when they start to use the conventional options favoured by adult speakers of their language. In both English and Hebrew (as in many other languages), the forms for resultant states are closely tied to forms used for talking about non-inherent properties and to forms

used in the passive voice. Some of the errors children make early on show that they distinguish resultant states from the actions that produce those states, and that they associate resultant states with the object affected. Resultant states are an integral part of causal events, whether or not languages offer distinct forms for encoding them within the causal clause. They appear salient to young children and so emerge early in the repertoire of things young children choose to talk about.

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14. THE ACQUISITION OF SUBORDINATION: FROM PRECONJUNCTIONALS TO LATER USE*

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INTRODUCTION

Subordination has always been considered a “developmental yardstick” (Berman, 1990) for language acquisition, marking the transition from simple clauses to complex ones. Two alternative orders are reported in the literature for the order in which complement clauses, adverbial clauses, and relative clauses are acquired. One possible order (Bloom et al, 1980; Bowerman, 1979; Dromi & Berman, 1986) is that complement clauses emerge first, followed by coordinate clauses and adverbial clauses, and finally, by relative clauses. On the other hand, Penner (1995) argues that in Swiss German, relative clauses are first to be acquired, while complement clauses are last. Though the difference in order of acquisition could be attributed to crosslinguistic differences, this chapter brings arguments to show that typological differences are not the source of the different orders. Rather, new evidence from early acquisition of Hebrew will be presented and an explanation will be given for the different order found in the use of preconjunctionals around the age of two vs. later, adult-like use of subordination after the age of three.

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Children use of subordination: from preconjunctivals to adult knowledge

The earliest form of subordination is preconjunctivals. "Preconjunctival subordinate clauses" (Penner & Mueller, 1992) is a term used for subordinate clauses which lack the target language complementizer. That is, they are multi-clausal utterances in which one clause is subordinated to the other without an over subordinator. This phenomenon is a later development in the period of early word-combinations. When children start using preconjunctivals, there is hardly any evidence that the two clauses are one sentence, or that the children know something about the way to relate clauses. The only thing that seems to play some role at this point is verb-argument structure, i.e., only verbs which take sentential complements are used with complement preconjunctivals. In some instances, there is also a prosodic structure of one unit, rather than of two units revolving around the same semantic topic.

Penner (1992) argues that while using preconjunctival subordinate clauses omitting the subordinator, children seem to miss several other distinctions, all of which relate to the differences between root and embedded clauses. For example, in English, as long as they use preconjunctivals, children also use root infinitives, and their questions lack subject auxiliary inversion.

Adult knowledge is manifested by the use of complementizers. Previous studies show that children use more subordination with age (Berman, 1988; Berman, 1990; Dromi & Berman, 1986; Geldman, 1987; Kaplan, 1983). In Dromi and Berman's (1986) cross-sectional analysis, for example, no subordination was found before age two. Its appearance rose to 9.6% between age two to three years, to 18.3% between age three to four years and to nearly a third of the analyzed utterances between age four to five and a half.

Order of acquisition

Two alternative orders in which subordination is acquired are reported in the literature. One possible order for English (Bloom et al, 1980; Bowerman, 1979) is that complement clauses first emerge after the age of two, followed by coordinate clauses and adverbial clauses in the second half of the third year and finally, around the age of three, by relative clauses. Embedded questions and the complementizer *she* 'that' emerges approximately at the same time. Among the adverbial clauses, reason clauses precede time clauses. Kaplan's (1983) and Dromi and Berman's (1986) cross-sectional studies show that a similar order is found in Hebrew. Kaplan (1983) reports that at around 2;6 children make extensive use of the coordinator *ve* 'and' for coordinating clauses but that it is not until the age of three that they acquire subordination. In the acquisition of subordination, complementation by an embedded question precedes complementation by a declarative sentential complement, which is followed by adverbial clauses for causativity and then for temporality. Last of all are the relative clauses.

In these studies, it was argued that the order could be explained by an accessibility hypothesis which says that the structure which is most accessible, i.e., less complex in terms of embedding, is the first to emerge. If one follows this hypothesis, complement

clauses become a readily available structure since they are selected by the verb like any other complement. These clauses involve just one layer of embedding and, thus, would be produced first, while relative clauses which are a non-selected novel structure which involves another layer of embedding would be last. Adverbial clauses are also a non-selected novel structure. However, since they involve only one layer of embedding, they are the intermediate structure.

On the other hand, Penner (1995) argues that in Swiss German, relative clauses are first to be acquired, while complement clauses are last. His data suggests that not only are complement clauses last to be acquired but that they remain unstable until the age of four. He argues that this is the order since relative clauses, being adjuncts, require only syntactic knowledge about embedding, whereas complement clauses involve also lexical knowledge about the subcategorization of the subordinating verb.

There is a question about how opposite orders of acquisition can exist and whether the order is at least consistent for a single language. One major difference between Penner's report for Swiss German and Bowerman's findings for English, or Kaplan's for Hebrew is that Penner focuses on the emergence of this knowledge, in a diary study, while both Bowerman and Kaplan focus on the stabilization of this knowledge when it is used in at least 90% of the relevant contexts, in cross-sectional studies. These differences already make the contrast between the two orders less striking.

Subordination in adult Hebrew

In Hebrew, subordination is marked by a complementizer or other subordinators with no differences in clause structure, i.e., no change in word order between root and embedded clauses. As noted by Berman (1986), all three types of structures in Hebrew – complement clauses as in (1) with the exception of subordinated questions as in (1b–c), adverbial clauses as in (2) and relative clauses as in (3) – make use of the same subordinator *she* 'that,' with or without a sentential preposition. Below are examples of the way adults use subordination in Hebrew:

1. Complement clauses

a. *Dani amar she aba ba*
'Dani said that Daddy came'

b. *Dani sha'al im aba ba*
'Dani asked if Daddy came'

c. *Dani sha'al mi ba*
'Dani asked who came'

2. Adverbial clauses

a. *Dani samax kshe aba ba*
'Dani was-happy when-that Daddy came'

b. *Dani samax ka'asher aba ba*
'Dani was-happy when Daddy came'

c. *Dani barax lifney she aba ba*
'Dani ran-away before that Daddy came'

- d. *Dani samax biglal she aba ba*
 'Dani was-happy because that Daddy came'
- e. *Dani samax ki aba ba*
 'Dani was-happy because Daddy came'
- f. *Dani barax kedey she aba yavo*
 'Dani ran-away in-order that Daddy will-come'

3. Relative clauses

- a. *ha-ish she natan li et ha-sefer halax.*
 'the-man that gave to-me ACC the-book went'
- a'. *raiti et ha-ish she natan li et ha-sefer*
 'I-saw ACC the-man that gave to-me ACC the-book'
- b. *ha-sefer she natati (oto) la-ish avad*
 'the-book that I-gave (it-ACC) to-the-man was-lost'
- b'. *raiti et ha-sefer she ha-ish kana (oto)*
 'I-saw ACC the-book that the-man bought (it-ACC)'
- c. *ha-ish she natati lo et ha-sefer halax*
 'the-man that I-gave to-him ACC the-book went'
- c'. *raiti et ha-ish she natati lo et ha-sefer*
 'I-saw ACC the-man that I-gave to-him ACC the-book'

As the above list shows, the acquisition of subordination seems to involve learning about an item specific component, i.e., a non-paradigmatic component for which only syntactic bootstrapping can be applied. Children have to undergo a process of lexical learning of the features of the subordinator, but unlike other systems in Hebrew, there is no morphological paradigm (inflectional or derivational) to support it. When subordination appears in children's language, it is almost uniquely marked with *she* 'that' regardless of the target form in the adult language (cf. Berman, 1990). Slow lexical learning gradually limits *she* to its standard grammatical functions, specifying its features and adding other subordinators, and sentential prepositions.

Questions and predictions

Several questions are raised by the acquisition of subordination:

- (1) What makes it possible to start using preconjunctivals?
- (2) How do children move from preconjunctivals in which subordinators, and sometimes even inflections are missing, into adult knowledge of subordination?
- (3) How can opposite orders of acquisition exist?
- (4) Is the order consistent at least for a single language?

This paper claims that the use of preconjunctivals becomes possible once children start using tenses, but the adult use of subordination requires setting of other features, e.g.,

finiteness. The different orders of acquisition will be argued to be not a methodological or typological artifact, but rather a reflection of different phases in the development of syntax in general and subordination in particular and the knowledge which is required at every phase.

METHODOLOGY

In order to be able to check this claim, longitudinal data of four Hebrew-speaking children was analyzed. The children, three girls, Hagar (1;07–3;03), Lior (1;05–3;01), and Smadar (1;04–2;04), and one boy, Leor (1;09–3;00), all come from middle SES in Tel-Aviv or its suburbs, in which at least one parent has obtained higher education. Hagar, Leor, and Lior are first children in their families, with no younger siblings when data collection began, and Smadar is the youngest in her family, having two older (preschool and school age) siblings. These data are supplemented by data from Sivan and Asaf from the Ravid Corpus in CHILDES (Ravid, 1994).

Data for the four children were taken from weekly longitudinal recordings of the children's spontaneous speech output in interaction with an adult (their parents, and in Leor's case, his aunt), starting with their first word combinations. Leor's aunt, Hagar's mother and Smadar's mother were linguistics students at the time of recording. Data for the gender, age, number of transcripts and range of child utterances per transcript, are summarized in Table 1 below.

Table 1. Children's longitudinal data

Child name	Age range	No. of transcripts	Range of child utterances per transcript
Hagar, girl	1;07.03–3;03.11	136	50–200
Leor, boy	1;09.00–3;00.00	80	50–250
Lior, girl	1;05.19–3;01.01	151	100–300
Smadar, girl	1;04.14–2;04.26	34	100–250

Recorded materials were all transcribed and entered on computer according to the crosslinguistic conventions established for the Child Language Data Exchange System (MacWhinney & Snow, 1985; MacWhinney & Snow, 1990) adapted for Hebrew by the Tel-Aviv University Word-Order Acquisition Project.

The database was searched manually for all complex sentences, both grammatical and ungrammatical, dividing them according to the three major categories: complement clauses, e.g., *dani amar she aba ba* 'Dani said that dad came?', adverbial clauses, e.g., *dani samax kshe aba ba* 'Dani was happy when dad came', and relative clauses, e.g., *dani ra'a et ha-yeled she baxa* 'Dani saw the boy who cried'. For each category, a further division has been done between grammatical and ungrammatical utterances. Ungrammatical utterances were then divided by type of error: (i) omission of subordinator as in (4); (ii) use of wrong inflections as in (5); (iii) omission of parts of the embedded clause (e.g. resumptive pronouns) as in (6); and (iv) use of wrong subordinator as in (7):

4. *dani amar tadliku or*
Dani said turn-on light
5. *dani raca aba lavo*
Dani wanted Daddy to-come
6. *hine kise she dani yoshev*
Here chair that Dani sits
7. *dani baxa she aba halax*
Dani cried that Daddy went

Following the children on a longitudinal basis makes it possible to see how the particular structure develops within child across a span of time. This kind of longitudinal analysis yields information about first occurrence of each category in early subordination, as well as a developmental perspective on the whole process. Studying ungrammatical use of subordination along the grammatical use provides an insight not only into what the child already knows, but also into what is still missing. Findings are discussed for the use of preconjunctivals, children's adult-like use of subordination, and the order of acquisition.

FINDINGS AND DISCUSSION

Preconjunctivals – early use of subordination by children

Preconjunctivals are the earliest cases of complex sentences. The question is what makes it possible to start using preconjunctivals. Studying the Hebrew longitudinal database, Armon-Lotem (1997) found that preconjunctivals are used sporadically as soon as children start inflecting their verbs. Preconjunctivals can be non-adult-like complement clauses in which a subordinating verb, which should select a finite clause with a subordinator, is followed by a finite verb with no subordinator as in (4a), or an adult-like structure in which the subordinating verb subcategorizes for a subjectless nonfinite clause as in (4b–c):

8. a. *roce niftax*
want we-will-open
'I want **that** we will put it' [Leor 1;11.13]
- b. *lo (ye)x(ol)a lexol ze kotej*
not can-sg-fm to-eat this cheese
I can't eat this cheese [Lior 1;11.09]
- c. *lo yoda'at lesaper lax*
not know-sg-fm to-tell you [Smadar 1;10.19]
I don't know to tell you

The verb *roce* 'want' subcategorizes in Hebrew for subjectless nonfinite clauses and for subordinated finite clauses, but not for a finite clause without a subordinator as is (4a). On the other hand, the verbs *yaxol* 'is able to, can' and *yode'a* 'know' subcategorize

both for a finite clause with a subordinator and a non-finite clause without a subordinator as in (4b-c).

Preconjunctivals can also be ungrammatical relative clauses as in (5) where the embedded clause is finite but subordinator is omitted, or grammatical adverbial clauses as in (6), where the embedded clause is non-finite and a subordinator is not obligatory:

9. a. **ze regel koevet lax*
 this foot-fm hurts-fm you
 'This is the foot **that** hurts you' [Lior 1;10.04]
- b. **ani roce shaon ose tiktak*
 I want clock does ticktock
 'I want a clock **that** goes ticktock' [Leor 2;1.15]
10. a. *ani holexet lehavi oto le Avishay*
 I go to-bring car to Avishay
 'I'm going (in order) to bring a car to Avishay' [Smadar 1;11]
- b. *bo (la)shvet po*
 come (to-)sit here
 'Come to sit here' [Lior 1;10.04]

While the grammatical non-finite structure doesn't draw any attention, the ungrammatical structures are intriguing. The use of a verb like 'want' with a complement clause is a natural extension of the argument structure of this verb, but why the complementizer is missing and what makes it possible to use preconjunctivals in relative clauses and adverbial clauses certainly requires some explanation. This explanation should, of course, also hold for the grammatical forms.

Armon-Lotem (1997) found that, in Hebrew, preconjunctivals are used as soon as children start to inflect their verbs for tense. During this period, questions are rather formulaic (e.g., *efo ima* 'where is mommy?' *ma kara* 'what happened?' *ma ze* 'what's that?'), do not involve productively inflected verbs, and certainly do not show optional verb raising. Moreover, at the same period, subject (topic) drop displays an indecisive value ("diary" value for Haegeman, 1990), where the subject is dropped in more places than Hebrew permits. The unstable use of null-subjects correlates with the use of preconjunctivals, and disappears with the productive use of the complementizer *she* 'that.'

These correlations suggest that knowing how to use embedded clauses crucially depends on knowing how to use finite declaratives and questions. While children may know that subordination is universally licensed, they do not know the language specific distinctions between root and embedded clauses. Thus, for example, though a verb like 'want' universally subcategorizes for a complement clause, the child has to find out what this complement clause is in her language. Until the child finds it, she uses a root clause for this purpose. Similarly, the structure of relative clauses is universally available, but its manifestation (e.g., with or without a resumptive pronoun) is language

particular. In sum, children's initial use of preconjunctivals is less language specific but requires an initial knowledge of the functional system.

Children's use of subordination

The next question is how children move from preconjunctival subordinate clauses into adult knowledge of subordination. While the use of preconjunctivals with their missing complementizers marks the initial phase of subordination, children knowledge of the adult system requires the use of complementizers. Initially, Hebrew speaking children use *she* 'that,' which is overextended to contexts where greater specification is required and later *ki* 'because,' *kshe* 'when,' (cf. Berman, 1990). The presence of *she* 'that' indicates that the children finally distinguish root clauses from embedded clauses. Using more specific complementizers suggests that they distinguish the different kinds of embedded clauses.

The analysis of the data shows that children make use of the three types of subordination with a subordinator, in which the embedded clause is finite, first without and later with a main clause. They use complement clauses, as in (7), adverbial clauses, as in (8) and relative clauses, as in (9):

11. Complement clauses

- ani ar'e lax efo ratuv*
I will-show you where wet
'I'll show you where it is wet' [Smadar 2;00.07]
- ani lo maskim she tesaxaki iti*
I not agree that you will-play with-me
'I don't agree that you'll play with me' [Asaf 2;03.01]

12. Adverbial clauses

- *tini li neshika [she ze koev] for [ki ze ko'ev]*
give me kiss that it hurts because it hurts
'give me a kiss because it hurts' [Smadar 2;02.13]
- kshe at madlika et ha-or ha-ze az yesh or ba-xeder*
when you turn-on ACC the-light this then be light in-the-room
'When you turn this light on, there's light in the room' [Sivan 2;07.29]

13. Relative clauses

- al shatiax she aba (ye)nake*
on carpet that Daddy (will)-clean
'On a carpet that Daddy will clean' [Smadar 1;10.19]
- tadlik or (ba-) menora she lema'ala*
turn on light (in the) lamp that above
'Turn the light on in the lamp which is up' [Leor 2;03.12]
- *hine od telefon she ani yexola letalfen for letalfen mimenu*
here more phone that I can phone phone from-it
'here is another phone that I can call from' [Smadar 1;11.13]
- xatixa she kor'im la gezer*
piece,fm that call it,fm carrot
'A piece which is called carrot' [Hagar 2;03.12]

In order to understand how children move from preconjunctival subordinate clauses in which the subordinator and sometimes even the inflections are missing into adult knowledge of subordination, it is necessary to follow the order in which subordinate clauses (with *she* and other complementizers) are acquired.

Order of acquisition

The aforementioned studies have reported opposite orders in which subordination is acquired. One in which children start with complement clauses, followed by coordinate clauses and adverbial clauses and finally by relative clauses and the other in which relative clauses are acquired first and complement clauses are acquired last. This raised the question how opposite orders of acquisition can exist and whether it is an artifact of the different methods of data collection. The following findings from Hebrew suggest that what we see is not different orders of acquisition in different languages but rather different orders of first emergence vs. stabilization. An extensive analysis of the Hebrew longitudinal corpus shows that the emergence of subordination in Hebrew follows the later order. The examples in (10), (11) and (12) from one child, Lior, give the first occurrence of each of the subordination types:

14. *aviron she la-shamayim* [Lior 2;01.27]
 airplane that to-the-sky
 'an airplane that flies to the sky'
15. *tizahari she lo yipol* [Lior 2;02.18]
 take-care that not will-fall
 'Be careful that it doesn't fall'
16. *racit lehagid she laxasht* [Lior 2;02.25]
 you-wanted,fin to-say that you-whispered,fin
 'You wanted to say that you whispered'
 [The mother corrects this to *laxashti* 'I whispered']

As reported by Penner for Swiss German, Lior uses a relative clause at the age of 2;01.27, an adverbial clause at 2;02.18 and a complement clause at 2;02.25.

Table 2 summarizes Rader's (1989) findings for three children in the longitudinal corpus, Smadar, Hagar and Leor, the two children from the Ravid corpus, Asaf and Sivan, and the longitudinal findings for Lior.

Though there are some individual differences in the course of acquisition, e.g., Smadar, Asaf and Sivan use subordination with hardly any mistakes while Hagar and

Table 2. First occurrence of the three types of subordinate clauses in six Hebrew-Speaking children

	Asaf	Hagar	Leor	Lior	Sivan	Smadar
Relative	2;1.10	2;1.20	2;2.05	2;1.27	1;11.2	1;10.19
Adverbial	2;1.10	2;1.19	2;2.25	2;2.18	2;3.12	1;10.19
Complement	2;2.28	2;2.04	2;2.11	2;2.25	2;2.18	1;11.13

Leor seem to have a harder time disentangling the problem, a similar order of acquisition is shared by all six children. They all start with relative clauses. Three of the children, Smadar, Hagar and Asaf, simultaneously start using adverbial clauses, and a few weeks later they use complement clauses. The other two, Leor and Sivan, use complement clauses before adverbial clauses, whereas Lior demonstrates a classically gradual course of acquisition. However, the striking fact is that all start with relative clauses, which are according to Berman's cross-sectional studies (1986, 1988, 1990) more complex and, thus, last to be mastered.

Penner (1995) suggests attributing this order to the feature complexity of the embedded clause (e.g., finiteness [\pm Finite], question [\pm Wh]). While for relative clauses it is enough to know which features the embedded clause has, for complement clauses the child has to make sure that these features satisfy the subcategorization requirements of the selecting verb. Thus, relative clauses need less feature specification than complement clauses. In Hebrew, for example, relative clauses are always [+Finite], while complement clauses can be either [+Finite] for a verb like 'say,' [-Finite] for a verb like 'try' or both for a verb like 'want;' relative clauses are always [-Wh], while complement clauses can be [+Wh] for a verb like 'ask,' [-Wh] for a verb like 'tell' or both for a verb like 'know.' Acquisition of complement clauses involves not only syntactic learning but lexical learning as well.

A similar explanation works for the early emergence of adverbial clauses, which also tend to precede complementation. The early adverbial clauses are used without exception with the lesser specified complementizer *she* 'that.' Since adverbials are usually not selected by the verb, they need not be specified further to satisfy these requirements. Further specification is a conceptual and semantic requirement but not a syntactic factor. To summarize, universally, complex clauses can be used, once children acquire at least one sentential feature. The use of tense inflection makes the feature finiteness available, and enables the use of preconjunctives. However, it is the identification of other features, which makes it possible to use subordinators. This is enough to make relative clauses a possible option in the child grammar. Further identification of features and their values and matching them with the subcategorization frame of the verb extend the use of subordinated clauses to other syntactic contexts.

Subordination and root infinitives

The acquisition of subordination, being the latest acquisition of early syntax and a "yardstick" (Berman, 1990) which marks the beginning of the acquisition of complex syntax, correlates with the disappearance of various phenomena which characterize early syntax. It has already been pointed out in this paper that the use of subordination correlates with the productive use of inflected questions and stabilization in the use of null-subjects. It also correlates with the use of indicative root infinitives. Indicative root infinitives (Wexler, 1994) are sentences in which children use a non finite verb in matrix, root, clauses, where they should be using finite verbs, e.g. *he go* instead of *he goes* or *he went*. While in English such utterances can be used in up to 50% of utterances containing verbs up to the age of three, and long after children start using inflections, in Hebrew, once inflections are acquired, such utterances are used very

Table 3. Percentage and exact number [N] of root infinitives and overt complementizers out of total number utterances containing verbs [TN] of one child (Lior).

Age	TN	Declarative root infinitives	Overt complementizers
1;11	315	3.8 [N = 12]	0
2;00	548	6.75 [N = 37]	0
2;01	325	4 [N = 13]	0.6 [N = 2]
2;02	210	1.4 [N = 3]	1.4 [N = 3]
2;03	519	1.3 [N = 7]	4.3 [N = 23]

marginally in only 5% of the clauses. Nonetheless, even in Hebrew, an increased use of subordination correlates with a decreased use of indicative root infinitives. Table 3 pinpoints the change for one child, Lior.

As shown in this table, Lior's use of indicative root infinitives is reduced from about 5% to about 1% of her verbal utterances when she is 2;02. At the same time, she starts using overt complementizers (her use of overt complementizer in the previous month is limited to the last session when Lior is 2;01.27.). It seems that the feature specification which makes it possible to use subordinators also makes indicative root infinitives impossible where it was previously accepted. The use of preconjunctival seems to rely on the feature [Finiteness], while the use of complementizers depends on identifying the value of this features and matching it with the subcategorization frame of the verb. While [+Finiteness] implies that a complementizer should be used, expending this distinction beyond the embedded clauses implies that indicative root infinitives are not a possible option anymore since a nonfinite verb cannot head a finite clause.

SUMMARY

The Hebrew findings suggest that what we see is not different orders of acquisition in different languages due to typological differences in the complexity of C, but rather different orders of first emergence vs. stabilization. In order to start using relative clauses it is enough to know which features are in C, while for a complement clause the child has to make sure that these features satisfy the subcategorization requirements of the selecting verb (Penner, 1995).

Relative clauses need less feature specification than complement clauses, and can, thus, be used early on, though not always in an adult manner. On the other hand, mastery of the use of relative clauses requires knowledge of whether the target language is a true resumptive pronoun language or not. It has been shown that this is still a problem even for three and four year old children (Labelle, 1990).

A similar explanation works for the early emergence of adverbial clauses which initially also tend to precede complementation. The early adverbial clauses are used without exception with the lesser specified complementizer *she* 'that.' Since adverbials are usually not selected by the verb, they need not be specified further to satisfy these

requirements. Further specification is a conceptual and semantic requirement but not a syntactic factor.

The use of complement clauses, on the other hand, involves not only syntactic learning but lexical learning as well. This process of lexical learning is language specific. Therefore its initiation might take more time, but once it is used it will be in an adult like manner, since it does not involve farther grammatical knowledge.

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15. THE EMERGENCE OF EXPRESSIVE OPTIONS IN EARLY CHILD LANGUAGE: A CONSTRUCTIVIST ACCOUNT

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INTRODUCTION

As Berman and Slobin (1994) point out, there are different ways of relating the “same” events and, as soon as these are structurally available, they exist for the speaker as “expressive options”.

The notion of expressive options can be considered a universal characteristic of language as well as a fundamental acquisition for language learners. Having expressive options implies to consider different formulations as somehow related one to another, be it under commonality of meaning, of communicative function, or simply of referentiality. Previously constructed signifier-signified and form-function relations change in status by being embedded into an array of co-possible alternatives, as the meaning of individual items is colored, limited or enriched by that of other individual items belonging to the same system. In this perspective, the acquisition of expressive options can also be seen as linked to the very notion of language as an overall system.

For the narrative genre, Berman & Slobin, and other researchers who collected “frog” stories from children speaking different languages (English, Hebrew, German, Turkish, Spanish, and other languages have followed the original project), have shown that children acquire new linguistic forms and use them first for old and then for new functions. More crucially, however, they have shown that children become progressively better able *to organize* these linguistic forms into sets of co-possible formulations and *to use* them accordingly. In choosing one of these formulations, children can select, upgrade or downgrade aspects of events, connect them in different ways, and realize

their communicative goals taking into account the beliefs and perspectives of their listeners. In their functional approach, language knowledge requires thus much more than acquiring structures and forms. Progress in the construction of coherent narratives depends on cognitive, communicative and linguistic developments. Cognitively, children need to grasp the entities and relations they are going to talk about; communicatively, they need to make distinctions among the states of knowledge and feelings of the characters, of the narrator and of the listener; linguistically, they have to acquire the necessary forms, lexical, morphological and syntactic, to express contents and perspectives. The integration of these strands contributes to determine the expressive options that children have at their disposal at various developmental levels.

Here I would like to consider the notion of expressive option from the point of view of its emergence, by looking for possible antecedents and early manifestations of this capacity, and to consider the directions in which they develop.

Expressive options and mentally-entertained possibilities

I will propose that the emergence of this ability may be related in a deep way to children's cognitive development and, in particular, to the mechanisms that allow the subject to entertain different possibilities at the same time. Conceptually, to have expressive options means to be able to consider simultaneously different expressions as possible alternative ways for talking about the "same" event, or the "same" communicative intention. And indeed, in one of his latest work, *Le possible et le nécessaire* (*Possibility and necessity*), Piaget (1981/1987) has looked at cognitive development from the point of view of a growing ability to conceive alternatives or new possibilities ("les possibles"), and to view them as *simultaneously* possible. Knowledge of an entity or event is greater if the child can see it as the actualization of one possibility among a set of other possibilities. A particular event becomes embedded in a larger network of possible events that were *not* realized. Such a mental construction of the world is considered by Piaget as a characteristic feature of constructivism, as compared to empiricism. Indeed, looked at in this way, knowledge, is not viewed simply as a better representation of the objective "world", but as the *mental* construction of co-possible worlds in which what is actualized gets part of its meaning in relation to the co-possible set of alternatives, that is, to what is not *but could have been*.

For Piaget, possibilities do not grow only in number but also, and more crucially, with children's growing representational abilities, they change in status. At first, alternatives are considered *successively* ("les possibles successifs"); then, they are anticipated simultaneously and viewed as *co-possible* alternatives. The anticipated possibilities are based at first on what has been already realized ("les co-possibles concrets"); then they become more abstract possibilities deriving from the properties of the system they are part of ("les possibles abstraits" et "déductifs"). In the work cited, Piaget & coll. have studied children from 4 to 12 years of age. Piaget however emphasizes that the developmental mechanisms leading to the construction of new possibilities, is at work since the sensorimotor period, at least as far as the two early forms are concerned: The possibilities considered successively, and the concretely-based, simultaneously-anticipated possibilities.

In what follows I will suggest that the first alternative expressions consist of successively-centered perspectives. Then, when alternative expressions start to be anticipated simultaneously and mentally considered as co-possibilities, at this early stage, two kinds of outcomes may result: 1. Simultaneously anticipated alternatives are viewed as a set of options among which to choose one expression considered better adapted to the situation at hand (the “alternative expressive options” outcome); 2. Simultaneously anticipated alternatives combine to enrich the expression of one given communicative intention, and are coordinated into a higher level structural unit (the “combined options” outcome). This higher level unit can then become a new possibility in a set of alternative expressive options.

To provide empirical support to these hypotheses, I will consider below developments in the child’s expression of recurring very similar communicative acts, in the verbalization of aspects of request and oppositional acts, and the expression of one and the same communicative act at the transition from single to multiword speech. The material discussed below has been drawn from longitudinal studies of French-acquiring children for which extensive analyses of lexical, early combinatorial and pragmatic developments have been performed (e.g., Veneziano, 1999a, 1999b, 2001; Veneziano & Sinclair, 1995, 2000). These children, studied between the ages of 1;3 and 2;4, were in the late single word and early two-word utterances period of verbal expression.

EXPRESSIVE ALTERNATIVES FOR RECURRING SIMILAR COMMUNICATIVE INTENTIONS

When children express, within a short time period, very similar communicative intentions, do they use, from one episode to the next, the same verbalizations or do they use different ones? Earlier studies have reported that children tend to use first one verbal form or one conversational principle (for example repeating part of the preceding utterance) for expressing a given communicative intent, while later they start to use different verbalizations to talk about similar events or communicative intentions (e.g. Antinucci & Parisi, 1973; Barrett, 1981; Clark, 1997; Greenfield & Smith, 1976; Halliday, 1975; Ninio, 1994; Veneziano 1990, 1999a). In earlier work the units of analysis were speech acts (e.g., requesting and asserting) or more narrowly-defined functions that could nevertheless concern different situations. For example, Ninio (1994) considered communicative intents like “initiating joint activity on a focused object” in which the activity and the focused object depend on the specific situations in which they occur. In this context, Ninio and Snow (1996) describe a developmental trend that goes from the use of constant forms (like ‘this’) to that of variable forms, the latter being forms reflecting the particularities of the situation at hand.

Here, in order to throw some light more directly on the question of the emergence of expressive options, we have investigated whether variety of expression is observed when only events that are *very similar* to each other are taken into account, and whether the occurrence of expressive variety is a developmental phenomenon, both in terms of its emergence and in terms of its frequency and internal variety. That is, does the phenomenon grow relatively to the number of recurring episodes that

Table 1. Verbalization of recurrent communicative intentions/events, by age

Age of the child at session	Number of recurrent intentions/events identified and total number of occurrences in parentheses	Number (and %) of recurrent intentions/events expressed by different single-word utterances	Number of different words produced per type of intention	Mean number of expressions per type of intention/event	Cumulative vocabulary: types
1;3.16	4 (13)	0 (0%)	0	1.00	18
1;4.26	9 (29)	2 (22.2%)	2;2;	1.22	30
1;5.23	10 (44)	4 (40%)	4;2;3;2	1.70	52
1;6.22	8 (41)	6 (75%)	2;2;2;3;3;3	2.13	67

are expressed in different manners, and to the number of different expressions used for set of recurrences? The answers to these questions have been looked for in the longitudinal data of one French-acquiring child studied between 1;3 and 2;2.

The episodes have been selected by applying two restrictions. First, in order to ensure a maximum of similarity among the recurring events, we considered only narrowly-defined communicative events that occurred at least twice during the same session. For example, each of the following were counted as different events/communicative intentions: showing a spinning top, making a request to have a spinning top turn, making a request to take plastic beads apart, and offering a baby doll. Second, in order to capture very early manifestations of the child's use of expressive alternatives, we have included only events occurring before the appearance of two-word utterances, expressed essentially by single-word utterances and sometimes by SSWUs¹.

Through the analysis of videotapes of naturally occurring interaction, registered at the child's home at bimonthly intervals (about one hour per observational session, for a total of about 16 hours of videorecordings), we found that recurrent communicative events corresponding to the above criteria occur between 1;3 and 1;7. As can be seen in Table 1, the use of *different* single-word utterances to verbalize recurrent instances of similar communicative events is first observed at 1;4.26, and increases with age, both in terms of the number and of the proportion of recurring events that find different expressions.

At 1;3.16, none of the four recurring types of communicative events are expressed with different words. For example, the child handed a baby doll to the adult five different times during the observational session, and each time she said /ta/ *tiens* 'take (it)'. At 1;4.26, of the nine types of events occurring at least twice, seven were, on each occasion, expressed with the same word. For example, the child asked on five different occasions to pull apart a chain of plastic beads and each time she expressed this request by saying *maman* 'mommy'. Two types of events (22%), however, were expressed with different words. One type consists in a request for *must*², expressed three times by /mu:/ or /lu:'u:/ *moult* 'must', and once by /ko/ *encore*, 'again/more'; the other type of event – pointing towards Geneva's 'water jet'³, visible at a distance – occurred four

¹ Successive single-word utterances (SSWUs) will be treated in greater detail later in this paper where we consider specifically cases in which the child produces different verbalizations to talk about one and the same event or intention.

² 'Must' is "the expressed juice of grapes... before and during fermentation" (Webster's Dictionary).

³ The Water Jet is a town's curiosity towering over the Lake of Geneva. It is 145 meters high and visible from a great distance.

times, and was expressed twice by /la/ là 'there' and twice by /do/ for *jet d'eau* /jedo/, 'water jet'. At 1;5.21, among the ten types of recurring events identified, four (40%) were expressed differently. For example, a game in which the child stepped up and then came down from a trunk was repeated eight times in succession. Before stepping up, the child twice said /ã'o/ *en haut* 'up', five times /ko/ *encore*, 'again/more', and once /sot/ *saute*, 'jump'. Another type consists in a request to turn the key of a mechanical frog, a request that the child addressed on six different occasions to her mother. Each time she handed the frog to the mother and, while doing that, on three occasions she said /ta/ *tiens* 'take (it)', in another, /ko/ *encore*, 'again/more', in another /gu/ *grenouille* 'frog', and in yet another /tu/ *tourne* 'turn'. At 1;6.22, six of the eight types of recurring communicative events (75%) were expressed differently. One of them re-occurred six times. Each time the child was trying to seat a baby doll on the carpet: on three occurrences, she said /la/ 'there', twice, *assis* 'seated' and once /la#⁴ a'si/.

In the period between 1;3 and 1;7 there is also an increase in the variety of verbal expressions used, as indicated by the fact that the mean number of word types produced per type of communicative event increases with age (see Table 1): in three and a half months it increases steadily from 1 to 2.13, passing by 1.2 and 1.7.

These results point out that the child has at her disposal progressively more expressions to talk about a given communicative intention or event, and that on different occasions, she uses one or the other of them, capturing different aspects of the event. There is no indication, at this time, that these alternative expressions are more than the verbalization of *successive* centers of attention and we suppose that that they do not constitute yet simultaneously entertained options from which to choose.

It may be supposed that if lexical availability is certainly necessary to produce, successively, different verbalizations in very similar intentions and events, it may not be sufficient to set the process in motion. Indeed, the first occurrences of expressive variety for a given communicative act type are observed only at 1;4.26, when cumulative vocabulary counts already at least 30 words (see Table 1). Analyses of the rate of lexical growth shows that, although the cumulative vocabulary increases in an accelerated way throughout the period between 1;3 and 2;2, a significantly larger acceleration is observed at 1;5.23 and at 1;10.22 (Veneziano, 1999a). The spurt in vocabulary at 1;5.23 corresponds to the time when successive alternative expressions become more frequent and diversified per type of event, in support of the hypothesis that these two developments are related and sustain one another.

EXPRESSIVE ALTERNATIVES FOR RECURRING COMMUNICATIVE ACTS: THE CASE OF REQUESTS, OPPOSITIONS AND THEIR JUSTIFICATIONS

Another phenomenon, conceptually close to the one just considered, has been encountered in the study of the emergence of justifications (Veneziano & Sinclair, 1995; Veneziano, 1999b). The early occurrences of verbalizations satisfying the criteria of justifications were found often within requests and oppositional communicative acts, after the latter were expressed in various other ways.

⁴ The symbol # indicates a silence greater than 0.5 seconds and less or equal to 1 second.

The expression of request and oppositional acts

Analyses of the longitudinal studies of four mother-child dyads have shown that requests and oppositions occur at all observational sessions from the beginning of the studies (Veneziano & Sinclair, 1995). For requests, we found that there was a first period in which children verbalized one or another of the different aspects of the request: the desired object (e.g., /ʃõ/ for *bouchon*, 'bottlecap', while reaching out towards the mother who held a bottlecap); the desired result (e.g., /ecru/ for *trou*, 'hole', while handing a punching machine and a piece of paper to the mother); the person solicited (e.g. /mamã/ 'mommy', while handing a spinning top to the mother) or the action that should be carried out so that the child can obtain the desired object, state or result (e.g., /ovi/ for *ouvrir* 'open', while handing a box containing baby dolls to the mother; /tun/ for *tourne*, 'turn', while handing a spinning top to the mother for making it turn). At some point in development a new behavior appeared: while performing the gestures that allowed their communicative act to be identified as a request, children, instead of verbalizing a component of the request, provided the reason for making the request, justifying for their interlocutor the act itself of making a request. For example, one child, handing the mother a box containing baby dolls she wanted to take out, said /e'pa/, (*peux*) *pas*, 'can't'; another child, handing his mother a video-cassette holder said /e'dy/, (*c'est*) *dur*, '(it's) hard', and yet another child, handing her mother a doll, after having unsuccessfully tried to remove her pants, said /e'pa/, (*peux*) *pas*, 'can't'.

Also for oppositional acts, be them protests, refusals, or denials, we found that there was a period in which children expressed them by saying *non*, accompanied or not by an action manifesting opposition, and sometimes, for protests and refusals, only by an action (e.g., the child placed her hair the way it was before her father changed its position; another child turned her head away after the mother's proposition to taste a drink "t'en veux ?" 'do you want it?'). Then, at a certain point in development, children started to provide a justification for their opposition. For example, Chantal at 1;6 refused her mother's help and said *non*; then, immediately afterwards, while looking at her mother before resuming her activity, added /tuse1/, *toute seule*, 'all by myself'; Gael, at 1;10.17, by saying *non*, refused the adult's suggestion to build a train and immediately added, looking at the adult, *bebe* 'baby', indicating what he would like to do instead; it was not till later that he went to the toybag to look for baby dolls.

Providing a justification of these communicative acts is taking up a completely new perspective on the situation. Instead of solely concentrating on oneself, on one's desires and intentions, the child lets the interlocutor's point of view enter the expression of the act, funneling his intentions and desires through those of the interlocutor's: a request to satisfy one's intention adds now an element that works on the addressee's own intentions, anticipating his possible refusal; and a refusal adds a verbal expression that, while letting through one's intention, acknowledges the interlocutor's different one.

As can be seen in Table 2, although requests and oppositional acts are produced from the beginning of the studies, it is only at a certain point in development, slightly varying for each child (around 1;6 for the earliest and 1;9 for the latest), that justifications are provided in these contexts.

Table 2. Proportion of communicative acts of requests and of oppositions presenting a justification, by child, at two developmental periods

	CAM		CHAN		AMA		GAE	
Age of the child	1;3-1;7;4	1;7;18-1;10	1;4-1;5	1;6.-1;8	1;5-1;7	1;8-2;0	1;4-1;8	1;9-2;3
Requests	0%	35.5%	0%	14.3%	0%	3,7%	0%	15%
Oppositions	0%	68.2%	0%	16,1%	0%	24,2%	0%	25.0%

Justifications are not produced with the same frequency by the four children (Camille producing more justifications in these contexts than the other children) but all the children verbalize them and all produce them proportionally more in oppositional than in request acts. As it was noticed earlier for the appearance of expressive variety in recurring types of communicative acts, also the appearance of justifications cannot be ascribed simply to children's acquisition of new lexical items. Indeed, children know already some of the words later used to justify requests but do not use them for justification purposes but, for example, to express difficulties in reaching their goal ('can't' or 'hard'). In the case of oppositions, the words used to provide justifications of protests, refusals and denials can be words like 'mommy' and 'baby' that are part very early on of children's lexical repertoire (Veneziano & Sinclair, 1995).

A zoom on one longitudinal study

Table 3 presents data for the expression of requests, subdivided into requests for objects, actions/results, and general help, and of oppositions, differentiated into protests, refusals and denials. Verbal expressions are here considered in relation to components of the communicative acts and not in terms of the specific words used, which they depend on the kind of request or oppositional acts that are specifically realized in the context.

It can be seen that it is at 1;4.26 that the child starts to give verbal expression to various components of her requests for actions or results⁵. At this session this kind of request occurs 16 times, 12 of which verbalize the person solicited ('mommy', a vocative for attention, or the "agent" of the request), 3 the desired action/result ('turn') and one the repetition of the event ('more'). From this point onwards, expressive variety is always observed. Moreover, with age, some further components of the request are verbalized (the action of giving the object and the beneficiary of the object requested) and there is a greater variety in the words used to verbalize each of the components (an expansion that is particularly evident for the action/result component). At 1;7.18 justifications of requests appear, making for example reference to the child's incapacity to obtain the desired object or result, or to what the child is going to do with the requested object (e.g., that the requested water is for the baby). Oppositions, that until 1;8 are essentially protests and refusals, when verbalized, always express the opposition by the negative particle 'no'. Starting at 1;5, other components are also verbalized: the

⁵ Actions and results cannot often be distinguished as in several cases the action requested is also resultative as for example in the case of *tourne* 'turn', and *ouvre* 'open'.

Table 3. Number and types of components of Requests and Oppositions verbalized at different ages. In parenthesis: number of different expressions produced per component

Age of the child in years; months.days	Types of REQUESTS				Types of OPPOSITIONS						
	No. of components verbalized	Action/result	No. of components verbalized	General help	No. of components verbalized	PROTESTS	No. of components verbalized	REFUSALS	No. of components verbalized	DENIALS	No. of components verbalized
1;3.2	1	vocat+geste				voc+geste	1				
1;3.16	1	vocat/agent (1)	1			voc+geste oppos (1)	2	oppos (1)	1		
1;4.0	1	vocat/agent (1)	1	voc+geste		voc+geste oppos (1)	2	oppos (1)	1		
1;4.26	1	vocat/agent (1) action/result (1) repetition (1)	3			oppos (1)	1	oppos (1)	1		
1;5.9	1	vocat+geste action/result (1) repetition (1)	3	voc+geste		voc+geste oppos (1) giving (1)	3	voc+geste oppos (1)	2		
1;5.23	2	vocat+geste object (1)	3	means (1)	1	voc+geste oppos (1)	2	oppos (1) opp. act (1)	2		
1;6.4		vocat+geste action-means (1) incapacity (1)	3			voc+geste oppos (1) vocat/ opp person (2)	3	voc+geste oppos (1)	2	oppos (1)	1
1;6.22		vocat+geste giving (1) vocat/agent (1) repetition (1) action/result (2)	5			oppos (1)	1	voc+geste oppos (1) opposed act (1)	3		

opposed person, action, and object, the action of giving or of helping to realize the opposed action. At 1;8.15 justifications appear, at first in refusals, and then in protests and denials. Their verbalization follows that of the opposition, and presents soon a variety of expressions adapted to the interactional situation at hand.

Expressive options and the advent of justifications

The verbal expression of justifications may constitute an early example of *expressive option* chosen by the child among simultaneously co-possible alternatives, for communicative adaptive purposes. This interpretation is suggested by the consideration that justifications are relational in nature. That is, they take their meaning and “raison d’être” from the act of which they provide the reason (Veneziano, 1999b, 2001). It follows, as a first argument, that when justifications are produced, request and oppositional acts are also in force. Requests find their outlet in the situational context through actions and gestures; oppositions, via a gesture and/or a simple negative particle. The verbalization of a justification in this context can thus be seen as a choice among simultaneously entertained perspectives. Second, justifications are mental constructions that refer to the past or to the future. They do not capture an aspect of the situation that may have attracted the child’s attention, as this could have been the case for the verbalizations discussed under 2 above, and for the variety of verbalizations of request components. Mentally convoked, they are likely to be conceived simultaneously and in relation to other, contextually-bound, aspects of the event or act. Finally, justifications are directed to the addressee in order to convince him to do or not to do something. They are supposed to be well suited to the communicative goals to be achieved. Indeed we have shown that, for oppositional acts, the production of a justification by the child makes the addressee more likely to give up on his initial intention and accept more readily the child’s resistance (Veneziano, 2001).

EXPRESSIVE ALTERNATIVES FOR ONE AND THE SAME COMMUNICATIVE INTENTION

A movement from successively-centered to simultaneously-entertained different expressions can be uncovered also in the production of “successive single-word utterances” (SSWUs), one type of transitional phenomenon between the production of single and multi-word utterances (Barrett, 1989; Bloom, 1973; Greenfield & Smith, 1976; Ochs, Schieffelin, & Platt, 1979; Scollon, 1979; Veneziano et al., 1990; Veneziano, 1999a). Differently from the phenomena discussed above, in SSWUs the child produces at least two words to express *one and the same* communicative act, words that are either separated by the turn of another speaker or by an inter-words pause greater than half a second.

Different types of SSWUs have been found, characterized by different semantic and/or discourse properties, and it has been argued that they do not reflect the same capacities on the child’s side. Among the different types of SSWUs reported, two main kinds are relevant for the present discussion, in that they capture well the change from successive to simultaneously envisaged expressions. These are *across-turn*

conversationally-generated SSWUs – where the child produces a second word via the partner's intervention – and *conversationally-unsustained* SSWUs, in which the child's production of the two (or more) words is, instead, spontaneous and unsolicited (Veneziano, 1999a).

In one type of *across-turn conversationally-generated* SSWUs, it is the imitative uptake of a word contained in the mother's expansion of the child's previous utterance, that leads the child to produce an expression different from the one she had started with, as can be seen in the following example:

(1) Across-turn conversationally-generated SSWUs – imitative

The child has just placed a doll's hat on her head

- Child₁ : /'tɛt/ # /'tɛt/
 'head' # 'head'
 Mother₁ : *tu l'as mis sur ta tête le petit chapeau?*
 'you put on your head the little hat?'
 Child₂ : /'pa'po /
chapeau 'hat'
 Mother₂ : *c'est drôle ça!*
 'that's funny!'

In another type of *across-turn conversationally-generated* SSWUs, the new expression is produced by replying to a solicitation of the mother, as in example (2):

(2) Across-turn conversationally-generated SSWUs – discursive

The child places a baby doll into a plastic box and says:

- Child₁ : /'be'be/
 'baby'
 Mother₁ : *qu'est-ce qu'il fait là ton bébé?*
 'what does your baby do there?'
 Child₂ : /ə'bɛ̃/
əbain 'əbath'

These two examples are particularly interesting because, somewhat later in the session, in an episode similar to example (1) the child starts out producing /'pa'po/ for *chapeau*, 'hat', and in a game similar to that of example (2), she starts out saying /'bɛ̃/ 'bath'. This indicates that the relation established between the two verbal expressions within the conversational sequence, and through the intervening mother's utterance, seems to enrich the child's own repertoire of expressive choices and to have an effect on the child's verbalizations in subsequent similar occurrences.

Conversationally-unsustained SSWUs can be uttered *across-turns* or *within-turns*, but in both cases it is the child that spontaneously and in an unsolicited manner brings expressive variety to the situation by verbalizing different aspects of it (Veneziano, 1990a):

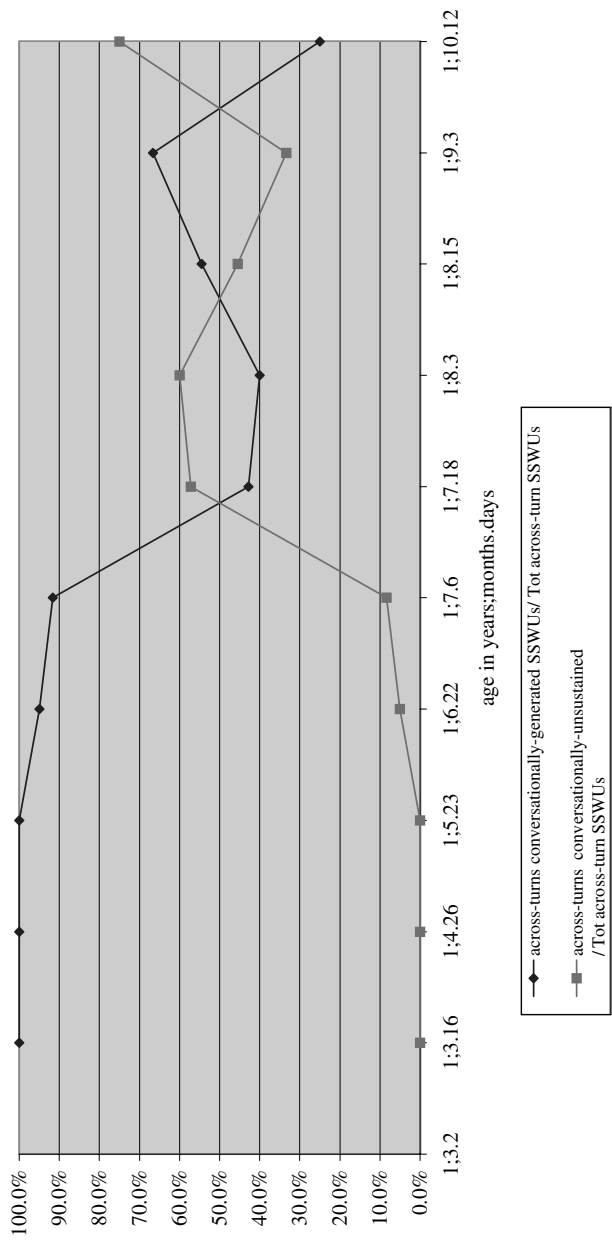


Figure 1. Across-turns SSWUs: conversationally-generated and unsustained.

(3) Conversationally-unsustained SSWUs – across-turns

Mother and child look at a picturebook together. The child points towards the picture of a dog

- Child₁ : /ʃjẽ/
chien ‘dog’
Mother₁ : *le chien*
 ‘the dog’
Child₂ : /kur/
cour(t) ‘run(s)’
Mother₂ : *oui, il court le chien*
 ‘yes, it runs the dog’

(4) Conversationally-unsustained SSWUs – within-turn

Mother and child look at a picturebook together. The child points towards the picture of a child gliding down a slide into a swimming pool

- Child₁ : /afã #/obe/
 ≈ ‘enfant(s) # tombé(s)’ ‘children fall(en)’
Mother₁ : *oui, il tombe, il glisse dans la piscine*
 ‘yes, he falls, he glides into the swimming pool’

I would like to suggest that the production of SSWUs is an example of discourse-driven perspective-taking, in which the child comes to use different expressions to talk about a same event or communicative intent. At first, in *across-turn conversationally-generated* SSWUs, constituting the great majority of the SSWUs that occur during the first months of SSWUs occurrence (see Figure 1), these expressions are produced successively and are probably not clearly related one to the other. The child verbalizes them focusing on different aspects of the event or communicative intent, through the unfolding of the conversational moves.

Then, in *conversationally-unsustained* SSWUs, the different verbal expressions arise in close temporal succession, if not simultaneously, and may be considered as mentally co-existing possibilities, verbalized one at the time for lack of all the abilities necessary for combinatorial speech. Children’s growing capacity to take into account for verbalization more details of the situation (e.g., Ninio & Snow, 1996) is likely to contribute to this change. These co-possible verbal expressions may eventually combine to give rise to a unit of a higher level:

(5) two-word utterance

Mother and child look at a picturebook together. The child points towards the picture of children fallen from a slide on the snow

- Child₁ : /ãfã obe/
 ≈ ‘enfant(s) tombé(s)’ ‘children fall(en)’
Mother₁ : *là ils sont tous tombé*
 ‘there they all fell down’

Table 4. Age of the child at the emergence and increase in frequency of successively and simultaneously entertained co-possible expressions

	Emergence	Increase in frequency and variety
	Successively produced different expressions	
Verbalization of recurring acts/ events	1;4.26	1;5.23–1;6.22
variety of verbalization in requests	1;4.26	from 1;6.22
conversationally-generated SSWUs	1;3.16	1;5.23–1;7.6
		mentally-entertained co-possible different expressions
justifications of communicative acts of request and opposition	1;5.23	from 1;7.18
conversationally-unsustained SSWUs	1;6.22	1;7.18–1;8.3

DEVELOPMENTAL RELATIONS AMONG THE DIFFERENT PHENOMENA DISCUSSED

Pulling together results from the previous analyses (see Table 4) it can be noticed that the appearance of different expressions in the case of similar recurring communicative acts – very similar recurring events and requests – and for the expression of one and the same communicative act—in across-turn conversationally-generated SSWUs – is observed at about the same time (around 1;4–1;5, with some advantage to the first observed occurrences of this type of SSWUs).

The increase in the frequency and in the variety of the expressions used occurs later and is also observed at about the same time for these different situations (it is observed around 1;6–1;7). As discussed above, for all these behaviors, it cannot be ascertained that the child entertains the different expressions simultaneously, conceiving them as co-possible options. They are most likely to be successive alternatives whose meanings are not yet related to that of the other alternative expressions within an overall system.

Those cases where it becomes reasonable to make this assumption – the production of justifications of requests and oppositions, and of conversationally-unsustained SSWUs – appear later than the previous behaviors, and, like the latter, occur and increase at about the same time period.

DISCUSSION: FROM SUCCESSIVE TO CO-POSSIBLE VERBAL EXPRESSIONS

The temporal correspondences interestingly found among the appearance and further development of phenomena *a priori* unrelated among themselves, strongly support the hypothesis that the ability to take different verbal perspectives on a given event or on a given communicative act is related to progress in one underlying, general, cognitive development: that of entertaining mentally different possibilities at the same time. Moreover, they strongly suggest that simultaneously envisaged possibilities, entertained mentally, directly arise from successively-centered alternatives that the child constructs locally by focusing on different aspects of a given communicative situation. Successive focusing can itself be due to different sources. Children's growing ability to shift

attention, to take into account for verbalization several aspects of the situation, and the increase in the availability of lexical items to express them, are certainly some of them. Another source is discourse, where shifts in attention and the verbalization of more than one aspect of the situation can arise through the conversational moves, as it is the case in across-turns conversationally-sustained SSWUs. These SSWUs have been considered to play a pivotal role in the change from single to multiword speech by allowing the child to produce a behavior of a higher level of functioning at a time when she is otherwise a single-word speaker (Veneziano, 1999a). The interpretation provided here, that takes into account the development of co-possible expressions, provides additional light to this hypothesis. As soon as the child, functioning as a speaker in certain types of discourse sequences, is provided the opportunity to shift perspectives on one and the same event or communicative act, she also becomes capable of taking different perspectives on recurring similar communicative acts, allowing different alternative expressions to make surface.

With increasing representational abilities, successive possible expressions can be anticipated simultaneously and become related options among which to choose, for overt expression, the one that suits best the communicative goals to be achieved. It is at this time that verbal expressions start to be related one to the other in an emerging linguistic system where meanings can be opposed to each other, compared or combined. The construction of relations among verbal expressions and situations of use, and the widening of the network of interrelations among verbal expressions and their meanings, is considered here to be a crucial step into the grasping of language as a system. This viewpoint, though derived from a somewhat different theoretical framework, rejoins other accounts of this developmental period, particularly that offered by Ninio (1994), and Ninio and Snow (1996), that conceive the change from “one-to-one to many-to many mappings” as fundamentally related to a linguistic apprehension of language.

Simultaneously anticipated co-possible expressions are, at first, verbalized one at the time. Soon after, however, they may also be combined to give rise to meaning-coordinated multiword utterances. Expressive options become then a vehicle for overcoming the limitations of single-word utterances and one of the ways through which the child can enter multiword speech. Combinations may become, in turn, options in a new set of co-possible expressions.

The capacity to conceive different possibilities, and then to view them simultaneously as “co-possible” alternatives is considered here as a general underlying cognitive achievement necessary to the occurrence of a linguistically critical turning point, without being of course sufficient for such development to take place. This cognitive achievement allows children to start building up networks of lexical items and of expressions whose meaning and communicative function is partially determined by that of other items and functional expressions available in the set. Language knowledge starts to take the form of an incipient mentally constructed system of possibilities. Although the system is likely to be elaborated on the basis of concrete experiences, often of an interactional nature, the resultant knowledge consists of mentally conceived possibilities and depends on the way children relate and organize them internally.

The essential characteristic of the progression described above, leading the child from successive (level “n”) to simultaneously envisaged co-possibilities (level “n + 1”), is that it is set in motion by conditions created by functioning typical of level “n”. Functioning, viewed as the main motor of development, together with the necessity for mental constructions, can be considered the hallmarks of piagetian-type constructivist accounts of development⁶, and what distinguishes them from other, experience-sustained accounts.

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⁶ A suggestive indication for the prominent place given to functioning by Piaget is provided by the title of one of his books (1976/1978), “Le comportement, moteur de l'évolution” (translated in English simply as “Behavior and Evolution”).

16. CHILDREN'S NAMES CONTRIBUTE TO EARLY LITERACY A LINGUISTIC AND SOCIAL PERSPECTIVE

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INTRODUCTION

Family members and caretakers frequently encourage toddlers and preschoolers to recognize their written names, to name the letters included in their names, to print these letters or the total name. Indeed, it has been claimed that for many children their name is the first word they recognize and attempt to write (Clay, 1975). For many years, researchers have argued that a child's knowledge of his or her written name comprises a precursor of early literacy (e.g., Arrow, Fletcher-Flinn, & Nicholson, 2003; Ferreiro & Teberosky, 1982; Martens, 1999; Villaume & Wilson, 1989). Only recently, however, have controlled analyses investigated this claim.

This chapter examines the effect of own name on early literacy from two perspectives: a cross linguistic and a social one. We extend the study of personal name effects on *letter knowledge* carried out among children raised in other languages to Israeli children immersed in Hebrew. Our aim is twofold – to support the generality of previous main findings on letter knowledge but also to search for language-specific variations. Further, we analyze mother-child joint writing to examine *whether mothers utilize children's advanced knowledge on written names when they mediate writing to their children*. Although it is frequently assumed that children's advanced knowledge of their names is an

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outcome of their caregivers' exceptional preference for involving young children with their own names, no study has analyzed how parents utilize name knowledge in their role of mediating writing to their children.

STUDY I: LETTER KNOWLEDGE OF OWN NAME LETTERS

The preliminary recognition of own written name was explored by Villaume and Wilson (1989), who asked 2–5 year olds US children to recognize their personal name. Some 2 year olds, most 3 year olds, and all 4 and 5 year olds succeeded in name recognition. This extraordinary accomplishment, however, conceals the limitations of these children's name knowledge. Children who recognized their written names did not necessarily understand that the entire series of letters designates the name. Some young children read their names onto the initial letter only. Other children failed to orally dictate the letters composing their names and many failed to write their names conventionally. Hence, initial name recognition does not indicate understanding of the alphabetic principle and may coincide with highly restricted letter knowledge and phonological awareness. Still, the early recognition of own written names may enhance children's knowledge of letters that are included in their names.

Treiman and Broderick (1998) examined whether English speaking children, 4–6 year olds gain knowledge from their forenames on letters. Unexpectedly, the advantage provided by children's own names in letter knowledge was apparent but very limited. Children throughout this age range excelled in naming the initial letter of their personal names, but not in naming other letters in their names. Children were also not advanced in providing the sounds of the letters that belonged to their own names. In directly comparing children's knowledge about the initial letter of their own names and about other letters in their names, it was found that children were better at naming the initial letter and at printing it in response to its name. Recently, Treiman and Kessler (2003) analyzed new data for English speaking children and found again that children gained in naming the initial letter of their names. In addition, children improved slightly, but reliably, in naming the ensuing letters of their names, in comparison with children who did not have these letters in their names.

The conclusion that children learn only to name the initial letter of their own names or, alternatively, that they learn the initial letter's name better than later letters' names, can be explained as an outcome of children's limited memory for letters in a string, which guides them to focus their attention only on some letter(s). By default, they pay most attention to the initial letter, due to its primacy. Further, initial English letters are visually salient due to their capitalization in print. Evans et al. (2003) has lately shown that children's naming of capital letters surpasses their naming of lower-case letters. Further, Treiman and Kessler (2004) recently added that children learn from their given names in English to name upper-case more than lower-case letters. This finding suggests that when children are exposed to their written names, with the initial letter capitalized and the other letters written in lower case, they may focus their attention on the initial letter as they are more familiar with it.

Due to several important differences between English and Hebrew, we expected a broader effect for children immersed in Hebrew. Names written in Hebrew differ

from names written in English in two ways: (1) Hebrew script has no capital letters. Hence, the initial letter in a Hebrew name is not capitalized and is generally the same size as the following letters in the name. In English cursive writing, the capital letter is distinct in size from the rest. (2) Hebrew names are more restricted in length than names in English (and probably other alphabetic languages). Several reasons for this phenomenon suggest themselves. First, Hebrew orthography marks vowels deficiently, i.e., many vowels are unmarked by letters (Levin, Ravid, & Rapaport, 1996; Ravid, in press; Share & Levin, 1999). Illustrative examples comprise the biblical names Rachel and David that are prevalent both in English and in Hebrew. These names are spelled with five to six letters in English and with three in Hebrew: RXL and DWD.

Hebrew orthography elicits shorter spellings because of two other more local reasons: Hebrew spellings include no grapheme of two letters or more. In English orthography such graphemes are prevalent among consonants (e.g., 'th', 'ck') and vowels (e.g., 'ou' 'ie'). Further, Hebrew spellings include no doublets, whereas English does. Two-letter graphemes and doublets increases word/name length in English.

A fourth reason may exist for the smaller variance in Hebrew names' length, related particularly to names. Currently, many Hebrew names are unisex, applied to males and females alike. These names, though, as a rule, were originally male names or male nouns. No boy is named with a typically girl's name, even not by a feminist mother! For instance, Tal (masculine nouns/names meaning dew) is a popular name nowadays for boys and for girls. Male names are shorter than female names, both in English (Cassidy, Kelley, & Sharoni, 1999) and in Hebrew. Male nouns in Hebrew are shorter because they are unmarked, whereas female nouns often carry a gender morpheme. See, for example, yeled (boy) and yalda (girl) that are spelled as YLD and YLDH. Consequently, the trend of giving male names or masculine nouns to girls shortens the length of modern, Hebrew names.

If children immersed in English are often exposed to names with more letters than they can easily memorize, they focus by default on the salient letter, where saliency is determined by primacy and capitalization. Shorter names may encourage children to distribute their attention to the entire series of letters, rather than focus on the salient letter. Hence, Israelis would show knowledge gains for more letters in their names.

Children are more advanced in knowledge of letters' names than of letters' sounds (Evans et al., 2003; Mason, 1980; McBride-Chang, 1999; Treiman, Tincoff, & Richmond-Welty, 1996; Worden & Boettcher, 1990). The reason may be related to the way adults treat letters. Parents orally spell names (or words, for that matter) predominantly by naming the letters rather than by uttering their sounds, probably because letter names are more distinct than letter sounds.

The same trend of spelling words by letter names should typify Israeli adults' discourse with children because of the prevalence of homophonic Hebrew letters. About half of the Hebrew letters have a homophone (e.g., /k/ spelled with Kuf or Kaf) (Share & Levin, 1999). Consequently, guiding a child in spelling a word by dictating sounds in Hebrew often remains obscure with respect to the letter to be printed. In sum, due to adults' mediation of writing by naming letters, and probably also to limited phonemic awareness among kindergartners, we expect in Hebrew, just like in English, a higher

performance on naming letters than on providing their sounds. This should apply to own-name letters and to letters in general.

Nevertheless, there is room to expect that Israeli children will also gain knowledge about letter sounds from their own names. In alphabetic languages, letter names are iconic, i.e., mostly include the major sound for which the letter stands (Ehri, 1983; Treiman & Kessler, 2003). An experimental study that controlled for prior letter knowledge recently showed that iconic letter names facilitate children's acquisition of letter sounds (Share, in press). Hebrew letter names are not only iconic but also acrophonic, i.e., they include the marked sound in their initial position (Levin et al., 2002). Specifically, the names of *all Hebrew letters* start with the sound that they most often represent. For instance, Lamed marks /l/. Four Hebrew letters (Aleph, Hei, Vav, and Yud - AHVY), which function both as vowels and as consonants, differ in the sense that the letters' names indeed start with their consonantal sound. Two of these letters (Vav and Yud) do not include at all the vowelizing sounds that they represent. The other two letters stand for various vowelizing sounds, and the names do not include the major sound that they represent.

In English, some letter names (like B) start with the designated phoneme, other letters (like L) end with the sound that the letter represents, and still others (like H) do not even contain the major designated phoneme in the letter's name. In a series of studies, Treiman and her colleagues, and more recently Evans and colleagues, showed that acrophonic letter names in English facilitate children's acquisition of these letters' sounds (Evans et al., 2003; Treiman, Weatherston, & Berch, 1994; Treiman et al., 1998). Evans dealt separately with vowels, under the assumption that their names tell the sounds that they often stand for. She showed indeed that children's knowledge of the sound of vowels surpassed their knowledge of sounds of letters with non-iconic names (like L or H). Hence, Hebrew's acrophonic letter names should be exceptionally facilitative in helping children learn letters' sounds from their names. Further, if Hebrew speaking children do learn letter names from their own forenames, once the children reveal the acrophonic principle that applies to all Hebrew letters, they can also derive the sounds of the letters of their own names.

METHOD

Participants

A total of 122 preschoolers and kindergartners from middle to middle-high SES contributed to this data set. Of these, 91 children completed both the *Name Task* and the *Sound Task* in an almost counterbalanced order. Thus, we tested 101 children on the *Name Task* (Age: $M = 62$ months, $SD = 5.5$, Range = 52 to 75) and 102 children on the *Sound Task* (Age: $M = 62$ months, $SD = 5.6$, Range = 52 to 75).

Tasks

We presented the children with a total of 22 Hebrew letters, printed on cards. We did not include the five final-word position Hebrew letters, which appear only in the final position of words and are acquired later (Levin et al., 2002). In the *Name Task*,

we asked the child to name each letter (e.g., Lamed for ל), and in the *Sound Task* we asked the child to provide its phonemic sound (e.g., /l/ for ל). For each task, letter cards were presented in a random order that changed from one presentation to the next. For the first four letters in each task, we provided corrective feedback when the child erred.

Results

To assess the advantage gained from given names on naming/sounding Hebrew letters, we divided the sample for each of the 22 letters in the alphabet into children whose names contained that letter and those whose names did not. For instance, in the *Name Task*, Aleph (the first letter in the Hebrew alphabet) appeared in the names of 27 children and did not appear in the names of 74. Among those 27 who had Aleph in their name, 89% named this letter correctly in the *Name Task*. Among their 74 counterparts, 77% named Aleph correctly. We excluded from the analysis any letters that did not appear in any of the children's names or that only appeared in a single child's name. We conducted paired *t*-tests, with letter as the unit of analysis, to compare success on naming or sounding letters for children with and without the letter in their personal names. This method was developed by Treiman and Broderick (1998).

Name task

The mean success in naming letters was higher for name-letters than for non-name-letters, respectively ($M = 61$ vs. $M = 36$, $t(18) = 4.60$, $p < 0.001$). To examine whether the advantage was limited to the initial letter of the name, as found for English speaking children, or if it applied to more letters, as we expected for Hebrew speaking children, we divided the children into those whose names contained the specific letter in the initial position versus all the other children, i.e., whose names contained the letter in another position or did not contain it at all. A paired *t*-test comparing success in naming letters of initial-name-letter vs. non-initial-name-letter revealed a significant advantage of initial-name-letter ($M = 71$ vs. $M = 42$, $t(14) = 4.12$, $p < 0.001$). The same trend appeared for naming the second-name-letter ($M = 56$ vs. $M = 37$, $t(12) = 2.26$, $p < 0.02$), and for the third letter ($M = 56$ vs. $M = 44$, $t(12) = 1.85$, $p < 0.05$). Inasmuch as our expectations were directional, we applied a one-tailed significance test. (See Table 1). The fourth position was not examined because Hebrew names of 4 letters or more were too scarce to afford this analysis.

These results may suggest a decrease in the advantage provided by name letters, from the first position in the name to the second or third. Thus, we conducted a direct test of letter position effect using a 2-way ANOVA. This 2 (name-letter/non-name-letter) X 3 (first/second/third position in name) analysis did not reveal a significant decrease. Neither the effect of letter position nor its interaction with the variable of name-letter vs. non-name-letter was significant. In sum, children were better at naming letters when those letters appeared in their personal names, whether the letters were in the first, second, or third position in the name, with no significant advantage to the initial letter. The lack of advantage for initial letter suggests that Hebrew speaking children may gain more from their names than do English speaking children.

Table 1. Means, standard deviations, and *t* values across letters, for correct letter naming by children whose names did or did not contain the letter, in the entire name and by letter position

	First round			
	Performance on name-letters <i>M</i> (<i>SD</i>)	Performance on non-name-letters <i>M</i> (<i>SD</i>)	<i>t</i> (<i>df</i>)	<i>p</i> < (1-tailed)
Entire name	0.61 (0.25)	0.36 (0.16)	4.60 (18)	0.001
1st letter in name	0.71 (0.24)	0.42 (0.17)	4.12 (14)	0.001
2nd letter in name	0.56 (0.29)	0.37 (0.17)	2.62 (12)	0.02
3rd letter in name	0.56 (0.30)	0.44 (0.17)	1.85 (12)	0.05
	Second Round			
Entire name	0.68 (0.20)	0.37 (0.16)	6.91 (18)	0.001
1st letter in name	0.75 (0.21)	0.43 (0.17)	5.36 (14)	0.001
2nd letter in name	0.54 (0.24)	0.38 (0.17)	2.09 (12)	0.03
3rd letter in name	0.56 (0.21)	0.46 (0.18)	1.85 (11)	0.05

Note: The analyses included only those letters that appeared in at least 2 children's names for that round.

Sound task

We conducted a parallel analysis to examine children's success in providing the letters' sounds. For example, among the 19 children who had Tav (the last letter in the Hebrew alphabet) in their names, 47% provided the correct sound for Tav - /t/. Among the 87 children without Tav in their names, only 20% provided the correct sound. The mean success in providing the sounds of letters was higher on name-letters than on non-name-letters respectively ($M = 34$ vs. $M = 19$, $t(19) = 3.00$, $p < 0.004$). Similar analyses referring separately to those who had each letter in the first, second, or third position of their names indicated a significant advantage for name-letters in the first position ($M = 43$ vs. $M = 22$, $t(15) = 3.33$, $p < 0.005$) and in the third position ($M = 32$ vs. $M = 22$, $t(12) = 1.80$, $p < 0.05$). For the second position, results differed. Performance on sound retrieval was very similar among those who had the letter in their names and among those who had not.

These results may suggest a decrease in the advantage provided by name-letters to the child's ability to retrieve the letters' sounds, from the first position in the name to the second or third. Thus, we conducted a direct test of letter position effect using a 2-way ANOVA: 2 (name-letter/non-name-letter) X 3 (first/second/third position in name). This analysis did reveal such a decrease ($F(2, 16) = 4.96$, $p < 0.02$) and an interaction with the variable of name-letter vs. non-name-letter ($F(2,16) = 4.15$, $p < 0.04$). This interaction reflected the finding that children were better at providing the

Table 2. Means, standard deviations, and *t* values across letters, for correct letter naming by children whose names did or did not contain the letter, in the entire name and by letter position

	First round			
	Performance on name-letters <i>M</i> (<i>SD</i>)	Performance on non-name-letters <i>M</i> (<i>SD</i>)	<i>t</i> (df)	<i>p</i> < (1-tailed)
Entire name	0.34 (0.24)	0.19 (0.12)	3.00 (19)	0.004
1st letter in name	0.43 (0.24)	0.22 (0.13)	3.33 (15)	0.003
2nd letter in name	0.21 (0.31)	0.22 (0.12)	-0.05 (11)	ns
3rd letter in name	0.32 (0.24)	0.22 (0.10)	1.80 (12)	0.05
	Second Round			
Entire name	0.37 (0.26)	0.21 (0.14)	3.10 (18)	0.003
1st letter in name	0.53 (0.24)	0.25 (0.17)	3.94 (14)	0.001
2nd letter in name	0.24 (0.31)	0.27 (0.12)	-0.26 (11)	ns
3rd letter in name	0.30 (0.23)	0.23 (0.11)	1.28 (12)	ns

Note: The analyses included only those letters that appeared in at least 2 children's names for that round.

Table 3. Mean percentage of name-letters and non-name-letters written as random letters and as phonetic letters, in low and middle-high SES groups

	Name-letters	Non-name-letters	<i>t</i> (df)	<i>p</i> < (1-tailed test)
	Low SES			
Random letters	9.50	3.55	6.13 (20)	0.001
Phonetic letters	7.30	4.19	1.88 (20)	0.04
	Middle-high SES			
Random letters	8.44	3.95	1.96 (19)	0.04
Phonetic letters	4.22	3.86	0.85 (19)	ns

sounds of letters that appeared in their forenames than the sounds of non-name-letters, regarding the first-position letter ($M = 40$ vs. $M = 23$) and the third-position letter ($M = 41$ vs. $M = 24$). Regarding the second-position letter, no such trend emerged, with children whose names did not contain the letter performing somewhat better than those whose names did ($M = 16$ vs. $M = 24$). In sum, children were better at providing the sounds of letters in the first and the third position in their given names. (See Table 2).

The finding that the second letter in a name did not promote provision of its sound deserves interpretation. Note that in many Hebrew names the second letter is either

Yud or Vav. For instance, on the *Sound Task*, Yud or Vav appeared in the second position of 57% of the names. In contrast, these letters appeared in the first position of only 9% of the names and in third position in only 19% of the names.

Yud and Vav function either as consonants (Yud marking /j/ and Vav marking /v/) or as vowels (Yud marking mainly /i/ and Vav standing for /o/ or /u/). However, the role of these letters partially depends on its position in the word. In the first position, these letters always stand for consonants, because Hebrew vowelizing letters cannot appear without being preceded by a consonant. In the second position, they most frequently stand for vowels. In the third position, they may stand either for vowels or consonants. Preschoolers and kindergartners are substantially more advanced with the sounds of consonants than of vowels, as apparent in their invented spellings (Levin, Ravid et al., 1996; Levin, Share et al., 1996). Hence, for letters that can function either as consonants or as vowels, children almost always respond with the consonantal sounds. Children of these age groups are very often ignorant with respect to the vowelizing sounds of these letters (Levin, unpublished).

Consequently, children with Yud or Vav in their names in the role of a consonant should be facilitated by their own forenames in providing the sounds. However, children whose names contain these letters in the role of vowels should not be equally helped by their forenames in sounding these letters. Inasmuch as Yud and Vav appear very often in the second position of names, and here they almost always function as vowels, they do not contribute to children's knowledge of their sound, either as vowels or as consonants. This finding may suggest that Israeli preschoolers and kindergartners learn from their names the consonantal sound of a letter rather than the vowelizing sound. This hypothesis waits to be studied.

Naming versus sounding

We expected that children would gain more knowledge about letter names than about their sounds from their own given names. We conducted a 2-way ANOVA, with letters as the unit of analysis: 2 (task: *Name Task/Sound Task*) X 2 (letter type: name-letter/non-name-letter). Percent of correct performance was close but not identical to the data presented in Tables 1 and 2, because the current analysis included only data of those children who completed both the *Name Task* and the *Sound Task*. Performance on letter names surpassed that of letter sounds ($M = 49$ vs. $M = 28$, $F(1, 18) = 35.91$, $p < .001$), and performance on name-letters surpassed that of non-name-letters ($M = 49$ vs. $M = 28$, $F(1, 18) = 21.47$, $p < .001$). However, no significant interaction emerged ($F(1, 18) = 2.92$, $p < 0.11$), thus showing no advantage for letters' names compared to letters' sounds, gained from children's own names. In sum, the data somewhat suggested that children gained more knowledge from their given names about shape-name associations than about shape-sound associations. To establish this conclusion, more studies should be conducted.

Surnames

Analyses carried out concerning family names showed no advantage gained from surnames either in naming letters or in providing their sounds (Treiman & Broderick,

1998). Our study with Hebrew speaking children found the same result. Performance on naming surname-letters did not surpass significantly naming of non-surname-letters ($M = 42$ vs. $M = 37$, $t(21) = 1.36$, *ns*) or on sounding them ($M = 25$ vs. $M = 20$, $t(21) = 1.60$, *ns*). In sum, the advantage provided by the child's name seems to be broader in Hebrew than in English. It applies to naming at least three letters of the given name (which for many children involve all the letters in their names). As to providing letter sounds, the advantage of Hebrew forenames seems to be somewhat broader than in English but more prominent for the initial letter. Family names in Hebrew, like in English, do not contribute to letter knowledge. This limitation probably reflects the rare attention devoted to family names in adults' mediation of literacy.

(B) STUDY II: MATERNAL USE OF NAME IN MEDIATING WRITING

Children's special attraction to their given names makes them probably highly receptive to learning about literacy through experimenting with its written form and letters. Nevertheless, this mere attraction would probably not suffice to increase their knowledge about their names without parents' and teachers' frequent writing of names on children's artwork, encouraging children to copy their names, naming the letters in the children's names, and the like. Except for a few case studies that commented on parental input (Ferreiro, 1986; Martens, 1999), no study till now examined how adults utilize children's interest in their names to promote child literacy, using a controlled quantitative method. Study II provides a start in this direction.

Children's elaborate knowledge about their forenames can be viewed as the peak of their advanced knowledge about names in general, of siblings and peers. In preschools and kindergartens, teachers encourage children to functionally use their written names on cubby holes, cups, hooks, and the like. For this purpose, the names of all children in the group are printed on these objects. Consequently, children are exposed to their peers' names daily, and from time to time use these names to fetch something from another child's cubby hole. Share and Gur (1999) drew attention to the role of peers' names in early literacy by developmentally analyzing the strategies that children use for recognition of their own and their peers' names.

Share and Gur (1999) provided substantial evidence that preschoolers and kindergartners exhibit advanced knowledge with respect to their classmates' written names. These researchers asked children to read their peers' names on cubby holes and on cards, and to recognize these names, with either the first or last letter concealed. For comparison, the study included asking children to read a few novel names, written on cards, which were composed of letters that the children could name. Preschoolers, who could read no novel names, read several of their peers' names in context (on cubby holes) and a few names out of context. Kindergartners showed a clear advantage in reading their peers' names over reading the novel names.

The purpose of our current study consisted of exploring whether mothers, when mediating writing to their young children, were sensitive to and utilized children's advanced knowledge with respect to the children's own names and their peers' names.

METHOD

Participants

This data set derived from Aram and Levin's (2001) study of mother-child joint writing activity as a context promoting early literacy. Forty-one kindergartners (age: $M = 5;8$, range: 5;6–6;2) and their mothers were recruited from a townships populated mainly by low SES.

Tasks

In home visits, we asked the kindergartners to perform two tasks: a *Name Task* and a *Word Task*. In the *Name Task*, we asked children to write a list of guests to be invited to their birthday party. In the *Word Task*, we asked children to write four pairs of dictated words. The mothers were asked to help their children to perform the tasks as best as they could. The two videotaped sessions of joint writing took part on two separate afternoons.

Analysis

Maternal mediation of writing underwent analysis mainly in terms of the steps in the encoding process of each written letter for which the mother intervened (for details of scoring mediation, see Aram & Levin, 2001). Quality of mediation varied from the lowest level, where the mother wrote the items on her own, to the middle levels where the mother wrote the items for the child to copy or dictated letter by letter, to the advanced level where the mother encouraged the children to map sounds of the word/name with the required letters and to retrieve their shapes.

The quality of mediation emerged as related to children's independent literacy skills assessed in kindergarten. Even after controlling for a variety of socio-cultural factors, including SES variations and literacy related tools at home, connections emerged between the quality of the mother's mediation of writing and her child's independent word writing, word recognition, and phonological awareness. In a follow up study, 2½ years later, maternal mediation of writing in kindergarten predicted children's broadly assessed literacy in school. Further, after controlling for children's literacy in kindergarten, maternal mediation preserved its prediction of children's spelling and linguistic knowledge (Aram & Levin, in press).

Here, we analyzed mother-child joint writing from the new perspective of how mothers referred to the child's own name and to peers' names in general, as a source of knowledge utilized on letters for mediation of writing. When children were trying to discover the name of a letter or to retrieve the shape of a letter that they had just named in order to print it, the mothers often scaffolded them. A major maternal strategy, labeled a mnemonic event, involved mothers' suggestion of a mnemonic stimulus (name or word) that included the required letter. Mothers who used mnemonic events seemed to assume that their children were implicitly familiar with the written form of the mnemonic name/word, as well as with the name and shape of the required letter. Hence, mothers reminded the children of the letter using the reference to the mnemonic stimulus. For instance, one mother guided her daughter in writing 'Smadi'

(a nickname) by dictating letters. To help the child to retrieve the shape of Dalet (D), the mother used a mnemonic name: "Dalet like for Dina" (name). Another mother tried to help in retrieving Pei for writing 'mapa' (map), by a mnemonic word: "Pei like in para" (cow).

At times, mothers enriched the mnemonic device with additional scaffolds. This occurred either in advance, or afterwards when the mention of the stimulus did not suffice. Mothers described the letter's shape, modeled its writing with a finger, or mentioned the letter's position in the mnemonic stimulus. For instance, a mother tried to mediate the letter Lamed, required for writing the nickname Raful, and used the name Lital as a mnemonic name along with letter's description: "Raful—Lamed. Do you remember Lamed with the candle on its head (נ)? like that of Lital." Another mother tried to mediate Aleph using the name Itamar as a mnemonic device along with ordinal position, thus: "Aleph, like the first letter in Itamar."

We examined maternal use of mnemonic devices from three perspectives:

Kind of mnemonic stimulus used by mothers

If mothers are sensitive to children's advanced knowledge with respect to children's own given names, then mothers should use children's forenames rather than other stimuli (names or words) when mediating a target letter that appears in their child's name. In most cases, though, the child's own name cannot serve as a mnemonic device, because the name includes only a few letters. Thus, if mothers are aware of their children's greater accessibility to written names than to written words, they should tend to more often use names of peers or siblings or the like than to use words as mnemonic stimuli.

Ordinal position of the target letter in the mnemonic device

Among English speakers, children gained from their given names the ability to name the initial letter more than other letters (Treiman & Broderick, 1998; Treiman & Kessler, 2003). We found in Study I that Hebrew speaking children substantially improved from their forename in the ability to name letters.

With respect to other names, findings are inconsistent. Share and Gur's (1999) study of name recognition among Israeli preschoolers and kindergartners demonstrated a similar extent of success in guessing what was written in a name, when either the first or the last letter was concealed. In contrast, in recent studies by Jamui (2003) and Peled-Haim (2003), similar age groups of Israelis were found to pay greater attention to the initial than to the final letter in names. Names of peers were transformed by exchanging either the first or the last letter of the name with another letter. Kindergartners erred by reading transformed names as the original names, to a greater extent when the final letter was exchanged, showing their greater attention to the first letter in the name. Masonheimer, Drum, and Ehri (1984) used this method of letter exchange to show how little attention preschoolers pay to the identity of the letters when they recognize environmental print.

With respect to written words, findings indicate a developmental shift. According to the model of word reading proposed by Ehri (2002), a great divide occurs between *pre-alphabetic* readers and *partial alphabetic* readers. The *pre-alphabetic* readers recognize

written words by contextual cues (Gough, Juel, & Griffith, 1992; Masonheimer et al., 1984) or by salient visual cues in the print, which do not carry a phonological meaning for these youngsters. Hence, they have not yet developed the knowledge-base for reading. The partial alphabetic readers recognize words on the basis of partial connections formed between letters and sounds; hence, these children are involved in forming a repertoire of familiar written words. Pre-alphabetic children pay no special attention to letters at large, and do not tend to focus on the initial, medial, or final letter (Masonheimer et al., 1984), whereas partial alphabetic readers are particularly attentive to the initial or final letter in the word, rather than to medial letters (Ehri, 2002). The saliency of initial letter in a word in the process of word reading and word spelling has repeatedly been noticed among preschoolers, kindergartners, and first graders (e.g., Beers & Henderson, 1977; Marchbanks & Levin, 1965; Morris, 1980, 1983; Read, 1971). In Ehri's terms, these children are either partial alphabetic or even alphabetic readers.

If Israeli mothers are sensitive to the fact that children's greater accessibility to initial letters is characteristic for words but is perhaps less so for names, and is probably inapplicable for children's personal names, then mothers should select mnemonic devices accordingly. Mothers should prefer mnemonic words that contain the target letter as their first letter. With respect to names, though, and particularly with respect to children's personal names, this effect should be weaker if mothers assume correctly that children are familiar with all the letters in the name to a similar extent. Mothers may still prefer names with the initial target letter, but the reason may lie in their own retrieval processing. In searching for a mnemonic stimulus for a specific letter, it is possible that the first stimulus that comes to the mother's mind has this letter in its initial position (see Koriat & Lieblich, 1975).

Congruity between the role of target letter in the mnemonic device and in the word/name to be written

Vowels are marked in Hebrew orthography by letters and by diacritic marks. The system of diacritics, which is optional, is acquired predominantly in school, and as a rule the vast majority of kindergartners fail to understand its function (Levin, Share et al., 1996; Ravid, 2003). In the current study, we referred only to vowels marked by letters. Ancient Hebrew orthography did not mark vowels at all. In modern Hebrew, AHVY letters, termed *matres lectionis*, mark vowels in a deficient way. Researchers have offered two reasons for vowels' deficiency. First, consonants in Hebrew carry the main lexical content of the word (Ravid, 2003), and secondly, historically, Hebrew orthography started out as a syllabary and later on became phonemic (Coulmas, 1989). Although the letter-phoneme mapping of these letters as consonants is quite transparent, and applies to all positions in the word, the letter-phoneme mapping of these letters as vowels is rather obscure and position dependent.

To specify, the four letters mark five canonical vowels: /a/ and /e/ are marked only in the final-word position by either Aleph or Hei; /i/ is marked across positions except the initial by Yud; /o/ is marked across positions except the initial by Vav; and /u/ is marked by Vav in all word positions. To complicate things further, however, these letters' two roles are not used to a similar extent in Hebrew orthography. Aleph is used

predominantly as a consonant and very rarely as a vowel. Hei and Vav are frequently used as vowels, but quite seldom as consonants. Yud functions often in the two roles, probably more as a vowel.

In mediating a letter meaningfully, the mother should take into account the vowel versus consonantal role of the letter in the mnemonic stimulus and in the word/name to be written. In mediating one of the four letters that function both as vowels and as consonants (AHVY), the mother who takes into account the letter's role in the current word/name, by using a vowel to mediate a vowel or a consonant to mediate a consonant, helps her child to understand symbol-sound relationships. If mothers are sensitive mediators, they should tend to mediate AHVY letters congruently, using mnemonic stimuli in which the letters share the same role as the target letters to be written.

Results

Type of mnemonic stimulus

Thirty-three mothers (80.5% of the sample) used mnemonic events to remind their children of the shape and/or the name of a required letter on either one or both of the two tasks. Out of these, 27 mothers used 194 mnemonic events in the *Name Task*, and 30 mothers used 231 mnemonic events in the *Word Task*. These events constituted the data base for the current analysis. In the *Name Task*, the mean number of mnemonic events per mothers who used them was 7.2 (range: 1–20), and in the *Word Task* the mean was 7.7 (range: 1–29). We conclude that mnemonic events occurred frequently enough to be conceived as a spontaneously occurring strategy in mother-child joint writing.

As mentioned above, if mothers are sensitive to children's greater accessibility to written names than to written words, mothers will tend to use names as mnemonic devices rather than words. However, mothers may use a name or a word that the child has just written, as a mnemonic device for the writing of a required letter. The two tasks differed in terms of the recently written stimuli that they offered as mnemonic devices to mothers, because the *Name Task* comprised guests' names and the *Word Task* comprised dictated words. Therefore, in our analyses, we excluded the mnemonic events that referred to the child's recently written text during the task. Hence, all mnemonic devices in this analysis comprised words or names that the child needed to retrieve from memory. If mothers are aware that their children possess a greater repertoire of written names than written words in their mental lexicon, mothers should prefer names as mnemonic devices, on the two tasks. Indeed, mothers more often used a name than a word as a mnemonic device both in the *Name Task* ($M = 2.22$ vs. $M = 0.59$, $t(26) = 4.36$, $p < 0.001$) and in the *Word Task* ($M = 3.48$ vs. $M = 1.06$, $t(32) = 5.71$, $p < 0.001$).

Among names, children are most knowledgeable about their own given names. If mothers are aware of children's outstandingly advanced familiarity regarding their own names, then the mothers may use the name in mediating writing. The child's name, though, can serve as a mnemonic device for a limited number of letters. To examine maternal tendency to utilize the child's name, we selected mnemonic events

Table 4. Mean percentage of mnemonic stimuli, according to the position of the mediated letter in the stimulus, for given names, other names, and words

Stimulus type	Target letter's position in the stimulus			<i>F</i>	<i>p</i> <
	Initial	Medial	Final		
Given name	32.66	43.96	23.38	1.42	<i>ns</i>
Other name	54.33	24.14	21.53	5.34	0.008
Word	55.18	36.48	8.33	4.38	0.02

Note: For other names, significant contrasts emerged between initial and medial letter, and between initial and final letter. For words, a significant contrast emerged between initial and final letter.

that involved a letter present in the child's name. As expected, mothers preferred the child's given name as a mnemonic device over any other name or word, both in the *Name Task* ($M = 1.78$ vs. $M = 0.85$, $t(26) = 2.48$, $p < 0.02$) and in the *Word Task* ($M = 1.18$ vs. $M = 0.30$, $t(32) = 3.43$, $p < 0.002$).

However, in some cases, the child's written name was displayed during the task. Some children wrote their own names in the list of guests to be invited to their birthday party. A few wrote their name to designate their ownership over the text. In the next analysis, we examined whether mothers preferred the child's own name in those cases where the child's name was not yet written by the child during the task. Here again, mothers preferred the child's given name as a mnemonic device to any other name or word, in the *Name Task* ($M = 1.37$ vs. $M = 0.22$, $t(26) = 4.97$, $p < 0.001$) and in the *Word Task* ($M = 1.03$ vs. $M = 0.12$, $t(32) = 4.32$, $p < 0.001$). In sum, as sensitive mediators of writing, mothers utilized children's advanced knowledge regarding their own names when the name included the required letter, and more generally mothers preferred names to words as a source for reminding the child of a letter's name or shape.

Ordinal position of letter

The ordinal position of the required letter in the stimulus may affect maternal tendency to use this stimulus for the required letter. Specifically, mothers may prefer mnemonic words that include the target letter in the initial position. They may be less guided by letter position in selecting mnemonic names, and particularly with respect to the child's own name.

We divided the mnemonic events according to three possible ordinal positions of the target letter in the mnemonic stimulus: initial, medial, or final position. Table 4 presents the percentages of mothers' mnemonic devices that employ letters in each of the three positions, for the three types of mnemonic stimuli: given names, other names, and words. We combined the *Name Task* and *Word Task* data and included only mnemonic stimuli that had not been written during the task, but rather needed to be retrieved from memory.

When mothers mediated the retrieval of a letter's shape or a letter's name with the given names of their children, they did not prefer initial, medial, or final letters

($F(2, 44) = 1.42$, ns). In contrast, when mothers used other names as mnemonic devices, ordinal position of the letter did affect selection ($F(2, 50) = 5.34$, $p < 0.008$). Contrast test for significance indicated that mothers significantly preferred mnemonic names with the initial over the medial letter, or the initial over the final letter in the stimulus. Similarly, when mothers used mnemonic words, ordinal position demonstrated a significant effect ($F(2, 32) = 4.38$, $p < 0.02$). Contrast test for significance indicated that mothers significantly preferred mnemonic words with the initial than the final letter in the stimulus. Note that the medial position is not strictly comparable to the initial position because words/names of only two letters contain no medial letter, and words/names of more than three letters contain more letters in the medial positions than either in the first or the last position.

In sum, although mothers preferred mediating a letter by using a name or a word containing that letter in its initial position, this was not the case when mothers used children's personal names. In this case, mothers referred to all the letters in the name as a source for helping the child in letter retrieval.

Role of letter as vowel or consonant

Our analysis here of maternal mediation of letters referred to mothers' attention to the role of AHVY letters. Mothers who mediate letters meaningfully should use mnemonic stimuli with AHVY letters playing the same role as in the word to be written. We classified those mnemonic events that each mediated one of the AHVY letters as either congruent or incongruent events. Congruent events used either a vowel to mediate a vowel, or a consonant to mediate a consonant. Incongruent events used either a vowel to mediate a consonant, or a consonant to mediate a vowel. By using congruent mnemonic devices, the mother takes advantage of the child's knowledge about letters' shape-sound connection, or alternatively helps the child to establish this connection.

We must note that the letters to be mediated were partly restricted by the tasks. In the *Word Task*, the eight dictated words did not include all four of the AHVY letters in their dual functions. Alɛph appeared neither as a consonant nor as a vowel. Hei and Vav appeared only as a vowel. Yud appeared both as a consonant and as a vowel. In the *Name Task*, all four letters appeared in the guests' names written by the mother-child dyads either as consonants or as vowels, but not to a similar extent in each role. However, for each of these letters to be mediated, mothers could have mentioned words or names that use each letter either as a vowel or a consonant.

Taking this limitation into account, the data indicated that mothers mediated AHVY letters congruently, mediating mainly vowels by vowels and consonants by consonants. Table 5 presents the mean percent of congruent and incongruent maternal mediation, for each AHVY letter separately. In sum, congruent mediation occurred in 86 and 73 percent of the cases, in the *Name Task* and *Word Task*, respectively. Two *t*-tests, one per task, showed that congruent mediation prevailed over incongruent mediation, $t(20) = 4.92$, $p < 0.001$; $t(18) = 2.32$, $p < 0.03$; in the *Name Task* and *Word Task*, respectively.

Table 5. Frequency of using AHVY letters that function as vowels or as consonants in mediating writing of AHVY letters that function as vowels or consonants

Letter	No. of mothers	No. of mnemonic events	Percent congruent mediation		Percent incongruent mediation	
			C-C	V-V	C-V	V-C
Name Task						
Aleph	9	14	100	0	0	0
Hei	6	8	33	42	0	25
Vav	11	18	0	100	0	0
Yud	11	23	3	73	14	11
Overall	21	63	33.6	52.1	3.8	11.5
Word Task						
Aleph	0		—	—	—	—
Hei	13	22	0	73	0	27
Vav	9	15	0	89	0	11
Yud	9	11	17	50	11	22
Overall	19	48	3.4	69.4	0.9	26.3

Note: C-C = A consonant used to mediate a consonant; V-V = A vowel used to mediate a vowel; C-V = A consonant used to mediate a vowel; V-C = A vowel used to mediate a consonant. *Name Task* across letters: $t(20) = 4.92$, $p < 0.001$. *Word Task* across letters: $t(18) = 2.32$, $p < 0.03$.

DISCUSSION

Research on young children's literacy is embedded in different theoretical frameworks. Some researchers describe children's "emergent literacy" as fuelled by children's self-initiated curiosity, hypothesis generation, and constructive attempts to find solutions to disequilibrium between their growing conceptions (e.g., Burns & Casbergue, 1992; Martens, 1999; Ferreiro & Teberosky, 1982). Other researchers analyze "early literacy" as largely shaped by adults' mediation, which promotes children's curiosity and interest in literacy events while providing inputs and feedbacks concerning language and the written system (e.g., Aram & Levin, 2001; Bus, van IJzendoorn & Pellegrini, 1995; Evans, Shaw, & Bell, 2001; Hiebert & Adams, 1987). Yet another perspective views the development of literacy in the young as shaped by the oral and written language in which the child is immersed (Harris & Hatano, 1999).

Within the framework of early literacy skills dealt with here (letter knowledge and early writing), variations in orthography and letters' names have received special attention in a series of studies (e.g., Evans et al., 2003; Levin et al., 2001; Tolchinsky & Teberosky, 1997, 1998; Treiman & Broderick, 1998; Treiman & Kessler, 2003, 2004; Treiman et al., 1994, 1996, 1998, 2001). Our stance is that all three points of view capture important factors shaping literacy development, and should be viewed as complementary and interactive. In line with this stance, we employed a cross linguistic perspective to evaluate children's developing literacy skills derived from their knowledge about their own names. We searched for similarity across languages, extending into Hebrew those analyses carried out by others for English speaking children, and we concomitantly looked for variations dependent on the orthography and letter characteristics. Furthermore, we shed light on a neglected topic: maternal mediation

of writing. Currently, we examined mediation as a context affording mothers the use of the child's knowledge about names to promote understanding of the written system.

Children immersed in Hebrew seem to profit relatively more than English speaking children from their advanced knowledge regarding their own names. Whereas English speakers with own-name knowledge improve only in naming the initial letter of their given name (Treiman & Broderick, 1998) or more in naming initial than later letters (Treiman & Kessler, 2003), Hebrew speakers improve in naming at least three letters, which for many constitutes all the letters that the name offers. Moreover, English speaking children do not learn from their name the sounds that the letters represent, whereas Hebrew speaking children do learn the sounds, although this advantage is probably limited to consonantal sounds and not to vowel sounds. These facilitative effects of Hebrew probably accumulate with other features of Hebrew to make the learning of word decoding in Hebrew easier than in English (Share & Levin, 1999).

We suggested three factors to explain the relatively limited knowledge gained in English. First, considering that many English words are longer than four letters or so, young children may find it difficult to attend to the entire string of letters. Hence, they focus by default on the salient letter. Saliency is often determined by position (with initial and final letters more salient than medial letters; Ehri, 2002) and by capitalization. Capital letters are more salient for two reasons: their larger size compared to the ensuing lower-case cursive letters, and young children's greater acquaintance with their shapes, partly because of greater exposure to capital letters.

In Hebrew, the majority of names comprise four letters or less, allowing children to distribute their attention to the entire string. The reasons we suggest for this shorter length phenomenon include mainly Hebrew's deficient marking of vowels by letters and the modern tendency of Israeli parents to use unisex male names or masculine nouns for both boys and girls, which are shorter in Hebrew than female names/nouns. This name-length gender difference was documented in English too (Cassidy et al., 1999).

Second, the advantage derived from names regarding letters' sounds emerged only for Hebrew speaking children. The explanation we offered relates to the acrophonic nature of all Hebrew letter names except the AHVY letters, which stand both for consonants and for vowels, and whose names begin with their consonantal sound. Considering English letter names' iconic but not always acrophonic nature, letter names in Hebrew may be more facilitative to deriving letters' sounds from names.

Interestingly, children immersed in either of the two languages under consideration gained knowledge from their given names but not from their family names. This probably reflects a common cultural habit to focus with children mostly on their personal names alone. In socio-cultural contexts where children are absorbed with their family names as often as with their given names, researchers may be interested in studying surnames as literacy precursors.

Deutsch (1998) provided indirect support for the role of the socio-cultural environment on kindergartners' knowledge about their written names. This study analyzed literacy skills of a special group of children, ultra-orthodox Jewish boys in Israel. These

boys study in a “heder,” where they are formally taught to recognize, to name, and to sound out letters from age 3, and several months later to read words. Writing in general, including name writing, is not included in the curriculum. In addition, in the “heder,” boys are not involved in drawing or producing artwork. This tradition serves to prepare boys as early as possible to take part in prayers guided by prayer books.

Ultra-orthodox boys were compared to three age-matched groups of children studying in schools that do not pay formal attention to teaching either reading or writing: ultra-orthodox girls, and boys and girls recruited from state-religious preschools and kindergartners. These other three groups, however, were involved in drawing and artwork and were exposed to and encouraged to copy or write their names on their products. All four groups derived from a middle-low SES and were in the age range of 4;0 to 5;9 years and months.

The ultra-orthodox boys significantly outperformed their counterparts on a series of literacy skills: connecting letter names with their written symbols, writing letters, recognizing singular versus plural written forms of words, and in conventionality of word writing and invented spelling. On one task, though – their own name writing – the three other groups performed significantly better than the ultra-orthodox boys. This peculiar finding suggests that children’s advanced knowledge about their own written name is promoted primarily by consistent mediation of this particular knowledge to young children.

Our chapter is the first to quantitatively examine the role of mothers, a role they share with fathers and teachers, in the process of building literacy skills on the basis of names. We examined mother-child dyadic joint writing of names and words, in a township populated mainly by low SES families. When mothers wanted to help their child to retrieve a letter’s name or its shape in the course of printing names or words, they often used a mnemonic stimulus, i.e., a name or a word that included the required letter. Mothers proved themselves to be sensitive to the child’s repertoire of written stimuli. They knew that their children were predominantly familiar with their written own names and possessed a greater repertoire of written names than written words. Further, they utilized this knowledge by referring to the child’s name and to names in general as a source for letters. When the required letter was present in the child’s forename, this name comprised the ultimate mnemonic device used.

In general, mothers preferred mediating a letter by a name or word that carried this letter in its initial position. Two reasons may be offered: First, it is easier for mothers to retrieve a word or a name that starts with a particular letter that she wishes to mediate (Koriat & Lieblich, 1975). Second, mothers may be sensitive to the fact that children are more acquainted with the initial letter of a written word, and they may take this factor into account during their process of mediation. Interestingly, though, such a preference did not occur when children’s given names were used as a mnemonic stimulus. In this case, mothers referred to all the letters in the name as a source for helping the child in letter retrieval.

Finally, mothers exhibited their sensitivity by mediating AHVY letters in a congruent manner. They used vowels to help children in writing vowels, and consonants to help with consonants. Rarely did they use a vowel letter to help the child to retrieve

this letter as a consonant, or vice versa. Congruent mediation exhibits the fact that mothers take into account not only the shape of the mediated letter but its specific sound. Thereby, mothers help their children not only to print the required letter but also to understand the alphabetic principle underlying the written code.

This preliminary investigation concerning maternal sensitivity toward children's literacy converges with studies that shed light on the parental role. Levin and Bus (2003) reported mothers' awareness of distinctions that very young children create between writing and drawing, and Hiebert and Adams (1987) documented parental accuracy concerning literacy achievements in preschool.

Many more studies are required in this fascinating area. A broader coverage of languages might reveal other factors that determine the course of literacy development, including the role of names. Careful analyses of adult-child interactions concerning names, letters, writing, invented spelling, and attempted reading will illuminate the socio-cultural context of literacy development. This aspect holds importance for theoretical as well as pedagogical purposes.

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17. WHAT *LITTLE RED RIDING HOOD* TELLS US ABOUT ITALIAN CHILDREN'S WRITING*

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INTRODUCTION

Since the 1980s, there has been a remarkable resumption of interest in the study of children's written language acquisition. At the same time, the 1980s witnessed a rise in interest in the development of computer systems for the transcription and the analysis of linguistic data aimed at the study of oral language acquisition (MacWhinney, 1995). The interest in the study of written language acquisition, now documented in a large amount of literature in various languages, has been focused on the writing activity as an autonomous production of meaningful written texts (Pontecorvo, 1997; Tolchinsky, 2001).

The written text has therefore represented a privileged context for the study of knowledge and representations that children have of both writing system and written language¹. Research conducted in the area of *early literacy* allowed the description of

* This is the last article that was written by Daniela Fabbretti, a few days before entering the hospital for a very important surgery. Daniela, who was 37, died on September 25, 2002. She was for two years an active and clever research associate of our Department, really appreciated by all her students and her colleagues. Much before, she was strongly involved in the research effort for the constitution of the Early Literacy Data Bank, from which most of the studies quoted in this article were drawn. She thought of the title for this article. Her death is a loss for all the research community on children's writing development and for all her friends and colleagues.

• Thanks Daniela for the creative contribution you left to us.

¹ Halliday describes this distinction as following: "It is important to distinguish [...] between WRITING, i.e. the writing system – the symbols and their functions in the language – and the WRITTEN LANGUAGE, which is produced through the writing medium" (Halliday, 1985/1992, p. 82). A discussion on this subject can be found in Pontecorvo (1997) with particular reference to early literacy.

the abilities of pre-school and school children engaged in various writing experiences (from the first text dictation to an adult-scribe to the spontaneous writing of various textual genres).

The constructivist approach of Piagetian tradition has shown that writing is the result of a knowledge construction in which a child takes an active part. The main role in this process of construction and conceptualisation of the written language is played by the *cognitive conflict* that takes place between knowledge, schemes, and representations that children gradually construct, the information coming from the written environment, and the encounter with the activities and knowledge of others.

The most significant demonstration of this approach applied to writing is expressed in the well known research of Ferreiro and Teberosky (1979) on the first phases of the conceptualisation of written language among pre-school children. A model that has inaugurated a tradition of studies in a field unexplored at that time: children's "naive" knowledge of writing. The fundamental contributions of these researches can be thus summarised:

- The processes of conceptualisation of the written language occur early on and outside the context of schooling.
- Children's contact with written language occurs in the domain of meaningful reading and writing experiences.
- Children play an active role in the construction of their knowledge, elaborating hypotheses and representations that are modified under the influence of the evidences of the external world.
- What is usually defined as an "error" often has a strong informative value for the observing adult and a constructive one for the child.

AN INTERNATIONAL DATA BASE ON EARLY LITERACY

Beginning in the 1990s, based on the premises described above, an international research project concerned with children's narrative writings² began. One of the aims of this project was the establishment of an International Data Base for the study of emergent literacy. The main aim of the project was to construct an archive for the comparative psycholinguistic study of children's writings from different countries and of various languages, who are learning different orthographical systems on an alphabetical basis. Its objective was to apply a more specific approach to the study of writing, a comparative approach that had already yielded important results in the study of oral narrations (Berman & Slobin, 1994).

² The research of many years has been only possible thanks to the financial support of the following projects: the bilateral project CONACYT/CNR (committee 08) called "Written language acquisition in various linguistic and educational contexts" (1990–1995); the project called "International Data Bank for early literacy" included in a bigger Project CHILDES ITALY of the committee 12 of CNR (1991–1992); the project called "The use of computerised techniques for the cross-linguistic analysis of the first children's texts" of the CNR (committee 12, year 1993). The research, as a whole, has been coordinated by Prof. Pontecorvo for the Italian part and by Prof. Ferreiro for the Mexican part. During these years, so many different researchers, collaborators and students were engaged in different tasks that it would be too long to list here, but we thank them all for all their material and intellectual contributions to the research.

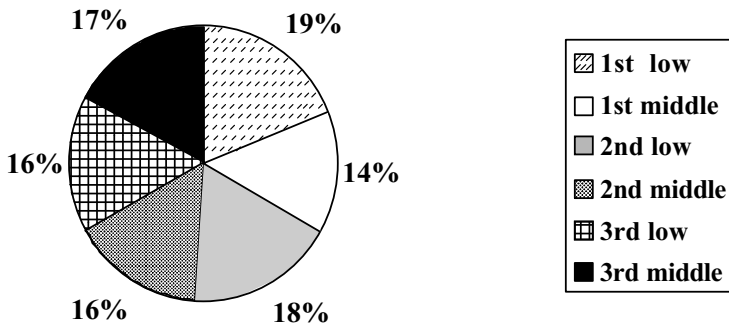


Figure 1. Distribution of Italian sample on the basis of the grade and the social class.

Thus written versions of the “Little Red Riding Hood” tale were collected from Italian and Spanish speaking (coming from different Latin-American countries) children between the ages of 6 and 9 years and more recently from Portuguese speaking children (coming from Brazil). Altogether, the International Data Bank resulted in approximately 1200 protocols. All the texts were collected in the same way in different countries, and the “Little Red Riding Hood” tale was chosen especially because it is a very well known story in various cultural contexts. For transcription and analysis purposes, an automated system for the transcription and the coding of narrative written texts called TEXTUS³ was devised and developed during the research process, and analysis of protocols shared by the researchers from different countries were used.

In the present work, we will try to summarise the Italian results in the last 10 years of the research by synthesising what the “Little Red Riding Hood” tale has revealed about the writing abilities of Italian children. We will first discuss what we have learned about children’s abilities regarding the writing system (see paragraph 2) and about their abilities regarding the written language and textuality (see par. 3). We will refer exclusively to the corpus of the Italian data of the Data Bank, composed of 450 texts written by first, second and third grade children of the primary school of low and middle social class⁴. Figures 1 and 2 show the distributions of the Italian children according to the grade/social class and grade/gender where the homogeneity of the sample can be drawn from.

ITALIAN CHILDREN AND THE WRITING SYSTEM

Orthographical abilities

The analysis of the versions of the same tale enabled the construction of an orthographical lexicon composed of words that had similar probabilities of appearing in

³ The system has been developed by Isabel García Hidalgo (García Hidalgo, 1996).

⁴ Social class was defined on the basis of parents’ profession and school location.

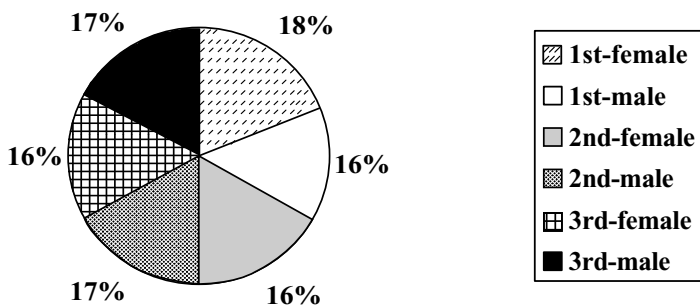


Figure 2. Distribution of Italian sample on the basis of the grade and gender.

the texts. From the analyses of the orthographical aspects conducted up to now, two fundamental conclusions can be drawn:

1. The children, from the first grades, never violate the graphical system.
2. The children have an early and precise knowledge of the graphical system.

The very name of the protagonist of the “Little Red Riding Hood” tale is particularly suitable for the orthographical type of analysis (Fabbretti & Pontecorvo, 1996; Moreira & Pontecorvo, 1996). In particular, the first part of the name, the word “Cappuccetto” (Little Hood), is a rather long Italian word that contains three double consonants and the character string “cce” (a string that has an erroneous yet graphically acceptable alternative in Italian, as “ccie”). Analysing various orthographical variants of the above-mentioned word from our corpus, we could observe that the variants that violate the *graphical system* (the graphical means by which a language establishes possible relations between sounds and letters (Gak, 1976)) in some way, are practically non-existent. In contrast, the violations of the orthographic system (that is, of the rules that govern the use of letters depending on the circumstances (Gak, 1976)) are the most frequent (see Table 1). Suffice it to say that the five most frequent unconventional variants of the whole corpus violate the orthographical system only and cover more than 80% of the unconventional forms produced (see Table 2).

An effective demonstration of how early exact knowledge of the graphical system is can be obtained by looking at what is correct and conventional in the children’s texts. Changing perspective on children’s texts, Ferreiro showed that children have an implicit knowledge of the graphical system (Ferreiro, 2001). For example, some consonants in the Italian graphical system can be never found at the end of the word, e.g., *-c* and *-m*. The Italian children never violate this restriction except in cases of onomatopoeia (toc-toc/aum/hamm), a context in which the violation is actually allowed. Analogous examples are evident from the analyses of the digram “ch” which is very common in the Italian corpus, where children never switch around the

Table 1. Examples of violation of the orthographical and graphical systems in the Italian word *Cappuccetto*

Violations of orthographical s.	Cappuccietto
	Capuscetto
	Cappucchetto
Violations of graphical s.	Cappucchtto
	Cappucchtto
	Ccappuceto
	Ccppucetto

Table 2. Orthographical variants of the word *Cappuccetto* (Source: Pontecorvo, 1996)

Orthographical variants	%
Capuceto	22.2
Capucetto	20.0
Cappuccetto	19.5
Capuccetto	13.5
Cappuceto	6.5
Total	81.7

sequence of graphemes (that is, they never write – hc). Another example is vowel duplication that rarely occurs in Italian (in the word “zoo”, for example) and which, in fact, children rarely perform (only in 31 words of all the sample) – most of all in cases of onomatopoeia (as “Aaamm”) or in order to achieve expressive effects (as in “Siiii”)⁵.

Segmentation and the notion of word

A large amount of literature exists on the notion of word: one of the less clear concepts in linguistics and psycholinguistics (Blanche-Benveniste, 1997; Desbordes, 1997; Ferreiro, 1997). An important contribution to the definition of the notion of word was made by the study of children's knowledge regarding the writing system. The analysis of the conventional and unconventional segmentations found in the texts of the Italian sample revealed the following:

1. Italian children segment script in a conventional way early on
2. Hypo-segmentation (when at least two words are united, in a non permitted way) is more frequent than hyper-segmentation (when a word is divided in at least two words, in a non-conventional way).
3. Short, unstressed, and function words tend to be hypo-segmented.
4. The same graphical sequences involved in hypo-segmentation, especially those sequences that have autonomous existence in the language, tend to be also hyper segmented.

⁵ The examples are drawn from Ferreiro, 2001.

Table 3. Distribution of hypo-segmented and hyper-segmented lexicons in proportion to the total of the lexicon of the children who used unconventional ways of segmentation (Source: Pontecorvo & Di Eduardo, 1995)

	1st grade	2nd grade	3rd grade	TOT
Hypo-segmentation	540 (586) 3%	291 (307) 2%	219 (223) 1%	1050 (1116)
Hyper-segmentation	151 (157) 1%	66 (76) 0.4%	35 (43) 0.2%	252 (276)

Table 4. Examples of hypo-segmentation

Single letter words	(a) a/parlare a/trovare a/la [alla]	(e) e/la e/disse e/io
Clitical Pronouns	(se) (la) se/la mangiò	
Locutions	va/bene all'improvviso [all'improvviso] per/favore	

We now examine these results in detail. Despite a substantial number of unconventionally segmented words in the three grades of the primary school, 47.5% of the 1st graders, 57% of the 2nd graders and 31% of the 3rd graders present unconventional segmentations between the words that constitute at most 5% of the utilized lexicon. This means that even those children who reveal some problem with segmentation produce a well segmented lexicon in a great extent. The presence of unconventional segmentations is more substantial in first grade compared to the other two, even though only five of the first grade children present unconventional segmentations in 20% of the utilized lexicon (Pontecorvo & Di Eduardo, 1995).

In all three grades, the tendency toward hypo-segmentation is more substantial than the tendency toward the hyper-segmentation (see Table 3). A qualitative analysis of the hypo-segmented and the hyper-segmented lexicons of the Italian children yielded some interesting regularities (Ferreiro & Pontecorvo, 1996, 2002; Pontecorvo & Di Eduardo, 1995). It was observed (see Table 4), for instance, that the hypo-segmentations in Italian tend to involve words of one letter only (like the preposition “a”, frequently united with infinitive verbs and the article “la”, or the conjunction “e”, frequently united with verbs, articles and personal pronouns), clitic pronouns, i.e. atonic (particularly “se” and “la”, that are frequently united together) and locutions (for example, “*all'improvviso*” (= suddenly), which may actually be considered as a unique entity from a not yet literate speaker's point of view).

Some cases of hypo-segmentation can be attributed to the children's hypothesis of the “minimum quantity” of letters necessary for reading and writing, specific of the early stages of written language conceptualisation, according to which a word, in

Table 5. Examples of hyper-segmentation.

Single letters	(a) a_riva a_lora [allora]	(e) e_rano
Sequence of letters	(in) in_contro in_vece in_tanto	

order to be recognized as such, must contain a certain number of graphic elements (at least three). However, this standard is supplemented by considerations of phonological and morphological type, which make some words less “words” than the others (for example, atonic and clitical words).

It is worth emphasizing that the same graphical sequences involved in hypo-segmentation are mainly involved in the hyper-segmentation as well (see Table 5).

All the hyper-segmentation cases, in fact, involve short elements that have an autonomous existence in the Italian lexicon. This is the case of the preposition “a”, the preposition “in” and the conjunction *e*.

Punctuation

We will discuss here some data relating to the punctuation system, such as the repertoire of signs and the graphical marks that accompany the text, and in the next paragraph we will discuss the textual functions of punctuation marks in greater detail. Punctuation is one of the less regulated aspects of the orthography and is also a relatively recent acquisition of our writing systems. Nevertheless children acknowledging early on the particular status of punctuation marks (“*they are not letters, but they go with letters*”, as children say in Ferreiro & Teberosky, 1979) and gradually learn to use them. In general, the studies conducted until to date have indicated the following:

- Punctuation marks increase progressively in children's texts.
- There is a great variety of the utilized marks.
- Punctuation tends to progress from the external limits of the text inwards.

Children seem to use punctuation marks in their texts straight away. In fact, in one sample of the Data Bank consisted of 255 versions of the “Little Red Riding Hood” tale written by Italian second and third grade children, only 8 children (7 from 2nd graders and one 3rd grader) did not use any punctuation mark, and only 18 children (all second grade) used just a full stop at the end of the story (Ferreiro & Zucchermaglio, 1996). As shown in Table 6⁶, and as it is shown in various studies, punctuation increases progressively in children's texts both in amount and variety (Ferreiro, 1996; Ferreiro & Zucchermaglio, 1996; Zucchermaglio, Pontecorvo, & Fabbretti, 1994). Overall, the

⁶ The analyses that the table refers to were conducted on a total of 5061 marks contained in the 409 texts of the Data Bank (136 texts from the first, 139 from the second and 134 from the third grade) that did not contain disordered episodes (i.e. Little Red Riding Hood arrives in the grandmother's house before the wolf does) or episodes unrelated to the tale.

Table 6. Percentage distribution of various punctuation marks in the three grades. The percentages were calculated on the total of the utilized marks (5061)

	.	,	:	?	!	-	;	“	...	?!	(Tot %
1st	8.22	1.64	0.61	0.24	0.34	0.87	0.02	0.87	0.06	0	0.04	12.91
2nd	9.82	5.02	1.66	1.05	0.95	0.77	0.04	2.77	0.06	0	0.12	22.26
3rd	19.28	10.16	8.08	2.09	1.74	5.95	0.38	16.80	0.08	0.06	0.24	64.86
Tot%	37.32	16.82	10.35	3.38	3.03	7.59	0.44	20.44	0.20	0.06	0.40	100

most frequently used signs are the *full stop* followed by the *quotation marks*, the *comma* and the *colon*. It should be stressed, though, that this distribution seems to be strongly influenced by the increase in the use of quotation marks in the third grade. In the first and second grades, in fact, the most frequently used mark after the full stop is the comma. Although these are the most frequent marks, it is worth mentioning that children's repertoire also may include such refined marks as the *dash* and the *brackets* (see Table 6).

No systematic analyses were conducted in Italian, but the tendency of the punctuation, already observed in the texts written in Spanish to progress from the external limits of the text inwards seems to be confirmed (Ferreiro, 1991). One of the comparative studies (Ferreiro, 1996)⁷ revealed that the presence of the text-internal full stops constitute a predictor of the amount and the variety of the punctuation:, while the amount and the variety of the marks diminish when there are no internal full stops.

WRITTEN LANGUAGE DEVELOPMENT IN ITALIAN

Narrative structure

The “Little Red Riding Hood” tale has a well delineated structure: there are 8 episodes that have to be recognized and described. The main structure is characterized by the presence of at least three episodes in which the appearance of direct speech is possible: the episode in which the mother gives instructions to Little Red Riding Hood; the episode in which the girl meets the wolf in the wood, and the episode in which the girl speaks with the wolf dressed up as the grandmother. 63% of the texts from the Italian sample demonstrate a complete structure. Of the 281 texts with the complete structure, 29% fall in the first, 30% in the second and 41% in the third grade, which reveals a greater command of the narrative structure among 3rd graders.

Text completeness, however, is not a sufficient measure of the complexity and the narrative structure of these texts. In fact, apart from the completeness of the tale, the children have shown themselves particularly capable of finding solutions, sometimes very refined and/or original, to textual problems. The episode in which the wolf meets the girl in the wood and deceives her by suggesting a shorter path to the grandmother's house is a cognitively complex point in which various plans are *intersected*: what the

⁷ In Italian, though, the texts classified on the basis of the presence/absence of the internal full stops differ in a statistically significant way because of the length (total number of words).

wolf or Little Red Riding Hood think; what the wolf or the girl effectively say; what they actually do, and the consequences of their actions. It was observed, that the children of all the three grades are aware of the salience of this episode (overall, only 4,7% of the texts did not contain the given episode), but effectively they have difficulty in committing it to paper (only 14,4% of the texts contained an explicit reference to the wolf's intentions) (Martines & Pontecorvo, 1998). However primary schoolers are also capable of finding solutions that do not necessarily risk text coherence as can be seen in the following example⁸:

Giulia (2nd grade)

*So she met the wolf,
the wolf says to her
beautiful girl where are you going
I am going to the grandmother
can I come
capuc= _|_ cetto says yes
so you do that = _|_ shorter one
and I do the longer one
the wolf says not to run
fine says capuccetto do not run.
The wolf runs and arrived beforehand*

Gulia mentions two different paths and the wolf's speech, but Little Red Riding Hood actually takes the shorter path. Therefore there is no double scenario of speech and action and no complex deception either, as the wolf runs while the girl does not and that is enough to explain why the wolf arrives first without any contradiction.

Another special context in which children reveal their textual abilities is represented by direct speech construction, analysed in detail in the following paragraph.

Direct speech

Direct speech represents a privileged context for the appearance of punctuation. As mentioned above, the "Little Red Riding Hood" tale contains at least three episodes in which the appearance of direct speech is possible, and punctuation (both in terms of the amount and the variety) tends to appear exactly around these episodes and especially around the one that contains the so-called *canonical dialogue* between Little Red Riding Hood and the wolf dressed up as the grandmother. We will see later some examples in which punctuation has an important textual function in exactly these contexts. Moreover, the presence of direct speech in the written texts can be considered a good indication of textuality, because in order to be able to write what is said or thought, children must be able to think meta-linguistically about the text

⁸ The text is subdivided in clauses in order to make the structure of the dialogue more evident. The sign = _|_ between the words indicates that the child began a new paragraph and segmented the word at the end of the graphical line (indicated by the sign |).

by distinguishing between a narrative space and a space of word (Blanche-Benveniste, 1991).

Direct speech occurred in our sample in complex and refined ways. Many cases revealed the presence of the typical forms of written textuality such as, for example, the postponed entrance into direct speech, where the reference to the speaker follows the direct speech construction rather than precedes it (see the example of Carmen⁹). The presence of such structures denotes a child's intention to produce a written text (Ferreiro, 1996).

Carmen (2nd grade)

[. . .] *meanwhile the wily wolf says*

- *What a beautiful girl, what's your name **says the wolf***

- *my name is Cappuccetto rosso, and I am going to my ill grandmother, **says***

Cappuccetto rosso.

Despite the possible presence of orthographic and/or linguistic mistakes, the ways in which children construct the dialogues in the text reveal a good awareness of the distinction between oral and written languages, expressed in simple forms of dialogue that get more complex and formal as the following¹⁰:

Daniele (2nd grade)

Suddenly came out a wolf says the wolf to the girl what do you do there

no_|_ thing

says Cappuccetto rosso

but you are no t ugly

but I am not ugly

says the wolf

but it wasn't right

aha will you walk with me to the house of my grandmother

says cappuccetto rosso

Textual functions of the punctuation

As we have already mentioned in the previous paragraphs, children know and use one or more punctuation marks in their written texts from as early as 1st grade. Analysing the functions of the marks used by the children in the three grades, we were able to conclude that:

- Punctuation has a precise textual function appearing and/or focusing on particular contexts.
- Unconventional uses often respond to their own text "logics".

⁹ The text is subdivided into graphical lines. The postponed entrances are marked in bold. The text presented here is novel, and is not a part of the sample of 450 texts of the Data Bank.

¹⁰ The text is subdivided into graphical lines. The conventional orthographies of some words are reported in the square parentheses.

Direct speech is a privileged context for the appearance of punctuation both as the use of the graphical marks and as white spaces used to layout the text (Ferreiro, 1996; Ferreiro & Zuccheromaglio, 1996; Ferreiro & Pontecorvo, 1999; Zuccheromaglio, Pontecorvo, & Fabbretti, 1994). As the following example shows, 1st graders are already able to use some of the punctuation marks correctly for a minimal identification of the speakers¹¹:

Luigi (1st grade)

and the grandmother says "who is it?" |
and the wolf says "it's me, Cappuccetto rosso !" |

However there is extreme variability in the use of the punctuation marks so that it is also possible to find 2nd and 3rd grade texts where direct speech is constructed without the help of punctuation, so that the task of setting the alternation between the speakers is left to the reader and is entrusted to the semantic content of speech.

Although direct speech is a privileged context, punctuation can also appear in other points of the narrative text, thus carrying out a textual function. In the text of Chiara¹², for example, the punctuation is effectively used in order to delimit the episodes of the tale.

Chiara (2nd grade) Chiara (II elementare)

There was a girl called Cappuccetto rosso.
The mother says to Cappuccetto rosso: not to go to the wood. %
Cappuccetto rosso went to the wood and met the wolf, he asks Cappuccetto rosso [. . .] the wolf arrived at the grandmother in a single mouthful. %
When she arrived the wolf ate her too. %
The hunter was looking for him and found him on the bed [. . .] [. . .] and came out the grandmother and Cappuccetto rosso.
And they lived happy and content

The text, subdivided into graphical lines, was cut for the sake of brevity, but it is still possible to see how Chiara uses a *full stop* and starts a new paragraph (signed as % in the text) at the end of every episode. Moreover, the closing phrase is placed in the centre of the text.

When children have still not mastered punctuation marks completely, they can resort to the use of the white spaces in order to delimit the word spaces within the direct speech. These spaces can be used to support a poor punctuation, but from a functional point of view they perfectly perform the task of delimiting the speakers' turns in speech. See the following example:

¹¹ The text is subdivided into graphical lines.

¹² The text presented here is novel, and is not a part of the sample of 450 texts of the Data Bank.

Claudia (I grade)

And says.

- Grandmother what big ears you have. % |
- The better to hear you with my child.% |
- Grandmother wha] large hands you have. % |
- The better to hug you with my child. % |
- Grandmother what a big mouth you have. % |
- The better to eat you with my child. % |

Claudia constructs a dialogue without using the typical punctuation marks of direct speech (colon and quotation marks), but she clearly delimits speakers' turns by starting a new graphic line at the end of each turn. Moreover, every turn is preceded by a dash and ended by a full stop.

Punctuation is one of the less regulated aspects of the writing and yet there are cases where children use marks in clearly deviant ways. The analysis of these cases confirms the idea that children use punctuation with a logic that complies with specific textual or graphical requirements. This is the case, for example, of signs that mark declarative verbs instead of the speaker's turn (for instance: *the mother "says" to her be careful*) or of signs whose presence seems to be strongly influenced by graphic factors such as the coincidence with the end of the graphical line (for example: *and set out . | For the path to the grandmother's house; and asked her: " | "where do you go beautiful girl?"*) (Ferreiro & Pontecorvo, 1999).

Repetitions

An interesting case of textuality is represented by the occurrence of repetitions. The repetition is a basic mechanism to achieve text cohesion. In school teaching, repetition is often stigmatised by teachers. However, if observed from outside the normative viewpoint, repetitions reveal children's intention of producing a written text. In fact, repetitions occur very frequently in children's texts and seem to carry out important textual functions (Ferreiro & Moreira, 1996).

Various types of repetitions with various functions have been identified, but none of them seems to be accidental. In Italian, no complete analysis of these aspects has yet been conducted, but examples have been identified corresponding with the classification proposed for the Spanish and the Portuguese samples (Ferreiro & Moreira, 1996). First, there were *repetitions of expressive type*, used for emphatic or rhetoric goals as in the following examples:

Guido (1st grade)

Called one | carpenter therefore "help | help"

Sabina (2nd grade)

Come come soon ! % | arrived the mother,

Secondly, there were *repetitions inherent to direct speech* used with various functions and above all in cases of absent or insufficient punctuation. One example is the use of repetitions to mark the direct speech through a double identification of the speaker,

as in the case of the postponed entrances into the direct speech (see the identification of the wolf in Carmen's example cited previously). Another example is represented by the use of repetition to show various functions of the speech of the same speaker, as in the case of Federico, where the repetition of the speaker's name and of the declarative verb delimit respectively three different speech acts of the mother: the order, the recommendation and the justification:

Federico (2nd grade)

*one day the mother | says to her, go to the
grandmother to bring her a little bit to eat. And
the | mother says to her don't walk through the
wood says the | mother because you will meet the wolf*

Finally, there were *lexical repetitions* that mark a *change of declarative or syntactic function*, as in the following case where the indefinite article turns into the definite one:

Claudia (1st grade)

*Once upon a time. % | In the wood a lodge in the
lodge there lived a girl called Capuceto Rosso.*

SUMMARY

What has Little Red Riding Hood taught us about the writing of Italian children? The review of the studies conducted to date on the Italian sample has emphasized how early and effectively these children confront written language. Neglecting a strictly normative perspective and looking at the texts not only for how deviant they are, but also, and above all, for how correct they are, we could observe that children display early competence regarding both the writing system and the written language. The collected narrative texts in fact testify to an implicit and effective knowledge of the limitations of the graphic system among children, as well as to their precocious intention to produce written texts appropriate in form and register. In the framework of an approach that acknowledges the informative value of errors, the analysis of deviant output demonstrates the presence of regularities that reveal an internal logic in the texts.

The usefulness of a Data Bank on first literacy, as the one presented here, is not confined to research purposes alone, but can rather be extended to all these contexts – educational, clinical and compensatory – in which children's writings could be evaluated. One of the possible directions that this work could take is transforming the Data Bank from a research *archive* into an *instrument* that can be questioned with various pragmatic goals. There are still many other things that Little Red Riding Hood could yet reveal to us about the writing of Italian children.

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NARRATIVE DEVELOPMENT IN THE SCHOOL YEARS

18. ROLE OF THE HOME CONTEXT IN RELATIONS BETWEEN NARRATIVE ABILITIES AND LITERACY PRACTICES

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It has been a privilege for me to know Ruth at the beginning of my academic career and have the opportunity to develop this relationship into an intellectual one on the one hand, and a personal one on the other. We have shared an office, we have shared projects and ideas, and we have shared fragments of life whenever we could; each experience - colored with her energy, her sharpness and her affection - gave me something special to keep. In this contribution to her honor, I take the opportunity to summarize some aspects of my work on narratives from the perspective of literacy, two areas that have been a focus of interest and curiosity for both of us.

INTRODUCTION

In this paper I explore the nature of the developmental relationship between narrative abilities and literacy practices to see when and in what respects one contributes to the other. For this purpose I draw on data from my various studies on narratives by Turkish children and adults with varying levels of literacy, carried out over the past fifteen years.

Narratives are units of discourse representing a sequence of temporal-causally related events and their motivating circumstances. A good narrator, while relating plot-constitutive events in a coherent manner, also explicates the intentional and emotional states accompanying them. A narrative, therefore, has both a referential and an evaluative function (Labov & Waletzky, 1967; Bruner, 1986), and their effective realization depends on the achievement of linguistic cohesion at the text level (Berman & Slobin, 1994). The development of the ability to tell narratives thus rests on the integration of changing skills both at the conceptual and the linguistic levels. The beginning of this

ability is traced back to the different types of discourse children have with adults in the home context (Blum-Kulka & Snow, 2002; Minami, 2002; Nelson, 1996; Peterson & MacCabe, 1992; Uccelli et al., 1999).

Literacy is not a unitary competence either; it refers not only to the abilities to read and write but also to different levels of literate competence comprised of various skills achieved at different levels of schooling (Cole & Scribner, 1984). Learning how to read and write calls for an adequate level of grammatical and discourse competence achieved at home, to be further elaborated in school. Literate competence required for the acquisition and use of knowledge, on the other hand, includes reading and writing skills, strategic competence (planning, monitoring and evaluation), and socio-linguistic competence (register and cultural appropriateness) (Verhoeven, 1999). While the context for the development of literate competence is school (see papers in Aisenman et al., 1999), the proto-forms of its component processes are provided by the structure of narrative discourse learned at home.

There is a whole body of research that shows that there are crosslinguistic, cultural and sub-cultural differences in narrative styles and how these relate to literacy acquisition and literate performance (Berman & Slobin, 1994; Gee, 1989; Heath, 1983; Wigglesworth & Stavans, 2001; Minami, 2002, among others). Further inquiry into the sources of these differences suggests that they develop in home-environments characterized by different types of communicative practices and literacy activities (Bernstein, 1971; Dickinson & Tabors, 2001; Minami, 2002; Snow & Dickinson, 1990). The studies I will report on contribute to this literature with evidence from a different culture, and from groups of different socio-educational composition and age. In what follows, I first summarize findings on narrative production obtained from middle class children and adults as a baseline for developmental trends (Aksu-Koç, 1994). I then present evidence from two production studies showing that different levels and/or styles of narrative competence are associated with different years of schooling and habits of literate activity (Aksu-Koç, 1996; Aksu-Koç & Erguvanli-Taylan, 1998; Aksu-Koç, Erguvanli-Taylan & Bekman, 2002). I observe that the difference is due to different levels of competence in narrative structuring at the conceptual level rather than grammatical competence. Next, I support this claim with additional evidence from comprehension where it is easier to isolate the effects of the two variables, conceptual and linguistic, and propose that comprehension data better reflect the nature of the story-schemata that develop through experience with narrative forms (Aksu-Koç & Palut, 2000; Koçbaşı, 2002). Finally, I review some data concerning the sources of these differences by comparing middle vs. low socio-educational home contexts as types of literacy environments (Aksu-Koç, Örüng & Cesur, 1999; Kuşcul, 1993). I conclude by discussing the developmental relations between literacy practices and narrative competence.

THE DATA¹

The narrative data I report on were elicited by use of visual or auditory stimuli such as story-pictures, film-excerpts, or stories read aloud. In terms of genre they represent

¹ The data reported on in this paper have been collected as part of four different projects. Aksu-Koç (1996) and Aksu-Koç & Erguvanli-Taylan (1998) are based on 'A linguistic and literary analysis of narrative discourse' (with D. Doltaş,

fantasy rather than personal experience narratives. Stories in this genre can be regarded as proto-examples of the types of written texts children encounter in the first years of school since they typically derive from story books, and by virtue of not being anchored in personal experience, they engage the child in the use of decontextualized language. The narratives were examined both in terms of narrative structure, and in terms of the complexity of expressive devices used. Narrative organization was analyzed either according to Berman and Slobin's (1994) definition of plot-structure in terms of an onset, an unfolding, and a resolution, or according to Stein and Glenn's (1979, 1982) story grammar whereby the plot is broken down to episodes comprising an initiating event, an internal response, a complicating action, a reaction and a resolution.² For the linguistic analyses, the clause was taken as the unit of analysis, simple and complex clauses were documented and various form-function relations were investigated.

In these studies literacy was indexed by the number of years of schooling of the subjects and/or their parents. In the middle class samples, at least half of the parents were university, and half were senior high school graduates; in the low income samples, majority of the parents were primary school graduates or high school dropouts. In one study, further indicators of literacy such as the availability of literacy materials and the nature of literacy activities were examined. Thus, the data come from preschool children, school children, and adults of different levels of literate experience. I present only selected findings from this body of research relevant to the present argument.

NARRATIVE COMPETENCE: DEVELOPMENTAL TRENDS

My interest in narratives dates back to the original crosslinguistic project with Berman and Slobin (1994) on the 'frog story' elicited by using the wordless picture book *Frog where are you?* (Mayer, 1969). The initial Turkish sample consisted of 3- to 9-year olds and adults from middle class background (Aksu-Koç, 1994). Let me summarize the basic developmental pattern obtained from this sample to provide a baseline for the subsequent discussion. Table 1 presents the results of the analyses for narrative organization and linguistic expression. The percentage of subjects who mentioned the onset, the unfolding and the resolution of the plot, at least at the referential level, indicate that children start relating events as episodic components of an overall theme around the age of 5. Between 7- to 9-years they become competent storytellers, some elaborating all the episodes in detail, others summarizing them in a nutshell to give an overall picture. The stories of the 9-year olds, in fact, are complete in terms of all three plot components, whereas adult stories are comprehensive both at the referential and evaluative levels. A parallel change is observed in the ability to express the developing conceptual structures. It is observed from Table 1 that there is an increase in the use

E. Erguvanlı-Taylan & C. Sevgen), funded by Boğaziçi University Research Fund, Project No: 85 B 0414; Aksu-Koç (1994) is based on 'The development of temporality in narratives: Evidence from Turkish', funded by Boğaziçi University Research Fund, Project No: 86 B 0724; Aksu-Koç, Örtüng and Cesur (1999), and Kuşçul (1993) are based on 'The home context as a literacy environment and the effects of a training program on language and print skills', funded by Boğaziçi University Research Fund, Project No: 92 B 0714; Aksu-Koç, Erguvanlı-Taylan, and Bekman (2002), is based on 'Early Childhood Education in Turkey: Need assessment and evaluation of language competence', funded by Boğaziçi University Research Fund Project No: 00 R 101 and Mother Child Educational Foundation. Aksu-Koç and Palut (2000) is based on B. Palut's MA thesis.

² For the first type of analysis see Berman and Slobin (1994), Chapter IA; for the second type of analysis see Stein and Glenn (1979, 1982).

Table 1. Percentage of subjects who mentioned all three plot-components and percentage of simple (main clause only) and complex (main and subordinate) clauses by age

	3 years	5 years	9 years	Adults
Subjects mentioning 3 plot-components	0	80	100	100
Simple Cl.	90.1	73.8	64.7	55.0
Complex Cl.	9.9	26.1	35.2	45.0
Complex Cl. Main Cl.	4.5	12.2	13.8	17.1
Subordinate Cl.	5.4	13.9	21.4	27.9

Adapted from Aksu-Koç, A. (1994). In R. Berman & D. I. Slobin (Eds.), *Relating events in narrative: A crosslinguistic developmental study* (p. 367). Hillsdale, NJ: Lawrence Erlbaum.

of complex linguistic structures with age and schooling. The increase in the ratio of subordinate clauses embedded in a single main clause (from 1.2 at 5-years to 1.6 at 9-years), in particular, provides evidence for advances in the capacity for syntactic packaging.

Examples (1)–(4) present the first few orienting clauses of the narratives of four subjects from different age groups. The contrast between the first sentences in examples (1) and (2) which lack the indefinite article *bir* ‘one’ and those of examples (3) and (4) which make appropriate use of it for character introduction illustrates the shift from a descriptive to a narrative mode and from a deictically anchored to a decontextualized use of language.

(1) (4;2. 3j)³ *Kurbağa var, çocuk var, köpek de var. Burada da kurbağa var. Burada da çocuk uyuyor. Kurbağa bunun içinden çıkıyor.*

There is frog, there is boy, and there is dog too. And there is frog here too. And here the boy is sleeping. The frog is coming out of this.

(2) (6;0. 5i) *Kurbağa bulmuşlar, kurbağayla oyun oynuyorlar. Akşam olmuş, kurbağa dışarı çıkmış, kaçmış.*

They found frog, they are playing with the frog. It's the evening, the frog came out, it escaped.

(3) (10;0. 9e) *Şimdi bir küçük kurbağa bulmuş. Bunu bir kavanozun içine koymuş. Ondan sonra çocuk uyurken [ADV] kurbağa kaçıyor [MCL].*

Now he found a little frog. He put this in a jar. And then while the boy is sleeping [ADV], the frog escapes [MCL].

(4) (20;0. 20b) *Bu kitapta bir çocuğun, bir köpeğin ve bir kurbağanın hikayesi anlatılıyor. Çocuk odasında kavanoz içine koyduğu [REL] kurbağasıyla ilgilenmektedir [MCL]. Köpeği de yine kurbağaya bakmaktadır. Dışarıda mehtap var. Çocuk biraz sonra yatacak, elbiselerini de çıkarmış, ve çocuk yatıyor, köpeği de ayaklarında uyuyor. Bu sırada kurbağa da kavanozdan çıkıp [ADV] kaçıyor [MCL].*

³ Subject ages and ID's are given in (), age is followed by an ID code varying in format depending on the specific project. In examples (1)–(4) the numeral indicates the age group and the lower-case letter indicates the specific child. For complex clauses, type of clause is indicated in [] at the end of that clause. The abbreviations stand for ADV = adverbial, COMP = complement, REL = relative, DIR = direct speech clauses, and MCL = main clause. Experimenter comments are given in { }, and self-corrected material is given in <>.

In this book, the story of a boy, a dog and a frog is told. The boy in his room is in the process of caring [MCL] for his frog that he put [REL] in a jar. And his dog is in the process of looking at the frog. There is the moon outside. The boy will go to bed soon, he has taken off his clothes, and the boy is in bed and his dog is sleeping at his feet. At this moment, the frog coming out of its jar [ADV], escapes [MCL].

The stative existential clauses of the subject from the 3-year old group are replaced by a sequence of simple clauses with active predicates in the narrative of the subject from the 5-year old group, whereas the style of the child from the 9-year old group approximates that of the adult who weaves together aspectually and temporally marked complex clauses. These data show that at the start of school, Turkish children from middle class literate homes have the conceptual and the linguistic skills that enable them to produce relatively well developed narratives, and during the early school years when literacy acquisition takes place this discourse competence is elaborated further. The same developmental pattern has also been observed for children of similar backgrounds acquiring other languages such as German, American English, Spanish and Hebrew, to name a few (Berman & Slobin, 1994). However, whether it also holds for children from low socio-educational home contexts became a question of interest in view of findings from a narrative production study with adults.

LITERATE COMPETENCE AND NARRATIVE STRUCTURING

Evidence from adults

To see if literate competence makes a difference to narrative performance data were collected from 24 young adults between 18–25 years. Half of the subjects had five to eight years of schooling, and half had fifteen years or more. They were shown an excerpt from a Turkish movie and asked to tell it as if to someone who had never seen it. In one analysis, the narratives of the two groups were compared in terms of episodic structure (Aksu-Koç, 1996). Subjects with higher education framed their activity as one of film retelling, provided setting and character information, and told narratives representing the story events in temporal – causal sequence. They referred to a significantly higher number of sub-episodes than subjects with less education (see Table 2 for the means).⁴ They thus produced narratives that were good renditions of the original film, whereas the less educated narrators focused on the message of the story, without any orientation or character introduction. They deviated from the storyline, often at the expense of comprehensibility, and recounted only those events found to be social – emotionally significant, evaluating them from the perspective of the main protagonist with whom they appeared to empathize. Thus, a thematic-evaluative approach characterized the low-education narrations, whereas the referential function became dominant in the high-education stories.

Table 2 also shows that although narrators with higher education produced significantly longer stories, there was no difference between the groups in the percentage of subordinate relative to total number of clauses. However, the ratio of subordinate clauses

⁴ For all findings reported as significant, $p < 0.05$.

Table 2. Mean number of sub-episodes, mean number of clauses and percentage of simple (main clauses only) and complex (main and subordinate) clauses by level of education

	High education	Low education
Mean no. of sub-episodes	12.5	7.5
Mean no. of clauses	98.01	43.17
Simple Clauses	34.7	31.7
Complex Clauses	65.2	68.2
Complex Clauses		
Main Clauses	24.4	28.8
Subordinate clauses	40.8	39.4

embedded in a single main clause was higher in the stories of the more educated (1.67) than the less educated subjects (1.36), revealing a higher level of syntactic packaging. In example (5) from the narrative of a university graduate, we find three complements and one adverbial clause embedded in a single main clause, and the referents are clearly identified with proper nouns and pronouns. Example (6) comes from the text of a primary school graduate who, talking about the same scene, uses direct speech clauses characteristic of oral, face-to-face discourse instead. His account is rather ambiguous since the gender-neutral 3rd person pronoun *o* 's/he/it' could refer to either one of the characters, and correct interpretation requires use of discourse-external contextual information on the part of the listener.

- (5) (25;0. HEDY2) *Ama Fahriye de Mustafa'nın sözünden dönmeyeceğini [COMP], kendisiyle evleneceğini [COMP], Gülay'ı bırakacağını [COMP] düşündüğünden [ADV] bunlara karşı koyuyor [MCL]. Gülay da gelip [ADV] hesap sorunca [ADV]. . .*

But Fahriye resists them [MCL] because she thinks [ADV] that Mustafa won't go back on his word [COMP], that he will marry her [COMP], that he will leave Gülay [COMP]. And when, Gülay coming [ADV], challenges her [ADV] . . .

- (6) (21;0. LEDY8) *Onun da nişanlısı varmış. Öbür nişanlısıyla karşılaştı. Diyor "o beni alacak [DIR], seni almayacak" [DIR] diyor (MCL). Onlarla ikisi gidiyor. . .*

(It turns out that) s/he had a fiancé. (S/he) met the other (his) fiancé. (S/he) says [MCL] "s/he is going to marry me, not you" [DIR] (s/he) says. With them the two go . . .

A detailed analysis of relative clauses in the same data provides additional support for the observation that it is the discourse structure but not the ability to use complex syntax that differentiates the narratives of the two groups (Aksu-Koç & Erguvanlı-Taylan, 1998). We found no difference either in the percentage of relative clauses used or in their discourse functions. Yet, subject relatives used to characterize the protagonists or the time-space dimensions of plot advancing events were found in higher percentages in the retellings of the educated narrators; these functioned simultaneously to mark shifts in topic and perspective, a discourse strategy meaningful in sequentially organized narratives. Not surprisingly, the proportion of subject relatives was much lower in

Table 3. Mean vocabulary scores and mean narrative measures (plot organization, total number of clauses and total number of subordinate clauses) for Istanbul children by type of home context and grade level

	Middle income		Low income	
	1st grade	2nd grade	1st grade	2nd grade
PPVT-Vocabulary	61.33	67.10	44.65	59.12
NARRATIVE				
Plot-structure (max = 6)	3.18	3.21	2.17	2.56
Mean no. of Clauses	15.68	15.19	17.46	17.45
Mean no. of Subordinate Clauses	1.97	2.08	1.78	1.71

the single perspective, thematically organized stories of the less educated narrators, reflecting the close ties between discourse structure, linguistic form, and function.

While these differences may well reflect stylistic preferences, they also show that even for adults literate experience has an observable trace; what differs with level of literacy is not the availability of linguistic structures but the strategies for discourse organization. These strategies may be a function of difficulty in adopting an appropriate narrative frame for the task or the context, or they may be specific to the fantasy genre and not appear in personal experience narratives; the differences, nevertheless, remain to be explained.

Evidence from children

Further evidence for the relation between literate experience and narrative skills comes from a larger project examining the linguistic competence of children in three different provinces of Turkey (Aksu-Koç, Erguvanlı-Taylan, & Bekman, 2003). As part of this study we assessed the lexical and narrative abilities of 288 children from middle vs. low income families in Istanbul, at the beginning of the 1st and 2nd grades. Lexical knowledge was measured by a test of receptive vocabulary⁵ and results showed that children from middle class home contexts have significantly more developed vocabularies than children from low socio-educational backgrounds (see Table 3 for the means). Narrative data were elicited by the use of six pictures depicting the '*Cat story*'⁶ and were coded for reference to basic plot components (initiating event, unfolding, and resolution) as well as for syntactic properties. Again, children from middle class homes demonstrated a significantly higher level of plot organization regardless of grade level whereas there were no differences between the two groups in terms of the linguistic features of their stories (length measured by total number of clauses and syntactic complexity measured by the relative percentage of subordinate clauses in total; see Table 3 for the means).

In fact, further examination of the discourse properties of the narratives revealed that a higher percentage of middle class children (49.8%) displayed narrative activity

⁵ Turkish adaptation of the Peabody Picture Vocabulary Test (PPVT) (Katz et al., 1974).

⁶ Introduced as a research tool by Hickmann (1982).

that can be characterized as ‘story telling’ or ‘story telling plus picture description’ as compared to children from under-resourced backgrounds (23.6%) majority of whom engaged in ‘labeling’ or ‘picture description’. The following two examples, (7) from a middle-class and (8) from a low income 1st grader, illustrate this difference:

- (7) (7;0. YB.1a.EY) . . . *Bir varmış, bir yokmuş. Evvel zaman içinde, kalbur saman içinde bir kuş ve üç tane yav . . . kuş varmış. Anneleri onlara solucan getirmeye [COMP] gitmişti [MCL]. Bir bakmışlar bir kedi. {Çok iyi, yalnız biraz daha yüksek sesle} . . . Anneleri gidiyormuş. Kedi, bir kedi ağaca tırmanıyormuş. Köpek onun kuyruğunu tutmuş, kedi aşağıya düşmüş. Anneleri solucanı getirmiş. Köpek de kaçıp gitmiş.*

Once there was, once there wasn't. Once upon a time a bird had three ba . . . {there were} birds. Their mother had gone [MCL] to bring them worms [COMP]. They look and (see) a cat! {Good, a bit louder.} . . . Their mother was going. The cat, a cat was climbing the tree. The dog held its tail, the cat fell down. Their mother brought the worm. And the dog ran and went away.

- (8) (7;2. EK.1a.SG) *Kedi, kuş, köpek {Güzel anlat ama} Köpek, kuş, balık, deniz, ağaç. {Ne oluyor bu hikâyede peki?} Kedi var, kuş var, ağacın bi de çimenleri var. . . . Bi de ağacın çimenleri var, ben söyledim. {Başka bişey? Sen resimlere bak istersen} Kedi var, köpek var, kuş var, ağacın çimenleri var, yerler sarı, köpek var, bu kadar.*

Cat, bird, dog {But tell nicely} Dog, bird, fish, sea, tree {What's happening in this story?} There is cat, bird. And the tree also has grass. . . . And the tree has its grass, I said. {What else? Why not look at the pictures?} There is cat, there is dog, there is bird, there is the grass of the tree, the ground is yellow, there is dog, that is all.

Age comparisons, as expected, showed that 2nd graders have higher levels of skill in both lexical and narrative domains compared to 1st grade children. But, as can be observed in Table 3, the plot-structure means for the low income 1st graders are significantly lower than those for the middle income 1st graders indicating that children of the former group come to school with less developed levels of lexical and narrative competence than the latter. The significant difference between the means of the 1st and 2nd grade children from low socio-educational backgrounds, nevertheless, illustrate how even one year of schooling makes a major difference to their performance in both domains. These results that come from much younger children support the findings from the adult data; they show that narratives of tellers of comparable age but of different levels of literate experience differ in terms of the organizing schemas imposed on the events related rather than the types of linguistic structures used for their expression.

NARRATIVE COMPREHENSION AS EVIDENCE FOR UNDERLYING STORY GRAMMARS

We have seen that differences in the narratives of adults and children from diverse socio-educational backgrounds are due to different levels of competence in plot organization

Table 4. Mean number of plot-components mentioned in production and comprehension by type of home context and grade level

	Middle income		Low income	
	kindergarten	1st grade	kindergarten	1st grade
Production (max = 18)	10.82	13.22	5.64	10.78
Comprehension (max = 17)	14.0	17.0	9.8	13.0

rather than in grammatical knowledge. The following two studies provide further evidence for this pattern by examining narrative comprehension in addition to production. Comprehension data can be more informative regarding the capacity for narrative organization since the questions, as well as providing a cue for recall, also supply the linguistic structure that the child can build on with a clause or a one- or two- word utterance. Giving the right answer depends on grasping the framework set by the question and activating an organized narrative schema that enables the recall or reformulation of the temporal-causal thread of events. The expressive burden is thus minimal in a comprehension as compared to a production task which calls for connected discourse.

In the first study (Aksu-Koç & Palut, 2000) 50 children, from middle and low socio-educational backgrounds, half from kindergarten and half from the 1st grade, were asked to retell a story that they were read from the picture book *'Brave frog'*.⁷ They were then asked questions about the plot to tap comprehension. Both the production and the comprehension data were analyzed in terms of the extent to which they included reference to the episodic components identified in the original story. Results showed that children from middle class homes performed significantly better than children from low socio-educational backgrounds, and older children better than younger ones on both the comprehension and the production tasks. Table 4 presents the means; the difference in the performance of the two groups of kindergarten children is particularly striking.

For both groups, comprehension responses revealed a higher level of understanding of the temporal-causal relations connecting the episodic components than were evidenced in the retold narratives, and those children who were good in comprehension were also good in production. These findings display the natural connection between competence for narrative production and comprehension, as, in Kuhn's words "what we remember is what we understand, and retrieval involves reconstructing that understanding" (2000, p. 22). In fact, an analysis of covariance revealed that when the effects of comprehension is partialled out, the effects of age and home environment lose their significance, indicating that the quality of narrative production is mediated by what is understood and remembered, or, more specifically, by the story schemas or grammars that guide the encoding/decoding processes in narrative activity (Davidson, 1996; Nelson, 1991, 1996).

⁷ *Cesur kurbağa (Brave frog)* by Amir Tami (translated by İffet Dinç), Hippy, Eğitimde Yenilikler Geliştirme Enstitüsü (Hippy, NVJW), Hacettepe University and Mother Child Education Foundation, 1983.

Table 5. Mean number of clauses, proportion of full and partial causal relations retained, and proportion of correct responses to comprehension questions by type of home context and grade level

	Middle income		Low income	
	2nd grade	5th grade	2nd grade	5th grade
No. of clauses	31.1	32.6	21.6	35.3
Full relation (cause & effect) mentioned	0.30	0.29	0.11	0.30
Partial relation (cause or effect) mentioned	0.29	0.41	0.16	0.29
Total causal relations mentioned	0.59	0.70	0.27	0.59
Correct Comprehension questions	0.87	0.95	0.48	0.87

Very similar results have been obtained in a second study (Koçbaşı, 2002) that is part of a larger narrative project we are working on (Aksu-Koç & Küntay, 2002). In this case subjects were read the story '*Two unhappy friends*'⁸, asked to retell it, and then probed with comprehension questions. For the analysis, we identified the different types of causal relations tying the plot constitutive events together in the original story. Then we determined the extent to which these were retained in the productions and the extent to which they were recalled in response to comprehension questions. In her study comparing a sub-sample of the middle income 2nd and 5th graders with a group of children of the same ages from low income homes (32 subjects in total), Koçbaşı (2002) found that the middle class children retained a higher proportion of causal relations (expressed fully with both the cause and the effect components, or partially with only the cause or the effect) from the original story than the children of low socio-educational backgrounds. Development by age was observed in both groups, however, the performance of the 5th graders in the low income sample was equivalent to that of the 2nd grade middle class children (see Table 5). The responses to the comprehension questions revealed a similar picture, though with higher scores as compared to those obtained on the production task, as in the previous study. The proportion of correct responses was above 85% for all groups except the 2nd graders from low income homes for whom it was only 48%. This comprehension data illustrating differences in memory for causal relations is particularly informative about the developmental level of the story schemas that guide children's narrative activity since what essentially provides the physical, psychological, or motivational links between plot constitutive events and states are causal in nature (Aksu-Koç & Küntay, 2002; Stein & Glenn, 1979; Trabasso & Sperry, 1985).

To illustrate the discrepancy between production and comprehension let me present a few examples from the data. The story is about a frog and a dog that are mistreated by the old lady who owns them. One day, fed up and tired while trying to get water from the frozen river, they cry out to the moon who saves them by taking them up to the sky on his cheek, and the old lady is left alone to do her chores. Below are excerpts of the 'unfolding' section from the narratives of three subjects. Example (9) is

⁸ Introduced as a research tool by Martinot (2000).

from a perfect retelling of the story by a middle class 8-year old boy who gives correct answers to all the comprehension questions as well.

- (9) (8;2. MC.S39) *Bir gün kurbağayı teyze nehre göndermiş, “bana su getir” [DIR] demiş [MCL]. Nehir soğuk yüzünden donmuş. Su alabilmek için [ADV] buzu delmek [COMP] gerekicekmiş [MCL]. Zavallı kurbağa zaten bütün gün iş yaptığı için [ADV] yorulmuş [MCL]. Sonra da köpekten yardım istemiş. “Bana yardım et, tek başıma açamam” [DIR] demiş [MCL]. Birlikte açmışlar, yorulmuşlar işte falan. Sonra aydededen yardım istemişler. “Bizi bu kadının elinden kurtar tatlı aydede, bizi götür” [DIR] demişler [MCL], “hav, hav; vrak, vrak” [DIR] demişler [MCL]. Sonra aydede gelmiş, onları almış, onlar da sonra aya binmişler. Kadın merak etmiş, nehre gitmiş . . .*

One day the lady sent the frog to the river. “Bring me some water” [DIR] she said [MCL]. The river was frozen because of the cold. He would need [MCL] to make a hole [COMP] in order to get water [ADV]. The poor frog was tired [MCL] because he had worked all day [ADV]. Then he asked the dog for help. “Help me, I cannot open on my own” [DIR] he said [MCL]. They opened it together, they were tired and so. Then they asked the moon for help “Save us from this woman sweet moon, take us away” [DIR] they said, “woof, woof, quack, quack” [DIR] they said [MCL]. Then the moon came, took them and they rode on the moon. The woman was worried and went to the river . . .

Another 8-year old from the same group also answered all of the fourteen questions revealing full comprehension although she did not mention half of these plot constitutive events in her retelling. For example, when asked (i) why the river was frozen she replied “because the weather was cold”, and when asked (ii) what the frog had to do to get the water, she responded “make a hole in the ice”. Her reconstruction of this part of the story in (10), where there is no reference to either of these points, is nevertheless a coherent account made possible by this underlying understanding.

- (10) (8;0.MC.S10) . . . *Şimdi kadın küçük kurbağayı nehirin oraya götürmek [COMP] istiyomuş [MCL], oradan su aldırarak [COMP] istiyomuş [MCL]. Vê orda ay varmış, aya demişler ki “ay bizi duyuyorsan [ADV] bize yardım eder misin” [DIR] demiş [MCL]. Ay da onların yanına gelmiş ve onu yumuşacık yanağının üstüne koymuş. Onlar da orda eğleniyorlarmış. Kadın evde bekliyormuş . . .*

Now the woman wanted [MCL] to take the frog to the river [COMP], she wanted [MCL] to make him take water from there [COMP]. And there was the moon there, they said to the moon [MCL] “moon if you hear us [ADV] will you help us?” [DIR] they said. And the moon came next to them and put them on his soft cheek. And they were having fun there. The woman was waiting at home . . .

In contrast, the section in example (11) is by an 8-year old from a low socio-educational home context; she can neither respond to the comprehension questions fully nor produce a coherent narrative. She answers only six of the fourteen comprehension questions, and only four of these six plot events have been mentioned in her story.

She can not tell (i) why the old woman sent the frog to the river, (ii) why the river was frozen, or (iii) what the frog had to do to get the water; not surprisingly, none of these events are included in her retelling, and the plot remains opaque for one who does not know the story.

- (11) (8;2.LC.S1)... *Bir gün onlar gidiyorlarmış yola. O...{Sonra n'olmuş} o o <köpek> köpekle şey aydedeye<a> “aşağıya in” [DIR] diyorlarmış [MCL]. Ondan sonra... {Sonra n'olmuş?} Kurbağayla köpek koro şeklinde yine hav havlamaya [COMP] başlamışlar [MCL]. {Sonra n'olmuş?} um o yaşlı kadın onları bir gün arıyormuş <yaş> orda köpekle kurbağa <evlin> eğleniyorlarmış...*
 One day they were going on the way. He... {What happened then?} he he <the dog> with the dog they were saying [MCL] “come down” [DIR] to the moon. And the... {what happened then?} The frog and the dog started [MCL] to woof in chorus again [COMP]... {What happened then?} The old woman was one day looking for them <old> there the dog and the frog were having fun...

This subject's level of comprehension is thus only slightly above the level revealed by her production, both of which are far below that demonstrated by the children from literate homes.

These differences between middle and low income 2nd graders once again illustrate the significance of the home environment for developing narrative abilities. When they first come to school, children from under-resourced backgrounds are at a major disadvantage, but at the 5th grade level there is change in all aspects of their performance, in the length of the stories, in the proportion of full and partial causal relations retained in production, and in the proportion of questions answered in comprehension. Children from more literate middle class homes on the other hand, start with sufficiently developed narrative abilities that get further elaborated with schooling; the change worth noting for this group is the increase in the proportion of partial causal relations retained. These findings strongly suggest that in most instances, children from low income environments find the opportunity to develop story grammars once they are in the literate context of school, but not before.

THE HOME AS A DEVELOPMENTAL CONTEXT FOR NARRATIVE AND LITERATE COMPETENCE

As noted in the introduction, questions pertaining to the developmental relations between children's language competencies and emergent literacy skills have been subject to research in various socio-cultural contexts in the last two decades. Motivated with the same questions, we investigated the characteristics of middle vs. low income homes as developmental contexts for pre-literacy and narrative skills in a project also assessing the effects of an early enrichment program (Aksu-Koç, Örüng, & Cesur, 1999; Kuşcul, 1993). One hundred and twenty 5- to 6-year olds, one-third from middle class homes, one-third from low income homes, and one-third from low income homes but participating in the enrichment program, constituted the sample. None of the children attended preschool. Mothers of the enrichment group were trained to support their

Table 6. Mean scores on various literacy and language parameters by type of home context

	Middle income homes	Low income homes
Mother's/father's years of schooling	12.0/13.6	4.7/6.9
Parental use of literacy index	10.1	7.6
Adult-child book reading activity index	8.1	6.1
Child's vocabulary (PPVT)	67.92	57.31
Child's word-definitions (WISC-R)	13.14	7.95
Child's story comprehension	7.06	4.72
Child's book reading behavior score	5.42	4.63
Child's isolation of first phoneme	6.54	4.82

children's cognitive and linguistic development by reading and discussing books and carrying out various pre-literacy activities with them (Kağıtçıbaşı, Sunar, & Bekman, 2001). Interviews and observations were made to evaluate the characteristics of the homes as literacy environments; children's various abilities were assessed before and after the training, and at the end of the 1st grade. Follow-up data were obtained at the end of the 4th grade from about half of the sample who could be reached after five years.

As can be seen from Table 6, middle income homes were found to constitute significantly richer literacy environments than low income homes as indexed by parental years of education, parental use of literacy (indicated by frequency of buying and reading books and daily print material, frequency of reading for personal enjoyment, types of programs watched on TV, and the like) and adult-child book reading activities (indicated by frequency and length of time of adult-child book reading, frequency of looking at picture books, frequency of story telling to child, number of books child can read on rote, number of books child has, and the like) (Kuşçul, 1993).

Table 6 also presents the means for several language and pre-literacy skills displayed by the children of these households. On all capacities, children of middle class homes showed significantly higher levels than their counterparts from low socio-educational backgrounds. Furthermore, significant correlations were obtained between parental use of literacy and children's receptive vocabulary, word definition skills and story comprehension, revealing the positive contribution of literate home environments to children's language as well as pre-literacy skills.⁹ Among the parent-child book reading activities, length of time of book reading with the child was found to be the most significant activity that explained variation in lexical knowledge, knowledge of letters, and child book reading behaviors. In short, children whose parents were active literates were more likely to develop familiarity with the structure of fantasy narratives through their book reading experiences and to achieve school readiness with more advanced levels of linguistic competence in general.

⁹ Vocabulary was assessed with the PPVT, word-definitions by the vocabulary scale of the Turkish adaptation of WISC-R (Savaşır & Şahin, 1988), and story (listening) comprehension by questions on a picture book story read on two consecutive days by the mother.

We examined narrative competence further by comparing the listening comprehension of middle and low income groups with that of the low income enrichment children to whom mothers read stories during the six-months training program. At the end of this period, the levels of story comprehension displayed by the low income enrichment and control groups were significantly lower than the level of the middle class group, just as at the beginning of the study. At the end of the 1st grade a year later, children were asked to read a simple story and answer comprehension questions. On the mechanical skills of reading and writing the enrichment group performed comparable to the middle class and significantly better than the low income controls, however, on reading comprehension they were still behind their middle class peers. That is, even a systematic exposure to fantasy narratives for a period of six-months to a year was not sufficient to provide these children of under resourced backgrounds with the well developed story grammar necessary for guiding the process of narrative comprehension.

Additional analyses revealed that 1st grade reading comprehension of stories was best predicted by preschool knowledge of superordinate categories and word definition skills, capacities that both rely on decontextualized language use. We found preschool listening comprehension to be a significant predictor of reading comprehension at the 4th grade. Narrative production at this level was best predicted by preschool definitional skills, frequency of being read to, and number of books possessed, all linguistic and contextual variables that were found to be characteristic of middle class literate households (see Table 6).

In summary, our findings show that competence for the production of well-formed fantasy narratives requires the development and integration of the component abilities of decontextualized language use and story schemas appropriate to this genre. Educated parents who engage in book reading and storytelling contribute significantly to this development and later to literate competence by providing the necessary kinds of experience in the home context. The results of the enrichment study further indicate that the development of such conceptual structures for narrative is a long-term process. Children with only about a year's practice of listening to stories either do not readily construct well formed representational structures or cannot activate them as easily as their middle class peers who have longer periods of such experience.

DISCUSSION: BI-DIRECTIONAL DEVELOPMENTS BETWEEN NARRATIVE AND LITERACY ACTIVITIES

This review of findings from studies carried out over a number of years has revealed consistent differences in the narrative performance of subjects with different levels of literacy, indexed either in terms of years of schooling or type and extent of home literacy activities. The fact that different levels of literacy further map onto middle vs. low socio-educational home contexts needs to be recognized since there are important implications for educational policies to be adopted - either by promoting the resources of the home context or by increasing the accessibility of early childhood education services.

First, in all our studies where middle vs. low socio-educational groups are compared, subjects of all ages from the former group displayed a higher level of narrative activity. As noted in the beginning, narrative performance is a joint function of the narrator's conceptual and linguistic competence. The first requires the ability to structure discourse such that events follow a temporal - causal sequence and are rendered meaningful in terms of a goal. The second refers to the ability to use linguistic devices in an effective way to express this conceptual structure. Comparisons of the groups revealed that the difference is at the level of narrative organization rather than in the availability of complex linguistic constructions. At the linguistic level, the difference is in the degree of syntactic packaging achieved by exploiting form-function relations in discourse. These findings allow us to conclude that the difference of the less elaborated narratives is not due to lack of knowledge of complex syntax but to lack of knowledge of narrative structure as defined by literate standards. This pattern of between group differences parallels the one revealed by comparisons of narratives of younger and older children of middle class backgrounds documented in various languages (Berman & Slobin, 1994).

Second, we observed that regardless of age and type of home-background, all children performed at a higher level on comprehension than on production tasks, and that those successful on questions about the temporal - causal turning points of the plot were also the ones who could tell the original story with a coherent internal organization. However, children from more literate home contexts performed better than children from low socio-educational backgrounds on comprehension just as on production tasks. Since comprehension does not depend as much on sophistication in linguistic expression, any difference at this level constitutes independent evidence for the above claim that children from different literacy environments differ in terms of the availability and the level of differentiation - organization of the story schemata that guide their narrative activities.

Regarding the question of what is contributed by the home context to narrative skills, we saw that middle class home environments defined in terms of higher levels of parental education are typically contexts where literacy practices are part of daily life whereas low income homes are not so characterized. The two socio-educational contexts were found to differ in terms of parental literacy practices and adult-child literacy activities in the Turkish case as well. A number of these characteristics were strongly correlated with children's general linguistic and narrative skills; children with higher levels of competence came from more literate homes. Furthermore, the results of the enrichment study showed that environments can be modified into positive literacy contexts by training parents to simply talk to their children about the what, where, and when of their activities, and that the development of appropriate narrative schemas can be promoted by telling and reading them stories. Our findings thus contribute to the extensive literature documenting the role of the home environment—with the economic opportunities it affords, the educational level of the parents and their interactional styles, and the kinds of literacy activities favored and practiced—in preparing the child for school by supporting his grammatical, lexical and narrative competence (Dickinson & Tabors, 2001; Snow & Dickinson, 1990; Teale, 1986; Minami, 2002, among others).

Regarding the question of what is contributed by schooling to narrative skills, we have seen that with increasing years of schooling children show higher levels of performance and display major changes in the cognitive strategies used in discourse organization. Formal schooling in its first phases contributes more to children coming from less educated backgrounds than to children who have met different forms of school related activities and literacy conventions at home. As noted earlier, competence in fantasy narratives provides a good starting point for literate activities of the school by giving the child experience in interpreting and remembering information about entities and events that have not been directly experienced but are represented only through language. School builds on the representational schemas already available and helps enhance the appropriate cognitive structures necessary for the acquisition and use of new knowledge. During the first years when emphasis is on the acquisition of the mechanical skills of encoding and decoding, children from low literacy homes show significant gains in narrative structuring as well, possibly because even exposure to the simple texts used in learning to read and write provide them with information that can be integrated into developing narrative schemas. These effects are not immediate, however; forming and transforming narrative schemas is not a short-term accomplishment. Literate activities of formal schooling provides not only experience with different genres such as personal experience vs. fictive narratives, historical accounts or expository texts, but also promotes an objective stance that enables the separation of the narrative from the personal world, and the choice of an appropriate framework for the telling (Olson, 1996; McKeough, 2000). However, the consolidation and transformation of these discourse strategies and attitudes into literate competence requires an early start with literate practices in the home, and increased years of compulsory education in school.

In conclusion, we have observed that environments rich in literacy practices are more conducive to the emergence of narrative and other linguistic skills, and that this effect is mediated by the availability of narrative schemas that guide first the comprehension, and then the production of narrative discourse. Experience with fantasy narratives constitutes an important first exposition to the discourse conventions of the literate community. Through interaction with books and stories children begin to learn about print conventions on the one hand, and the nature of texts, on the other. This learning is elaborated in school where they are trained to adopt the interpretive stance characteristic of the literate tradition, that is, the understanding that the meaning of a text is contained within itself rather than in the situational, personal or interpersonal context (Olson, 1996). Such experience further fosters the development of the ability to create decontextualized, internally coherent texts of different genres. In short, what appears to benefit most from literate activities are the conceptual schemata and facility with the use of linguistic structures for specific discourse functions. With schooling, the relationship between narrative and literacy activities becomes bi-directional. The ability in one domain contributes to the development of skill in the other, each gaining primacy at different points in development, and the specific timing and nature of these interactions are dependent on the home background of the child.

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19. 'I WILL TELL YOU THE WHOLE TRUE STORY NOW': SEQUENCING THE PAST, PRESENT AND FUTURE IN CHILDREN'S CONVERSATIONAL NARRATIVES

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INTRODUCTION

Consider the following story entries in children's talk¹:

- 1) Oren (5;m): =I [will tell] you, the whole true story, (0.9) [now]
Dani (5;11m): [yes, what's the story pi-ka ↑ krok?
- 2) Liat (9f): ((. . .)) that party you had, the class party was it a party or a birthday party?
Dganit (9;5f): ah, it was a party, do you want me to tell you about it?
- 3) Dani (5; 11m): Pika, I- like I- like ((literally: 'as if')) I was sick↑, then you were (0.9) six years old, you were ten years old I was, e::m (0.4) one hundre↑d years old, so, so you took me to- to the hospital. ((as he is talking, they leave the sandbox and walk hand in hand towards the wooden house in the yard)).
Alon (5m): no::: I was eleven

¹ This study is part of a longitudinal research project on children's talk called "Gaining autonomy in genres of extended discourse", funded by the American-Israeli Binational Science Foundation, Grants No. 980031 & 2001070, 1999–2002; 2002–2005, to Shoshana Blum-Kulka and Catherine Snow. The project was set up to track the development of two extended genres – narratives and explanations – in two age groups (twenty preschoolers and twenty nine year olds at the onset of the study) in three contexts: peer interaction, family talk and semi-structured interviews, over three years. Transcription conventions used are: [words] – overlapping talk; = – overlatch; (0) – measured pause; (. . .) – in incomprehensible words; (words) – transcription doubt; . – a falling intonation at the end of an utterance; - – a continuing rising intonation; ? – a rising intonation at the end of an utterance; ↑ – a rising intonation; ↓ – a falling intonation; WORD – high volume° word° – low volume; word – emphasis; wo::rd – sound stretch; wor – cut-off; >words< – fast rhythm; <words> – slow rhythm; {word} – unusual pronunciation; #words# – unusual tone, indicated in a comment; word/word/word – rhythmic pronunciation ((comment)) – transcriber's comment. I'm grateful to Elda Weizman, Mihal Hamo, Talia Habib and Debbie Huck-Taglicht for useful comments on an earlier version. Examples are translated from Hebrew.

Dani: well but like you knew where the hospital was because I told you everything when I was, okay-big, (0.5) so okay? ((the children walk to the “hospital” together)).

The ‘whole true story’ Oren tells Dani is in the world of fiction – it’s a story told by one Pokemon character to another within the framework of pretend play. In contrast, Liat prompts Dganit to tell about events in the real world. While both (1) and (2) relate events that happened in the past, example (3) uses past-tense verbs to enact an ‘as if’ pretend story happening concurrently with being told. Both Oren and Dganit explicitly announce (by the use of the verb ‘tell’) that they consider the speech activity they are engaged in as storytelling. In example 3, the segment following this opening is recognizable as ‘a story’ by presenting a temporally and causally connected sequence of events within the pretend framework. The dimensions of real versus virtual, or fabula (or story-world) time as past versus present are two among several sources of variability in children’s conversational story telling, some of which, with many others, one can also find in adult conversational story telling.

Conversational story telling at large defies structural approaches to narratives from several perspectives. Seen as a way of using language “to imbue life events with a temporal and logical order, to demystify them and to establish coherence across past, present, and yet unrealized experience” (Ochs & Capps, 2001: 2), conversational narratives present dynamic, open-ended, often collaborative ways of sense-making, rather than finished textual products. Conversational stories are often re-shaped in the telling, and fail to follow structural constraints of well formedness. Stories can achieve their social goal, namely point to a moral, highlight a remarkable event, entertain, move emotionally or be part of an explanation without necessarily abiding by the classical Labovian story-schema (Blum-Kulka, in press; Eggins & Slade, 1997; Martin & Plum, 1997). As modes of meaning-making, conversational stories can relate to past as well as to future events, be constructed monologically, dialogically or in a polyphonic mode and relate to events that are considered exceptional (and hence tellable) only from the point of view of some specific community’s point of view (Shuman, 1986; Blum-Kulka, 1997).

The point to be argued here is that this complexity is no less apparent in children’s conversational storytelling, and that it needs to be taken into account in studies of narrative development. Conversational storytelling can be conceptualized as encompassing three dimensions of narrativity: *telling*, *tale* and *tellers* (Blum-Kulka, 1997). *Telling* relates to the unfolding of the story in real time, by one or several tellers; *tale* relates to the story-text produced, while ‘tellers’ are the animators of the story, the children and/or adults actually engaged in its production. The close analysis of peer talk transcripts from preschool and young school-age children allows us to consider how the telling and tale are interrelated with regard to different dimensions of narrativity. In this chapter the focus is on such intersections with regard to the dimension of temporality.

TEMPORALITY: STORY-TIME, TEXT-TIME AND TELLING-TIME

In literary theory of narrative, the concept of ‘time’ in fiction encompasses two notions of time: *story-time*, namely the linear succession of events in the storyworld or

fabula - equivalent to the (projected) succession of events in the real world in personal event narratives and news reporting - and *text-time*, namely "the linear (spatial) disposition of linguistic segments in the continuum of the text" (Rimmon-Kenan 1983:45). Following Genette, Rimmon-Kenan (1983) and Toolan (1988) mention three dimension of manipulation with the movement from story to text: order, duration and frequency. The presentation of the story in the text may contain changes in the chronological order of the events, including backflashes and forshadows, may play with the textual duration of any given event, and may tell and re-tell one single story-incident. Conversational storytelling transforms text-time to telling-time - instead of the spatial organization of the text on the page, we follow the temporal organization of the actual telling, the unfolding of the narration in real time.

Conversational storytelling can relate to several configurations of story-time. As argued by Ochs and Capps (2001), sequencing the past, sequencing the immediate present, and sequencing the unrealized present are equally available temporal frames for prospective story tellers in conversation (see also Heath, 1983). Children's conversational storytelling provides warrants for this claim from an unexpected angle. As will be demonstrated, children's talk includes not only stories of past events as well as hypothetical narratives of the unrealized present (as noted for Turkish preschoolers, Kuntay, 2002), but also virtual stories that come into being as being told. The analysis of children's conversational stories needs to consider the relations between two or possibly even three temporal frames: story-time, text-time and telling-time. Arguably, though telling-time on most occasions is equivalent to text-time, it takes on a separate dimension in the case of pretend narratives. The following examples illustrate the complex relationships between all these three temporal frames in children's conversational storytelling.

Sequencing the past

Sequencing the past is the taken-for granted temporal frame in many studies of adult conversational story telling (Labov, 1972; Polanyi, 1989), and is considered often a necessary condition for operational definitions of a minimal narrative in developmental studies (e.g., Minami, 2002). Stories of the past are also common in our data from both preschoolers and school-age children. A closer look at such stories allows us to examine age-related features for marking text-time previously identified in other contexts of study, and to point out specific conversational features linked to the story's mode of performance with and before an active audience. Consider age-related features. Berman and Slobin have shown that children as young as five routinely "sequentially chain one utterance to the next, and . . . one event to another" (Berman & Slobin, 1994: 66). Our first example exemplifies this capacity for nine-year-olds. It is a past event gossipy-story (Blum-Kulka, 2000) about a mutual friend, which demonstrates the use of several linguistic markings for the temporal ordering of events in the text.

1. Crazy boy

Ofer, (9; 4m) and Oz, (9; 7m), both grade four, are having a meal at McDonalds at our invitation. The story is the 3rd in a chain of stories about the misdeeds of Nadav, a mutual classmate.

Date: 16.1.2001. Filename: oz-ofer. Turns: 223–228 (%tim: 323)

-
- | | | |
|-----|--|---|
| 223 | OZ: ex aba sheli pa'am hit'acben *alav!
224 *OFER: gam aba sheli.
ata yode'a ma hu ose?
kshe -haya pam axat le- yomuledet shela-
le- le- axot she↑li,
az banu le-safta sheli, az hu gam ba
iti le-shama, #ve-safta sheli!
az kaze yesh ta uga, ve hu xucpan
loke'ax et ha-ecba shlo ose kaxa #“o
ta'im”#, hu kaze xucpan! (. . .)
kaze af exad lo axal shum davar
pit'om hu ose (2.4) kaze to'em et ze im
ha-ecba shelo! kol ha-go'al, kol ha-lixlux
she-(. . .).

225 *OZ: ixs, lo hayiti oxel .

226 *OFER: axar kax aba
sheli carax alav, # nadav!

227 *OZ: #_
228 *OFER: (. . . .) yeled
mufra! | *OZ: how my Dad once got
annoyed with him!
*OFER: My Dad too.
Do you know what he does?
When it was once her – my sis↑ter's
birthday and so we came to my
grandma, so he also came there with
me, #and my grandmother! ((giggling))
So there is the cake , and he the cheeky
guy takes his finger ((showing)) goes
like this #“tasty”#, ((voicing Nadav)),
he is such a cheeky guy! (. . .)
Like no one ate anything and all of a
sudden he goes (2.4) like (this) he
tastes it with his finger! So disgusting,
all the filth that- (. . .).
*OZ: yuck, I wouldn't have
eaten it .
*OFER: Then my Dad screamed at
him #Nadav!
((voicing his father)).
OZ: #_((laughing))
*OFER: (. . . .) crazy boy! |
|-----|--|---|
-

*Bold is used to mark verbs and sequential markers.

The prolific use of the highly colloquial discourse marker “*kaze*”² in the “crazy boy” story and the high involvement by the audience (see turns 225, 227 & 28) mark the story clearly as an interactionally produced natural oral narrative. But in terms of its sequential organization, the text manifests features identified for this age group in the frog-story elicitation. First, we find an abundance of sequentiality markers – *kshe-haya*.. *az banu*../*az hu gam ba*../*az kaze yesh*//..*axar kax*.. (when it was../ **then** we came../ **then** like there is this cake../ **like** nobody ate../ **later**..) – in line with the over-use of such markers in the frog-story texts of nine year olds (Berman, 1995)³.

² See Henkin (1999), Maschler (2001) and Ziv (1998) for the various discourse functions of *kaze* in modern Israeli Hebrew.

³ The specific marker preferred—‘az’—marks in Hebrew both temporal and causal relations; it is translated here as ‘so’ to reflect its causal use in the context of the story.

The main event of the story is told twice, the second telling introduced by '*kaze*' ('*kaze af exad lo axal shum davar*' (like no one ate anything) possibly functioning here as a sequentiality marker as well, indexing an event which is anterior to the happenings of the story. Second, as could be expected by the results from the frog-story study (Berman, 1988) most of the markers are sequential, but subordination is used too (see turn 224: '*when.. then he came*'). Interestingly, the text shifts between different levels of contextualization as the story develops. Thus first mention of Nadav's mishap (tasting the cake with his finger) is highly contextualized, being referred to by the use of a deictic ('*ose kaxa*'/ goes **like this**), accompanied by gesture to demonstrate the act of licking the cake with one finger. But though the second mention begins similarly—'*pit'om hu ose*' (suddenly he goes) – following a brief pause Ofer uses a self-repair, rephrasing the same act in a more explicit manner – '*kaze to'em et ze im ha-ecba shelo*' (sort of tastes it with his finger)⁴. It might be the case, as indicated by other instances of re-phrasal noted in the children's conversational storytelling, that the circumstances of an oral peer production invite self-repair in the direction of more autonomous texts, and are hence conducive to the development of literate discourse. The third feature to note is the rich use of verb tense forms: begun as an illustration for a shared claim (the kids' fathers getting annoyed with the story's protagonist), Ofer begins with a rhetorical question in the present: '*do you know what he does*'? This generic use of the present (seemingly referring to a habitual phenomenon) is replaced by verbs in the past to provide the orientation and enabling action of the story. But as the story reaches its high point, Ofer shifts back to the present – '*there is the cake.. /the cheeky guy takes his finger*' – relying on the well-known device of a tense shift to the historical present (Wolfson, 1978) as a means of slowing the pace of narration to dramatize the story's high point.

Consider now how the telling enhances the tale. Conversational storytelling is often dialogic, or polyphonic, involving several children in the telling. This multi-voiced nature of conversational stories affects not only their mode of performance, namely the *telling*, but also the story-text, namely the *tale* (Blum-Kulka, 1997). As all prospective story-tellers, the children too need to find ways to justify their bid for an extended turn in which to tell the story. Both of the two main strategies for achieving this goal—textual embedding and participant alignment—are evoked in this example. In line with strategies of story-entry identified in adult Israeli discourse (Polss, 1990), the story opens with a move which both announces the topic of the story to come, and justifies this topic through textual embedding, linking it cohesively to the previous topic ('*how my Dad once got annoyed with him*'). But instead of positioning himself as the recipient of the story, as expected (by asking 'how?'), Ofer self-selects as the main teller by appropriating the theme ('*my Dad too*'), proceeds with an attempt to align his audience ('*you know what he does*?) and not waiting for a reply, launches into the story. We can see that Oz accepts his role as story recipient by the way he shows his high involvement in the tale – "*I wouldn't have eaten it*" (in turn 225 and subsequent laughter) – a phrase which also happens to enrich the repertoire of tense forms used

⁴ The pause preceding *kaze* rules out the possibility of its being used here, in Maschler's (2001) terms, as "gesture quotative".

in the story by a counterfactual conditional. Oz's last contribution 'crazy boy' offers an evaluative coda to the whole incident. Thus the telling and the tale are closely interrelated. The negotiation of story-entry and modes of audience involvement are not only interesting in their own right, as stages in the development of conversational story telling skills, but also in their capacity to enrich the text's linguistic repertoire or its story-world. In this case by adding to the forms produced by the main teller forms provided by co-tellers and audience, and on other occasions contributing new aspects to the story as such.

Pretend play narratives: generating story-worlds and sequencing events in possible worlds

In personal event narratives like the 'crazy boy', 'text-time' may constitute, by virtue of its linear organization, a chronological representation of story-time: things that happened are told post-fact in the order they presumably have happened. But this relation becomes problematized in children's pretend play narratives. Pretend play narratives present children with two types of challenges: First, how to generate story-worlds intersubjectively – namely, how to use language to create a shared world of pretend play within which they can collaborate to advance the plot of the story. Second, how to use language to sequence events *within* the story-worlds of pretend play. The following examples show how the children's close familiarity with the characters and plots of popular culture (in our case the Pokemon series) allows for their high involvement in the tale and the telling and serves to uphold the coherence of the stories told—concurrently with the stories being created “on line”. In addition, the examples show how the first task is achieved (among other means not elaborated here) by flexing the functional scope of past and present tense verbs, and how the second task is achieved by the use of verbs in all tenses. For both tasks, children also make use of various sequentiality markers and adverbials. The three segments to illustrate these points come from one exceptionally long sequence of pretend play. The story is played out in the yard, lasts for about 30 minutes (400 turns in the transcript), has three main boy players with several other children joining it at certain points. The story includes several episodes in the life of impersonated Pokemon characters. In example 2, which comes after the children have been playing for a few minutes, Oren asks and receives Dani's agreement to play the Pokemon character of Pikachu, announcing “I'm a small Pikachu, Pika”.

2. Pika: the true story

Dani, (m.5;11), Oren, (m, 5) and Alon (m, 5). The children have been involved for a short while in acting out fights between Pokemon characters. At some point Dani apologizes for hitting Oren (whom he considers the enemy) apparently harder than intended; Oren accepts the apology and proceeds to tell the 'true story' as part of his explanation why he shouldn't be considered the enemy. Date: 6-April-2000.

Filename: Dani. turns: 39–48 (%tim: 017). Place: Eynit preschool, Jerusalem.

-
- | | | |
|----|---|--|
| 39 | *OREN: = ani [esaper] lexa, et <u>kol</u> a-sipur a-amiti, (0.9) [axshav]. | *OREN: = I [will tell] you, the <u>whole</u> true story, (0.9) [now] |
| 40 | *DANI: [ken, ma a- sipur, pi-ka↑ krok? | *DANI: [Yes, what's the story, Pika-Krok? |
| 41 | *OREN: >°a-dantilim, itxapsu elay,°< dantil exad itxapes elay, ki u- ki u- (0.9) u <u>raca</u> she- she-ata taxshov she ani↑ asiti et ze. pashut aya lo taxposet meduyeket biglal maxshir admaya shelo. | *OREN: >°The Dentils, disguised themselves as me,°< one Dentil disguised ((himself)) as me, because he- because he- (0.9) he wanted you to <u>think</u> that I↑ did it. He simply had an accurate disguise because of his simulating device. ((He is telling the story very dramatically, as an old secret tale)). |
| 42 | *DANI: u aya ra? | *DANI: Was he bad? |
| 43 | *OREN: ra me'ou:d. | *OREN: Ve::ry bad. |
| 44 | *DANI: (1.4) pika, eifo u-nimca↓. | *DANI: (1.4) Pika, <u>where</u> is he↓ ((now)). |
| 45 | *OREN: u nimca↑, u nimca be-dira sodit. ani lo [yode'a eifo i.] | *OREN: He is↑, he is in a secret apartment. I don't [know <u>where</u> it is.] |
| 46 | *DANI: [dira] sodit?
[aval ani] yode'a, [ani xoshev.] | *DANI: [a secret] apartment?
[but I] know, [I think.] |
| 47 | *ALON: [ani yode'a,] [ani yode'a_] | *ALON: [I know,] [I know_] |
| 48 | *DANI: be-b-b-be dirat a- <u>roxot</u> , ani yode'a. | *DANI: In in in in a <u>haunted</u> apartment, I know. |
- The children start running around in the yard, "looking for Pika", while calling out his name and shouting directions at each other.
-

The 'true story' episode is typical of the way children achieve intersubjectivity in many of the pretend play enactments we observed in the preschool: the children talk the story while performing it, collaboratively adjusting their voice and non-verbal behavior constantly to the developments of the plot in the imaginary story-world. In this case, the story-world includes reference to all three temporal frames – past, present and future, designated in the text by verb forms in these tenses. Example 2 illustrates well the degree of sophistication and complexity intersubjective meaning making reached in such imagined worlds in children's discourse. The dialogue between the children here is part of a pretend play in which each is assuming a character from the Pokemon series. Our extract opens with an explicit announcement of the intention to tell ('I [will tell] you the whole true story, (0.9) [now]'-turn 39) made from within the story-world, and once ratified ('[Yes, what's the story, Pika-Krok?]', goes on (in turn 40)

to elaborate a complicated plot of disguise, told entirely from the point of view by and to the Pokemon characters played out by the two children. What is noteworthy here is the tale's extremely high level of elaboration on the "plane of consciousness", or of its manifestation of the child's 'intersubjective meaning making' in Bruner's terms (Bruner, 1986). Note that the teller is attributing intentional states to three imaginary characters, two present and one non-present, while projecting a future act from a point in the distanced past in the story-world: it is the non-present Dentil character who wanted you (in your present guise as another character) to think that I (in my guise as Pikachu or maybe as the real me) did it.

The Pika example also illustrates the flexibility with which children shift between **deictic centers**: the story begins in a conjured imaginary world in the distanced past (note the choice of verb tense for denoting action in turn 41, "disguised" and in 42 – "was he bad" – "very bad") and then moves in turn 42 to the here and now in the actual real present ('*Pika, where is he* ↓ ((*now*))?' without stepping out of the pretend frame. Beginning with turn 48 the children run around the yard in search of the imaginary evil character from the story giving each other highly contextualized yet clear directions, like "straight to the right" or "straight to the left". The deictic centre of the talk becomes the here and now of a virtual space, relative to which the directions are very specific and clear (like '*Do you see green stones? Not brown, green stones*' in a later segment).

The next two examples show how children achieve the task of sequencing events within the story world. The examples illustrate how, in generating story-worlds, some of the textual indicators of story-time, like verb tenses and sequentiality markers, function simultaneously on two planes, yielding an almost perfect coincidence between the *telling* time, namely the stream of words as said, and *story-time*, namely the unfolding of the events of the story-world in real time.

3) Pika-going to the hospital

Dani, (m.5;11) and Alon, (m.5). The children continue impersonating Pokemon characters and co-constructing episodes from their lives. Alon is "Pika" and Dani is "Krok-Pika" (Date: 6-April-2000. Filename: Dani. turns: 92–107 (%tim: 046). Place: Eynit preschool, Jerusalem).

92 *DANI: pika, k- ke'ilu ani- **ke'ilu ayiti xole**↑, az **ata ayita** (0.9) ben shesh, **ata ayita** ben eser **ani ayiti**, ben e::m (0.4) mea↑, az, az **lakaxta** oti le-le bet – a-xolim.

*DANI: Pika, I- like I- **like (literally: 'as if') I was sick**↑, **then** you **were** (0.9) six years old, **you were** ten years old **I was**, e::m (0.4) one hundre↑d years old, so, so **you took** me to- to the hospital. ((as he is talking, they leave the sandbox and walk hand in hand towards the wooden house in the yard)).

93 *ALON: lo:: ani **ayiti** ben- ben exadesre.

*ALON: no:: **I was** eleven.

- 94 *DANI: nu aval, **ke'ilu yadata** efo bet a-xolim ki al- **ki siparti lexa** a-kol **kshe-ayiti o-k-gadol**, (0.5) nu-bseder? *DANI: well but, **like you knew** where the hospital was because I **told** you everything **when I was, okay-big**, (0.5) so-okay?
- 95 *ALON: beseder. (0.7) [(...)]- *ALON: okay. (0.7) [(...)]-
- 96 *DANI: [az-az] lakaxta oti, #ah:: [pika::pika::#] *DANI: [so-so] you took me, #ah:: [Pika::,Pika:::#] ((as if about to die.)) (2 turns omitted)
- 99 *ALON: [ine a-bet xolim]. *ALON: [here is the hospital]. (7 turns omitted; the old man and his helper go to sleep in the hospital).
- 107 *DANI: (5.6) alon keilu **avar od yom. az** kamta ve-ani **adayin** nish'arti↑ **ve-axare- ve-axarey a-yom a-ze yesh od yom <axaron> ve-az** ani, bati ki **az-a- ki az** ayiti bari. (2.0) °pika::° ALO::N KEILU AX- KI- ALO::N, ALO::N KEILU **AYOM** bata levaker oti↑ ve-amarta ma shlomxa, ve amarti kcat yoter bese↓der az bo. *DANI: (5.6) Alon as if **another day passed. Then** you got up and I still stayed↑ **and after- and after that day there is another day <the last> and then** I, came because **then-** I was well. (2.0) °Pika::°. ALO::N LIKE LI- ALO::N, ALO::N LIKE **TODAY** you came to visit me↑ and said how are you, and I said a little bit be↓tter so lets go. ((change of voice in address to "Pika-Krok" & in reporting the dialogue, impersonating both characters; the raised voice bits are delivered while Dani is running towards Alon))

The events in the ongoing Pika story include the old man being taken to the hospital (the children cross the yard to the wooden house designated as "hospital"), being put to sleep (both children lie down and pretend sleeping), having the same dream and acting it out (see extract 4), and the sick old man getting better and leaving the hospital (the children cross the yard again).

The whole narrative event, which very much resemble theatrical improvisations (Sawyer, 1997), is marked as pretend play by the use of several devices. One device is the pre-positional use of 'ke'ilu' (lit. 'as if'), as a *keying* (Goffman, 1974) device (Blum-Kulka & Huck-Taglicht, 2002), marking a whole pretend episode, or single events within it as unfolding in the realm of irrealis⁵. The second device is the use of past tense verbs to mark modality rather than temporality—as noted by Henkin (1991), who was the first to document this phenomenon for Israeli children, the past tense in Israeli children's utterances of pretend play can represent a modal distancing from reality. Henkin refers to this form as the '*imaginary past*' and argues that it serves as a systematic morpho-syntactic device for the description of the pretend world from the

⁵ This usage of *ke'ilu* as a keying device is highly prevalent in pretend play episodes, but on other occasions the children also use *ke'ilu* as a discourse marker for the variety other functions noted for its use in Modern Israeli Hebrew (Maschler, 2002).

point of view of the teller. With the use of the imaginary past, events are described from a zero deictic center: namely from here–now. She notes that sometimes it is difficult to distinguish between the past form used to mark events in the present ('I was a horse', meaning 'I'm a horse now'), and past form used as stage directions to project events for the near future ('you kissed her', meaning 'kiss her now'). Our data strongly confirm Henkin's observations. Her examples come from children in a Kibbutz playing mainly with props, and she hesitates to generalize beyond this specific community "maybe this style is used only in a few areas, linguistic islands, and maybe its limited to the children population examined" (Henkin1991; my translation). Our data, from two different cities (Ashdod and Jerusalem) and a wide variety of free-play situations in the preschool, mostly without props, leave no doubt that the phenomenon is far from being limited to a specific population, play mode or place. On the contrary – it regularly appears in young children's (4.5 to 6.00 in our case) pretend play, is systematically associated with the transition to, and being within a pretend keying, but simultaneously also functions to index different frames of temporality.

Our data suggest that the *imaginary past* can serve anyone of the following functions: a) as an *imaginary - performative-past*, referring to events happening simultaneously with the talk b) as an *imaginary-past-past* sequencing events *within* the time-frame of the story-world and c) as an *imaginary future-past*, projecting events in the future, namely act as stage directions within the play. Furthermore, these three functions (two of which, a & c were also noted by Henkin, 1991) are not easily distinguishable, and specific uses can be read as ambiguous between at least two different functions. Thus first two past time utterances in example 3 ('..I was sick↑, then you were (0.9) six years old, you were ten years old I was, e::m (0.4) one hundre ↑ d years old..') can be read as doing only the distancing work, namely providing the current ages of the players in the virtual world, or/and also as supplying the background for the story-to-be, a background that precedes in story-time the act of being taken to the hospital (functions a & b). The next use of past form ('..so you took me to- to the hospital') on the other hand is ambiguous between functions a & c: it can be understood as projecting an event for the immediate future, giving a direction to act (function c) but also as solely a performative (function a) bringing the event into being by the talk. Turn 94 shows how the *imaginary past* can include subtle shifts in time framing also *within* the virtual world; the act of telling (with its time specified in the adverbial clause 'when I was..') is given as the reason for the state of 'knowing', preceding it in story-time⁶.

How can we disambiguate such uses? There seem to be at least two different resources that can help answer this question: a) non-verbal, prosodic and lexical contextualization cues (Gumperz,1982); b) turn-by-turn sequential analysis of the co-text. Consider the role of gestures and prosodic cues. In another narrative event two boys act out "lifting" a squirrel from a picture book by putting a spell on it and transforming it first into a pet, and then into two pets, and then go on to collaboratively spin a tale around the virtual squirrels. In the 'squirrel' story all the verbs in the past tense ('..we made it into a pet/we

⁶ The children use the simple past in all the pretend play episodes for all functions identified. To avoid interpretation through choice of tense in the English translation, all past forms are rendered in the simple past in English as well.

made a spell on it/ I took/no, we took') are accompanied by the appropriate gestures, as when each child holds a virtual squirrel in his palm while lifting the squirrels from the book. In such instances, acting out the story non-verbally anchors it in the deictic center of here and now, merging, as in most events in the "hospital" story, telling-time and story-time. Thus the reference to "taking" ('you took' in turn 96) is accompanied by the deep sighs of the sick old man being led to the hospital, and the report on the dialogue between the characters at the end of turn 107: "*you came to visit me [↑] and said how are you, and I said a little bit be [↓] tter*" is delivered with appropriate voice shifts for the direct quotes, impersonating the two characters.

Lexicon and grammar are further sources for disambiguation. Dani's focused effort to solve the problem of temporal sequencing within the story-world in turn 107 relies on the grammar of adverbial phrases, combined with the appropriate lexicon to describe the flow of time up to the current moment in the story, assigning an imaginary past-past function to all verb tense forms used in the first part of turn 107 (till the second address to Alon as 'Pika') (*as if another day passed/ Then you got up and I still stayed[↑] and after- and after that day there is another day <the last> and then I came, /because then I was well.*)

Story-sequence serves as another source for disambiguation. In example 3, two shifts in verb-tense, the first to the present ('[here is the hospital]', turn 99) and the second shift to the imperative ('so come', turn 107), confirm the reading of past forms in previous turns as coinciding with telling-time, namely as imaginary – performatives-past. The next example includes several such shifts.

4. Pika – what a terrible horrible dream

Dani and Alon are still engaged in the ongoing pretend play revolving around Pokemon. In a previous segment, Pikachu – who is played by Alon – went to the hospital to visit his sick friend Dani, who has been lying there for 3 days. Pokeball is the ball Pokemons are stored in. Date: 6.4.00, filename: Dani. turns: 113–137 (%tim: 076) Comments: slightly abbreviated.

- | | | |
|-----|---|---|
| 113 | *DANI: {...} axshav axshav avar (0.5) a-yom az az aya layla (..) ve-bati (0.3) ki kvar ayiti bari axshav. (1.15) (...) aval ayiti carix lakaxat adayin trufot. | *DANI: {..} Now now another day passed (0.5) then then it was night (...) and I came (0.3) because I was already well now. (1.15) (...) [But I still had to take medicine. |
| 114 | *ALON: naxon, aval mag'ilot. | *ALON: Right, but disgusting. |
| 115 | *DANI: (2.1) lo [↑] mag'ilot mamash. ve-ke'ilu y-y- yashanu anaxnu be-oto xeder. (1.2) alon nu, az- az bo tishan po. ata po. (0.5) alon ata shaxabta po ani po | *DANI: (2.1) Not [↑] really disgusting. And as if w- w- we slept in the same room. (1.2) Alon come on, so- so come sleep here. You're here. (0.5) yes you were lying here I here |
| 116 | *ALON: lo ani (...) | *ALON: No I (...) ((laughs)) |

- 117 *DANI: (4.2) °alon al tinxar°. *DANI: (4.2) ((snoring voices are heard during the pause)) °Alon don't snore°.
- 5 brief turns on snoring omitted; Dani explains to Alon that its 'not nice' to snore; a long pause follows (13.0) during which we hear snoring voices.
- 122 *DANI: (13.0) #A:: ma ze?# alon, ke'ilu irgashti she-ani be-azikim, ki xalamti xalom. *DANI: (13.0) #A:: what's this? # Alon, as if I felt that I'm in handcuffs, because I had a dream.
- 123 *ALON: ken. gam ani xalamti xalom she gam ani↑ ayiti, aynu be-oto xalom blal ((biglal)) she yashanu, benoxut. *ALON: Yes. I had a dream too that I↑ was too, we were in the same dream becau ((because)) we slept, comfortably.
- 124 *DANI: alon, adayin lo↑ aya be'ecem boke::↑r , ve:: gam ata ayita be-azikim. *DANI: Alon, it wasn't↑ morni::↑ng yet actually, an::d you were in handcuffs too.
- 6 turns omitted: the children act out their dream, pretending to realize they are handcuffed.
- 131 *ALON: [A:: ma ze itorarnu (1.8) ua↑y ma ze, ma ze, e↑ize xalom ra↑ [aya↑ li]. *ALON: [A:: and then we woke up (1.8) wo↑ow what's this, what's this, e↑ what a ba↑d dream [I had↑.]
- 132 *DANI: [eize xalo::m] gam li aya:: (0.7) oto xalom. ma, ata xalamta she ayta be-azikim?=
*DANI: [what a drea::m] I ha::d (0.7) the same dream too. What, did you dream that you were in handcuffs?=
*ALON: =yes=
*DANI: =ve-raita et a-raim?
*ALON: With the Pokeball, and you [too]?
*DANI: [gam ani:: [me too::
*ALON: uay eze (xalom ayom ve-nora). az itgalasht- *ALON: Wow what (a terrible horrible dream). So you slid-

In this extract we can clearly see how the imaginary past is used in all three functions mentioned: in turn 113 the combination of past-form with 'now' (*I was already well now*) clearly marks this use as a performative-past, projecting the same interpretation for the next action of taking medicine. In turns 115 to 117 the function changes to directive-past, stage-direction function, as past forms (*And as if w- w- we slept in the same room / you were lying here I here*) are being used interchangeably with the imperative (*so- so come sleep here / don't snore*). The last extract – from 122 to the end shows how even the most subjective and individual form of past experience, namely a dream, can be transformed by the children's imagination to a shared, collaboratively performed event in the here and now. At the beginning of the episode we might still read the past tense (*I had a dream* in 122) as imaginary past-past, namely as recounting events within the story world. But as Alon joins in, and transforms the experience, from a subjective experience, experienced only by the teller, to a mutually shared event, the dream also

becomes the shared pretend reality frame of the moment, acted out with great zeal by the two children (turns 122–124). The mention of 'waking up' from the dream serves as a lexical cue (turn 131) transforming it yet again – rather than being *in* the dream together, the children now reassure each other of *having been* in the dream together (turns, 132 to 137). Thus the '*horrible terrible dream*' becomes a shared memory to be talked about, and past form verbs can take on yet again, in addition to their modal function, a temporal meaning as well.

This chapter is a first attempt at understanding the complex ways in which children sequence the past, the present and the future in their conversational narratives. We showed how nine year old children use verb-forms in similar ways to adults to tell anecdotes, and how young children use the imaginary past to perform the present, evoke the past and project the near future. Looking at children's stories in natural peer talk allowed us to trace these functions against the background of two contextual frames—that of non-verbal action, and that of the co-text, and to detect some of the lexical, non-verbal and sequential cues we as researchers can rely on to understand the children's use of language. Only further studies of such corpora, and possibly experimental work on the concepts of time and young children's use of tenses in and out of pretend play, can tell us if indeed we have managed to capture one central aspect of children's modes of meaning-making through conversational storytelling.

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20. PERCEIVING AND PRODUCING THE FROG STORY

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INTRODUCTION

Consider the screen-shot in Figure 1. It is derived from a recording of a computer-based narrative task, using the word-less picture story *Frog where are you?* (Mayer, 1969) as elicitation instrument (see also Berman & Slobin 1994). The screen-shot was taken 2 minutes and 58 seconds into the recording. At that point, the subject, a 23-year old Swedish university student, had just finished writing in relation to the first picture (out of twenty-four) of the story.

How can we get a handle on the processes behind the product in figure 1? How did the flow of writing interact with the distribution of visual attention? These are the main questions addressed in the present paper. Starting from some preliminaries in reading and writing research, we take the step to presenting a methodology and an analysis example from a new research project¹ where computer logging of writing activity is combined with eyetracking to derive a profile of the interaction between picture viewing and writing during the production of a picture-elicited narrative.

SCRIPTLOG: A WINDOW ON WRITING THE FROG STORY

The data underlying the present analysis was collected by means of the computer tool *ScriptLog*. ScriptLog is developed specifically for the purpose of studying the process of online writing (Strömquist & Malmsten, 1998; Strömquist & Karlsson, 2002; see also

¹ “The Dynamics of Perception and Production during Text Writing” (project leaders: Kenneth Holmqvist and Sven Strömquist; sponsored by Vetenskapsrådet, Sweden’s National Research Council).

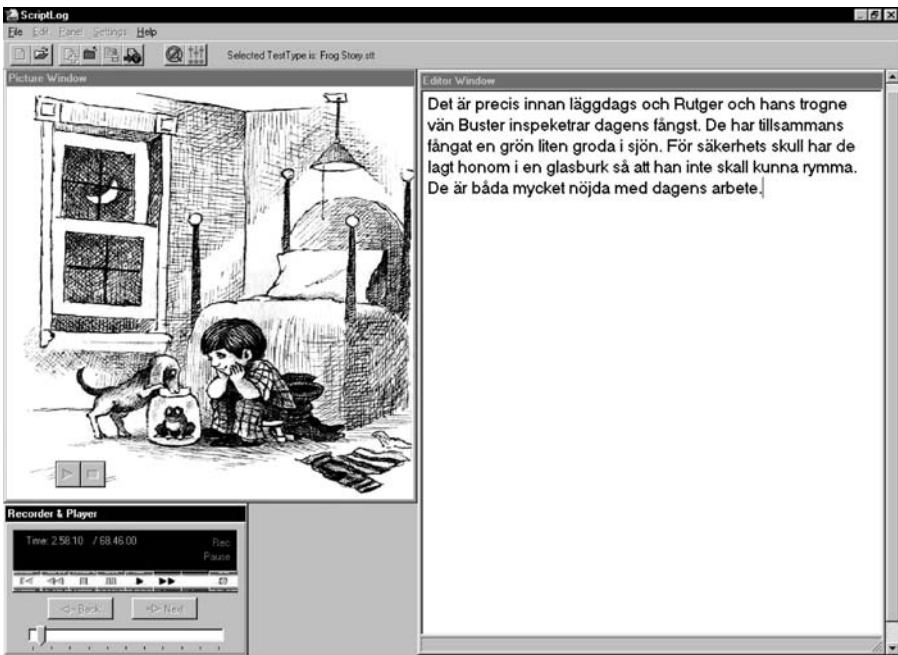


Figure 1. Screen-shot from a writing experiment with a 23-year old Swedish university student. Stimulus picture (upper left), the resulting narrative text fragment in the editor window (right), and the recording panel (bottom left).

www.ScriptLog.net). Scriptlog keeps a record of all events on the keyboard, the screen position of these events and their temporal distribution. From a Scriptlog record, you can derive not only the finally edited text from a writing session, but also the linear text with its temporal patterning, pauses and editing operations. A writing session can also be played back, as is illustrated in the screen-shot in figure 1.

Furhter, ScriptLog allows you to design writing experiments with elicitation stimuli. In the example reported here, the picture booklet “Frog, where are you?” (Mayer, 1969) was administered as such an elicitation stimulus. During the writing task, the subject activates each new picture from the frog story by clicking a button labelled “Next”. The button is in the same location as the floating recording panel in figure 1.

VISUAL ATTENTION FROM PICTURE TO NARRATIVE

Writing a narrative on the basis of a picture stimulus is a complex task. Visual information from the pictures has to be taken in and interpreted for the construction of the narrative (Strömqvist & Day, 1993: 137–141). For example, still pictures must be interpreted as events, and pictorial elements must be translated into linguistic code. The linguistic output must be organised on the level of lexical, grammatical and narrative

structure, and then written down (in our case on a keyboard). The written output (on the screen) must be monitored (and it is indeed often revised). In all of these processes, visual attention plays an important role.

When we look at a picture or text, we move our eyes across the text, but not smoothly as we may intuitively think. Instead, the eye makes a series of short stops interleaved by quick jumps. The stops are called *fixations*, and during a fixation we can see what we look at. The jumps are called *saccades*, and during a saccade, we are blind (cf. the reading pattern in figure 3).

We may think that we are at leisure to look at pictures any way we want to. In fact, there are often elements in a picture that attract more attention than others. *Faces*, and in particular *eyes*, virtually always attract more visual attention than other parts of a picture, since faces are so important to us.

“The observer’s attention is frequently drawn to elements which do not give important information but which, in his opinion, may do so. Often an observer will focus his attention on elements that are unusual in the particular circumstances, unfamiliar, incomprehensible, and so on.” (Yarbus, 1967: 191).

Usually we spend several successive fixations examining an element. These fixations cluster into what is sometimes called an *area of interest*. When we have finished examining an element, we sometimes look for other elements, but often return to the first one.

“(...) when changing its points of fixation, the observer’s eye repeatedly returns to the same elements of the picture. Additional time spent on perception is not used to examine the secondary elements, but to reexamine the most important elements.” (Yarbus, 1967: 193).

Our viewing behaviour is to a large extent determined by the particular task we are faced with. For instance, if we are asked to judge the relation between people in a picture, we will typically look back and forth between the people and their faces (Yarbus, 1967). In a task where we are asked to create a narrative from a stimulus picture, the natural thing to expect is that elements which appear as agents in the narrative or which present cues to the narrative flow will attract most attention.

Holsánová (2001) asked her subjects to describe a picture verbally which they were simultaneously watching (see figure 2). Her data indicate that subjects start by looking at picture-inherent objects, units and gestalts. As their picture viewing progresses, they tend to create mental units that are more independent of the concrete picture elements. They may make large saccades across the whole picture, picking up information from different locations to support concepts which are distributed across the picture (like “spring” or “friend”). With the increasing cognitive involvement, observers and describers tend to return to certain areas, change their perspective and reformulate or recategorise the scene. The dynamics of this categorisation process is reflected in the usage of many refixations in picture viewing and reformulations, paraphrases and modifications in picture description.

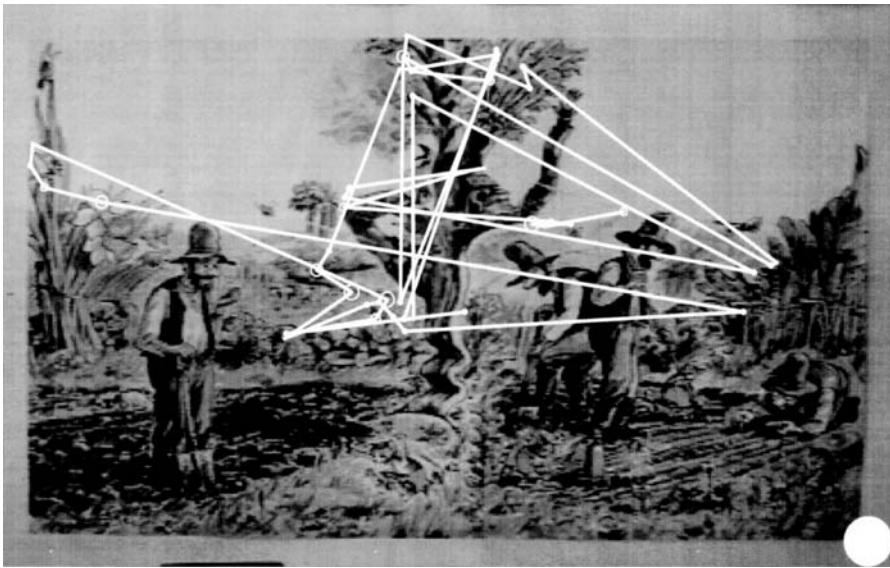


Figure 2. Fixations in a picture made by a subject saying “It looks like in early spring”. Lines represent saccades, and circles fixations. The picture is a motif taken from Nordqvist (1990).

Holsánová found two different styles concerning how speakers described one and the same picture. Attending to spatial relations in the picture was dominant in the more static *technical style*, while attending to the flow of time was the dominant pattern in the more dynamic *narrative style*. In the technical style, the picture in figure 2 was decomposed into fields that were then described systematically, using a variety of terms for spatial relations. In the course of description, informants established an elaborate set of referential frames that were used for localisations. They gave a precise number of picture elements, stated their colour, geometric form and position. Typical of the technical description style was a frequent use of nouns, existential constructions (‘there is’, ‘it is’, ‘it was’), auxiliary verbs and passive voice.

In the narrative style, subjects focused primarily on the dynamic events in the picture. They followed a narrative schema: their description started with an introduction of the main characters, their involvement in various activities, and a description of the scene. This introductory part resembled the first phase of a narrative (Holsánová, 1986; Labov & Waletzky, 1967; Strömquist & Day, 1993). Although there was no temporal or causal order inherent in the picture, speakers explicitly marked that they were talking about steps in a process, about successive phases, about a certain order. The dynamic quality of this style was achieved by a frequent use of temporal verbs, temporal adverbs and motion verbs in active voice. Discourse markers were often used to focus and refocus the picture elements, and to interconnect them.

THE FLOW OF WRITING A NARRATIVE

The flow of writing, as evidenced in a ScriptLog recording, reflects both lower level processes (such as spelling and lexical retrieval) and higher level processes (such as the construction of a background, a story line, a coda) in text production (Wengelin, 2002). With respect to higher level processes, Johansson has shown personal narratives typically to be characterized by long pauses clustering at the beginning and end of the writing session with more extended phases of fluent writing inbetween (Holmqvist et al., 2002; Johansson, in preparation). The fluent middle phases reflect the relative ease of retrieving and formulating the narrative events which make up the central part of the story line, whereas the relatively hesitant initial and final phases reflect the more complicated decisions involved in constructing a background to the story and some kind of punch or moral.

Strömquist et al. (2004) used ScriptLog to study writing development (three age groups: 9–12-year-olds, 15-year-olds and adults) as reflected in keystrokes, pauses and editings across the discourse (24 pictures) of Mayer's *Frog, where are you?* (Mayer, 1969). They found, that, on a group level, the 9–12-year-olds wrote the least, the 15-year-olds a little more, and the adults the most. Further, the profiles indicated group differences in terms of the distribution of writing activity across the discourse. The 9–12-year-olds wrote a lot in the beginning, then less and less and they had a very meagre finish. It is reasonable to interpret this profile as indicative of effort and exhaustion. In contrast, the 15-year-olds showed a much more smooth and balanced profile. Along the same line of interpretation, they seemed to be better able to plan their discourse and to control their expenditure of effort. They also spent a little more on the finish, than the younger children. The adults, finally, described a very dynamic overall profile: they spent a lot of their writing activity in the beginning and at the end of the story and varied themselves inbetween according to the richness and ramifications of the individual pictures.

Further, Strömquist et al. found that the 9–12-year-olds had the largest and the adults the smallest proportion of pauses in relation to amount of writing (as measured by number of key strokes). Many of the 9–12-year-olds made a relatively short planning pause before they started writing in relation to the first picture of the frog story (on average, less than half a minute), the 15-year-olds tended to make longer discourse initial planning pauses (around 1 min), whereas many of the adults made very long planning pauses (on average, more than 2 min).

In terms of editing activity, the amount of editing tended to decrease towards the last third of the story for all three age groups. The last picture/episode constituted an exception in the two older age groups: the 15-year-olds and adults performed a relatively large amount of editing in relation to the last picture. The 9–12-year-olds, in contrast, performed very little editing in relation to the last picture. In terms of relative amounts, the 9–12-year-olds edited 23.3% of the keystrokes they spent on the initial picture, but only 10.1% on the final picture. The great majority of the editings concerned spelling mistakes, and there still remained many spelling errors in the final edited text. The 15-year-olds had a higher and more balanced proportion of editings:

30.6% for the initial and 26.6% for the final picture. Again, the great majority of the editings concerned spelling mistakes, but there remained few errors in the final edited text. The adults tended to have a balanced editing rate, on average 15.5% for the initial and 15.6% for the final picture. The great majority of their editings concerned content structure, and their texts were almost completely error free from the point of view of spelling. Thus, both the amount and nature of the editing operations were subject to developmental change.

In another study (see Aisenman, 1999a, 1999b), ScriptLog recordings of text writing in different genres by school children and university students were analysed. Among other things, the temporal patterns and editing patterns were related to the progression of information in discourse (Strömqvist, 2000). It was found that more extensive editing operations were only initiated in major information boundaries (sentences, paragraphs) in the text. In contrast, longer pauses were distributed both in larger information boundaries and between words within syntactic phrases.

What are the writers doing during the pauses? Are they reading their own text? Are they looking at the pictures? Are they monitoring self corrections or revisions? Information about the writer's eye movements would help us refute some of these hypotheses and tease out what the writer is doing.

THE READING PROCESS

During the production of a written narrative, there is often a reason to read the text produced. When we read, there is a conventionalised order in which we look. Figure 3 shows a young woman reading a short passage of Pippi Longstocking in Swedish. She has already read six lines of text, but when she reads the words "fast jag kom inte ihåg" ("although I do not remember"), the reader herself obviously does not remember who the referent of "I" is. She makes two saccades upwards and one to the left, finding "Tommy", which is the correct referent. She then goes on reading.

**Annika vaknade tidigt nästa morgon. Hon skuttade kvickt ur sängen
och traskade bort till Tommy.**

**- Vakna, Tommy, sa hon och ryckte honom i armen, vakna och låt
oss gå till den skojiga flickan med de stora skona.**

Tommy blev med ens alldeles klarvaken.

**- Jag visste när jag låg och sov att det skulle hända något roligt idag,
fast jag kom inte ihåg vad det var, jag har inte efterfrågat av sig
pyjamasjackan.**

Sen bar det av in i badrummet med dem båda två.

Figure 3. Fixations (circles) and saccades (lines) in a text.

Fixations typically measure from 100 to around 400 ms. Saccades take 20–50 ms to complete. That is, the average adult reader makes 3–5 fixations each second. It is only possible to read text which is at, or very close to, the fixation point, within approximately 2° of visual angle. Due to the uneven distribution of the different photoreceptors on the retina, text further out in the visual field cannot be read without making a saccade to it.

One line of *classical reading studies* focuses on issues such as which words are skipped (typically small, frequent words like ‘the’ and ‘and’), and where inside a word the eye typically lands (typically some 30–40% into the word). Several studies have looked at our ability to use information from words which we have not yet fixated, the so-called preview benefit effect. This line of research is today summarised in the E-Z reader model; for a good overview see Reichle, Rayner, and Pollatsek (2000). Other eye-tracking studies have looked at dyslectic readers (e.g. Rayner, 1978), at speed-reading (Yarbus, 1967) and individual reading strategies (Hyönä et al., 2002). However, the reading process during the production of narratives has not previously been investigated.

PERCEIVING AND PRODUCING THE FROG STORY: AN ANALYSIS EXAMPLE

As mentioned above, one of the output files from a ScriptLog analysis is the *Linear file*, which renders all keyboard and mouse events during the writing session in exactly the order they happened. From a linear file the researcher gets an overview over the progression of the writing production at hand, without having to play-back the ScriptLog recording. An example of a linear file is shown in figure 4. Information about movements, such as using the backspace and delete keys, starting and ending

```
<START><SECTION1><STIMULUS-ONSET><0.12.519>Det är precis innan
läggdags och <0.06.980>Rutger och hans <0.06.810>trogne vän
<0.14.495>Buster<0.07.341> <0.09.760>inspekterar dagens fångst. De har
tillsammans fångat en grön liten groda i dammen.<BACKSPACE7>sjön. För
säkerhetss<BACKSPACE> skull har de lagt honom i en glasburk så att han inte
skall kunna rymma.<0.16.757> De är båda mycket nöjda med dagens arbete.
```

```
<START><SECTION1><STIMULUS-ONSET><0.12.519>It is just
before bedtime and <0.06.980>Rutger and his <0.06.810>faithful friend
<0.14.495>Buster<0.07.341> <0.09.760>are inspecting today's catch.
They have together caught a green little frog in the
pond.<BACKSPACE7>lake. For the sake<BACKSPACE> of security
they have put him in a glass jar so that he won't be able to run
away.<0.16.757> They are both very pleased with today's work.
```

Figure 4. A linear file (ScriptLog) showing writing behaviour in relation to the first picture of the frog story.

the writing session, activating various stimuli, and pausing (shown in minutes, seconds and milliseconds) is indicated with angular brackets. The linear file differs from the final edited text (shown in figure 1), in that the former contains elements that have been deleted from the final edited text. In the linear file, the insertions are thus found in the order in which they were produced during the writing session. The Swedish linear text is followed by a facsimile in English.

The first item in the linear file shown in figure 4 is “<START>” which indicates that the subject pressed the start button to activate the editor window and the first stimulus picture. “<SECTION1>”, then, indicates that the first elicitation picture was loaded and “<STIMULUS-ONSET>” that it was displayed on the screen. Pauses are indicated within angular brackets.

From a ScriptLog recording we can further obtain information about deletions, revisions and pausing time during a writing session. In the linear file in figure 4, only pauses longer than 5 seconds are shown. Deletions are indicated by “<BACKSPACE>”. In the first instance, “<BACKSPACE7>” the writer performs a lexical replacement. She strikes backspace seven times to delete the word *dammen* (‘pond’) and a period, and then she writes the word *sjön* (‘lake’) and a period. In the second instance, “<BACKSPACE>”, the writer corrects a spelling/writing mistake by deleting an *s* in *säkerhets* (‘security’s’). She replaces the *s* with a space and then writes *skull* (‘sake’). In the final edited text, one spelling mistake remains uncorrected: the word *inspektrar* (should be *inspekterar* ‘inspect’).

Further, we see that the writer had seven pauses longer than 5 seconds. The first pause of 12.5 seconds occurs in the beginning of the text. One can hypothesise that she looks at the picture, planning what to write next. Two of the pauses precede the naming of two story characters (the boy *Rutger* and the dog *Buster*), probably reflecting the writer’s effort trying to find suitable names for these characters. One pause precedes the noun phrase *trogne vän (Buster)* (‘faithful friend (Buster)’), and two consecutive pauses precede the verb phrase *inspekterar dagens fångst* (‘are inspecting today’s catch’). In both of these cases we assume that the pauses occur for planning reasons, such as composing the adjective phrases, selecting the appropriate verb (*inspektera*) etc. The longest pause (16.7 seconds) occurs in the sentence boundary before the last sentence. During that pause, the subject is probably reading through what she has written so far, in order to see if something is missing, or to get new ideas on how to continue the story. Before moving on to the next picture, she writes a final sentence, summing up and evaluating: *De är båda mycket nöjda med dagens arbete* (‘They are both very pleased with today’s work’).

Our detailed analysis example of visual behaviour and writing behaviour focuses on the first 90 seconds of the frog story narration. On the basis of eye-tracking and ScriptLog data, we have created a temporally ordered multimodal score-sheet (defined in Holsánová, 2001) which shows the visual behaviour and writing behaviour synchronised over time. Figure 5 shows the score-sheet for those first 90 seconds.

In figure 5, the time line is projected downwards from the top to the bottom of the page. Objects present on the screen in the original writing condition (see figure 1) are represented as columns in the score-sheet. The rightmost column represents the

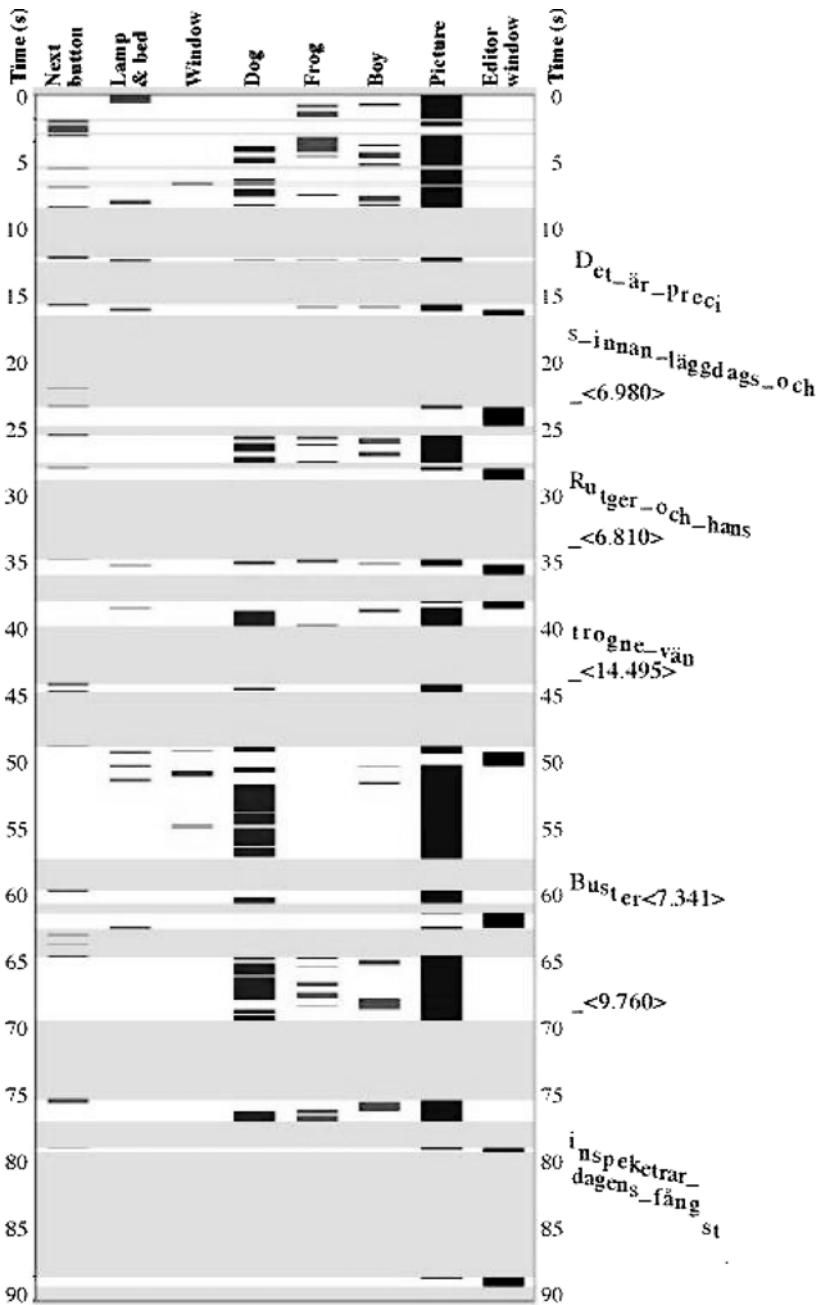


Figure 5. A multimodal score sheet representation of visual behaviour and writing behaviour during the first 90 seconds of a frog story narration.

editor window and the second column from the right represents the picture (depicting the boy and his dog watching the frog). Then, in the order from right to left, follow columns representing details (sub-areas) of the picture: the boy, the frog, the dog, the window in the room, the lamp and bed. The left-most column in figure 5, finally, represents the “Next” button (floating panel). When the subject is looking at a given object/sub-area of the screen for a certain period of time, this is indicated through a corresponding shading/blackening along the time line in the column representing the object/sub-area in question. For example, during the first few seconds, the subject is first looking at the lamp and bed in the stimulus picture, then at the frog and the boy, and then at the “Next” button. With the exception of the “Next” button, the viewing of these different objects are conflated in the Picture column. A grey stripe across all columns indicates that the subject is looking in another direction than that of the screen (for example, at the keyboard, when typing).

To the right of the picture, a layer with the writer’s emerging text is added. Each letter has been placed at a height that indicates the point in time when it was typed. In effect, the decline of the row of letters mirrors the speed of writing: the decline is small when typing is fast and increases as typing gets slower. Consider, as an extreme case in point, the steep decline between *preci* and *s* as the subject writes the word *precis* (‘just/precisely’), making a 2 second pause before the *s* at the end of the word. Pauses in writing which are longer than 5 seconds are marked with angular brackets.

From the temporally aligned eye-tracking and writing data in figure 5, several patterns can be deduced and interpretations suggested. Thus, during the 12.5 seconds pause preceding the first keystroke of the writing activity, the eye-tracking data shows that the writer is looking at the picture. For the greater part of this time, she is looking back and forth between the three agents: the dog, the frog and the boy. This can be interpreted as time spent forming the first ideas for the narrative.

Further, typing activity in the subject always coincides with grey stripes across the columns in figure 5, indicating that the subject is consistently looking at the keyboard when writing. When she redirects her visual attention to the screen, she very often looks directly at the text in the editor window (see rightmost column in figure 5). We interpret these latter fixations as indicative of a need for visual feedback in the writing process.

The naming of the story characters is associated with very long pauses. During the almost 7 seconds long pause around 20 seconds into the writing activity, the writer first looks at the editor window, reading the text she has produced so far. She then alternates between looking at the boy and the dog, before she looks back at the editor window and types a name referring to the boy, *Rutger*, together with the beginning of the noun phrase *och hans* (‘and his’). Then there follows a 6.8 seconds long pause, during which the subject divides her visual attention between first the dog, the boy and the frog, then the editor window, the keyboard, the editor window again, and ends with a long look at the dog. After the pause, she types the noun phrase *trogne vän* (‘faithful friend’). In relation to both of these pauses the visual data indicates that she is searching the picture for information which might help her formulate the name and the descriptions.

The naming of the dog seems to be an even more effortful procedure. The writer spends the better part of an almost 14.5 seconds long typing pause looking at the dog. It is possible that the image of the dog helped her finding a suitable name, but it is more likely that the persistent looking at the dog helped her focus on the task of finding a name. After the pause, the subject types the name *Buster*. After *Buster*, the subject makes two consecutive pauses (7 and 9 seconds, respectively). She spends them looking back and forth between the dog, the frog and the boy, except for an almost 5 second long look down at the keyboard. Maybe she is looking down in order to start typing, but then changes her mind and decides to take a second look at the picture first. Again, this second look, around 75 seconds into the writing session, is directed towards the three main characters of the narrative. The subject then types *inspeketrar dagens fångst* ('inspecting today's catch'). Two very short glimpses at the text in the editor window are interleaved with this typing activity.

RESEARCH DIRECTIONS

The behavioural flow of writing revealed by ScriptLog methodology takes the analyst closer to the processes brought to play when a text is being produced. When eyetracking data is added, an enhanced picture of attentional processes during writing emerges. The combination of computer logged writing with eyetracking offers a window on the dynamic interplay between perception and production during text-writing.

Many questions and research problems remain to be solved, before a more fullfledged picture of textwriting emerges from our budding paradigm. In our further research, the subactivity of text revision will receive a special focus, since this is an activity which necessitates an interaction between reading and writing. It therefore provides a particularly fortuitous window on the dynamic interplay between perception and production during textwriting. Further, extensive empirical research needs to be carried out, in order to determine developmental patterns and patterns characteristic of writers with reading and writing problems. We believe that, once these patterns are mapped out, the analysis of textwriting online has an important role to play for the enhancement of tests and diagnostic procedures, of language pedagogy and computer based writing support tailored to users with different needs and different abilities (c.f. Ahlsén & Strömquist, 1999).

For example, in the European project COST A8 "Cross-linguistic studies of discourse level writing in dyslexics" (see, e.g., Olofsson & Strömquist, 1998), we analysed ScriptLog recordings of adult dyslexics and groups of adult controls across English, Finnish and Swedish. It was found, among other things, that the dyslexics had a lower production rate and made more spelling and interpunctuation errors than the controls (Erskine, 1999; Wengelin & Strömquist, 2000; Wengelin, 2002). Wengelin and Strömquist (2000) also found the dyslexics to have a larger proportion of both editings and pauses within words as compared to the controls. Further, Wengelin and Strömquist found that the dyslexics tended to make longer pauses before terminating a sentence with a major delimiter as compared to when they were about to start a new sentence. The reverse was true of the controls. Wengelin and Strömquist suggest

that the longer sentence final pauses in the dyslexics are indicative of a more effortful monitoring of the sentence (reading and checking the sentence before turning to the production of the subsequent sentence). An experiment which combined ScriptLog with eyetracking would make it possible to test this hypothesis.

In another project, directed by Ruth Berman, "Developing literacy in different contexts and in different languages" (see Aisenman 1999a, 1999b), ScriptLog recordings of text writing in different genres by school children and university students were analysed. In a case study, the temporal patterns and editing patterns were related to the progression of information in discourse (Strömquist, 2000). It was found that more extensive editing operations were only initiated in major information boundaries (sentences, paragraphs) in the text. In contrast, longer pauses were distributed in larger information boundaries as well as between words within syntactic phrases. Here, information about the writer's eye movements would help us tease out what the writer is doing in the pauses in these different linguistic contexts. Are the long pauses in major information boundaries associated with a cognitive focus shift, for example, from writing a sentence to (re)reading an earlier part of the text so far produced, whereas pauses in an initiated but not yet completed sentence tend to be associated with visual information search of a kind which does not compete with the focus on the not yet completed linguistic structure? Our analysis of the passage in Figure 5 provides evidence in this direction.

Many pedagogical applications presuppose an awareness on the part of the student/writer. To what extent are writers consciously aware of the decisions they are making online as they are constructing and reconstructing their texts? An offline method for tapping such information from writers is the so called Think Aloud Protocol (see, for example, Bereiter & Scardamalia, 1987; Hayes & Flower, 1980). A disadvantage with this method is that the protocol intervention inevitably disturbs the production process (Janssen, van Waes, & van den Bergh, 1996). A post-writing debriefing interview supported by playback of a ScriptLog recording may prove to be a way around that problem.

Another line of research relates to our growing archive of ScriptLog recordings of writing activity. To date, we have some 2000 recordings from 10 different languages and from writers of different abilities. The archive has already been used as a resource for the construction of a probabilistic tool for spelling support for dyslexic writers. In the near future, the archive will also serve as a testing ground for new types of crosslinguistic research questions. For example, do certain sequences of letters or certain grammatical constructions tend to be written faster or monitored more carefully in certain linguistic communities than in others? Again, we believe that the answer to this kind of questions can have important implications for applied areas, such as translation or second language learning.

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21. NARRATIVES IN CHILDREN WITH WILLIAMS SYNDROME: A CROSS LINGUISTIC PERSPECTIVE

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INTRODUCTION

Over the last years there have been long chats and delicious meals in Ruth's company. The conversations ranged across books, family, culture, and cooking, but always included discussions on the nature of language and its development. Ruth's insights invariably struck a resonant chord. Our contribution to this festschrift is intimately tied to Ruth's encouragement and guidance in cross-linguistic narrative studies and our fascination with the interplay of affect and language. In this chapter, we use narratives to explore the intersection of these two communicative systems, language and affect in a special group, children and adolescents with Williams Syndrome, who have grown up in three different linguistic communities: American English, French and Italian.

WILLIAMS SYNDROME

Williams Syndrome (WS) is a rare genetically based disorder characterized by a distinctive medical, psychological, neuropsychological and neuroanatomical profile which are due to a deletion of one copy of about 20 genes on chromosome 7 including Elastin, Lim1kinase, Syntaxin1a among others (Ewart et al., 1993; Frangiskakis et al., 1993; Botta et al., 1999; Korenberg et al., 2000, 2003). One of the most striking aspects of individuals with WS is the distinctive cognitive profile they present. Moderately retarded, with IQs mostly in the 50–70 range, their clear deficits in visuo-spatial,

planning and numerical/arithmetic abilities stand in contrast to their relatively spared linguistic abilities, extreme sociability and positive affect (Bellugi, Lichtenberger, Jones et al., 2000; Vicari, Bellucci, Carlesimo, 2001; Doyle, Bellugi & Korenberg, 2002; Jones, Bellugi, Lai et al., 2000; Atkinson, Shirley, Braddick et al., 2001; Vicari, Caselli, Gagliardi et al., 2002; Gianotti & Vicari, 1999). Relying on these two communicative systems, language and affect, individuals with WS are known to charm, flatter and socialize with any available adult. The goal of the present paper is to look at the interface of these systems in this unusual population by examining narratives from children with Williams Syndrome in three different linguistic environments: American English, French and Italian.

NARRATIVES

Labov and Waletzky (1967/1997) first introduced the notion that narratives included both referential and evaluative functions. From their perspective, the *referential* aspect includes information about the characters and events; it is what moves the story forward, i.e. the plot. In contrast, the *evaluative* aspect of narratives gives sense to the story, ‘the evaluation of a narrative is defined by us as that part of the narrative which reveals the attitude of the narrator towards the narrative by emphasizing the relative importance of some narrative units as compared to others’ (1967, p. 37). Whereas Labov and Waletzky initially focused on evaluative clauses and noted semantically defined evaluation, Peterson and McCabe (1983) noticed that children sprinkled evaluative devices throughout clauses employing both lexical and phonological means. Thus, evaluative information can be conveyed or packaged in several ways; syntactically, as in relative clauses, for example, which commonly function as asides to comment on a person’s behavior or character (*you know, that one who will do anything to win*); lexically, for example, by using intensifiers, modals or hedges (*No, he wouldn’t really do that, would he?*) to reflect speaker attitude and para-linguistically, by emotional facial expression, gesture and affective prosody which can effectively convey narrator attitude, or reflect the inferred emotions of a character. Since the seminal article of Labov and Waletzky in 1967, researchers have considered aspects of evaluation in adult discourse and texts (e.g., Labov, 1984; Biber & Finnigan, 1989) and from a developmental perspective (e.g., Peterson & McCabe, 1983; Reilly, Klima, & Bellugi, 1990; Bamberg & Damrad-Frye, 1991; Reilly, 1992; Berman & Reilly, 1995; Berman, 1993, 1997; Losh, Bellugi, Reilly et al., 2000); and the topic has been extensively revisited in the recent tribute to Labov that appeared in 1997 (special issue edited by Bamberg, 1997). From this perspective, narratives, especially the use of evaluation, present an opportunity to investigate the intersection of language, sociability and affect which are apparent strengths of children and adolescents with Williams Syndrome. The issue that we address today is the degree to which this quality, noted in American studies, is evident in other cultures and linguistic environments, that is, how pervasive is the use of evaluative language in Williams Syndrome despite major differences in languages and cultures?

THE DATA

In all three countries, children with Williams Syndrome and their typically developing (TD) peers were presented with the 24-page wordless picture book: *Frog, where are you?* (Mayer, 1969) and asked to tell the story to the experimenter. The story book is about a boy and his dog and their search for a missing pet frog. Because it contains no words and provides a rich context for language production, this picture book has been used extensively in cross-linguistic work (Berman & Slobin, 1994) and across typically and atypically developing populations (e.g., Reilly et al., 2004; Losh et al., 2000). In the United States, data were collected as part of larger projects at the Project in Cognitive and Neural Development at the University of California, San Diego and The Salk Institute for Biological Studies in San Diego; in Italy, the data were gathered in collaboration with the Ospedale Bambino Gesù in Santa Marinella (Rome); and in France, in children's homes through the Williams Family Associations and the Laboratoire, Langage et Cognition (LaCo, Université de Poitiers-CNRS).

Narratives in English from children with WS

In our past studies we have looked at the narratives of children and adolescents with WS in English (Losh et al., 2000, Reilly et al., 1990, Reilly et al., 2004, Kreiter et al., to appear), and the developmental profile that emerges is one of prolific talkers; with a somewhat delayed, but continuing mastery of English morphology and syntax in the face of more impoverished narrative structure (Losh et al., 2000; Reilly et al., 2004). For example, data from 35 children with WS (ages 4–12) and 70 chronologically age matched typically developing children is shown below. Using the coding scheme adapted from Reilly, Bates, and Marchman (1998), Figure 1 compares story length between children with WS and their TD control group whereas Figure 2 demonstrates that children with Williams syndrome make significantly more morphological errors than their typically developing age peers.

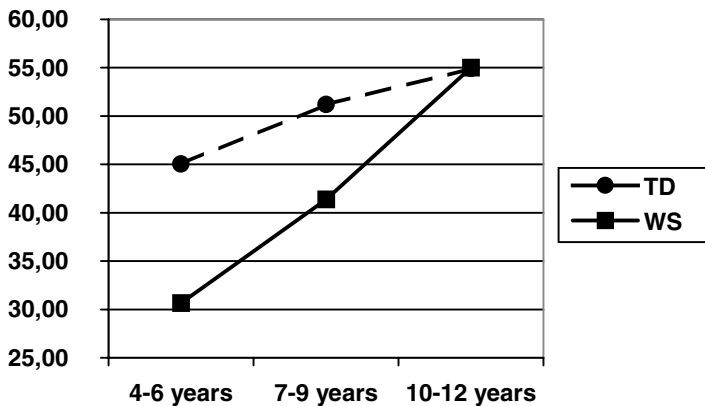


Figure 1. American group: Story Length: number of propositions.

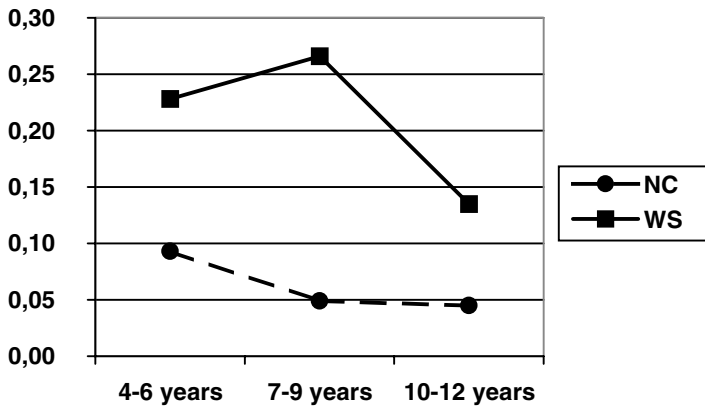


Figure 2. American group: Proportion of morphological errors.

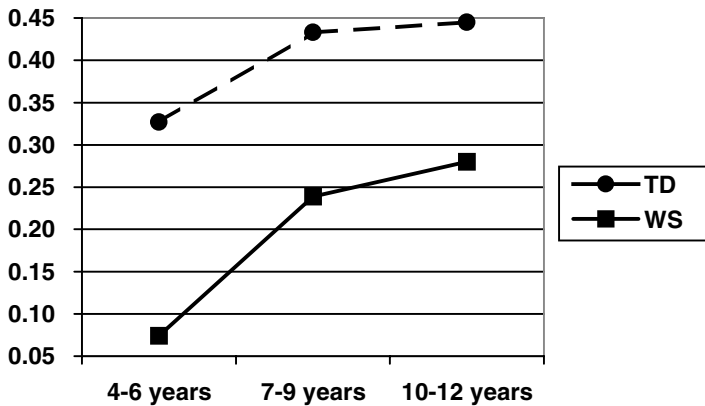


Figure 3. American group: Frequency of complex sentences.

An additional measure of language development is the use of complex sentences. Here in Figure 3 we show the frequency of complex sentences with respect to the number of propositions in the overall story. Similar to the typically developing children, these same children with WS increase their use of complex syntax with age, but the WS group progresses significantly more slowly than the control group.

However, in contrast to this developmental lag vis-à-vis the acquisition and use of morphosyntax, one of the most striking aspects of narratives told by WS children is the frequent and pervasive use of what we have termed social evaluation. That is, evaluative devices designed to engage and maintain the listener's attention, such as

Table 1. Examples of social evaluation from English speaking children with Williams SyndromeINTENSIFIERS

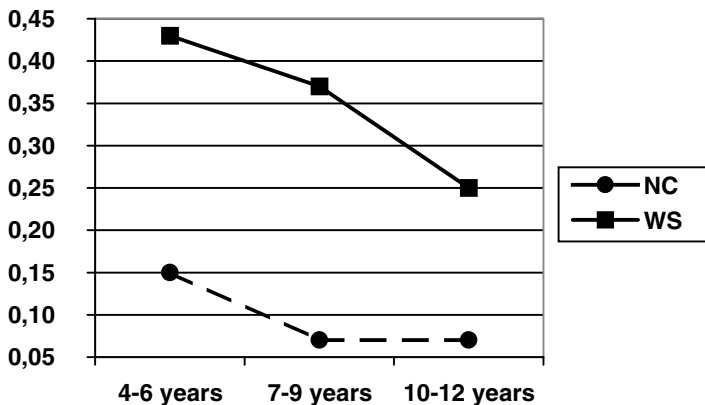
- while the boy and the dog are sound asleep
- suddenly the dog was falling, falling down down on the ground
- and the boy searched and searched and searched

AUDIENCE HOOKERS

- gadzooks!
- what do you know? The frog family!
- and lo and behold. Some frogs came out of the bushes
- The boy and the dog fall down into the swamp, and they almost drowned!
- But, phew! (signalling relief), it was just a little bit swampy

CHARACTER SPEECH

- he said “goodbye” and so did the frogs, “ribbet”
- the boy went “shh, I’ll look over this whole log and see if I can find my frog”
- he looked, and he said “wow, look at these, a female and a male frogs and also lots of baby frogs”

**Figure 4.** American group: Proportion of social evaluation per proposition.

the use of character voice, intensifiers and what we have called ‘audience hookers,’ e.g., exclamations, sound effects and rhetorical questions. Examples from stories from children with Williams Syndrome are shown in Table 1.

As can be seen in Figure 4, the WS group recruits these social evaluative devices significantly more frequently than their typically developing peers.

Morphosyntactic development in this group is quite variable, with some children in the normal range and others significantly below (Losh et al., 2001; Reilly et al., 2004), however the use of social evaluation in their narratives is significantly higher than controls for every single subject that we have studied (Losh et al., 2000; Reilly et al., 2004). This social-linguistic profile appears to reflect a particular aspect of the social nature of individuals with Williams Syndrome. One characterization of this

tendency, gleaned from a number of studies, is that individuals with Williams have an appetitive drive for approaching strangers (Jones et al., 2000; Bellugi et al., 1999). Aspects of this unusual sociability are apparent as early as infancy in children with Williams syndrome, for example, babies with WS appear to be fascinated with others' faces, often preferring to gaze at the experimenter rather than play with toys. But our studies were conducted in only one cultural setting, and thus raise the question: how pervasive is this profile of exuberant sociability? Will our findings generalize to children with Williams Syndrome who are raised in other cultural environments? Is hypersociability a hallmark of this genetically based syndrome?

Narratives in Italian from children with WS

Our second group of children are Italians, 17 children with WS (ages 10–16) and their mental age matched typically developing peers. Italian has been categorized as 'high-gesture' (Kendon, 1995), that is, a culture that frequently recruits gesture in their social interactions, and in addition to syntactic, lexical, and paralinguistic means, Italian also signals evaluative and affective distinctions morphologically with suffixes conveying 'little' 'intensely' or 'nasty'. For example, a boy is *un ragazzo*, a nasty boy is *un ragazzaccio*, a little boy is *un ragazzino* and a nasty little boy is *un ragazzinaccio*. To give a taste of the nature of children's use of social evaluation in Italian, Table 2 includes some examples from the frog stories of the Italian children with Williams Syndrome.

Table 2. Evaluation in stories from Italian children with WS

Allora c'era una volta un bambino che vedeva la ranocchietta e il cagnolino, che lo stava guardando . . .
<i>Then once upon a time there was a boy who saw the little pretty frog and the little dog, who was looking at him . . .</i>
mamma! Un castoro gli ha, che le mordicchia e gli dà bacino.
<i>Mom! A beaver has him . . ., who bites her and gives her a little kiss</i>
Trovano un piccolino.
<i>They found a little bitty one.</i>
Oddio (tono allarmato), a un certo punto il cane salto e rompe il barattolo.
<i>Oh, my God! (anxious tone), suddenly the dog jumped (past) and break (present) the jar</i>
Tutti le rane vogliono andare nel mare.
<i>All (masculine) the frogs (feminine) want to go in the see</i>
Questo rana simpatiche!
<i>This (masculine) nice (plural) frog (feminine, singular)</i>
Perché c'erano molti arrabbiati.
<i>Because there was many (who were) angry</i>
Qui vedono finalmente la rana.
<i>Here they see, at last, the frog</i>
Il bambino chiama la rana continuamente.
<i>The boy calls continuously the frog</i>
Si stava quasi addormentando.
<i>He was nearly falling asleep</i>
Evviva le abbiamo trovate.
<i>Hooray! we found them!</i>
E poi c'è il gufo che sta così triste.
<i>And then there is the owl that is so sad</i>

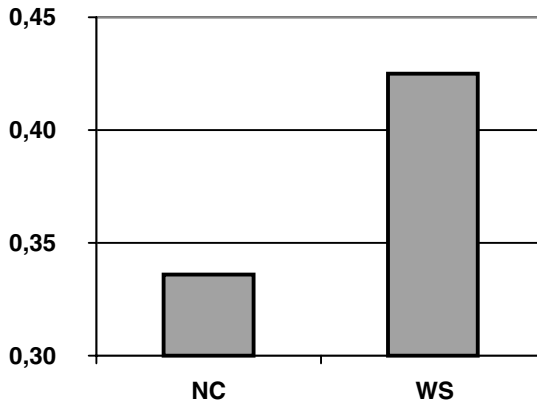


Figure 5. Italian group: Proportion of social evaluation per proposition.

Table 3. Evaluation in stories from French children with WS

Tiens!
 Hey!
 regarde!
 Look!
 le garçon dit “mince le bocal va être cassé”
 The boy said, “oh no! the jar is broken”

Given the richness of forms in Italian and the frequency of gesture, one might ask if the use of social evaluation or affective language in Italian children with Williams Syndrome is very similar to that of typically developing children, that is, whether all the Italian children rely heavily on social evaluation.

As we might have predicted, the Italian children and adolescents with WS show the same proclivity to use social evaluative devices (see Figure 5) in their stories as did the American group with WS. Perhaps, more surprising, however, this was not the case for the group of typically developing Italian children who look more like their American counterparts. In both cultural environments, the children with Williams Syndrome far outstripped their typically developing peers in the use of affective language.

Narratives in French from children with WS

Our third group is seven children and adolescents (ages 6–17) with Williams Syndrome and their chronological age matched typically developing peers who are growing up in France. As a comparison to the English and Italian data, several examples of social evaluative devices from the French stories are shown in Table 3.

When we look at the use of evaluation in the French group, (Bernicot et al., 2002), we find that the WS group uses significantly more social evaluation than the control

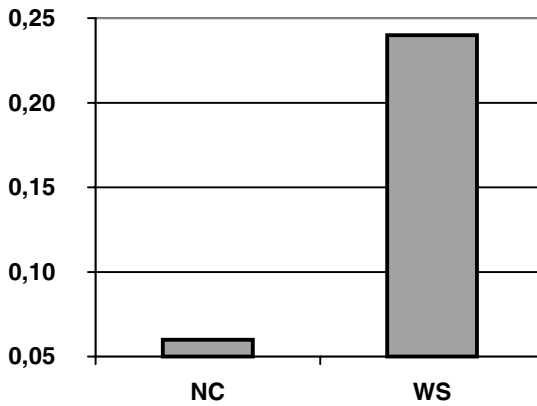


Figure 6. French group: Proportion of social evaluation devices per proposition.

group (see Figure 6). These findings for French are in line with those from English and Italian. That is, similar to the American and Italian children with Williams, the French children with WS also use significantly more social evaluation than their typically developing peers.

Thus, when we look across the three groups of children and adolescents with Williams, all are significantly more socially expressive than their own control group. Nonetheless, as seen in Figure 7, the French children with Williams use less evaluation overall than the American group who in turn uses less overall than their Italian counterparts.

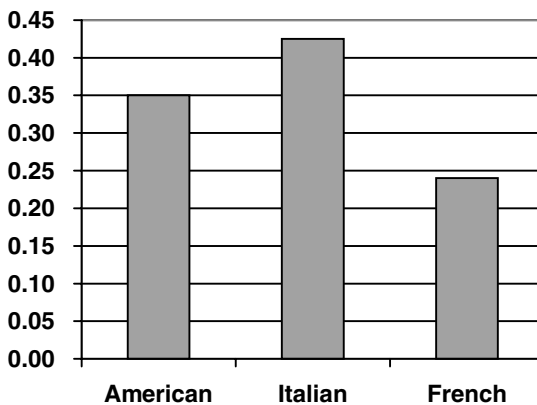


Figure 7. Proportion of social evaluation in stories from American, Italian and French children and adolescents with Williams Syndrome.

These comparative results suggest that in spite of the clear propensity of individuals with WS to recruit high levels of social evaluation, the nature of the culture and the cultural conventions for demonstrating sociability and conveying emotion are influential in how the ‘hypersociability’ of children and adolescents with Williams Syndrome will be expressed.

SUMMARY

In this short chapter we have used narratives as a context to explore the intersection of affect and language in children and adolescents with Williams Syndrome to better understand the phenotype and how cultural conventions might modulate its expression. It appears that in spite of the culture, and in spite of the resources of the language, or lack thereof, children and adolescents with Williams Syndrome are characterized by their frequent and extensive use of social evaluation in their stories. Given this persistent profile across different cultures and languages, this atypically expressive use of language in narratives may well be a ‘marker’ of the WS phenotype; it is also intriguing with respect to the contribution of genes to neural systems underlying social behavior (Doyle et al., 2004). However, it is also clear, that the form and intensity of Williams’ social behavior is influenced by the individual culture’s display rules and social conventions for expressing sociability. And so once again, narratives have proven to be a productive tool to discover more about language development and language use; the stories have also provided us with new insight into the phenotype of Williams Syndrome.

ACKNOWLEDGEMENTS

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**LATER LANGUAGE AND LITERACY DEVELOPMENT IN THE
CONTEXT OF EXPOSITORY TEXTS**

22. LOGICAL CONNECTORS IN HEBREW: HOW WELL DO EIGHTH-GRADERS MASTER THEM?

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INTRODUCTION

Research to date has shown that logical connectors play a significant role in enhancing reading comprehension of any text, particularly expository type texts (Geva & Ryan, 1985; Goldman & Murray, 1992; Sanders, Spoooren, & Noordman, 1992; Horning, 1993; Storey, 1997). Yet, many studies have indicated that mastery of the functions such logical connectors fulfill is by no means an easy task. In fact high-school students and even college students exhibit incomplete knowledge of logical connectors in their mother tongue and mastery may be acquired only at the more advanced stages of college education (McClure & Geva, 1983; Nippold, 1988; Burstein, 1996).

Based on the research which claims that mastery of logical connectors is closely related to effective reading comprehension, two important findings seem to stand out: a) a text which makes use of explicit logical connectors can be understood more easily since it simplifies the process of inference (Nippold, 1988; Sanders, Spooran, & Noordman, 1992); and b) when readers are directed to focus on logical connectors in the text, they become more efficient readers (Storey, 1997; Goldman & Murray, 1992; Sarel, 1991, Gevan & Ryan, 1985).

Logical connectors are one important type of cohesive devices, which typically play a central role in expository type texts. As Celce-Murcia and Larsen-Freeman (1999) indicate “(these are) lexical expressions that may add little or no propositional content by themselves but that serve to specify the relationships among sentences in oral or written discourse, thereby leading the listener/reader to the feeling that the

sentences ‘hang together’ or make sense” (p. 519). These cohesive, logical connectors guide readers of expository texts to reach certain interpretations while reading. These interpretations could be often deduced without the connectors, but the likelihood of the expected interpretation is greatly strengthened by their explicit use.

Logical connectors help indicate, in an explicit manner, that two or more propositions in the text are related to one another. In expository texts such relations can be contrast, concession, condition, causality, etc. In this article we shall focus on some aspects of condition and causality.

LOGICAL CONNECTORS AND READING COMPREHENSION

Good readers have been found to have greater awareness of the *internal consistency* of texts than poorer readers (Irwin, 1986; Bauman & Stevenson, 1986; Baker, 1985; Kluvers & De-Jong, 1994). Furthermore, good readers are sensitive to inconsistencies in texts while poor readers do not recognize such inconsistencies and often lack the ability to see the connection among ideas within the text.

Awareness of the internal consistency of the text helps readers see the connections among the propositions within the text. Particularly when readers lack prior knowledge in the content area related to the text, they need to use compensation strategies based on linguistic and textual features of the text. Awareness of logical connectors and mastery of their cohesive function can greatly facilitate the processing of an expository text.

The literature based on text analysis and its relation to reading comprehension presents a number of major assumptions, which might enhance our understanding of how to improve the reader’s processing of texts. Some of these assumptions relate to the *explicit use* of logical connectors in expository texts:

- a. **Logical connectors indicate the relationship existing among the sentences within a given text and thus lessen the need for complex cognitive processing.** When a text does not make explicit use of logical connectors (cohesion and coherence are obtained through other semantic, pragmatic and grammatical devices) the reader is required to employ higher levels of cognitive operations in order to infer the content. It is easier for the reader to interpret a text, which employs explicit logical connectors (Tobin & Aphek, 1985; Nippold, 1988). Furthermore, when the connectives are not explicit, readers might interpret a text differently from the intended message, which the writer had in mind (Horning, 1993).
- b. **Logical connectors facilitate the prediction process while reading.** When readers have a good knowledge of the logical connectors used in a text, they can use this knowledge in order to predict the manner in which the text might progress (Sarel, 1991). Thus, anything that follows the connector *because* can be expected to present a *reason*. The reader who is aware of the function of the connectors, can develop a set of prediction strategies within the text, which will enable him/her to perceive the logical structure of the sentence, the paragraph or even the whole text.

- c. **Logical connectors guide the reader to move forward or backward within the text in order to make logical inferences.** Some connectors are cataphoric in their reference and they send the reader forward to the next section of the text while processing and interpreting the message, such as: *because, in addition to, in spite of, etc.* Such processing is known as “forward inferences”. Other connectors are anaphoric in nature since they require the reader to focus on what came earlier in the text, such as: *as a result, consequently, hence, etc.* This type of processing is referred to as “backward inferences” (Van Den Broek, Fletcher, & Risden, 1993). Awareness of logical connectors, therefore, guides the reader in moving back and forth within the text, while trying to understand the logical structure and the content of the text. It is the explicit use of logical connectors that can facilitate the reader’s effective interpretation of the text.
- d. **Logical connectors help readers develop local and global interpretation strategies.** Interclausal connectors create local connections while intersentential ones indicate relations across sentences and even paragraphs (Van Dijk, 1977). Readers who are aware of such functions will be better text interpreters and will be able to derive the general idea of the text more effectively. The ability to see “the global picture” is particularly important for efficient readers, and often it is such global connections that enhance comprehension. Poorer readers are the ones who have difficulty perceiving global connections and their integrative comprehension is often affected by it (Irwin, 1991; Singer, 1993).

The above assumptions relating knowledge of logical connectors to reading comprehension, led us to investigate levels of mastery of this discourse feature among Hebrew speaking students, in their mother tongue.

FEATURES OF LOGICAL CONNECTORS IN HEBREW

Logical connectors in Hebrew, as in any other language, are acquired and mastered by readers as part of their literacy development in the mother tongue. The basic and more frequent connectors are acquired early in this development, such as *but* ‘aval’ or *also* ‘gam’. Others are encountered only when exposed to a variety of expository written texts and are mastered much later, if at all.

Hebrew logical connectors present a number of particularly complex features, which require considerable exposure and practice before true mastery can be achieved. The following are some of these features:

1. Many logical connectors in Hebrew have comparable, yet different variants in low and high register use such as: *because*, which can be *ki* or *mipney* in low register and *mipeat* in high register, or *although*, which is *lamrot* in both high and low register but *xeref* in high register only. The abundance of such connectors and the differences in register use, make the mastery of such forms more difficult (Burstein, 1996).
2. Some of the logical connectors in Hebrew are not semantically transparent, which makes their function more obscure, such as *mexamat* ‘due to’ or *ilmale* (if not for).

These connectors also happen to be typical of high register and even advanced students at the university may have difficulty understanding or using such forms. Yet, many of the instructional texts used in junior high school contain such logical connectors and many of the students reading them do not truly understand the internal structure of the texts. (Olshtain & Cohen, 2000)

3. Some logical connectors have a polysemic structure and are made up of two or three words together such as *ela im ken* 'only if' or *yetera mi zu* 'additionally'. The individual words seem to retain their original use yet the new multi-lexical form has a new function (Alon & Goldenberg, 1998). Such constructions often confuse students, even at higher levels (Olshtain & Cohen, 2000).
4. The morpho-phonological structure of some complex connectors results in the fact that a particle belonging to the connector becomes the first element of the following noun phrase or clause: *bedome le* (NP) 'similarly to'; or *mikeivan she* (clause – as sentential complementizer) 'because'. Some single connectors have one meaning when they appear on their own and a different meaning when a complementizer of the following clause is attached. For example, *ela* is a contrasting connector like 'but' in English while *ela she* is a concessive connector such as 'yes, but', as described in Azar (1985).

It is this complexity of form and the large number of logical connectors existing in Hebrew that led us to investigate the level of mastery exhibited by junior high-school students in this area.

THE STUDY

The main aim of the study reported here was to investigate the relation between mastery of logical connectors in Hebrew (the mother tongue) and success in reading comprehension. In order to assess this mastery, we designed a number of tasks. The tasks were intended to enable us to investigate the depth of the semantic and pragmatic knowledge of a selected number of logical connectors in order to answer the following underlying questions:

- a) How well do eighth graders master logical connectors in their mother tongue?
- b) Can knowledge of connectors predict success in reading comprehension?

The target population of this study were 391 eighth graders in three different schools in Israel. All participants were given a series of tasks in order to assess their mastery of logical connectors. Additionally, they were given a series of literacy tests which included a reading comprehension test, a cognitive academic proficiency test (Berman & Kemp, 1986), a sentence ordering task and a summary writing activity. These literacy tests rendered three levels of readers: successful, average and poor. This grouping exhibited a normal curve with poor readers falling between 0–31.3, average readers between 34.3–48.5 and strong readers between 51.5–85 (85 was the maximum score).

The tasks designed to assess knowledge of logical connectors

The tasks had to be designed so as to tap the unique features of connectors in Hebrew, which might affect mastery such as: degree of semantic transparency, polysemic meaning, register, and semantic versus pragmatic types. Four different tasks, falling into two major types, were used for the data collection in this study. Knowledge of the **semantic features** of the connector was tested via (1) a matching task asking respondents to match a connector (without context) to a potential paraphrase or synonym; and (2) a labeling and classification task which required respondents to group connectors according to their function such as: addition, contrast, causality, etc. Knowledge of **pragmatic and contextual use** was tested via (3) a sentence completion task where students were given sentences with a missing connector and a choice of two possible completions; and (4) creating meaningful sentences with a number of given connectors.

The matching task – tested the students’ knowledge of the semantic features of the connectors. The respondents were expected to create matching pairs of connectors, which are similar or close in meaning, such as: at the moment – for the time being (*lefi sha’a – beinataim*); at first – at the beginning (*reshit – texila*), etc.

The classification task – tested the students’ understanding of the function of connectors by labeling and classifying 18 different connectors according to five groups: cause, contrast, condition, comparison and addition. This task is cognitively very demanding since respondents are expected to recognize the logical function of the connector without a given context and be able to assign it a label derived from a generalization of that function. The label of each function is in itself a difficult and abstract construct, which sometimes is not well understood by the respondents. Even college students found this task difficult and often made errors.

The score for semantic knowledge of connectors was computed from the results of both tasks – the matching and the classification tasks.

The sentence completion task – respondents were given five different sentences with a missing connector in each, and for each blank there were two possible fillers, such as the following example: “(1) Boiling water turns into vapor ____ its quantity diminishes. (therefore, whenever). (2) The ship was left on the bottom of the sea ____ it was covered with sand. (since; whereas)”. This task focused the students’ attention on the function of the connector and on the logical structure of the sentence.

The sentence production task – respondents were given eight different connectors from four different categories (contrast, cause, addition, sequence) and were asked to create sentences of their own. The intention was for the respondents to supply contexts that are compatible with the given connector. It was necessary to develop a scoring procedure for this task so as to fit the creative perspective of the task and a number of scorers evaluated the resulting sentences. A full score was given to a sentence that exhibited the use of a connector in a logical way such as: “I ate although I wasn’t hungry (translated from Hebrew *axalti lamrot shelo haïiti re’eva*) or “He got fired

due to his lack of responsibility (translated from Hebrew *hu putar ekev rashlanuto*)". Improper use of a connector could result in **an illogical sentence**: "You betrayed me in contrast you flattered me (translated from Hebrew *at bagadt leumat zot hitxanaft*)" or in a sentence with an **unclear use of the connector** such as "Thanks to her you would not know what happened to us (translated from Hebrew *hodot la lo haiita yodea ma itanu*)" In order to create inter-rater reliability for the scoring of these sentences they were given to eight different scorers who were asked to rate the sentences as: logical, partially logical and unclear. Pearson correlation for this scoring procedure was quite good (.66) and the correlation between the outside scorers and the researchers' scoring was significant ($p < .001$). For the purpose of our study the scoring was simplified assigning one point to a logical sentence and no points to either illogical or partially logical sentences. An overall reliability level was computed for the different tasks relating to knowledge of logical connectors as indicated in Table One below.

The reliability measure of all the tasks is lower (.66) and indicates that the test had some variability in terms of the type of knowledge that was tested.

FINDINGS

Two different statistical analyses were carried out on the data collected: an analysis of frequencies – the respondents' semantic and pragmatic knowledge of connectors; and an analysis of variance – the relationship between knowledge of connectors and levels of literacy (based on the literacy tests). In addition, a content analysis was carried out in order to further enhance our understanding of the difficulties encountered by students when using logical connectors in their own sentences.

The analysis of frequencies – with respect to the first task of matching connectors the findings indicate that about half of the students in eighth grade have difficulty in the task. Table Two shows the scores by function of the connectors.

Table 1. Average scores and alpha values for the test on knowledge of logical connectors [out of a maximum of 1]

Task type	Average score and SD	# of items	Alpha
Matching task	.58 (.32)	6	.76
Classification	.19 (.26)	5	.72
Completion	.78 (.26)	5	.72
Sentences	.42 (.28)	8	.76

Table 2. Frequencies of responses (%) on the matching task

Response	Addition	Contrast	Condition	Cause
Correct	58.7 (212)	57.3 (207)	54 (196)	56 (202)
Incorrect	41.3 (149)	42.7 (154)	46 (165)	44 (159)
N	361	361	361	361

Table 3. Responses on the classification task (%)

Response	Addition	Contrast	Condition	Cause
Correct	24 (86)	19.8 (71)	18.8 (67)	7.8 (28)
Incorrect	76 (272)	80.2 (287)	81.2 (290)	92.2 (330)
N	358	358	357	358

Table 4. Responses in percentages in the sentence completion task

The logical connector	% of correct responses	% of incorrect responses
'lu' (if)	89.4 (321)	10.6 (38)
'mishum kax' (thus, hence)	56.5 (203)	43.5 (156)
'ilu' (if)	89.1 (319)	10.9 (39)
'kdei she' (in order to)	77.5 (276)	22.5 (80)
'mpnei she' (because)	78.2 (279)	21.8 (78)

The difference, which exists among the various groups, is negligible, for this particular task.

Another analysis of frequencies was done with respect to the classification task. Here students found the task very hard and less than 25% could do it properly. Part of the problem was attaching the proper label to a given connector. The results are presented in Table Three.

This proved to be a very difficult task, where 'addition' seems to be a little easier and 'cause' is the most difficult (more than 90% if the students were unable to carry out the task successfully). In all cases most of the students found this task very difficult, as was expected. In fact, all the tasks were also given to a group of university students and some of them had one or more errors in this task. The results derived from this task led us to focus on 'condition' and 'cause' in the subsequent discussion, since these two categories are close in their logical meaning.

The Sentence Completion Task turned out to be an easier task for all respondents since they were given the context for the utterance and a choice between two possible fillers. This task included conditional and causal connectors and the findings are given in Table Four.

From the findings presented in Table Four we see that conditional connectors (if) are somewhat easier than causal connectors. For the completion of the two conditional connectors almost 90% of the students provided the appropriate fillers while for the causal ones the results were below 80%; and for the form *mishum kax* which is a higher register than the other two, only 56% of the students managed to use the proper filler.

The Sentence Production Task was more difficult than the completion task, since respondents had to provide the suitable content and context for using the proper connector, as well as produce the proper grammatical structure. We shall present the

Table 5. Responses in percentages for acceptable sentences in the sentence production task

Logical connector	% acceptable sentence	Not acceptable sent.
'ekev' (due to)	60.6 (217)	39.4 (141)
'mishum kax' (hence)	34.8 (125)	65.2 (243)

results for two causal connectors, since these seem to be the most difficult forms for eighth grade students: *ekev* 'due to' and *mishum kax* 'thus, hence'. The percentages of correct responses (acceptable sentences as judged by different raters) are given in Table Five.

The results given in Table Five above indicate that only about one third of the students in eighth grade were able to produce acceptable sentences with the connector *mishum kax*, which appears very often in instructional texts which they have to read.

The content analysis, carried out on the sentences produced by the respondents, further pointed to the difficulty eighth graders have with logical connectors expressing causal relationships. We will focus our analysis on the use of the causal connector *mishum kax*, which proved difficult in all the tasks described above. The connector *mishum kax* expresses the relationship between the antecedent in a causal sentence (condition, reason) with the consequence (result), by following the antecedent and preceding the consequence (its syntactical position), similarly to connectors such as *hence*, *thus*, *so* in English (Blakemore, 1988).

The respondents in our study produced three types of unacceptable sentences, which are discussed below:

- a. **An utterance, which could function as a turn in an ongoing (imaginary) conversation** and therefore assumes that the antecedent was expressed in the previous turn spoken by the other interlocutor: *mishum kax haxom hakaved mamshix litkof otanu* 'hence the heat keeps attacking us'; *mishum kax at maashima oti* 'hence you keep blaming me'. Such sentences, since they were written in isolation and not as part of a spoken and ongoing conversation, were considered unacceptable as they were lacking the antecedent.
- b. **A sentence including an additional (unnecessary) connector.** This type of sentence exhibits complete confusion and lack of understanding of the connectors and their function, although the basic logical relation might be understood: *mishum kax sheim hem baim ani lo ba* 'hence that if they come I won't come'; *mishum kax hu nexshal biglal shheetik* 'hence he failed because he cheated'. In both examples, had the students understood the function and use of the connector as well as its syntactic position, they could have easily expressed their propositions which were *hem baim mishum kax ani lo ba* 'they are coming hence I won't come'; *hu heetik mishum kax hu nexshal* 'He cheated hence he failed'.
- c. **A meaningless sentence** which does not create a relation of cause and effect. *mishum kax hu lo po anaxnu naase et ze* 'hence he is not here we will do it'. In this

Table 6. Average scores, standard deviations and f values for the various tasks

Task	Strong group	Average group	Weak Group	df	f
Matching	76 (.25)	58 (.27)	36 (.31)	2	58.38**
Classification	31 (.32)	15 (.21)	1 (.17)	2	21.50**
Completion	89 (.17)	81 (.22)	61 (.32)	2	39.10**
Production	59 (.23)	40 (.26)	25 (.23)	2	51.52**
The whole test	64 (.15)	49 (.14)	33 (.18)	2	100.60**

p > .00.

example, the alleged antecedent and consequence are not “satisfied in some situation of the actual world” (van Dijk, 1977, p. 68) and the sentence does not make sense with respect to causal relations. Many of the sentences produced by the respondents fell into this category.

In conclusion to the content analysis of the sentences produced by the respondents it is important to emphasize the fact that the task is rather artificial since it requires students to invent a plausible context rather than to use something from the real world. However, this is a well known school-type activity which all students encounter and as an instrument of data collection it led to some interesting results which help us understand the difficulty of the linguistic feature of logical connectors.

The various tasks described above, and the findings which were presented, clearly indicate that students in eighth grade still have difficulty in understanding the semantic features of some of the logical connectors in their mother tongue, they have difficulty relating the function of some connectors to the logical relation existing in the real world and they have difficulty using and understanding logical connectors of higher register. Furthermore, in causal relations they also have difficulty with the syntactic sequencing of the antecedent and the consequence.

Mastery of logical connectors and reading comprehension

An analysis of variance was carried out in order to investigate the relationship which exists between mastery of logical connectors and success in reading comprehension (as an indication of literacy in the mother tongue). If our assumption is that weaker readers also prove to have a more limited knowledge of logical connectors than successful readers, then we should find that mastery of logical connectors is a good predictor of success in reading comprehension.

The subjects participating in this study were divided into three groups according to their scores on the literacy tests: stronger students, average students and weak students. We investigated levels of mastery of logical connectors by these three groups by focusing on the scores achieved in each of the four tasks which were intended to test knowledge of logical connectors: the matching task, the classification task, the sentence completion task and the sentence production task. The results are presented in Table Six.

The results clearly show that there are significant differences among the three reading groups with higher results on all tasks for the better readers and lower results for all tasks

for the weaker readers. Furthermore, all groups gained the best scores on the sentence completion task and the lowest scores on the classification task. These findings will be further addressed in the discussion section of this chapter.

DISCUSSION

Knowledge of logical connectors seems to be one of the important elements, which enable students to become efficient readers of expository texts. As Grabe and Stoller (2002) claim: “Good readers are able to identify text markers (i.e. signal words) that help them understand how information is organized and that give them clues about what is important in the text.” (p. 222) Logical connectors are such signal words and they can often enhance the reading process, yet, as we have seen in the study presented here, students have to know their meaning and master the way in which they function within expository texts.

The grammatical class of logical connectors in Hebrew seems to be one of the more difficult items for native speakers of Hebrew to master, on the route to literacy development. The fact that this group of ‘signal words’ presents great variation in use both with respect to register and to grammatical complexity, and the fact that the individual forms as well as the compound connectors are often not transparent in meaning, makes their mastery a difficult and long stretching process (Olshtain & Cohen, 2000)

The four tasks, which were used in this study to collect data on knowledge of logical connectors, can be sequenced according to degree of reliance on context. The context embedded task which required students to choose one of two logical connectors in order to complete a sentence (by filling a gap) proved to be the easiest task for all respondents. Even the weakest group of eighth graders managed to get scores above 60% for this task. It is obvious, therefore, that when the context is provided and the choice is limited most eighth graders can carry out the task. On the other hand, the classification task, which turned out to be the most difficult task for all students, was even hard for university students. This task requires the respondents to understand the meaning and function of the logical connector without any given context and to place it under an appropriate label such as: cause, condition, contrast, etc. Even students who may know how to use the connector in their own sentences usually find this task difficult since they have trouble relating usage to an abstract function. Among university students there were about 25% who had difficulty in carrying out this task for at least one or two logical connectors of higher register (such as *ilmale* ‘if not for’ and *mexamat* ‘due to’, which also happen to be opaque in meaning. Furthermore, the sentence production task, which is often considered cognitively the hardest of the four tasks since it requires creativity and understanding, was easier than the classification task as students were able to provide their own context and thus, create a context-embedded situation. It seems that the use of connectors depends on understanding their meaning and function and becomes most significant in context-reduced environments.

The findings of this study also point to a certain sequence of acquisition with respect to logical connectors. It seems that causality is the most difficult category for all students. Addition seems to be relatively easier, since its underlying meaning is more accessible,

while condition, contrast and causality require a more abstract deduction process. Yet, even among the easier categories of connectors, it is the more opaque and higher register features of a connector that might render it difficult. The Hebrew connectors *yeter al ken* 'moreover' and *ulam* 'but' were not always used properly even by college students, since they are typical of higher register and are somewhat semantically opaque. Therefore, the interaction of an abstract function of the connector with opacity and high register, renders certain logical connectors as particularly difficult.

In conclusion, logical connectors need to be addressed in the school curriculum along the continuum of developing more efficient reading strategies among all students. Our study shows that even "good readers" have difficulty mastering the semantic function of connectors. Logical connectors cannot be treated as a one linguistic class for teaching purposes but need to be broken up into smaller groups according to register, degree of semantic transparency and function. The teaching of logical connectors as lexical items should focus on the logical function as well as on the pragmatic use of each connector. Thus, as students become more efficient readers they should also establish better mastery of the more intricate and complex functions of logical connectors. This seems to be a lengthy process which accompanies reading development.

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23. THE SUPER-STRUCTURE OF WRITTEN EXPOSITORY TEXTS – A DEVELOPMENTAL PERSPECTIVE

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INTRODUCTION

The purpose of this paper is to deal with the hierarchical constituents of the written expository texts and the links between those units from a developmental perspective. The point of view underlying this paper is “top-down” where the global organization of the text is studied. The term “super” used here refers to the traditionally described “micro/macro” dichotomy (van Dijk, 1980) or to local/global relations. In contrast to narratives, expository texts do not structure themselves around a given organizing schema. Rather, each such text constructs its own hierarchical “super-structure”, as a prerequisite for text coherence and wellformedness. Expository texts consist of three major constituents: introduction, which typically presents the text topic, the body that expresses the idea(s) on this topic, and a conclusion, provided at the end. The major constituents are linked in creating a coherent text. The paper will characterize the overall organizational structure of these three constituents at different stages of development, by examining texts written in Hebrew by schoolchildren of various ages and university graduate adults¹.

Britton (1994) points out that the function of expository texts is “to create a thematic structure in the reader’s (or hearer) mind” (and see also, Giora, 1990; Grensbacher,

¹ The texts are part of a larger sample of written and spoken, narrative and expository texts, collected in the framework of a largescale crosslinguistic project. The project was supported by a grant from a Spencer Foundation Major Grant for the Study of Developing Literacy to Ruth Berman. I would like to thank Ruth Berman for her insightful comments, invaluable input and overall considerable contribution to the formulation of the ideas presented in this paper. And to Dalia Cahana-Amitay for her help in revising the paper.

1990). This means that expository texts reveal a particularly intimate interaction between discourse structure and thematic content. In order to study this interaction it is interesting to analyze texts with shared thematic content, as the elicited texts in the sample examined here (see Section 2.0). The present study is confined to the written mode of production because it is less affected by constraints of online processing (Strömquist, Nordqvist, & Wengelin, 2003); further, written texts provide well-defined text boundaries (Tolchinsky, Johansson, & Zamora, 2002); and the process of writing reflects more closely meta-linguistic abilities (Ravid, 2001) and command of higher-register usage (Berman & Ravid, 2002; Biber, 1992). As a result, text in the written modality can be expected to reflect optimal abilities in different facets of text construction.

INTRODUCTION AND CONCLUSION: THE SUPER-CONSTITUENTS

The introduction of the expository text is a critical super-constituent of the text, since it involves the text topic (Giora, 1990) or the text organizer (Katzenberger, in press). A well-constructed text introduction provides speaker-writers with a solid foundation for articulating their ideas clearly and fluently. A prior study (Berman & Katzenberger, 2004) defined three properties of the well-formed introduction (listed here as I-III). Each one of the three characters will be formulated below and then illustrated by two examples, the first of which fulfills the property and the second, which fails to do so. The examples were taken from the corpus analyzed in this paper. The text writers were shown a three-minute wordless video clip depicting different conflict situations in a school setting. After watching the video clip, each participant was required to write a discussion on the topic “problems between people”. In each example, the produced clauses (marked as Cl) and clause packages (marked as CP) are numbered so as to reflect their exact position in the text (definitions for “clauses” and “clause packages” are given in Section 2.0). The excerpts are translated freely into English from the original Hebrew.

- I. The introduction serves to establish a pivot of **generality** along which the flow of information proceeds from general to specific and back to general. In (1a) information flows from general to specific both within and beyond the introduction while in (1b) the information in the two elements is of the same level of generality:
- (1a) Yariv, science graduate [Cl 1–5 of 19; CP 1–4 of 9]:

‘Problems between people often arise as a result of defective communication, intolerance, and lack of goodwill. Most problems that arise from the above-mentioned causes find even greater expression among children and young people [INTRODUCTION]. At those ages, communication between youngsters is poor, based mainly on external appearance, false impressions, and social status, as in the division into popular and unpopular’

- (1b) Adam, 7th grade [Cl 1–8 of 12, CP 1–2 of 4]:

‘In my opinion we should treat everyone equally, even if we don’t like him or he is not on the same level as us [INTRODUCTION] If you don’t like someone, you

shouldn't show him, you should ignore him or explain to him nicely so that he'll change his behavior'

- II. The introduction states the discourse framing by means of **explicit** topic definition – some specific elaboration of the content of the text topic, such as reference to different instances or types. Starting an expository discussion with an explicit generalized definition of the text topic provides the flow of content with an appropriate starting point. In (2a) The generalization is explicit while in (2b) it is vague:

(2a) Nimrod, 11th grade [Cl 1 of 7; CP 1 of 3]:

'In my opinion, problems between people are the basis for people's negative traits, jealousy, hatred, wickedness, etc.'

(2b) Shem, 7th grade [Cl 1 of 8; CP 1 of 3]:

'There are many problems between children'.

- III. The introduction provides an **anchor** for its claims by reference to socio-cultural context such as socially relevant events illustrating the claim, which provide the addressee(s) with a shared common ground. In the task at hand, anchoring can be done by reference to the video clip or to some external reality. The adult in (3a) anchors her explicit generalization in real world. The girl in (3b) does not anchor her vague statement.

(3a) Neta, science graduate student [Cl 1–10 of 29; CP 1–2 of 10]:

'Conflicts between people arise in situations where each one has a different opinion and the situation engender a clash between their opinions. In a situation where there is a conflict of interests in which each side is interested in something else and is not prepared to compromise, such confrontations can be found in everyday life nearly any place where people come together: in line for the bus or the bank, in political disagreements, in altercations on the road (about how to drive or where to park, for example), arguments about how best to deal with a particular situation and so forth'.

(3b) Reut, 4th grade [Cl 1–3 of 6; CP 1 of 3]:

'I think that there (are) lots of people that don't respect one another'.

Tolchinsky, Johansson, and Zamora (2002) analyzed the introductions and the conclusions of expository texts produced by children and adults, native speaker-writers of three different languages, focusing on the way speaker-writers create the text “frame”, in the sense of the territory within which the text unfolds as a semantic unit (Scinto, 1986). They found that introductions were better formed and that even educated adults not always create conclusions. Katzenberger (submitted) analyzed written expository discussions of the problem of violence in schools produced by Hebrew-speaking school children and adults in the same age groups as in the present study. She found that one quarter of the adult texts did not end with a conclusion but with an “after thought” or without any “unitize” (in Britton (1994) terms) segment.

Two questions arise from the above description: (1) what is the prevalent of the introductions and the conclusions in the texts (2) do the introductions and the conclusions of expository texts share the same three properties (generality, explicitness, and anchoring) originally defined for introductions.

THE FLOW OF INFORMATION

Giora (1990) argues that a well-formed expository text will open with a generalization, and the information it contains will proceed in gradual fashion from generality to specificity. Any deviation from the core proposition must be marked explicitly by linguistic means. Giora argues that texts, which meet the conditions she defined, are easy to comprehend because their information is gradated and they include a certain amount of redundant information. This requirement is in line with the more general approach of von Stutterheim and Klein (1999) with respect to explicit textual marking. For them, any deviation from the core proposition or issue that concerns the text (its “*quaestio*”) must be marked explicitly by linguistic means.

This paper aims to study the overall organizational structure of the three major constituents (introduction, body and conclusion) and the linkage between them by examining the flow of information between the introduction and conclusions (from general to specific and back to general).

The ability to provide an adequate introduction and conclusion to expository texts, as well as to produce gradated flow of information with appropriate linguistic marking, demands preplanning of the entire piece of discourse, and it implies a hierarchical, global view of the information that is about to be conveyed. This involves several interrelated competencies: command of appropriate linguistic means to express the required content, meta-textual awareness with regard to both the type of discourse and the nature of its content, and self-monitoring which controls all of these. These complex cognitive and linguistic abilities are late to develop and dependent on schooling (Bereiter, Buritis, & Scardamalia, 1988; Ravid & Tolchinsky, 2002) so that the domains analyzed here are expected to show an age-related changes.

THE STUDY

The study reported here analyzes 80 expository texts produced in writing by Hebrew-speaking children and adults of monolingual, middle-class backgrounds, in four age-groups (20 subjects in every age group): 4th grade school children (aged 9 to 10 years), 7th grade junior-high school students (aged 12 to 13 years), 11th grade high school students (16 to 17 years), and university graduate students majoring in the sciences or humanities (25 to 35 years). Subjects were shown a three-minute wordless video clip depicting different conflict situations in a school setting. After seeing the video clip, each participant was required to produce four texts in randomly balanced order, including the one analyzed here – to write a discussion on the topic “problem between people” (Berman & Verhoeven, 2002).

In order to identify the introductions and conclusions, a three-steps analysis was performed: (1) Texts were first divided into clauses, which are syntactically defined.² (2) Clauses were then grouped into units termed “clause packages”³, which typically

² Division into clauses was based on syntactic criteria specified in Berman and Slobin (1994: 660–663), where a clause is defined as “any unit that contains a unified predicate.”

³ “Clause packages” were identified following the definitions established in Cahana-Amitay and Berman (1999). (See, too, the articles in Aparici et al, 2000, pp. 77–162, for similar proposals on languages other than Hebrew and Cahana-Amitay, submitted).

Table 1. General, explicit and anchored introductions and conclusions by age

	General		Explicit		Anchored	
	Intro.	Concl.	Intro.	Concl.	Intro.	Concl.
Grade schoolers (9–10) (N = 20)	—	—	—	—	—	—
Junior high (12–13) (N = 20)	3	3	3	1	3	1
High school (16–17) (N = 20)	15	11	15	6	12	4
Adults (25–35) (N = 20)	20	17	18	14	16	11
Total (N = 80)	38	31	36	21	31	16

consist of a number of clauses linked syntactically, thematically, and/or discursively. Such packages serve as minimal text units that span more than the syntactic clause on the one hand, but less than global discourse constituents, on the other. As such, they are natural candidates for a “top-down” analysis such as the one proposed here. (3) Clause packages that served as introductions and conclusions were then identified. This was based on two related factors: that clause packages are a structural unit of text, and that introductions and conclusions are segments of discourse content. Specifically, introductions included all clause packages that constitute the first “move-on” with its “expands” and conclusions included all clause packages that constitute the “unitize” with its “expands” (Britton, 1994)⁴.

Two more steps were performed in order to define the introductions and conclusions as “super-constituent”: (4) The properties of each introduction and conclusion were defined for generality, explicitness, and anchoring. (5) An introduction or conclusion that included at least one of the three properties examined was defined as “super-constituent”.

In order to examine the flow of information between the introduction and conclusions, texts with two super-constituents and at least one local constituent (the text body) were identified, since they are the only texts in which flow of information can be manifested (and marked). Each such text was analyzed if there is a flow of information from general to specific and back to general.

The domains analyzed here are expected to show age-related changes. For all measures, I predicted late emergence.

RESULTS

78 introductions and 76 conclusions were identified (out of 80 texts). 40 of the introductions and 32 of the conclusions contained at least one of the three properties of “super constituent” (generality, explicitness, and/or anchoring of text topic). The distribution of generality, explicitness, and anchoring in both introductions and conclusions for each age group is shown in Table 1.

Each of the age groups reveals the same picture – there are more properties of super-constituents in the introductions compared with the conclusions. Similarly, the order of the three properties is also maintained for each age group – generality is

⁴ A “Move-on” introduces a new topic, an “Expand” develops the topic that has previously been introduced, and a “Unitize” summarizes information previously mentioned (Britton, 1994).

the most commonly used, followed by explicitness and then anchoring of text topic. Nonetheless, the production of hierarchical constituents in expository texts is seen only in few junior-high school children and in none of the grade school children. In high school, the picture changes dramatically since three quarters of the high schoolers and all of the adults produced at least one property of hierarchical introduction. However, even adults fail at times to produce well-formed conclusions, since only ninety percent of their text conclusions included the most commonly used property of generality.

Only 11 high schoolers and 16 adults managed to write a text with two super-constituents and at least one local constituent. All of the 27 advanced texts manifested a flow of information from general to specific and back to general.

DISCUSSION

Analysis of the written expository texts revealed greater success in the production of the introductions compared with the conclusions across age groups. All the texts contained introductions, either local or super constituent, while conclusions were less prevalent (they were missing even from some of the adult texts). This could be attributable to the fact that the written texts were produced by educated writers who have no particular expertise in the field of “conflicts between people”, which may affect their ability to complete a text discussing this topic. Of the produced introductions and conclusions, relatively more introductions contained at least one of the three properties of super constituent. The “inferiority” of the conclusions found here is in line with the notion that in an expository text a well-formed introduction is more important than a well-formed conclusion, because the introduction provides speaker-writers with a solid foundation for articulating their ideas clearly and fluently. Nonetheless, I argue that these two well-formed super constituents share at least two properties – generality and explicitness – given the high incidence of these properties in the adult texts. In both constituents, the general and explicit expression of the main ideas of the text has a critical function in the text: in the introduction it enables clear flow of information and in the conclusion it sums up the ideas.

Developmentally, a qualitative split between the two younger and the two older age groups was found, with linear production in the younger group as opposed to hierarchical in the older one. Linear production involves pair-wise ordered segments: a “Nucleus” followed by at least one complement (Fox, 1987) or a “Nucleus” and “Satellite” (Matthiessen & Thompson’s, 1988). Examples (4a) and (4b) illustrate such texts in two girls, a 10 year-old and a 13 year-old (the introduction of (4a) is also given in (3b) above):

(4a) Reut, 4th grade [Cl 1–3 of 6; CP 1–3 of 3]:

I think that there (are) lots of people that don't respect one another [INTRODUCTION] and it causes a lot of problems [BODY] and I think that (we) must improve it [CONCLUSION]

(4b) Maya, 7th grade [Cl 1–9 of 9; CP 1–3 of 3]:

In my opinion it's a terribly problematic subject and there are lots of ways to solve it [INTRODUCTION] It depends on the kids where they come from what grades they're

from from what neighborhoods and so on [BODY] in my opinion to talk to the kids themselves is the best idea to have a program of instruction about all kinds of problems at school and also at other schools [CONCLUSION].

The text in (4a) is poorly organized and contains limited thematic content while the text in (4b) is better organized and is richer in content of the same quality. In both texts the relationships between the nucleus (introduction) and its complements (body & conclusion) are non-hierarchical and the information they contain is not graded to flow from general to specific. This suggests that the two younger groups of children share an inability to provide an explicit and clearly anchored generalization combined with information that proceeds from general to specific.

In contrast, the 16–17 year-old high schoolers and the adults produce hierarchical texts, composed of both global and local elements. Moreover, texts which are hierarchically organized also manifest a graded flow of information from general to specific, a feature which is, likewise, found only in the texts produced by subjects from high-school age on. The excerpts in (5a) and (5b) illustrate the difference between a high school text (5a) and an adult text (5b) (the introduction of (5b) is given in (3a) above):

(5a) Nadav, 11th grade [Cl 1–11 of 11; CP 1–4 of 4]:

'In my opinion problems between people are caused by differences in opinion on different topics [INTRODUCTION] People do not agree on the same sides and therefore the differences in opinion cause different sides "to separate" and every one (is) on his own side and in his own theories and (is) not willing to compromise and to understand to try to understand [BODY](You) got to work on the thing with the understanding, the listening to each other and that not every one will be stuck in his own theory [CONCLUSION]'

(5b) Neta, science graduate student [Cl 1–29 of 29; CP 1–10 of 10]:

'Conflicts between people arise in situations where each one has a different opinion and the situation engender a clash between their opinions. In a situation where there is a conflict of interests in which each side is interested in something else and is not prepared to compromise, such confrontations can be found in everyday life nearly any place where people come together: in line for the bus or the bank, in political disagreements, in altercations on the road (about how to drive or where to park, for example), arguments about how best to deal with a particular situation and so forth' [INTRODUCTION]. In most of these conflicts (people) reach some sort of a solution eventually mostly if the situation requires an immediate solution (for example line for the bank). In other conflicts (it is) difficult and sometimes impossible to arrive at a compromise or a solution (for example political arguments). The way to function in a conflict situation is learnable. There are several possible ways to solve problems and if (people) give it some thought (it is) possible to choose the best way (the shortest one or the one that raises less aggression). Many conflicts, especially those (that are) widespread in everyday life depend on the mentality of the confronting parties and a situation that creates a conflict in a certain place might have gone smoothly in another place [BODY]. By and large (it is) a matter of education: a human being behaves in the way he was taught to behave at home or in the surroundings where he grew up [CONCLUSION]'

Each one of the texts in (5) has two super-constituents yet the introduction and the conclusion of the adult contain more and new thematic content. The information in both texts is gradated and flows from general to specific and back to general. Yet the flow of information in the text of the high-school student is not explicitly marked while in the adult text it is marked by a discourse marker (the conclusion begins with ‘by and large’) (Katzenberger & Cahana-Amitay, 2002) and punctuation (the examples are written in brackets). Another rhetorical device used in (5b) is repetition of lexical nouns (Berman, 1986): the writer repeats the abstract noun “conflict” – the text topic – several times in the course of the text and she repeats also some of the examples (line for the bank). This suggests that the differences between the texts of high schoolers and adults are related to the rhetorical devices they contain. Adults are better able to explicitly indicate the discursive framing of the text they produce, and so instruct the addressee(s) how to interpret parts of the text, or the text as a whole, an ability which reflects textual pre-planning and meta-textual awareness.

In the present sample a variety of rhetorical devices was found. Each speaker-writer selects his or her favored stylistic means: some use rhetorical questions as the opening gambit to their text, others resort to listing of different but similar groups and subgroups of people and problems, and others rely in different ways on lexical and syntactic parallelism (Reinhart, 1995; Segal, 2001). The excerpt in (6) is the body of the text of a 16 year-old girl who uses a combination of parallelism and rhetorical questions:

(6) Noa, 11th grade, [CI 9–18 of 22; CP 3–5 of 6]:

‘Could (it be) that (people do) not consider it important enough in Israeli society? Could (it be) that (it is) too late to educate children whose parents educated them that group X and X is such? Could (it be) that we are fighting among ourselves a cold war which only fragments this heterogeneous society in which we (are) living [BODY]’

The texts in (5b) and (6) are examples of fully proficient expository structure rhetoric: The abstract generalization formulated in the introduction scaffolds the structuring of the rest of the text, and there is a gradated inter-play of flow of information between general and specific. This level of text production demands rhetorical facility and meta-linguistic sophistication and self-monitoring.

Britton (1994) points out that expository texts reveal a particularly intimate interaction between discourse structure and thematic content. Four major types of initiating commentary on the topic of interpersonal conflict were found in this study across ages: suggestion for solutions, explanations of causes, illustration of instances and sub-categorizations of the phenomenon. The two major types of concluding commentary were also found: summing up of previous claims and suggestions for solutions. Nonetheless, with age and schooling, thematic content evolves from general comment to abstraction, while global structure proceeds from non-hierarchical to hierarchical. These two directions of development are interrelated, since the transition from general commentary to abstraction facilitates and enables explicit and precise formulation of the text topic, which, in turn, is necessary in order to structure the text at a global,

top-down level of organization. The transition from general commentary to abstraction is manifested by the massive use of abstract noun phrases in the two older age groups, as reported by Ravid (2002), who studied the entire Hebrew corpus of the project in which this study is embedded.

The developmental route for thematic content described here follows Piaget & Inhelder's (1969) classic description of cognitive development, from concrete to formal operations (and see also Elkind, 1968; Karmiloff-Smith, 1992, among others). The two older age groups express their dialectical thinking, originally proposed by Hegel (Sternberg, 1999). This dialectical thinking or the post-formal thinking (Pascal-Leone, 1990) takes into account the socio-cultural context in which the individuals are making their decisions. In the expository texts this way of thinking is manifested in the anchoring of claims in reality and in epistemic attitude (Reilly et al., 2002), typical of high schoolers and more so of adults. Analyzing written expository texts from a top-down perspective that takes into account text structure, thematic content, and linguistic means throws light on the multi-faceted and protracted nature of developing text production abilities.

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24. EMERGENCE OF LINGUISTIC COMPLEXITY IN LATER LANGUAGE DEVELOPMENT: EVIDENCE FROM EXPOSITORY TEXT CONSTRUCTION

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INTRODUCTION: DIMENSIONS OF TEXT PRODUCTION IN LATER LANGUAGE DEVELOPMENT

It was my good fortune to have been introduced by Ruth Berman to two psycholinguistic domains in which she has made major, groundbreaking conceptual and empirical contributions – text production and later language development. This chapter on language complexity in the development of text production is my tribute to Ruth as my mentor and teacher who established the field of developmental psycholinguistics in Israel and has raised a generation of researchers. May we always follow in your footsteps!

Later language development constitutes the precursor to the complex linguistic abilities of adults, which differ markedly from those of children and even of adolescents (Berman, 1997; Nippold, 1998; Ravid & Avidor, 1998). During this period, knowledge and use of the lexicon change dramatically. Vocabulary comes to include higher-register, morphologically complex, semantically diverse, abstract, and lexically specific items, such as denominal adjectives and nominalizations, as well as extensions of concrete terms to more metaphorical usages (Anglin, 1993; Best, Dockrell, & Braisby, 2002; Nippold, 2002a). New connections are formed among previously unrelated items and constructs, resulting in denser and more explicitly accessible linguistic knowledge and a meta-linguistic ability to judge and explicitly verbalize their grammaticality and their contextual appropriateness (Karmiloff-Smith, 1992). For example, language users learn to bring together verb content, verb tense, verb phrase structure, temporal adverbials, and voice to express the temporal structure of a discourse (Berman &

Slobin, 1994). At the same time, later syntactic development is attested by increasing morpho-syntactic versatility as well as by diverse and complex syntactic architecture at all syntactic levels from phrase and clause to syntactic package and text segment (Scott & Windsor, 2000; Ravid et al., 2002).

Contextual testing of later linguistic acquisition is crucial in determining whether a certain construction has been “acquired”, where the notion of acquisition or “mastery” involves not only correctness (i.e., knowledge of forms), but also usage (i.e., the ability to deploy these forms appropriately in discourse). The more marked and highly literate lexical items and morpho-syntactic structures tend not to occur in interactive conversation, the most ‘natural’ form of language use. As a result, even careful and extensive recording of young children and adolescents in everyday conversation may fail to reveal linguistic forms which they have mastered, but which they do not judge to be appropriate to that type of communicative context. Yet these kinds of items and constructions often occur in extended discourse, where they serve distinct textual functions in types of texts encountered in the course of literacy development, both formal and informal (Schneuwly, 1997). It thus seems worthwhile to look at how such more complex grammatical constructions and more advanced or sophisticated vocabulary items pattern in authentic texts produced by schoolage children to demonstrate to what extent young language users are able to go beyond the locally ‘correct’ yet decontextualized production of these constructions to deploy them appropriately in context (Ravid & Tolchinsky, 2002). Three dimensions constraining the kind of language used in texts are *register*, *modality*, and *genre*.

Register is the linguistic reflection of social dimensions such as power, authority, distance, politeness, and intimacy (Ravid & Berman, 2003; Biber, 1995). According to Andersen (1996: 126), register knowledge involves (1) possessing the appropriate alternative linguistic items, patterns, and constructions; (2) identifying situational coordinates such as discourse participants and setting; and (3) appropriately mapping linguistic forms onto the social situation. *Modality* – mode of language production – refers to the constraints inherent to the spoken and written modes of language production (Chafe & Danielewicz, 1987; Ravid & Zilberbuch, 2003). Spoken texts, constrained by the narrow window of on-line processing in real time, are less lexical and informative than written texts. They do not permit much organization and planning, they rely heavily on shared knowledge and cooperation with the addressee, and thus they contain a large amount of repeated and reiterated information, non-informative material such as disfluencies, reformulations and repairs, as well as a large variety of discourse markers (Ravid & Berman, 2003b). Written texts are more informative and planned, and encourage revision, review and rewriting. Since the current study aims to analyze the emergence of linguistic complexity in discourse, it focuses on written texts, which – freed from the pressures of on-line processing of spoken output – are more likely to foster complex syntactic architecture and to allow the retrieval of high-register, low-frequency, literate lexical items and morpho-syntactic structures (Biber, 1988; Nippold, 1998).

Genre definitions vary depending on the perspective taken by genre researchers. Steen (1999, 2002) following Van Dijk and Kintsch (1983) defines genres as cognitive

representations, schemas that are part of the mental repertoire of most participants in a discourse community (see also Paltridge, 1997). Ravid and Tolchinsky (2002) regard genres as text types defined by function, social-cultural practices, and communicative purpose. Text *genre* also has an important impact on the selection of rhetorical/expressive devices and grammatical constructions (Berman & Nir, in press). A major genre distinction is that which distinguishes narratives from other types of discourse (Bruner, 1986). Narratives focus on people, their actions and motivations, and express the unfolding of events in a temporal framework. In contrast, expository texts, as a special type of non-narrative genre (distinct from description, for example), focus on ideas and concepts, and express the unfolding of claims and argumentation in a causal context (Mosenthal, 1985; Berman & Slobin, 1994; Britton, 1994).

A recent survey of developing narrative and expository production skills in different languages shows that by ages five to six, that is, even before gradeschool, children have command of a well-established narrative schema and can construct a well-formed narrative text. In contrast, children do not manifest command of expository text construction until high school age (Berman & Verhoeven, 2002). Only in adolescence are they able to organize the information in their expository texts hierarchically, around a well-defined introductory opening, then to develop key themes presented earlier in the body of the text, and to reach a final summary or conclusion deriving from the contents of the preceding discourse (Berman & Katzenberger, 2004; Nippold, 2002b; Tolchinsky, Johansson, & Zamora, 2002). By this age, children are also able to distinguish clearly in linguistic expression between narrative and expository texts – for example, in use of verb tense, mood, and aspect (preference for past tense and perfective aspect in narratives and reliance on the timeless present and irrealis modalities in expository texts); in forms of reference (use of personal pronouns and other means for specific reference in narrative texts compared with reliance on generic pronouns and impersonal constructions in expository texts); in voice (more use of passive and middle voice constructions in expository than in narrative texts); and in lexical selection (more dynamic predicates in narratives, greater reliance on abstract nominals in expository texts) (Berman & Nir Sagiv, 2004; Jisa et al., 2002; Ragnarsdóttir et al., 2002; Reilly et al., 2002; Ravid et al., 2002). The current study focuses on differences in language complexity between narrative and expository texts produced by children, adolescents and adult writers of Hebrew.

LINGUISTIC COMPLEXITY

Based on work conducted together with Ruth Berman, the view of linguistic complexity proposed here relies strongly on the idea of “a lexicon-syntax interface”, that is, that lexical items and syntactic constructions conspire to make a given piece of language more or less “complex”. I view *linguistic complexity* in texts as composed of two interrelated components: ***Lexical complexity*** and ***syntactic architecture***. The first term, *lexical complexity*, is defined along the two dimensions of lexical density and diversity. *Lexical density* refers to the amount of lexical content in the text, as measured by the proportion of content-class words in the text out of the total number of words, or by

number of content words per clause (Strömquist et al., 2002). *Lexical diversity* refers to the amount of novel lexical content in the text, as measured by the ratio of word tokens to word types (Richards & Malvern, 1997).

The second term, *syntactic architecture*, is defined in terms of several distinct though interrelated factors at differing levels of intra-clausal and inter-clausal structure: *length*, *depth*, and *diversity*. *Length* refers to of number of words per syntactic unit (phrase, clause or clause package); *depth* is measured by the number of complex governed nodes in the unit; and *diversity* indicates different types of syntactic units clustered together. Underlying this analysis is the assumption that lexical and syntactic complexity is closely interconnected and need to be analyzed in conjunction. Specifically, lexical complexity is a crucial component of the syntactic architecture of a text, since lexical elements constitute the necessary building blocks for syntax at the level of phrase structure. For example, synthetically bound morphology rather than more periphrastic analytic options, a source of morpho-syntactic complexity in Hebrew, would be impossible without high lexical density and diversity of nouns (Cahana-Amitay & Ravid, 2000). Relatedly, complexity of the internal construction of noun phrases (with a lexical noun as head) is a major source of complex syntactic architecture (Ravid, 2003; Ravid et al., 2002). Syntactic depth and diversity in the text are closely linked to the diversity of verb types (as defined in Hebrew by different verb patterns), which determines clause transitivity and word order (Berman, 2003). The current study examines several aspects of lexical diversity and syntactic architecture in expository discussions compared with personal-experience narratives across the school years.

TOP-DOWN ASSESSMENT OF NARRATIVES VS. EXPOSITORYES

The literature on narrative development indicates that the ability to produce narratives emerges relatively early in comparison to expository texts (Hickman, 2003; McCabe & Peterson, 1983). The groundbreaking work by Berman & Slobin (1994) shows that 5-year-olds are already able to tell stories based on a series of pictures in a wordless picture book. Berman (1995, 2003) claims that using more structured modes of elicitation (e.g., story re-telling) and more familiar and well-established genres (e.g., scripts) will yield sequential narration in even younger children (Ravid, Most, & Cohen, 2001). Producing personal-experience narratives does not pose any special challenge even for children at late preschool age, not to mention gradeschool narrators. Like all stories, they encode the unfolding of events in time and focus on people, events, and places. Since they concern events in the life of the narrator, these narratives rely on personal episodic memory and do not have to be constructed from scratch. They are typically dynamic, personalized, concrete, involved and specific in stance (Berman, Ragnarsdóttir, & Strömquist, 2002), and require knowledge of temporal and causal relations. It is no wonder then that 10-year-old gradeschoolers are well able to write adequate personal-experience narratives about a conflict they have been involved in.

Much less is known to researchers about the developmental history of expository text production. The scant literature teaches us that young adolescents (12 year olds)

still find expository texts challenging. Expository texts focus on abstract content such as concepts, ideas and processes and are characterized by general, static, objective, distant and detached discourse stance. The ideas for expository production derive from general world knowledge and academic learning, and text construction requires familiarity with an array of logical relations and rhetorical devices, subject to an open modular schema (Britton, 1994; Mosenthal, 1985). Gradeschool children already know about expository discourse in the sense that they make generalizations and voice opinions; what is missing is the ability to construct a well-organized piece of discourse that goes beyond vague generalizations with a clear introduction, which is then specified or illustrated in the middle of the text, and a conclusion or summary at the end. “Good” or adequate narrative texts thus emerge almost 10 years before expositives in development.

Moreover, measured by top-down criteria which assess the text from a global point of view, narratives are much better constructed than expositives. Children and young adolescents produce full, coherent and autonomous narratives, containing an adequate number of text components such as background, initiating event, story episodes, and sometimes even a coda (Tolchinsky et al., 2002). Personal-experience narratives produced in writing by gradeschoolers are already well constructed, with a minimal amount of non-informative “collateral” material such as hesitations, false starts, repairs, re-formulations, and discourse markers (Ravid & Berman, 2003b). In contrast, expositives produced across adolescence are more fragmented and less coherent, often lacking in minimal text components due to paucity of ideas or with underdeveloped conceptual nuclei, and they contain a large amount of less informative textual material (Berman & Katzenberger, 2004). At a developmental phase when they are able to write clear, satisfactory personal-experience narratives, young adolescents still find the production of written expositives a difficult challenge at the global, top-down discourse level. Even among well-educated although non-expert adults, narratives are more developed and better constructed than expository texts.

Nevertheless, as this chapter aims to demonstrate, when viewed from the bottom-up perspective of “language complexity measures”, expository texts in fact are richer and more complex in linguistic expression to a certain extent than narrative texts, even at gradeschool age. These measures reveal facets of the inherent cognitive complexity of expository discourse that are not necessarily reflected in top-down analyses of global text organization. These analyses focus on written texts, since these are most likely to reveal what I have termed “linguistic complexity” in lexicon and grammar.

DATABASES

The analysis presented in this chapter is based on 758 written Hebrew texts in two genres – narrative and expository. They are divided into two sets:

- (1) The **core** corpora, consisting of 126 texts elicited in an Israeli project – henceforth termed the “Academy corpus” (Berman & Ravid, 1999), and 160 texts from the Hebrew-language sample of a larger crosslinguistic project – the “Spencer

texts” (Berman & Verhoeven, 2002)¹. These two corpora contain texts written by monolingual Hebrew-speaking children and adolescents from middle/high SES background in four age-groups—10–11 year olds (4th graders), 12–13 year olds (7th graders) and 16–17 year olds (11th graders), compared with graduate student adults. Academy narratives told a story about a quarrel or argument in which the narrator had been involved, while the expository texts discussed the issue of violence in school. Spencer narratives and expositives were based on a video clip showing unresolved cases of interpersonal conflict at school, following which participants were asked to give a talk and write a composition discussing the issue of problems between people, and tell and write a story about something similar that had happened to them.

(2) This basic set was augmented by a set of **satellite narrative and expository** corpora, as follows:

- (a) Rabukhin (2003): 84 texts written by 4th, 7th and 11th grade bilingual Russian/Hebrew speakers;
- (b) Shalmon (2003): 108 texts written by 4th, 7th and 11th grade monolingual Hebrew speakers from a low SES background. These two studies used the Spencer elicitation method.
- (c) A third study (Ehrlich, 2001) produced a corpus of 60 texts written by 7th and 9th grade (14–15 year olds) monolingual Hebrew speakers from a low/middle SES background, using different themes for the narratives (a fictional story) and the expositives (discussing body image in teenagers).
- (d) A fourth corpus consisted of 180 texts written by monolingual 11–12 year olds (6th graders) and 11th graders compared with adults, who wrote biographies and discussed various expository topics (Ravid & Zilberbuch, 2003; Zilberbuch, 1998).

All corpora thus reflect the same two discourse genres – narrative and expository, where each genre is defined in broad general terms, covering different subgenres and yet showing similar trends. All texts were written by children and adolescents, in some cases compared with adults. I expected linguistic complexity to rise with age and years of schooling, as indicated by studies cited above. In addition, I also predicted that despite the overall greater success of children and adults in constructing narrative compared with expository texts, the latter would prove to be more linguistically complex than the former.

¹ The “Academy” corpus collection, coding and analysis were funded by an Israel Academy of Sciences, Basic Research Fund Grant for study of the oral/literate continuum to R.A. Berman & D. Ravid, Tel Aviv University, 1996–98. 48 schoolchildren (16 per age-group Grade 4, 7 and 11) and 16 university graduate adults were asked to tell two different stories (one in speech and one written) on an incident where they had been involved in a fight or quarrel, and to give a talk and write a composition on the topic of violence in schools. Participants were all native speakers of Israeli Hebrew from middle-class, well-educated backgrounds. The “Spencer” corpus collection, coding and analysis were funded by a major grant from the Spencer Foundation, Chicago, Illinois, to Ruth Berman of Tel Aviv University for the study of “Developing Literacy in Different Contexts and Different Languages (1997–2000). Participants were all native speakers of their respective languages (Californian English, Dutch, French, Hebrew, Icelandic, Spanish, and Swedish) from middle-class, well-educated backgrounds. In each language, 60 schoolchildren (20 per age-group Grade 4, 7 and 11) and 20 university graduate adults were asked to write a story about an incident where they had been involved in interpersonal conflict “problems between people” and to give a talk and write a composition on the topic of “problems between people”. The Spencer corpus examined here was in Hebrew.

BOTTOM-UP ANALYSES

The following analyses were carried out on each of the texts in the corpora described above:

- Mean clause length
- Proportion of content words
- Proportion of high-register content words
- Proportion of nouns
- Proportion of abstract nouns
- Proportion of high-register nouns
- Proportion of adjectives
- Proportion of denominal adjectives

All counts were conducted on word tokens rather than types, since word meaning changes even for the same lexeme in different discourse sites (Ravid, 2003).

MEAN CLAUSE LENGTH

The two basic units measuring text size are words and clauses (following the definition of a clause as “a unified predication” in Berman & Slobin, 1994: 660–664). In general, Academy and Spencer texts increase in size with age and schooling as measured by number of words and clauses per text (Berman & Ravid, 1999; Berman & Verhoeven, 2002). Concerning modality and genre, two clear trends emerge across age groups: Narratives are longer than expositorys, and spoken texts are longer than written texts. The genre difference stems from the fact that, as noted, personal-experience narratives are easier to generate than expositorys, while the modality difference derives from disruption of the information flow in spoken text and the resulting large amount of repetitions, collateral material and discourse markers (Clark, 1996). Written expository texts are in general the shortest texts in our corpora. This can be explained by the factors noted earlier, to the effect that constructing an expository piece of discourse requires the writer to focus on a clear and explicit discourse topic, and to reveal pre-planning, careful organization of text information and extensive world knowledge.

Text size alone/in and of itself, however, does not tell the whole story. The derived measure of *mean clause length* – number of words divided by number of clauses in the text – more truly reflects the linguistic complexity of a text. Longer clauses contain more words in general, and more content words in particular, and so they are lexically denser than shorter clauses. Besides, more words per clause translate into larger phrases (NPs, VPs, and PPs) in the clause, and this in turn is indicative of a more complex and diverse clause-internal syntactic architecture. The analysis provided here focuses on inter-genre differences, comparing these and other measures in expository versus narrative texts.

Figures 1 and 2 show mean clause lengths in three corpora of texts written by monolingual Hebrew speaker/writers from middle/high SES backgrounds: narrative

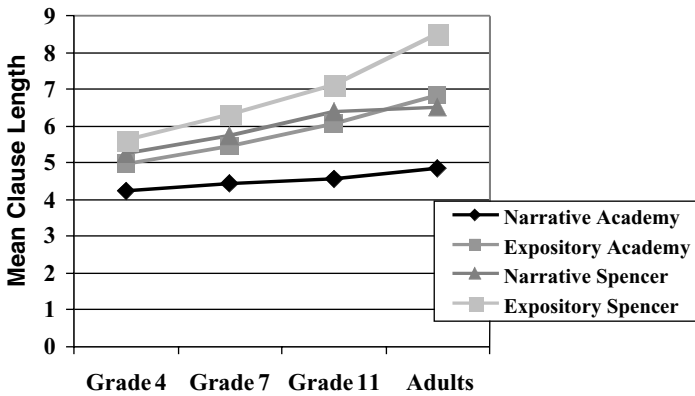


Figure 1. Mean clause length in Academy and Spencer texts, by genre and grade.

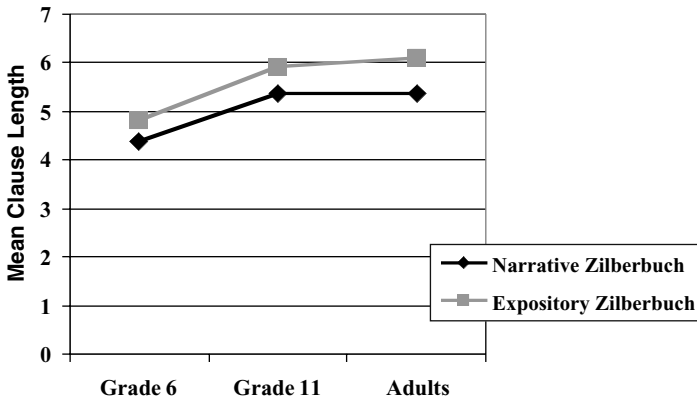


Figure 2. Mean clause lengths in Zilberbuch texts, by genre and grade.

and expository discussion in the Academy and Spencer sample (Figure 1) and biographic and expository argumentation in the Zilberbuch sample (Figure 2).

Figures 1 and 2 both indicate that written expository texts have longer clauses than written narratives in three different corpora. Narratives in the Academy sample increase hardly at all in length from gradeschool to adults, while in the Spencer sample, they increase gradually from gradeschool to highschool and then level off. Expository texts not only have longer clauses as early as gradeschool, they also increase in size at each data point, and they clearly continue to increase from highschool to adulthood. Moreover, texts of the adults show the greatest difference between narratives and expositives is found in adults. In the Zilberbuch texts, expository clauses are again longer than narrative clauses, and the difference between them increases with age.

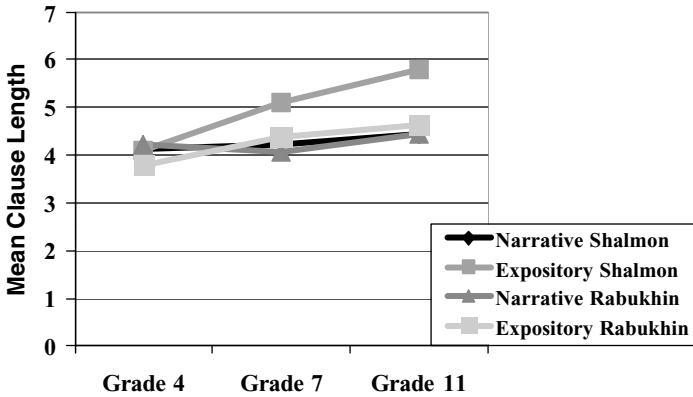


Figure 3. Mean clause lengths in Shalmon and Rabukhin, by genre and grade.

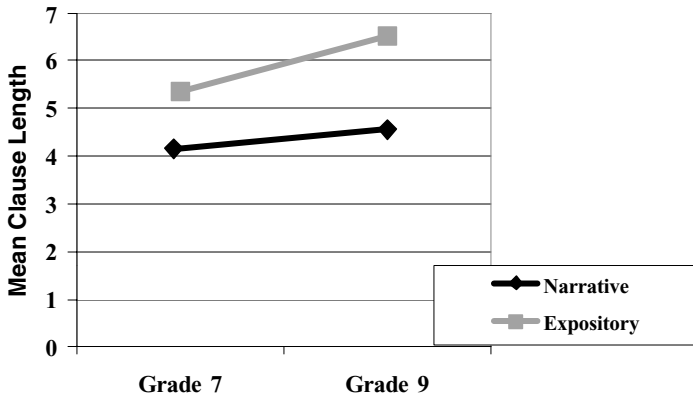


Figure 4. Mean clause lengths in Ehrlich by genre and grade.

Figures 3 and 4 present mean clause lengths in three “satellite” studies of non-mainstream schoolchildren and adolescents. These consist of texts produced by monolingual Hebrew speakers from low SES (Shalmon) and bilingual Russian-Hebrew speakers from middle/high SES (Rabukhin) attending the same schools (Figure 3) and of low/middle SES background (Ehrlich, Figure 4).

Figures 3 and 4 tell the same story: Mean clause length in narratives increases slightly if at all between each of the data points; mean length in expositives is either the same or higher than in the narratives from the start, and the difference increases with age and schooling.

Thus, taking on mean clause length as an initial measure of syntactic complexity, expositives score higher than narratives in all six corpora examined from gradeschool

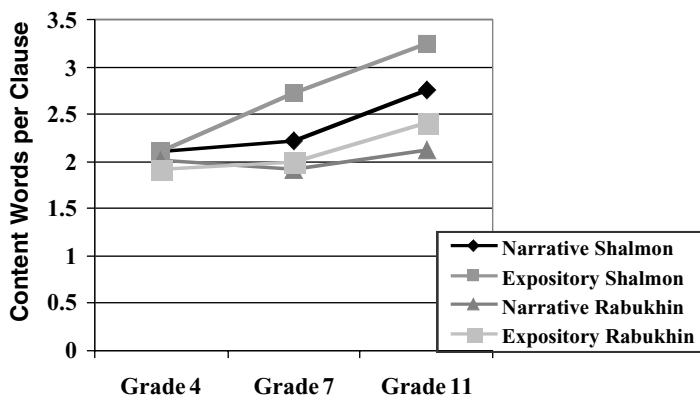


Figure 5. Mean number of content words per clause in Shalmon and Rabukhin, by genre and grade.

age up. As writers mature in age and literacy, they produce expository texts with clauses that are lexically and syntactically denser than in their narratives.

THE CONTENT WORD LEXICON

The ratio of content words – nouns, verbs and adjectives – in a text is taken as indicative of “lexical density” in various studies (Biber, 1995; Halliday, 1989; Strömqvist et al., 2002). This is because words in the major lexical classes carry the bulk of the semantic content or referential information at the level of both sentence and text. Besides, as argued earlier, content words serve as the backbone of syntactic architecture in the text.

Figure 5 presents findings for lexical density from two satellite corpora (Shalmon, Rabukhin), calculated as the mean number of content words per clause (number of content words divided by number of clauses), in order to neutralize differing text lengths.

In both studies, expository texts contain more content words per clause, though in the low-SES monolingual texts this difference is apparent by 7th grade, and in the bilingual texts by 11th grade. A more fine-grained lexical measure was applied to the Rabukhin high SES Russian-Hebrew bilingual corpus: mean number of **high-register** content words (e.g., *rival*, *industrial*, *reiterate*) per clause. This yields even clearer results, as shown in Figure 6: From the start, expository texts contain more high-register content words per clause than narratives.

NOUNS

Nouns are an important subclass of content words. They constitute 80% of word types in Hebrew (Choueka, 1997), and so contribute importantly to linguistic complexity of texts – lexical, morphological and syntactic. Analyses based on corpora related to the ones considered here reveal amount and type of lexical nouns in a text to differentiate

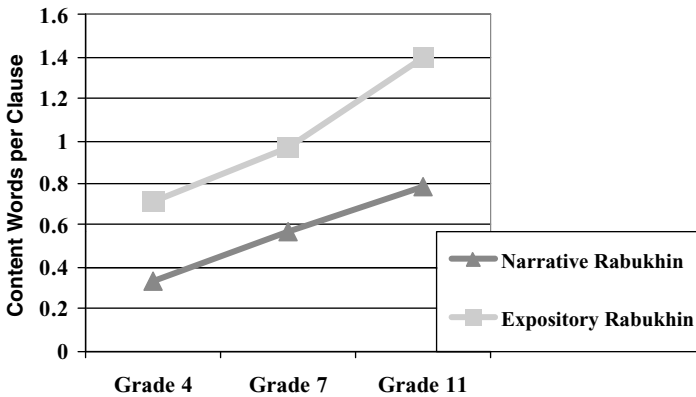


Figure 6. Mean number of high-register content words per clause in Rabukhin, by genre and grade.

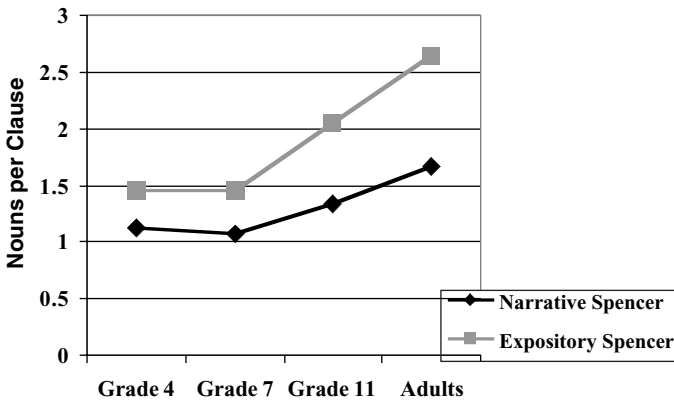


Figure 7. Mean number of nouns per clause in Spencer texts by genre and grade.

across the variables of age, modality and genre (Berman et al., 2002; Ravid, 2003; Ravid et al., 2002). In general, nouns are critical elements of overall discourse organization, since they govern the flow of information in the text by participating in reference chains (Hickman, 2003). Expository discourse, which focuses on abstract concepts and issues, is essentially rich in nouns than narratives, yet the ratio of nouns to verbs is important in narrative development as well (Ravid & Cahana-Amitay, in press). Figures 7 and 8 presents the mean number of nouns per clause in three corpora: Spencer, Shalmon, and Rabukhin.

In the core Spencer texts (Figure 7), expository texts contain more nouns per clause from the earliest age tested – 4th grade – and the difference increases in high school and is greatest in the adult group. The satellite texts show a similar picture with the

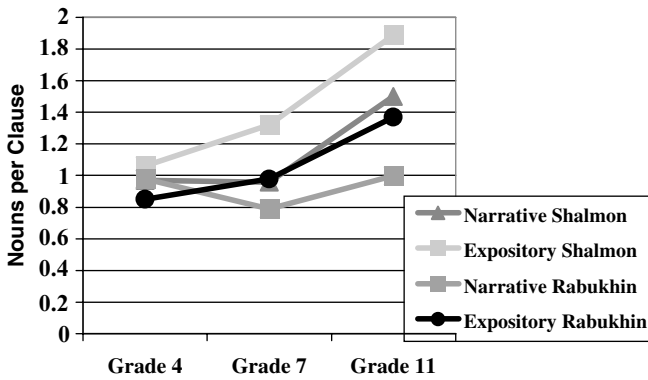


Figure 8. Mean number of nouns per clause in Shalmon and Rabukhin by genre and grade.

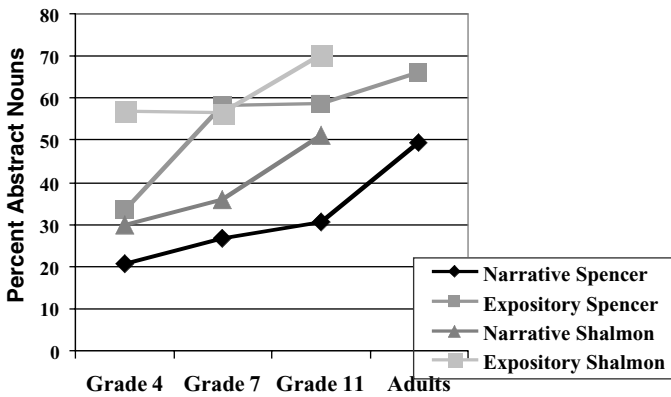


Figure 9. Percentage of abstract nouns out of all nouns in Spencer and Shalmon texts by genre and grade.

same curves, although with almost no difference between expositories and narratives in 4th grade. Here, too, there is no change in narratives till 7th grade, in contrast to a clear increase in number of nouns between 4th and 7th grade and towards high school.

Use of **abstract nouns** is also highly diagnostic of developing text production abilities. Thus, abstract nouns of various types increase in both Hebrew and English with age and schooling in interaction with modality and genre (Ravid, 2003), while in narratives, too, verbal content is increasingly expressed by abstract deverbal nouns rather than tense-marked verbs (Ravid & Cahana-Amitay, in press). Figures 9 and 10 focus on abstract nouns in our corpora.

Figure 9 shows that expository texts clearly outdo narratives in use of abstract nouns from as early as 4th grade. Further, in both the Spencer and Shalmon corpora, despite different SES backgrounds, not only do expositories contain more abstract nouns

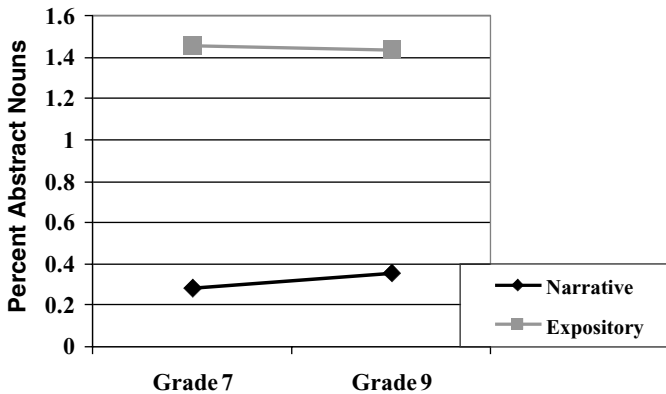


Figure 10. Percentage of abstract nouns out of all nouns in Ehrlich, by genre and grade.

than narratives, but narratives also become more abstract with age and schooling. The Spencer corpus reveals that this difference increases even more between adolescence and adulthood.

Figure 10 applies this measure to text beginnings and endings. The opening and closing sections of narrative and expository texts prove good indicators of linguistic complexity as well as global text structure across development (Berman, 2003; Tolchinsky et al., 2002). Ehrlich's study reveals about five times more abstract nouns in the beginnings and endings of expository texts compared with narratives, even though narrative openings and closings tend to be more generalized and abstract than the episodes at the center of such texts (Berman & Katzenberger, 2004).

ADJECTIVES

Adjectives constitute a less primary class of content words than nouns and verbs. They denote semantic attributes or properties of nouns in a syntactic relation of modification (attributive) or complementation (predicative) (Ferris, 1993). Typologically, adjectives are a more marked category, and many languages lack a distinct category of adjective (Dixon, 1977; Schachter, 1985). In psycholinguistic terms, Markman (1989) claims that the representation of adjectives in the mental lexicon is less richly structured and more arbitrary than that of nouns. Adjectives are less dense in meaning and have a less correlated structure than nouns. Markman suggests nouns have a privileged status in memory, and that they allow quicker, more accurate, accessing and are more effective as memory cues than adjectives and verbs. Diary studies and surveys of natural language acquisition show that adjectives appear later in child speech than do nouns and verbs (Casseli et al., 1995; Rice, 1990; Sommers, Kozarevich & Michaels, 1994). They also constitute a low-frequency class when compared to other content words in children's early lexicons in various languages (Dromi, 1987; Marvin, Beukelman, & Bilyeu, 1994; Ravid & Nir, 2000; Valian, 1986). Thus adjectives constitute a non-canonical lexical

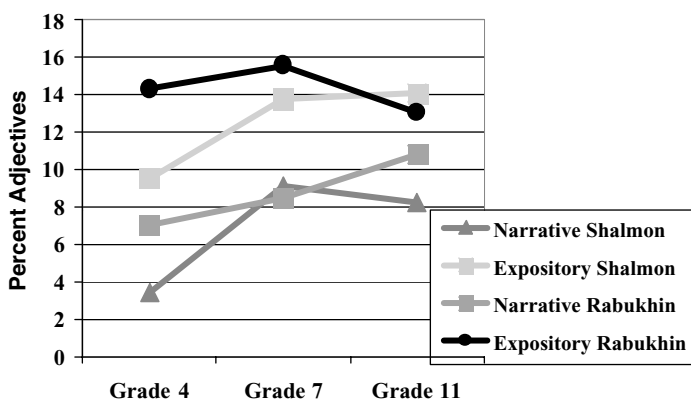


Figure 11. Percentage of adjectives out of all content words in Shalmon and Rabukhin, by genre and grade.

class across languages, their representation is less robust than that of nouns, and they emerge later in development (Berman, 1988).

Use of adjectives has also proved diagnostic in studies of later language development during the school years (Levie, 2002; Ravid, Levie, & Avivi-Ben Zvi, 2003; Zilberman, 2003). And these findings are confirmed by analyses of extended texts, as shown in Figure 11 for two of the “satellite” corpora considered here.

Figure 11 shows that, contrary to common-sense expectations, expositives contain more adjectives than narratives, again from the youngest age-groups considered here. In neither satellite corpora, however, does adjective proportion continue to increase in expositives between 7th and 11th grade.

Finally, denominal adjectives – in Hebrew, a noun stem plus suffixal *-i* (e.g., *tarbut-i* ‘cultur-al’, *kamut-i* ‘quantit-ative’) constitute an advanced lexical category which is diagnostic of age and literacy (Levin, Ravid, & Rapaport, 2001). In addition to the semantic complexity involved in converting nouns to adjectives, denominal adjectives usually derive from abstract nouns and typically occur in NP constructions denoting complex sub-categorization (Ravid & Zilberbuch, 2003; Shlesinger & Ravid, 2003). Figure 12 shows the breakdown of denominal adjectives in the low SES and bilingual satellite corpora (Shalmon, Rabukhin).

Figure 12 shows that denominal adjectives, calculated out of the total adjective count, are non-existent in all 4th grade corpora except for Shalmon’s lower SES expository texts. Subsequently, they show a dramatic increase across age groups and text types in both corpora, and again, expository texts take the lead in use of such high-register, morpho-syntactically derived lexical items.

DISCUSSION

The purpose of this chapter was to demonstrate that expository texts written by children, adolescents and adults show greater linguistic complexity than narratives, where

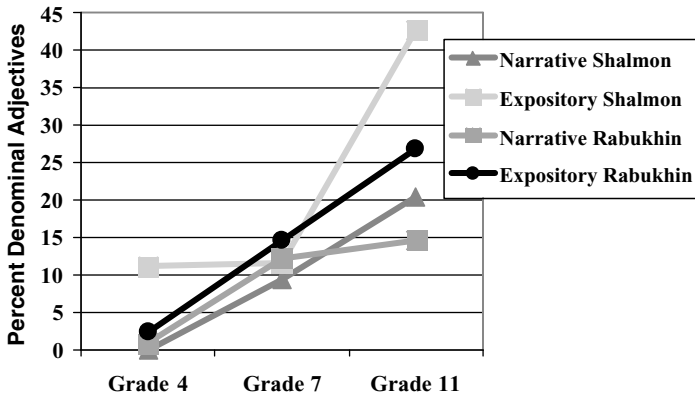


Figure 12. Percentage of denominal adjectives out of all adjectives in written narrative and expository texts in three age groups.

linguistic complexity is defined as deriving jointly from lexical complexity (density and diversity) and syntactic architecture operating in tandem. The common-sense assumption that what is easier for children to produce at the top-down level should also be linguistically ‘more advanced’ at the bottom-up level was not borne out in this study. Narrative texts, which emerge as well-formed much earlier than expository texts and are better constructed globally at all age groups, are nonetheless not as linguistically complex as expositives. All the measures we selected, applied to different sub-genres of narrative and expository, with different populations, and using different elicitation methods, yielded the same results: Expository texts are richer and more complex in linguistic expression than narratives, and this is usually apparent by 4th grade.

The main syntactic measure applied was mean clause length. Across age-groups and studies, written narratives run between 4–5 words per clause, while clauses in written expositives average 5–7 words. Clause length derives from number and length of intra-clausal phrases, which in turn reflect lexical density and diversity, combined with syntactic depth and diversity. Consider, for example, the following clause in a text written by a graduate woman student, discussing the problem of interpersonal conflict: *hitnagshut retsonot beyn pratim ba-xevra yotséret matsav shel xikux u-métax matmidim, klomar beayot beyn anashim* ‘a clash of wills between individuals in society creates a situation of constant friction and tension, in other words, problems between people’. The 15 words that constitute the clause in the original Hebrew (the English equivalent is even longer for reasons of the less synthetic nature of English syntax and also orthography) consists of three NPs, the first of which *hitnagshut retsonot beyn pratim ba-xevra* ‘(a) clash (of) wills between individuals in society’ is a hierarchical construction where a complex morphologically bound compound noun governs two prepositional phrases, with one governing the other. The second NP *matsav shel xikux u-métax matmidim* ‘(a) situation of constant friction and tension’ is an analytic genitive construction with two coordinated modifiers. Finally, the NP *beayot beyn anashim* ‘problems between people’,

the term used in the elicitation instructions, is loosely attached to the rest of the clause by means of the discourse marker *klomar* 'that is to say = in other words'. 11 of the 15 words in the clause are content words, seven of them abstract or denominal nouns (e.g., *friction, clash, society*), one a high-register generic noun (*individuals*), and two a high-register verb (*creates*) and denominal adjective (*constant*). Length of clause in words thus reflects not only a complex, hierarchical and diverse syntactic architecture, but also lexical density and diversity.

The high lexical complexity of written expository texts emerged in all measures – content words, nouns and adjectives. Across development, written narratives contain on the average about two content words per clause, while expositives contain close to three. Expositives average three times as many high-register content words as narratives. Written expositives are not only more nominal than narratives, as can be expected from their thematic content, they also contain a high proportions of abstract and derived nouns from early on (for example, 60% abstract nouns in 4th and 7th grade in the Shalmon and Spencer samples respectively). Abstract nouns constitute the underpinnings of complex syntactic architecture, since they provide the anchor for nominalization, noun compounding, and modification by denominal adjectives (Ravid & Avidor, 1998; Shlesinger & Ravid, 2003). Finally, adjectives, a non-primary lexical class which is a good diagnostic of linguistic complexity, occur more frequently in expository texts from 4th grade; and the occurrence of denominal *i*-suffixed adjectives, the hallmark of complex, abstract language use, increases in both types of written texts towards early adolescence, but dramatically so in expositives.

Taken together, these findings confirm the idea that linguistic complexity is not an isolated phenomenon restricted to a single domain; rather, where lexical complexity increases, it does so in all categories of the lexicon side by side with concomitant growth in syntactic complexity at a number of levels. This idea of 'conspiracy' assumes the interface of grammar, lexicon and pragmatics as a powerful force – as playing a crucial role in later language development and the acquisition of linguistic literacy, in interaction with extra-linguistic cognitive, affective and social development (Ravid & Tolchinsky, 2002).

Thus, even quite young schoolage children can cope with the challenge of writing expository texts about social processes and situations, a task which necessitates adopting a general, objective, non-involved and abstract discourse stance to the topic of discussion (Berman et al., 2002; Berman, in press). At the global level of text construction and organization, the topic may be difficult for schoolchildren and even adolescents to plan, organize and explicate clearly and coherently. But at clause level, even young writers use more complex language than they do in narratives when discussing generalized, abstract topics rather than specific episodes or events of narrative.

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25. DEVELOPING ALTERNATIVES FOR INDICATING DISCOURSE STANCE

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INTRODUCTION

While direct observation of an individual's conceptualisation of an event is impossible, it is possible to examine aspects of conceptualisations by studying how speaker/writers actually verbalise events through the use of options provided by their language. Encoding meaning in a given utterance involves an interaction between the speaker's mind and the world. The information, or the event to be communicated, is a complex entity composed of participants related via the predicate and it is the task of the speaker to convert his/her conceptualisation of the scene into a linearly organised utterance (Croft, 1991, 1994).

Languages provide mature speakers with a variety of grammatical options, the choice among which depends on the speaker's conceptualisation or point of view and his/her communicative intention in a given discourse context. The notion of "competition" will be used here to refer to the idea that there is no single way to verbalize the contents of any given situation in the world (of reality or fantasy), and that speaker/writers have a range of options for describing the selfsame scene (Berman & Slobin, 1994: 516–517; Slobin, 1996, 2001). Speaker/writers select semantic roles they wish to express in describing a given situation, and also which participant or component of the scene will be foregrounded or backgrounded.

From a developmental point of view, it is important to consider the range of structural options available for expressing a given function in the target language (Berman, 1993; Clark, 2001). The developmental study undertaken here attempts to characterize

French children's gradual mastery of constructions which contribute to speaker distancing, in particular the family of grammatical voice constructions, or the options available for the expression of alternative relations between the verb and its associated nominals (Klaiman, 1991).

A fruitful way of studying what children know about language is by studying what they can do or can not do with language and how usage, or choice among various constructions, varies depending upon the situation in which they are asked to produce. For the study to be presented, children and adults were asked to produce monologue expository texts in both a spoken and written modality. Production of monologue texts requires that speaker/writers engage in planning at different levels (Levelt, 1989). Individual messages must be elaborated and encoded into a linear form for articulation in a propositional format. These individual propositions are packaged using the syntactic means available for their combination. In turn, the various packages of information are structured into more global text components, such as beginnings and conclusions. The ability to plan a monologue text does not emerge full-blown from one day to the next. Rather, this capacity develops very gradually over the many years of childhood and adolescence.

Crucial to understanding the forms used in a text is the time allotted to text planning. Processing language in a written modality, in contrast to a spoken modality, alleviates some of the time pressure involved in language production, allowing more time for the work of converting information into words. Becoming a proficient writer involves gaining mastery over more compact means of establishing the flow of information, resulting in texts that show densely integrated packages of information (Chafe, 1994). For example, syntactic subjects in written expository discourse do not obey Chafe's (1994) "light subject constraint" characteristic of spoken discourse. It is for this reason, for example, that written French shows more lexical noun phrases than pronouns (Blanche-Benveniste, 1990, 1995; Lambrecht, 1984). Heavy subjects, often the result of syntactic packaging through nominalization or subordination, are characteristic of mature written expository discourse (Ravid et al., 2002). Written texts generally show more lexical diversity than do spoken texts, given that writing allows more time for planification and consequently more time to search one's mental lexicon for different and less frequent lexical items (Ravid & Tolchinsky, 2002; Strömquist et al., 2002).

Of course both speaking and writing call upon a number of shared cognitive activities. In most writing activities, however, writers can allot more resources to planning activities. It is for this reason that the study of what children know about language can be fruitfully approached by observing their text production in both written and spoken modalities. Once children are over the major hurdles of letter formation and spelling or what Ravid and Tolchinsky (2002) refer to as aspects of 'writing as a notational system', writing may actually facilitate the use of less frequent and more complex constructions, and thus give a somewhat different picture of what children know about language and how to use it.

This study will examine French children and adults producing expository texts, a text genre which calls upon the speaker/writer to package information in a

generic, generalizable fashion. In contrast to personal narrative texts, for example, where speaker/writers report highly individualised and specific experiences, expository texts require generic reporting with a certain personal detachment between the speaker/writer and the content of his/her propositions (Berman, Ragnarsdóttir, & Strömqvist, 2002; Berman, in press). Languages provide their users with a variety of options for encoding such detachment. In this study, various distancing constructions will be studied in the expository texts of monolingual French children and adults.

EVENT PACKAGING

A given event can be expressed in various ways, such as shown in (1) where different renderings of the event “resolution of a conflict” can be ranked on a continuum of speaker involvement in, or responsibility for, the contents of the utterance, from the highest in (1a) to the lowest degree in (1e).

- | | | |
|--------|--|---------------------------------------|
| (1) a. | <i>J'ai résolu le problème.</i> | 'I resolved the problem' |
| b. | <i>On a résolu le problème.</i> | '(Some)one~We resolved the problem' |
| c. | <i>Le problème a été résolu (par moi).</i> | 'The problem was resolved (by me)' |
| d. | <i>Le problème est/était résolu (par moi).</i> | 'The problem is/was resolved (by me)' |
| e. | <i>Le problème s'est résolu</i> | 'The problem resolved (itself)' |

In (1a) the speaker takes full responsibility for the information in the predicate by use of the first person pronoun as subject. The alternatives, (1b) to (1e) are the focus of concern in this paper. In the *on* construction (1b), the agent of the activity encoded in the event is necessarily human, but *on* can either attribute responsibility to the speaker or not – that is, it may, but need not have a reading that is close to (1a). In the passive construction in (1c), the speaker can shift responsibility for the action encoded in the predicate to an agent or omit the agent altogether. The predicating adjective construction (1d) is very close to the passive construction in that it is possible to include or exclude an agent. In the remaining example, the middle voice construction (1e), there is no explicit mention nor any attribution of an agent potentially responsible for the resolution of the problem. All of these constructions contribute to creating a speaker/writer's perspective on events and the stance taken in the text.

“Discourse stance” has been defined as referring to three interrelated dimensions of text construction: (1) *Orientation* – sender, text, recipient; (2) *Attitude* – epistemic, deontic, affective; and (3) *Generality* – specific or general reference or quantification (Berman, et al., 2002; Berman, in press). Of particular importance for the study to be undertaken here are the first and last of these dimensions. *Orientation* in this context concerns the relations between three participating elements in text production and interpretation – sender, text and recipient. The dimension of *generality* refers to how generalised or specific is the reference to people (including the sender), place and/or times referred to in the text.

The *on* construction shares some of the functional load carried by agentless passives and middle voice constructions in French and in other languages (Ashby, 1992; Berman, 1980; Jisa et al., 2002; Koenig, 1999; Lyons, 1995; Tolchinsky & Rosado, in

press; Vinay & Darbelnet, 1995). Agentless passive constructions as in (1c) and middle voice constructions as in (1e) have in common the fact that the patient participant is foregrounded and the agent participant is backgrounded. A human agent is implied in both cases, but explicit reference to this participant is typically absent in passive constructions and is disallowed in middle voice constructions. The *on* construction as shown in (1b) does not eliminate the agent, but definitely downgrades its individuation. The *on* construction resembles the passive in that it foregrounds the patient participant and downgrades the agent. And it contrasts with the middle voice to the extent that human agentivity is clearly encoded with *on*, but totally eschewed in middle voice constructions. The constructions given in (1) contribute to encoding a spaker/writer's stance and are crucial markers of both orientation and generality. In the following section, a brief description of these constructions will be given.

COMPETITION: GRAMMATICAL OPTIONS FOR SIMILAR FUNCTIONS

It is often claimed that the passive construction is used less frequently in French than it is in English (Jones, 1996). Two explanations are given for the less frequent use of passive construction in French. One concerns the tighter syntactic restrictions on passives in French in comparison to English. The second is that French shows a wider variety of grammatical options that compete with the passive construction for the same functional load.

The most important syntactic constraint is that only direct objects of transitive verbs can be promoted to subject in French. Thus, a sentence such as **Pierre a été donné un livre par Marie* ('Pierre was given a book by Mary') is not grammatical. Objects of prepositions are also excluded from subject position in a passive construction. A French translation of *The doctor was sent for*, for instance, would require a construction using either the generic pronoun *on*, as in *On envoya chercher le docteur* (Vinay & Darbelnet, 1995: 140), or a strictly transitive verb, *Le médecin a été appelé* ('The doctor was called.').

Thus, if a French speaker wants to promote an argument other than a direct object to subject position, other grammatical means must be employed, such as a topicalizing construction, *C'est à Pierre que Marie a donné le livre* ('It's Pierre that Marie gave a book to') or a dislocation (Lambrecht, 1994) or an "as for" construction (Kuno, 1972; Reinhart, 1982), (*Quant à Pierre, Marie lui a donné un livre*, ((As for) Pierre, Marie gave him a book'). Another possibility is an infinitival pronominal verb construction, consisting of the morpheme *se* and a limited number of verbs (*faire* 'make', *laisser* 'let', *voir* 'see', etc.) which can have either a passive (2) or a benefactive ((3) and (4)) meaning (Creissels, 1995).

- (2) *Jean s'est fait attraper (par la police)*. ('John got (himself) caught by the police')
- (3) *Jean s'est fait construire une maison (par l'architecte)*. ('John got (himself) a house built by the architect')
- (4) *Jean s'est vu donner un livre par Marie* ('John saw (himself) given a book by Marie')

Thus, some of the patient topicalizing effects of passive constructions can be accomplished through the use of alternative grammatical options (Jones, 1996).

In addition to a topicalizing function, passive constructions also contribute to background the agent of an event, either by demoting it to an agentive, oblique argument or by eliminating it altogether, through the use of an agentless passive (5).

(5) *Les documents ont été volés.* ('The documents were stolen')

A particularly important construction which comes into competition with an agentless passive is the indefinite or generic *on* construction (6) (Jisa et al., 2002).

(6) *On a volé les documents.* ('Someone stole the documents')

The chameleon character of *on* has been studied from many different angles, including its social and demographic distribution in everyday discourse and in interviews, its use and perhaps abuse in the mass media, both for Canadian French (Laberge, 1978; Laberge & Sankoff, 1980) and for European French (Ashby, 1992; Atlani, 1984; Koenig, 1999; Simonin, 1984). An important conclusion emerging from such analysis is that *on* is extremely multifunctional, and that the reference of *on* varies, depending entirely on the particular discourse context and communicative setting. As a colloquial alternative to *nous* 'we', *on* has first person plural reference, as in sentences like *on a passé les vacances dans le Midi* ('we spent our vacation in the Midi') (Jones, 1996). As a generic form, *on* refers to people in general, e.g., *en France on mange les escargots* ('in France one eats snails') and corresponds approximately to English 'one' or impersonal 'they' and to French impersonal *ils* ('they'), or other generic expressions such as *tout le monde* ('everyone'). In yet another use, *on* corresponds to an indefinite *quelqu'un* ('someone'), e.g., *on a volé mon stylo* ('someone stole my pen'), or to the understood subject of a passive construction, e.g., *mon stylo a été volé* ('my pen was stolen'). In all cases – except as a variant of first person plural *nous* – reference is non-specific, but it is restricted to human referents.

It is not always easy to classify different uses of *on*, but several studies note that features of the verb with which it is associated are critical for how it is interpreted. Verb tense, for example, is important for determining the type of *on*. The generic interpretation is available only when the verb has a non-punctual tense, e.g., the present or imperfect, denoting a state or habitual event (Jones, 1996: 287). When used with a verb in the specific past tense (French *passé composé* corresponding roughly to English simple past), as in *on a volé son sac* 'someone~we stole her/his purse', as shown by the gloss, *on* can have either a first person plural or an indefinite interpretation.

Verb semantics are also important in determining the indefinite interpretation of *on*. For example, Koenig (1999: 238) argues that the referent of indefinite *on* must be an active, volitional participant in the situation encoded by the sentence in which it has the subject role, as shown in (7b) compared with (7a).

(7) a. *On a reçu des lettres d'insultes* (**Somebody~We received letters of insult.')

b. *On lui a envoyé des lettres d'insultes* ('Somebody~We sent him letters of insult.')

The subject of *recevoir* ('to receive') in (7a) does not entail agentivity, given that no causal role of semantic agency is needed in order to 'receive' something. In contrast,

indefinite *on* can occur as the subject of a verb such as *envoyer* ('to send') in (7b), which does involve volitional agentivity. This semantic restriction requires that in order to be interpreted as an indefinite subject, the clitic *on* "must be the subject of a verb whose agentive or actor semantic role it satisfies" (Koenig, 1999: 237).

In sum, *on* can be characterized as having three basic functions (Jones, 1996). It can refer 1) to first person plural *nous* 'we' or 2) to a generic referent, particularly when used with a verb in a non-punctual tense, and 3) in its indefinite usage, *on* can be a variant of *quelqu'un* ('someone') or of an agentless passive construction. In this last function, *on* indicates a change of verb valence by eliminating an agent without promoting any other participant. Ashby (1992) points out that this use of *on*, when it demotes an agent, but does not promote any other participant, serves to foreground the predicate.

An additional family of constructions that are available for defocusing an agent in an activity are the pronominal verbs used in middle voice constructions. Jones (1996: 111–120) identifies three categories of pronominal voice: intrinsic pronominal verbs, neutral, and middle. Intrinsic pronominal verbs are verbs which do not exist in transitive constructions (*s'évanouir* 'faint', *se souvenir* 'remember') and contrast to reflexive and reciprocal constructions in that they typically do not take an explicit reflexive *-même* ('-self') or reciprocal *l'un l'autre* ('each other') marker. Jones also includes in this category verbs which change their meaning when employed with *se* (*passer* 'to pass', *se passer* 'to happen') and impersonal constructions *il se peut que Jean soit là* ('It is possible/likely that Jean will be there').

Neutral constructions (Jones, 1996) with *se* contain verbs which have a transitive counterpart and are used more frequently as transitives. These 'spontaneous event' constructions (Kemmer, 1993) can be used with a punctual or non-punctual tense and thus compete with passive constructions. The different renderings of the same event in (8) show a transitive (8a), middle (8b) and passive (8c) version.

- (8) a. *Le gouvernement a transformé la situation économique* ('The government transformed the economic situation')
 b. *La situation économique s'est transformée.* ('The economic situation transformed (itself)')
 c. *La situation économique a été transformée (par le gouvernement)* ('The economic situation was transformed (by the government)')

In what Jones (1996) terms "middle" constructions and Kemmer (1993) "passive middle", the grammatical subject corresponds to the patient or undergoer of the event and the involvement of a human agent is implied.

- (9) *Ce vin se boit chambré* ('This wine drinks at room temperature')
 (10) *Ce journal se lit en cinq minutes* ('This newspaper reads in five minutes')

This productive syntactic process closely resembles the passive construction, but differs from it in two ways (Jones, 1996). First, the agent cannot be mentioned, **Ce vin se boit chambré par tout le monde* ('This wine drinks at room temperature by everyone')

and second, only non-punctual tenses can be used, **Ce vin s'est bu hier soir* ('This wine was drunk last night'). In addition, human noun phrases are generally avoided as the syntactic subject of middle constructions. However, if the patient in the situation is a generic reference, it can be used in a dislocation construction (Jones, 1996).

- (11) a. *Un bébé s'embrasse sur le front* ('A baby kisses itself on the forehead')
 b. *Un bébé, ça s'embrasse sur le front* ('A baby, that's/it's kissed on the forehead')

(11a) can only receive a rather absurd reflexive meaning. The potential confusion between a reflexive and a middle voice reading is probably the reason why human noun phrases are avoided as syntactic subjects.

To summarize, these passive middle constructions detransitivize verbs which are used more frequently as transitives and with a human agent. They usually describe habitual or normative situations and are incompatible with a punctual tense (Jones, 1996: 111–113), and thus generally imply a generic agent, although explicit mention of the agent is disallowed. Given these distributional characteristics, the middle voice construction comes into competition with the generic *on* construction.

- (12) a. *On boit ce vin chambré.* ('One drinks this wine at room temperature')
 b. *On lit ce journal en cinq minutes.* ('One reads this newspaper in five minutes')

DISCOURSE STANCE

In the following section the various constructions which have been considered so far will be discussed in terms of the contributions they make to two elements of discourse stance – orientation and generality (Berman et al., 2002; Berman, in press). The constructions to be examined include: 1) the *on* construction (13a), 2) the passive construction (13b), 3) the infinitival pronominal verb construction (13c), and 4) the middle voice constructions (13d).

- (13) a. *On a résolu les problèmes* ('(Some)one/we resolved the problems')
 b. *Les problèmes ont été résolus (par les autorités).* ('The problems were resolved by the authorities')
 c. *Les problèmes se laissaient résoudre* ('The problems let themselves be resolved')
 d. *Les problèmes se sont résolus* ('The problems resolved (themselves)')

With respect to orientation, it can be argued that the *on* construction (13a) can either include or exclude the sender and/or recipient, so that the assignment of responsibility for the information given in the text is somewhat ambiguous. The agentless passive construction (13c), in contrast, is neutral with respect to the involvement of either the sender or the recipient in the event. The passive construction, then, can be taken as an indication of text orientation, while the *on* construction can be an indication of either a sender or a recipient orientation. In terms of the grammatical expression of commitment concerning the propositional context of a message (Biber & Finegan,

1989), the agentless passive contributes more distance between the sender and the message than does the *on* construction.

Kemmer's (1993) passive middles (corresponding to Jones' "neutral constructions"), encode situations in which an unmentioned external entity (most typically human) causes the situation and the grammatical subject is affected. The *on* construction (13a), the passive construction (13b) and the middle voice construction (13d) contrast in how participants in an event are characterized. As Kemmer (1993: 205) points out, the passive middle is halfway between a two participant event in that, like a prototypical transitive event it has two participants, in this case 'problems' and 'problem solvers', but like an intransitive construction the event is treated as having only one salient affected participant, 'problems'.

The agentless passives (13b) and the middle voice (13d) have in common the fact that no agent is mentioned as being responsible for the resolution. They differ, however, in that (13b) can grammatically accept an agent which (13d) can not. While attribution of responsibility for an action by mentioning an agent is an option for the passive construction, the middle voice construction (13d) disallows mention of an agent. The event simply happened with not even an implicit causing agent being potentially mentioned. In this respect the middle voice can be argued to be an even stronger mark of agent detachment.

Faltz (1985) describes "facilitative" middles (equivalent to Kemmer's (1993) 'passive middles'), such as *ces problèmes se résolvent facilement* ('these problems resolve themselves easily, these problems are easily resolved') which make reference to the ease or difficulty of the occurrence of an event. These constructions express situations in which an external causer, usually human, is understood to exist, but is pragmatically deemphasized, being judged unimportant from the speaker/writer's point of view, as compared to the patient. The element which is emphasized is the patient or undergoer. In addition, with respect to discourse stance, these constructions allow for the encoding of a judgement of quality with no indication as to who is making the quality judgement.

In these situation types, encoded by the middle voice, the affected entity is being emphasized. The agent is always generic and the event itself can be considered as non-specific, non-individuated and lower in elaboration than a specific event (Kemmer, 1993). As mentioned above, these constructions can be used only with a non-punctual tense such as the simple present or imperfect (Jones, 1996: 116) and thus the encoding of generic or habitual events using a middle construction is very similar to the use of a generic *on* construction.

The pronominal verb construction (13c), consists of *se*, a limited number of verbs and the main verb in infinitive form. It is very similar to a passive construction in that it encodes a prototypical transitive situation. In fact (13c) is rather strange because the grammatical subject or affected patient is nonhuman. Most often, the subject in these constructions is a human. In this respect it differs from the passive middle in that when the affected patient is human – most often the case – he is both the affected patient or benefactor, as well as the instigator or the causer of the event. It is also possible to encode an agent in these constructions, such as in (14) and (15). This structure often corresponds to English *get* passives (Budwig, 2001; Jisa & Kern, 1995).

(14) *Jean s'est fait mordre (par le chien)* ('Jean got (himself) bitten (by the dog)')

(15) *Jean s'est fait construire une maison (par l'architecte)*. ('Jean got (himself) a house built (by the architect).')

A DEVELOPMENTAL PERSPECTIVE

The present study will investigate the various options available to French speaker/writers for marking discourse stance. The constructions to be examined are the *on* constructions, passive constructions, pronominal infinitival and middle voice constructions. In addressing this issue, we take a developmental perspective by examining the distribution of these constructions in spoken and written expository texts produced by French monolingual children at three age levels (9–10, 12–13, 15–16 years of age) compared with university educated adults. Expository discourse requires that speaker/writers generalize across individuated experiences and events, presenting information as objective generalities. The constructions examined here can be used by speaker/writers to step back from attributing clear and unique responsibility for the information contained in their utterances, and thus, are important indicators of speaker/writer stance.

In early stages of language acquisition, the first events to receive grammatical treatment are expressed as highly manipulative activity scenes in which a prototypical, highly individualised agent brings about a change of state in a patient (Berman, 1993; Budwig, 1995). The prototypical agent of a basic causal event is one who carries out a physical and perceptual change of state in a patient by means of direct body contact or with an instrument under the agent's control. This kind of agent is clearly in the domain of narrative texts. Mature expository texts, to the contrary, require generic agents, which can be marked by the use of *on* constructions, by passive middles, by spontaneous event middles, or by agentless passives. The prediction of Berman et al. (2002) is that the overall stance of more mature speaker/writers in expository texts will be "by and large more distanced, detached, and objective than that of children". It is this prediction which will be explored here.

METHODOLOGY

Subjects

The monologue texts examined here are part of a larger cross-linguistic, developmental study of spoken and written text production in seven languages (Dutch, English, French, Hebrew, Icelandic, Spanish, Swedish).¹ Subjects in four age groups (9–10-year-olds, 12–13-year-olds, 15–16-year-olds and university graduate students) were asked to produce both narrative and expository texts in spoken and written modalities, with half of the subjects producing first the spoken text, followed by the written text and the other half producing the texts in the reverse order. Only the spoken and written expository texts produced by the French monolingual subjects are considered

¹ This project was made possible through the Spencer Foundation (Chicago, Illinois) funding of a major grant "Developing literacy in different contexts and different languages" (Professor Ruth Berman, PI).

Table 1. Length of written and spoken expository texts in clauses

	9-year-olds	12-year-olds	15-year-olds	Adults
Written				
mean	8	13	17	28
range	4–17	4–23	8–32	13–67
Spoken				
mean	17	14	17	50
range	5–49	6–30	7–51	15–114

here. The French child subjects were recorded in two private schools in Lyon. The adults are graduate students from two universities in Lyon.

Procedure

To elicit the expository texts subjects were asked to discuss “the problem of violence in schools”. For the spoken modality, subjects were instructed to use as much time as necessary to prepare a talk to be given in front of their class. Texts were recorded once the subject indicated to the researcher that s/he was ready to begin. For the written modality, subjects were given scratch paper and as much time as needed to write their texts. Both the written and spoken texts were fully transcribed using CHILDES.

Coding

The spoken and written expository texts were coded for 1) generic, indefinite *on*; 2) passive voice constructions (with and without agents); 3) infinitival pronominal verb constructions; and 4) middle voice constructions. “Middle voice” constructions will be used in the remainder of this text to refer to Kemmer’s (1993) passive middles and spontaneous event middles and to Jones’ (1996) impersonal middles. Two coders completed the coding individually. Coding differences between the two were resolved through discussion.²

RESULTS

Table 1 summarises information concerning the length of the spoken and written texts. Because of the wide variation in text lengths the results will not be reported in absolute numbers. Rather, the proportion of a given construction is reported as a percentage of total clauses in the text.

On

Figure 1 shows the distribution of *on* constructions in the written and spoken texts. Overall, *on* is more frequent in the spoken modality than in written ($F_{(1,152)} = 5.61$, $p < 0.01$) and the higher frequency of *on* in spoken texts is attested in all age groups. Age is a significant variable in the distribution of *on* ($F_{(3,152)} = 2.59$, $p < 0.05$) with generic, indefinite *on* being more frequent in the two younger groups as opposed to

² Special thanks is expressed to Anne Viguié and Carole Vinson for their invaluable help with coding.

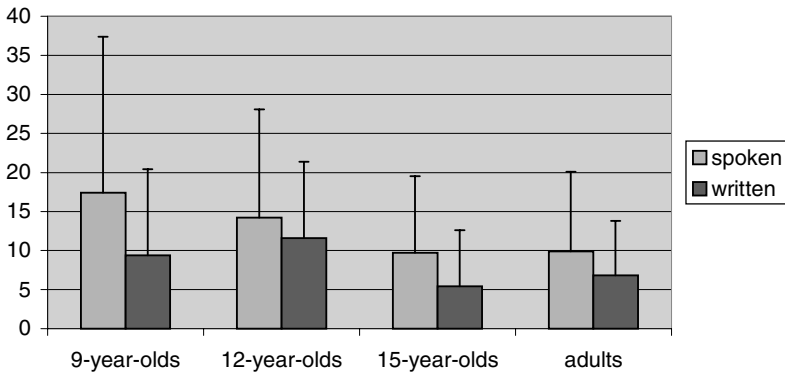


Figure 1. Distribution of *on* constructions in spoken and written expository texts (in %).

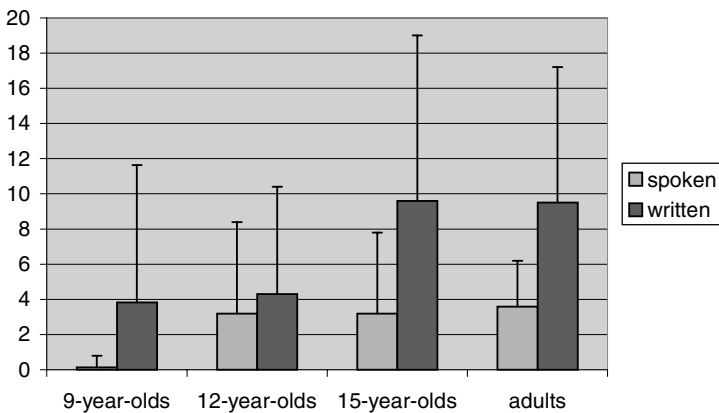


Figure 2. Distribution of passive constructions in spoken and written expository texts (in %).

the two older groups. Thus, the use of *on* decreases with age and this is particularly true of the written modality. As will be shown, one of the reasons that the use of *on* decreases is that the other forms in competition for the same depersonalising function become more productive.

Passive

Because the overwhelming majority (91%) of the passive constructions were agentless, passives with and without agent arguments are not distinguished. The distribution of passive voice constructions is given in Figure 2. This construction is more frequent in the written modality than it is in the spoken modality ($F_{(1,152)} = 19.24$, $p < 0.0001$) and this is true for all age groups. The use of passive constructions increases with age ($F_{(3,152)} = 5.06$, $p < 0.002$) and this is particularly clear in the written modality.

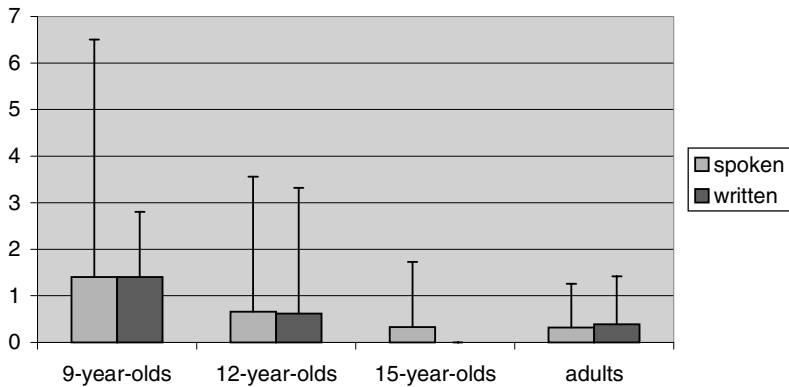


Figure 3. Distribution of infinitival pronominal verb constructions in spoken and written expository texts (in %).

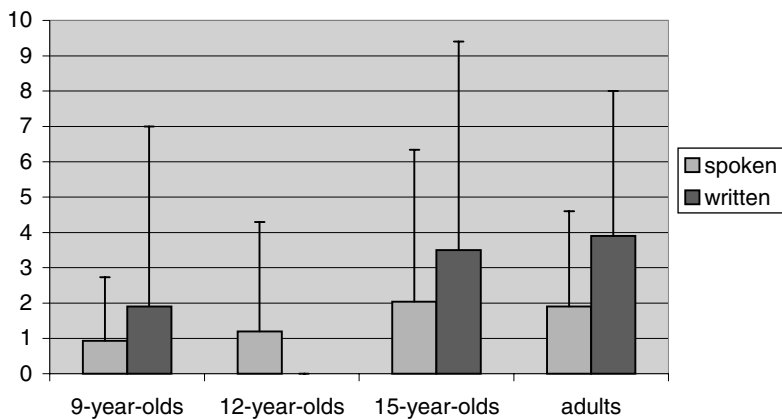


Figure 4. Distribution of middle voice constructions in spoken and written expository texts (in %).

Infinitival pronominal verb constructions

While infinitival pronominal verb middles are observed - particularly in the 9-year-olds - this construction shows no significant difference in distribution according to age or modality.

Middle voice

Middle voice constructions are relatively infrequent, even in the written texts. The overall use of middles increases with age ($F_{(3,152)} = 3.28$, $p > 0.02$). Although the effect of modality is not significant, more uses of passive middles are observed in the written modality for the 9- and 15-year-olds and the adults.

DISCUSSION

This study was undertaken to explore the gradual development of grammatical constructions contributing to a distanced discourse stance. The two most frequent constructions, the *on* and passive constructions, show clear age and modality effects. *On* is more frequent in spoken French and decreases with age. Passive is more frequent in written French and increases with age. This illustrates a well-established pattern in the general domain of language development (Slobin, 1973), as in other areas of cognitive development (Werner & Kaplan, 1963: 60): new forms take on old functions and old functions receive new forms. New forms taking on old functions is illustrated by the development of passives taking over some of the functional load of *on* constructions. Old forms taking on new functions can be observed by considering that earlier uses of *on* as the spoken French equivalent of *nous* take on generic and indefinite uses with advancing age and schooling. In both cases, we find expanding repertoires along the dimension of form–function mappings with age. Of course, not all indefinite uses of *on* are replaced by a passive construction. Rather, what emerges is a gradual development of control over the multiple options provided by the language – very much as demonstrated by Tolchinsky and Rosado’s (in press) study of five different devices for agent–downgrading in Spanish.

One of the goals behind this study was to ascertain how learning to write modifies children’s use of grammatical constructions. Nine-year-olds use some passive constructions in written discourse, but almost never in spoken discourse (Figure 2). Starting from 12 years of age, the subjects used the passive in spoken, as well as written expository texts. Across all age groups passive constructions are more frequent in the written modality. It is often claimed that children write as they speak. These results suggest that children also learn to speak the way they write. It may be the case that the exercise in usage of passive constructions in the written modality increases their accessibility in the spoken modality.

One of the advantages of the methodology adopted in this study is that the written and spoken texts are produced by the same subject. This allows for comparison of text content with contrasting forms of information packaging. The excerpts in (16a) and (16b) contrast use of an *on* construction in a spoken expository text and an agentless passive in a written text produced by the same woman.

- (16) a. *Il y a d’autres problèmes qu’on a tendance à négliger* [A 11, Exp, Sp]³
 ‘There are other problems which one tend(s)~we tend to neglect’
 b. *Les autres difficultés de rapports entre les personnes au niveau collège sont par contre un peu oubliées* [A 11, Exp, Wr]
 ‘Other difficulties in personal relations in junior high are on the other hand somewhat forgotten’

³ The examples contain subject identification codes. The first number or letter refers to age group: 9 refers to 9–10-year-olds, 12 to 12–13-year-olds, 15 to 15–16-year-olds and A refers to adults. The next number makes reference to the individual subject in the age group. Finally, Exp refers to expository, followed by an indication of modality, either SP (spoken) or Wr (written).

In the *on* construction in (16a), responsibility for the negligence can be ambiguous between a specific or a generic agentive meaning. The passive construction in (16b) leaves responsibility for forgetting unassigned. In this respect, the agentless passive eliminates the sender role, whereas the *on* construction leaves it somewhat more ambiguous between a generic ‘one’ and an inclusive first person plural ‘we’. This modality contrast is consistently observed across all age groups. That is, when there is a change in construction choice, it is always the case that the passive is found in the written modality. Not a single case of *on* in the written modality corresponding to a passive in the spoken modality is observed.

This result highlights the importance of studying children performing in both the written and spoken modalities. Generalisations based on just a single modality may fail to do justice to the developing linguistic knowledge of school age children, particularly in later stages of development, when they have had extensive experience with literacy-based activities and with reading and writing different types of academic discourse. Some forms are more characteristic of the written modality, such as the passive construction in French. The distributional analysis provided here demonstrates that in addition to acquiring productive use of the two competing forms – generic *on* and the passive construction – children must also develop the competence necessary for deploying them in their most appropriate contexts.

The infinitival pronominal verb construction is rare across all age groups. Interestingly, the 9-year-olds use generic *on* as the subject of these constructions.

- (17) *le plus intelligent c'est celui qui arrête le premier quand on se fait racketter.* [9 1 Exp Wr]
 ('the most intelligent is the one who stops first when(ever) one gets blackmailed')

The pronominal verb used in these constructions across all age groups is almost exclusively *faire* ('make'), which emphasises the grammatical subject's double role of instigator of the activity, as well as affected patient.

- (18) *... car certains jeunes entendant les récits de faits violents imitent afin d'eux aussi faire parler d'eux et donc se faire remarquer* [A 11 Exp Wr] ('... because some young people, hearing stories of violent happenings, imitate in order to be talked about and thus to get themselves remarked upon/draw attention to themselves')
- (19) *les plus timides ils oseront jamais euh même si ils se font embêter ou quoi que ce soit.* [A 21 Exp Sp] ('the shyest ones they will never dare even if they get themselves hassled or whatever')
- (20) *la copie peut être une réelle source de conflit entre étudiants surtout s' ils se font prendre.* [A 23 Exp Wr] ('copying can be a real source of conflict particularly if they get caught')

Somewhat disappointing is the fact that the middle voice constructions examined here were used infrequently. It was expected that these constructions would take over some

of the functional load of downgrading the agent of an activity. The constructions do indeed fulfil this function, as show in the examples below, but it would appear that the *on* and passive constructions are options chosen more often. The two first examples (21) and (22) come from texts written by the youngest subjects. It is interesting to note the use of an explicit reciprocal marker (*l'une à l'autre*) in the subject noun phrase (*le respect des personnes l'une à l'autre*) in (21).

- (21) *Nous voyons que le respect des personnes l'une à l'autre se perd durant les années.* [9 33 Exp Wr] ('We see that respect for people one and the other is being lost over the years')
- (22) *Les bagarres peuvent se finir en drame ou encore en dégradation des bâtiments scolaires.* [9 21 Exp Wr] ('Fights can end up in dramas or in deterioration of school buildings')
- (23) *Je ne pense pas que la triche puisse apparaître comme un problème car elle cessera à un certain niveau scolaire lorsque s'effectuera une certaine prise de conscience.* [15 11 Exp Wr] ('I don't think that cheating can constitute a problem because it will stop at a certain school level when a certain consciousness is reached')
- (24) *L'apprentissage de cet art de vivre se fait dès l'enfance.* [A 1 Exp Wr] ('The learning of this way of life begins in childhood')
- (25) *Les mêmes comportements se retrouvent dans un contexte adulte mais de façon beaucoup plus discrète.* [A 35 Exp Wr] ('The same behaviours are found in an adult context but in a much more discrete fashion')

Although the variable of modality did not show a significant effect in the usage pattern of middle voice constructions, they were observed more in the written texts. All of the above examples are taken from the written texts and show other characteristics of this modality. For instance, (24) contains a particularly heavy subject with a nominal derived from the verb *apprendre* ('to learn/to teach'). (23) shows inversion of the verb (*s'effectuera*) and the subject (*une prise de conscience*).

SUMMARY

It is probably impossible to predict exactly when one construction will be chosen over another by a given French speaker/writer. However, comparisons of actual usage can bring us closer to understanding what is important in estimating probability. A number of factors can be advanced as being important – including the availability or productivity of a given structure in an individual's repertoire, the discourse context, register and the inventory of competing structures in form/function mappings within the language.

From a developmental viewpoint, it is important to ascertain at what age given structures are available in the individual's productive repertoire. The youngest age-group in our sample (9–10-year-olds) constitute a relatively advanced stage for the study of language acquisition as such. *On* is a very early acquired subject clitic as it is used instead of *nous* for first person plural in spoken French. *Se* is also very early acquired

as a reflexive and reciprocal marker. The work presented here is not concerned with the initial acquisition of structures; rather, it concerns the actual use of constructions for new functions in spoken and written monologue texts.

The use of a structure in a monologue text requires a high degree of automatization of grammatical constructions (Levelt, 1989). Marchman et al., (1991) have shown that, in dialogue situations, English-speaking children as young as three years are able to use passive constructions like *The cat was chased by the dog* in response to questions specifically requiring answers which foreground the patient of the action (i.e. *What happened to the cat?*). But use of the same construction in the context of on-going monologic text construction may emerge considerably later, since children are then required to create the discourse context that motivates the passive construction, as well as the passive construction itself.

The middle voice marker *se* is acquired early by French children and is used frequently as a marker of reflexive and reciprocal relations. Thus, it would be difficult to evoke formal complexity involved in using middle voice *se* as an explanation for its late development. The use of *se* as a middle voice to downgrade the role of the agent in an activity is, in fact, very infrequent, even in the adult written texts.

The data reported on here do not support the claim that French does not rely heavily on the passive voice construction. While it is true that French has other grammatical options, in particular the *on* construction and the middle voice construction, the passive construction is used frequently in the written modality. And indeed, in a study of written narrative and expository texts (Jisa et al., 2002), no significant difference was observed in the use of passives by adult writers of Dutch, English and French.

We have also seen that the analysis of this expanding repertoire of forms is fruitfully informed by comparison of the written and spoken modalities. Passive constructions are rare in spoken discourse (Figure 2), even among adult subjects. In contrast, in the written texts, use of passive voice increases with development, and eventually overtakes generic and indefinite use of *on* among the adult subjects.

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26. BECOMING PROFICIENT EDUCATED USERS OF LANGUAGE

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INTRODUCTION

One of the central concerns in Ruth Berman's work, mainly during the late nineties, is the characterization of linguistic knowledge beyond core grammar. Berman is particularly interested in defining the features of language that make us "proficient users" and not only native speakers of a language. She is clear as to the effect of schooling on language proficiency, and unlike many linguists who focus on the linguistic knowledge of the "universal mind", she is convinced of the relevance of tapping the linguistic knowledge of the "educated mind" (Morais & Kolinsky, 2001).

In Berman's view a main characteristic of proficient educated language users should be adaptability to a diversity of communicative circumstances by a diversification of linguistic means. Being proficient involves the ability to recruit different morpho-syntactic structures and to use them "flexibly for diverse communicative purposes" (Berman & Ravid, 1999). In 1998 a number of researchers from different countries working on the domains of linguistics, language development and literacy were invited to participate in the project *Developing Literacy in Different Languages and Contexts* under the direction of Berman to explore the development of the adaptability to different communicative purposes from late childhood towards adulthood in different languages. The project's main aim was to map the linguistic resources deployed by educated speaker/writers when talking and writing about a personal narrative as compared with

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those they used in discussing a topic in speech and in writing. The database and most of what we are discussing in this chapter was developed in the framework of this project. The participants were monolingual Spanish-speaking and bilingual Catalan/Spanish-speaking subjects from four age groups: 9 year-olds Gradeschool; 12 year-olds Junior-high school; 17 year-olds Highschool and Adult university students. The findings we are going to present are of Catalan and Spanish, but we think that the implications are not only language-specific.

Two discourse types – personal narratives and expository discussions—were selected, because they are considered as extreme points on a number of dimensions that distinguish genres. Concerning the protagonists, narratives focus on people in particular temporally and spatially defined circumstances whereas expository texts are about ideas and themes. In the dimension of time framing, personal narratives are always past to the time of telling, whereas expository discussions are timeless, centered as they are on analyzing a theme. In the dimension of personal involvement, first person narratives represent the highest point of involvement, whereas expositives should appear as detached and impersonal. In terms of generality of reference and quantification, one of the features defining discourse stance, narratives are more specific, whereas expository texts are more generic and generalized (Berman, Ragnarsdóttir, & Strömquist, 2002).

The analyses of the spoken and written texts produced by the participants across languages showed clear adaptability of the devices they used to the contrasting communicative functions, from the youngest age group onwards. This was evident at every level of text analyses, from the overall text structure through the means of interclausal linkage to the internal structure of clause and the lexical choices. This finding is consistent with research on text production in young children which reveals early sensitivity to genre differences (Bhatia, 1993; Christie, 1986; Macaulay, 1990; Sandbank, 2002). For example, across languages and age groups, past tense, perfective aspect (where relevant) and *realis* mood dominated in narratives compared with the timeless present and *irrealis* mood in expository texts. Even children used more aspectual verbs like *begin*, *keep on* in narratives and more modal predicates like *should (n't)*, *can* (French *il faut*, *pouvoir*) in expository texts, and a higher proportion of copular and existential constructions in expository over narrative texts. In choice of grammatical subjects, speakers showed a preference for deictic and anaphoric personal pronouns in narratives and for impersonal pronouns and noun phrases with lexical heads in expository texts. As for generality of reference, in the narratives subjects tell or write about *mi profesora* 'my teacher', *mi mejor amigo* 'my best friend', whereas in expositives they refer to *los jóvenes* 'the young people', *los problemas de la adolescencia* 'the problems in adolescence'. The thematic content of texts also differed by genre, again from the youngest age group: concrete events and incidents are the focus of personal experience narratives, while generalizing statements and expression of ideas make up the bulk of the expository texts. These distinctions, in linguistic forms of expression and in thematic content, reflect differences in what Berman and her associates term overall discourse stance (Berman, Ragnarsdóttir, & Strömquist, 2002).

In-depth analyses of the same texts showed, however, that the use of differing linguistic means to fit different functions is just the basic facet of proficient use of

language. On this basis, with age and schooling, participants refine the linguistic devices used to fit the demands of genre. Texts become more elaborated and precise, and include syntactically denser structures. At the same time, the linguistic means to fulfil a particular function become more diversified. In this chapter we examine each of these features in turn elaborating on the developmental patterns they followed and showing in what sense they are indicators of increasing rhetorical flexibility. The results we are going to discuss confirm that “There is a long developmental route to follow before children become fully proficient users of a language” (Berman, 1997b).

ELABORATION OF INFORMATION

The first feature we consider is crucial for attaining the main goal of expository text, that is, to create a structure of the text’s theme in the reader’s mind (Britton, 1995). Given a certain topic the speaker/writer has to produce a series of “moves” in order to communicate the addressee the content, properties and relations that define this topic so as to enable for its reconstruction in the addressee’s mind. In a first type of moves (MOVE ON) new referents are introduced in the text, in a second type of move (EXPAND) further details about the referents are provided, and in a third type of move (UNIFY) information is summarized, condensed or subsumed. The second type of moves elaborates on information already introduced in the text. By *elaboration of information* we mean the analysis of a state of affairs, already presented, so as to provide a more fully developed perception of the state of affairs on the part of the addressee. Take for example the two pairs of expressions (1a and b; 2a and b), in each pair the second one (1b and 2b) is more elaborated than the first one. 1b provides a justification as for why it is advisable not to copy, whereas this activity is just forbidden in 1a, and 2b provides a reason why certain things should not be done.

1a. *Pues que los niños no tienen que copiar* [pG13mes]²

Well that the children do not have copy

1b. *Los niños no tienen que copiar porque está mal y no sirve para aprender* [pJ09mew]

The children do not have to copy because it is wrong and not serves for learning

2a *Jo penso que això no sa [s’ha] de fer* [cG02mew]

I think that this should not be done

2b *no s’haurien de fer aquestes coses perquè si no no treus bones notes* [cG20mesc]

these things should not be done because otherwise you don’t get good grades

There are different ways by which a certain state of affairs can be elaborated: by a justification or by providing a reason, as in the examples, by providing an illustration, by using an example or a definition of any of the terms included in the statements, etc. (Tolchinsky et al., 1999). In any case, more elaborated information enables a better

² In specifying speaker-writer identity in examples, we use the following convention: the 1st lower case letter stands for the language-p = Spanish (distinct from c = Catalan); the 2nd upper case letter stands for grade or age level G = grade school, J = junior high, H = high school, A = adult; the two digits give the subject number – 05 is the 5th subject in that age-group, 17 = the 17th in that age group; the next lower case letter stands for sex – m = masculine, f = feminine; and the last two letters identify text type and modality, as follows: ew = expository written, es = expository spoken, nw = narrative written, ns = narrative spoken.

structuring of the theme by the addressee, and in this sense it is crucial for the function of expository texts.

We predicted that, as a consequence of increasing attuning to the functional demands of genre, with age we should find an increasing elaboration of the information presented in expository texts. The database used for examining this prediction consisted of spoken and written expository texts produced by 80 monolingual Spanish-speaking subjects, who produced their texts in Spanish, and 70 bilingual Catalan/Spanish-speaking subjects, who produced their texts in Catalan. Participants were from the four age groups included in the project: 9 year-olds Grade school, 12 year-olds Junior-high school, 17 year-olds High school, and Adults University students.

As a first step for evaluating elaboration of information we segmented all the texts into rhetorical moves of three types: MOVE-ON, EXPAND and UNIFY, according to whether they introduce new information, whether they expand or unfold already given information, or summarize information. After that, we calculated an *index of elaboration*. This index was obtained from the number of EXPAND moves out of the number of MOVE-ON moves. Because texts differ in length the index was calculated proportional to the number of clauses in the texts. An increase in the index of elaboration means that there is an increase in the proportion of EXPAND moves over MOVE-ON moves.

Table 1 shows the index of elaboration obtained in spoken and written expository texts as a function of age/school level in the two languages, Spanish and Catalan.

Table 1. Index of elaboration by language, school level, and modality

	Spanish		Catalan	
	Spoken	Written	Spoken	Written
Grade school	.30	.34	.40	.26
Junior high school	.43	.43	.29	.37
High school	.52	.50	.40	.44
Adults	.45	.51	.48	.52

In the written expository texts produced in the two languages we see a steady and significant increase ($F(3,132) = 11.140$, $p < .001$) in the index of elaboration with school level. The picture is slightly different in the spoken texts. Although we notice a small decrease in elaboration from High school to adulthood in Spanish and a more marked decrease from Grade school to Junior high school in Catalan, the differences was not significant. That is, across languages with age, and more experience with written language, subjects dedicate more “textual time” to enlarge the details of given information, to explain the reason for an assertion or the use of a certain term. They take more concern in the task of building a topic on the addressee’s mind. This general tendency is slightly facilitated by the specific constraints of the written modality, which puts less on line pressure on the text producer: that is why we find a lower index of elaboration in the spoken modality, but the difference between spoken and written language with respect to index of elaboration was not significant.

To sum, there is a developmental change not in the amount of data speaker/writers introduce in the texts but rather in the concern they put in amplifying the same data.

The tendency towards increasing elaboration is neither affected by language or by modality of production.

PRECISION

The second feature relates to the speaker/writer's concern in providing the interlocutor with the necessary stipulations for identifying the discourse referents and gaining an accurate picture of its properties or qualities. We assume that the type of NP speaker/writers' choice expresses this concern.

In Spanish, NPs result from a projection of a nominal category that can be realized either by a lexical category or by a syntactic entity without phonetic realization. NP modifiers (determiners and complements) are in general optional although there might be structural constraints that make their use compulsory (e.g., Spanish resists the use of NP subjects without determiner, Hernanz & Brucart, 1987). Thus, from a morphosyntactic perspective, NPs can be zero, pronominal or lexical. The decision as to which of the alternatives should be used depends on a number of cognitive and discursive demands implying that the speaker/writer recognizes the addressee's need to identify, to activate or to "recover" (Halliday, 1967) the discourse referents. It also implies that the speaker/writer is aware of the importance of providing full information about the referents in the text *per se*. The contrastive use of lexical vs. pronominal and zero NPs is the first focus of our analysis of this feature.

Lexical NPs differ in their hierarchical complexity according to the type of NP modifiers participating in the structure (e.g., only determiners, adjectives, subordinate clauses) (Andrew, 1985; Givon, 1993). Texts that are low in interactivity and personal involvement but high in referential information will include more complex NPs. More complex NPs have a contrastive function and increase the complexity of the informational structure of the text. The developmental and crosslinguistic study, from which the present one is a direct continuation, has shown that the internal architecture of NPs increases in length and complexity with age and schooling in interaction with text genre (Ravid et al., 2002). We assumed that the higher the referential informative purpose, the higher the number and complexity of lexical NPs. Therefore, the second focus of our analysis relates to the internal structure of NPs, in particular the extent to which NP information is presented in syntactically more complex ways.

Satellite to predicate VPs, NPs can play different argument roles such as agent, patient, undergoer or temporal roles and be involved in different grammatical relations such as subject or object. In the present analyses we concentrate in Subject NPs. The choice of clause site of NPs reflects informational status of referents in terms of sentence topic – what the sentence is about – and comment – what is said about the topic. Although in Spanish the sentence topic can be associated to diverse clause sites – preverbal subject, direct or indirect object – subject position, mainly preverbal subject position, typically carries topic information (Zubizarreta, 1999).³ NPs in subject

³ Preliminary analyses on our corpus indicate, however, that the assertion about preverbal subjects typically carrying topic information might be true for subjects of transitive verbs rather than for subjects of intransitive verbs. The later may contain both topic or new information.

position express the particulars about which knowledge is being added (Chafe, 1976). Therefore, the use of lexical subject NPs might reflect speaker conviction to be as precise as possible as to what the sentence is about. On a more speculative level, it might also suggest the speaker's concern for better recall of discourse referents since longer subjects are better remembered than short ones (Read & Schreiber, 1982).

The database for examining NP types and structure was constituted by the narrative and expository spoken and written texts produced by 40 monolingual Spanish-speaking subjects from 9 year-olds Grade school, 12 year-olds Junior-high school, 17 year-olds High school and Adults university students, which means a total of 160 texts. Texts were transcribed into clauses and every noun phrase was coded. For the present analysis we consider only subject NPs using part of the methodology developed by Ravid and her associates (Ravid et al., 2002). The goal is to see to what extent choices of NP type and structure is a function of age, genre and modality. If our reasoning regarding the discursive and psychological function of subject NPs is correct, we should find more full lexical subjects in written expository texts than in spoken narratives. It should be so because written expository texts are more detached and concerned with thematic development but less constrained by on line processing, whereas spoken narratives are more subject to on line processing constraints, more personal and concerned with events and characters. We should also expect that syntactic complexity of NPs will increase as a function of age in interaction with modality and genre. NPs including more informative elements (adjectives, prepositional phrases, clause complementation) should appear in written expository texts more often than in any other type of text.

Since texts differ in length, all the calculations are based on the internal distribution of the study categories out of the total number of NPs in each text. First, we calculate the *degree of text lexicality*, that is, the percentage of lexical subjects out of the total number of all types of subjects (composed of zero, subject pronouns and subject lexical nouns with and without any kind of modifier or clause complementation). After performing a series of analyses on this measure we found no significant effect of age but significant effects of *genre* ($F(1,36) = 3.830, p < .05$, narratives $M = .22$, expositorys $M = .30$), and *modality* ($F(1,36) = 39.18, p < .00$, spoken $M = .23$, written $M = .29$), with no interactions.

A second analysis concerns directly the internal structure of NPs. The internal structure of NP in our sample embraces from single proper names, defined or undefined nouns, structures formed by a noun with one or more modifiers (possessives, adjectives) and with prepositional phrases, to more complex structures including more than one noun in appositional stringing (3) or clausal complementation (4).

3. *ruido, trabajo, problemas técnicos, problemas familiares y sociales, todo esto hace que no descansemos ni por la noche* [ps01mewa]
noise, work, technical problems, family and social problems, all that causes that (we) rest neither at night.
4. *el aislamiento o discriminación que también aparece en el video está a la orden del día* [pu09mewb]
the isolation or discrimination that also appears in the video is in order

For the present analyses we consider complex NPs the lexical NPs that include any modifiers besides articles up to clausal complementation. We consider any of the varieties included in the definition of complex NPs to be more syntactically complex than bare nouns or nouns preceded just by a definite or indefinite article.

We calculated the occurrences of complex NPs in the different age groups, genres and modalities. Because texts differ in length, the occurrences were calculated proportional to number of clauses. A 4 (age/schooling: Grade school; Junior-high school; High school and adults) \times 2 (genre: narrative vs. expository) \times 2 (modality: spoken vs. written) analysis on this measure yielded main effect of age ($F(3,36) = 13.39$, $p < .00$; Grade school $M = .45$, Junior-high school $M = .93$; High school $M = 2.53$, and adults $M = 3.17$ but no significant effect of genre or modality, although the mean number of occurrences is higher in expository than in narrative texts (narratives $M = 1.54$, expository texts $M = 2.00$), and in the written than in the spoken modality (spoken $M = 1.7$, written $M = 1.8$). These results suggest that the syntactic complexity of NPs develops with age, but is less constrained by genre and modality than expected.

If we take into account this result along with the results concerning the level of *text lexicality* we should conclude that the choice of a lexical NP (of any level of complexity) over null or pronominal subjects already satisfies the requirement of precision of the sentence topic, which is strongly constrained by genre and modality. But, how syntactically complex is the NP is not so much dependent on the functional demands of genre but on a kind of linguistic knowledge that seems to develop with age and schooling. This interpretation should be taken with caution and requires a more detailed consideration of the different syntactic structures involved.

DIVERSIFICATION OF RHETORICAL MEANS

A basic assumption implied in the notion of rhetorical flexibility is that speaker/writers use an increasingly ample range of linguistic means to deploy their ideas and adapt to different communicative ends. That is, they take into account different options that may be appropriate for a particular situation and they put this diversity into play. To test this assumption we explore the domain of agentivity as discussed in developmental studies of discourse analysis (Berman, 1993; Berman & Slobin, 1994: 515–538). We were interested in the differing *degrees of agentivity* in relation to the ideas, states and events, which participants talk or write about in their texts. We focus on this domain for two reasons. Firstly, because it is a diagnosis of genre appropriateness as long as downgrading agency goes together with the detachment of expository texts and against the higher involvement of personal narrative. Secondly, because Romance languages have multiple depersonalization strategies that speaker/writers may employ along the dimensions of word-internal morphology, lexicon, and semantic content. In Spanish there are at least four construction types that function to downgrade agency. On the one hand, Periphrastic passives, with a form of *be* + past participle, either *ser*-passive as in (5a) or *estar*-passive as in (5b) (Keenan, 1985); and, on the other hand, three constructions all marked by the clitic *se* that functions in three different ways: *se*-marked passives (6); *se*-marked impersonal (7), and *se*-marked middle voice

constructions (8). All four constructions have the common function of downgrading agency, although they do so in different ways and by means of different formal devices.

5. Periphrastic passives:

- (a) *Personas que no son aceptadas por algún defecto físico* [pJ17mew]
 People who are not accepted for [=because of] some physical handicap
- (b) *Es un tema que en la sociedad no está muy extendido* [pH07mes]
 It is a topic that in (the) society is not very extended [= widespread]

6. *Se*-marked passive:

- Se pueden solucionar las cosas* [pA14mes]
se can-to solve the things = 'Things can be solved'

7. *Se*-marked impersonals:

- Y se toma por tonta a una persona* [pH03mew]
 and *se* taken for fool to a person = and (people) take a person for a fool = a person gets taken for a fool'

8. *Se*-marked middles:

- Con todo, se acumula el estrés* [pA01mew]
 With everything, *se* accumulate the stress = stress gets accumulated

These are competing structures (along the lines noted in Jisa et al., 2002), for use of passives in different languages) that speaker/writers may choose when aiming to present a situation from the perspective of the situation in itself or of the entity affected by the situation rather than from the perspective of the specific perpetrators of the situation. Speaker/writer's choice is constrained not only by situational factors (genre, modality of production, and register) but also by the availability of these competing structures in a specific language (Berman, 1979).

We examined the use of these constructions in the spoken and written narrative and expository texts produced by the whole sample of monolingual Spanish-speaking subjects from the four age groups: 9 year-olds Grade school; 12 year-olds Junior-high school; 17 year-olds High school and Adults university students (Rosado et al., 2001; Tolchinsky & Rosado, 2002; Tolchinsky & Rosado, in press). Out of a total of 721 relevant constructions, the preferred one was *se*-impersonal (36%), next come *se*-middle (27%), and the different kinds of passives (*ser*-passive .09%, *estar*-passive .07%, participial 11%), with *se*-passive least of all (10%). If we consider that 93% of the clauses produced by the participants were active clauses (the target constructions are only 7% of the total number of clauses produced by the participants) and among the target constructions the preferred one is the active one (*se*-impersonal), there is no doubt that speaker/writers clearly prefer active construction over any form of passive or middle. Then the preferences are divided between forms that downgrade agency by focusing on the event (*se*-middle) or those forms that downgrade agency by focusing on the patient but enabling recoverability of agents (diverse kinds of passives). The least preferred form is the one that downgrades agency by focusing on the patient but making very difficult the recoverability of the agent (*se*-passive). That is, participants

present the themes they are discussing in relatively nonspecific terms, by typically leaving the agents or causes that may give rise to these states of affairs as generically unspecified or unexpressed. This *generality* (Berman et al., 2002; Longacre, 1996) in orientation was lacking from the personal-experience narratives the same participants produced). All the different types of construction were used from the youngest age on and the frequency of use developed significantly with age for every construction type. Thus, a clear finding of this study is that ‘agent downgrading’ is a *genre feature*, typical of expository texts and largely lacking in the narratives of the same subjects from very early on.

A similar analysis was carried out with our sample of bilingual Catalan/Spanish-speaking subjects of the same age groups, a total of 67 participants, which means a total number of 268 texts. The comparison with Catalan is particularly relevant because Catalan has the same construction types but their use by Catalan speakers differs (Bartra, 2000) depending on various factors including dialectal variation. All the texts were coded for the same construction types: periphrastic passives, *ser*-marked and *estar*-marked passives; *se*-marked passives; *se*-impersonal and *se*-middles. The comparison yielded two important findings: Catalan speakers differ from Spanish speakers in the construction type they tend to prefer. Out of a total of 666 relevant constructions, the preferred one was *se*-passive (34%), next come the use of participial (24%) and the two types of passives (*ser*-passive (.04%) and *estar*-passive (10%)), then *se*-impersonal (16%), and the least used construction type was *se*-middle (10%). The relative scarce use of *ser* marked passives seems to confirm that Catalan speakers do not favor this constructions type in colloquial Catalan (Bartra, 2000). The space occupied by *se*-impersonals and periphrastic passives in Spanish is occupied in Catalan by *se*-passives (Bartra, Rigau, & Hernanz, 1998). Moreover, Catalan speakers were more reluctant than Spanish speakers to present the phenomena they are describing as self-instigated or “autonomous”.

In spite of this difference among Spanish and Catalan speakers, however, we have found similar trends as to the effect of genre and modality. The four construction types appeared almost exclusively in expository texts and more in the written than in the spoken modality.

Most important, the particular feature we are focusing on, *diversification of linguistic means*, was shared by both groups of speakers. It is only at high school and especially into adulthood that the diverse means of expression are truly incorporated into the participants’ repertoire. In order to define the active individual repertoire of target constructions we calculated how many different construction types each individual subject used. We then counted how many subjects produced only one type of construction, how many produced two different types, how many three different types and so on.

In Spanish, at Grade-school level, 35% of the children produced only one of the relevant constructions (impersonal, middle, passive or *se*-passive), 55% used two or three different construction types and only one child was able to produce the four different types of constructions. In Junior high-school, most children were able to produce at least two different construction types, while at High school and university level, most participants produced the whole range of construction-types.

Table 2. Individual repertoire
Number of children according to the number of different construction type used in the text

Lang./ Age Group	Spanish n = 80					Catalan n = 67				
	Number of different construction types					Number of different construction types				
	0	1	2	3	4	0	1	2	3	4
Grade school	8	7	3	2	0	4	2	6	6	0
Junior High school	4	5	6	5	0	3	5	5	5	1
High school	0	3	4	5	8	0	0	5	8	7
Adults	0	0	2	6	12	0	0	1	1	8

In Catalan, at Grade-school level, 11% of the children produced only one of the relevant constructions (impersonal, middle, passive or *se*-passive), whereas 33% produced two different construction types, and another 33% three different constructions. In Junior high-school, most children were able to produce at least two different constructions, but from High school on the majority of participants produced at least three different constructions with almost every adult having in his/her individual repertoire all the four types of constructions. Table 2 presents the distribution of children according to the number of different construction types they were able to produce in the texts—their individual repertoire—in Spanish and Catalan by age group.

The number of participants that produced the different construction types increases dramatically with age, both among Spanish and Catalan speakers. This suggests that the crucial developmental change occurs not in the emergence of a certain construction (except perhaps for *ser*-marked passives all the constructions are part of the subject's repertoire even at the youngest age group), but in the widening of the actual repertoire of constructions. The same speaker/writer is able to use them simultaneously in the same texts.

PACKAGING OF INFORMATION

The last feature of proficiency concerns speaker/writers capacity to build their own discourse as connected units. So far we have noted the early use of linguistic devices that distinguish between discourse genres and the diversification of these linguistic means to fulfil a certain function with age and schooling. We have also discussed the increasing elaboration and precision of the information speaker/writers present in their texts. In addition to the above, subjects are increasingly able to produce syntactically denser structures and create hierarchically organized texts. To explore the development of this feature and its interaction with genre and modality, we are attempting different approaches. What we are presenting here are preliminary and partial findings from a corpus of narrative and expository spoken and written texts produced by 40 monolingual Spanish-speaking subjects from four age groups: 9 year-olds Grade school, 12 year-olds Junior-high school, 17 year-olds High school, and Adults university students, which means a total of 160 texts.

We assume that speaker/writers do not produce their texts clause by clause nor 'in one breath'; that is, there must be some sort of intermediate units of discourse organization⁴. Based on this assumption, we looked in the texts for groups of clauses that, mainly for syntactic reasons but sometimes just for thematic or discursive reasons, could be considered as larger units of organization. These 'packages of connectivity' that we have called *L-Units* in the context of the project (Berman, 1997a, 2000; Cahana-Amitay, & Berman, 1999) are roughly equivalent to what would correspond to a *sentence* in well organized written texts, and which would be delimited by a period or another conventional punctuation mark. In expert written texts, syntactic, semantic and discursive criteria usually overlap to define a sentence, but this is not the case for novice or developing speaker/writers. Therefore, rather than resorting to conventional units, we spell out the criteria as to how syntactic, thematic or discursive aspects are taken into account for defining these units (Aparici, Tolchinsky, & Rosado, 2000). All the texts were segmented following these criteria.

We then explored the range of connectivity devices used by subjects to form these packages of connectivity, so that different types of subordination, coordination and juxtaposition were categorized. As with the previously analyzed features, we found significant developmental differences and a significant effect of genre and modality (Aparici et al., 2002). In particular, the use of juxtaposed clauses decreases with age along with a decrease in the use of additive coordination, whereas relative clauses and production of complement clauses increase with age. As for genre, coordination in general and temporal connectives heading adverbial clauses were significantly more frequent in narrative than in expository texts, whereas relative clauses were more frequent in expository than in narrative texts, particularly in subject position. This finding is consistent with the characterization of precision of reference we have made previously in the chapter and with the generally recognized role of lexical subjects in expository texts (Halliday, 1989; Ravid et al., 2002). In Spanish the use of relative clauses is a preferred means for construction of heavy subjects. As for modality, we see again opposite trends in two main connective devices: subordination (including all types of subordinating connectives) was more frequent in the written than in the spoken modality, whereas additive coordination was significantly more frequent in the spoken than in the written modality. Thus, the quantitative description of connectivity already shows that texts become syntactically denser in the sense of containing an increasing amount of subordination.

In order to go a step further in the characterization of syntactic density we examined the internal architecture of the discourse units, in particular their *level of connectivity*. That is, whether and how clauses are coordinated, subordinated or juxtaposed within an L-unit. We defined three levels of connectivity: Level I includes those cases in which clauses were connected only by coordination and juxtaposition (9); level II includes those cases in which there is a main clause and one or more subordinate clauses, the subordinate clauses can be juxtaposed, coordinated or subordinated among them

⁴ Different authors have attempted to define such units (e.g., Chafe & Danielewicz, 1987; Halliday, 1994; Hunt & Kellogg, 1970; Scinto, 1986; for a comparative analysis of criteria see Aparici, Tolchinsky, & Rosado, 2000).

(10); and level III includes coordinated and/or juxtaposed clauses that contain in turn subordinate clauses (11).

9. *Un día una niña estaba patinando en el patio de su casa con sus amigas se llamaban Ana, Roberta, Laura, Antonia y yo.* [pG08fnw]
One day a girl was roller-skating in the patio of her house with her friends they were called Ana, Roberta, Laura, Antonia and I.
10. *Acerca de los temas visualizados en el vídeo, he de añadir que son problemas de ámbito común en las sociedades más o menos urbanizadas.* [pA01mnw]
Concerning the topics visualized in the video, (I) have to add that (they) are problems of ambience common in the societies more or less urbanized= 'they are everyday problems in more or less urbanized societies'
11. *En mi clase hay muchas que se fijan en los demás pero el profesor no se entera porque los demás alumnos están en su mesa explicando como se hace (*) las cosas* [pG07fnw]
In my class (there) are many who copy from the others but the teacher (does) not notice because the others are at their tables explaining how (to) make the things

For the present analyses, only opening segments in each text (i.e., the first L-unit) were categorized according to the three levels of connectivity described above. Two of them show clear trends with age. Level I, in which participants produce only coordination and/or juxtaposition, tends to decrease with age; level II, in which participants produce one level of subordination, increases with age; and level III, in which participants combine coordination and/or juxtaposition with subordination within the same discourse unit, presents a mixed pattern, slightly increasing from 9 to 12 years, then decreasing from 12 years to 17 and afterwards increasing again.

In contrast to what we have found for type of connectives, the internal architecture of discourse units was neither affected by genre nor by modality. That is, the complexity of syntactic devices used for clause linkage is a developmental phenomenon, and does not seem to depend on communicative purposes or mode of production.

SUMMARY

We have analyzed four features of texts that we consider diagnostic of level of proficiency in text production: elaboration and precision of information, diversification of linguistic means and packaging of information. We have seen how each of these features develops with age, which in our sample means also level of schooling and, in turn, increasing experience with written language, at least with the schooled written register. We did not find emergence of new linguistic resources in any of the age groups included in our study. None of the explored resources - different kinds of EXPAND moves, lexical NPs, constructions for downgrading agency or syntactic devices for connectivity - were absent from the texts produced even by the youngest participants. It is the frequency and the ways in which they are used that made a full difference in the texts. By adding details to the facts or notions introduced in the text the speaker/writer demonstrates an increasing concern of the need to provide a more complete account of the theme deployed in the texts so as to fulfil the functional demands of expository

texts. By making reference lexically explicit and adding details to subject NP, he/she demonstrates a similar concern, this time for facilitation of full identification of referents. These two features—elaboration and precision—suggest an increasing awareness of the audience needs on the part of the speaker/writers. An important facet of rhetorical flexibility relates to the speaker/writer communicative need to hold the attention of their addressees. There is no doubt that by providing a more elaborate and precise information they are in a better position for fulfilling this aim. By the same means they are reducing the addressee's processing effort and guiding interpretation and thus increasing the relevance of the text content (Wilson, 2000).

Another means to the same end consists in producing a varied and coherent output. These two qualities are obtained by diversifying the linguistic means deployed by speaker/writers and by producing a more connected discourse. We have exemplified the first quality by following the developmental path in the use of different construction types for downgrading agency. The same quality, however, has been manifested in other linguistic domains such as lexical diversity (Strömquist et al., 2002) and verbal structure and verb types (Ragnarsdóttir et al., 2002). The second quality, that of connected discourse, was exemplified by an increasing use of subordination as well as by an increasing degree of embedding in interclausal linkage.

To conclude, children use genre-appropriate forms of verbal expression both in their expository and narrative texts from the youngest age group we examined. On this basis they recruit an increasingly wider range of resources at the different levels of text construction, from overall organization to internal clause structure, that both manifest an increasing concern for potential audience and supposedly enable them to hold their addressee's attention. We have seen how the developmental availability of linguistic resources involved in each of the analyzed features interacts with the writer/speaker communicative purpose in different circumstances (i.e., the constraints of genre and modality of production) except perhaps for some aspects of syntactic complexity that seem to be less affected by genre and modality. In our view, one of the many outstanding contributions of Ruth Berman to the theory and practice of text production in development is initiating and expanding the multifaceted perspective taken in this study – age, genre and modality – which is essential to understand the development of language.

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2ND LANGUAGE ACQUISITION AND BILINGUALISM

27. TASK-RELATED VARIATION IN TENSE USAGE IN ARABIC-HEBREW INTERLANGUAGE

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INTRODUCTION

Studies on variation in interlanguage (e.g. Ellis, 1985; Tarone, 1988) have shown considerable influence of task-related factors on performance in L2. Time pressure, cognitive load, and formality are among the factors shown to influence the amount of attention paid to content as against style. This in turn determines a style shift along an Interlanguage Continuum whose formal pole shows more target L2 features (as well as interference from formal L1 features), while the informal pole reflects typical interlanguage vernacular. Underlying this interlanguage model is the Labovian scale for native language style shifting, with spontaneous, informal oral narrative ranking as the most vernacular style, where the least attention is paid to language (Tarone, 1988: 39 ff).

In two small studies on task-related variation in written Arabic (L1)-Hebrew (L2) interlanguage (Henkin, 2001; Henkin, 2003), both inspired by Berman 1982, I explored a correlation between the cognitive load of the task and redundancy (grammatical, lexical, and textual). In a reconstruction task with a high cognitive load I found a very high rate of grammatical overmarking, characteristic of the 'primitive' or *pragmatic* mode of language (Givón, 1979). A prominent characteristic was the analytic pronominal subject together with a lexical subject (e.g. 'Sam **he** came'), which was absent in a more relaxed task of personal narrative – here the compact adult pattern predominated (e.g. 'Sam came') reflecting the economical, elaborate or *syntactic* mode of language. I also found several distinct lexical and textual redundancy patterns to be characteristic of L1 to L2 translations, conforming to the Explication Hypothesis (e.g. Blum-Kulka, 1986).

These findings are in keeping with Berman's observations on the differences between spontaneous, reconstructed, and freely translated oral narratives of a (Hebrew dominant) bilingual 6-year old, especially that spontaneous narration allows *more* attention to be paid to language than do reconstruction and free translation tasks. This puts into question the accepted positioning of spontaneous narrative at the extreme 'lack of attention to language' pole of the style scale as formulated above.

The present paper looks at spontaneous vs. prescribed expression in another field of Arabic-Hebrew interlanguage, namely tense use. Here, L1 interference is to be expected where Arabic tense use differs from that of Modern Hebrew, resembling rather Biblical Hebrew within the basic Old Semitic system. This system was aspectual, with a suffix conjugation (Hb. *pa'al*) for the Complete aspect and a prefix conjugation (Hb. *yif'al*) for the Incomplete. Modern Hebrew, in contrast, has developed deictic tense in main clauses (Past *pa'al*, Present *po'el*, Future *yif'al*). Interference from the aspectual system of L1 in Arabic-Hebrew interlanguage can be seen, for instance, when the Hb. Past (copying Ar. Complete) occurs in optative uses (1) or when the Hb. Future (copying Ar. Incomplete) occurs in modal (2) or non-modal contexts in the present:¹

- (1) hilbin *elohim* *ra'alat imi*
 Has whitened God my mother's veil
 May God whiten my mother's veil (StT-CM)
- (2) *lamah atah* tish'ol *oti* *kazeh?*
 Why you will ask me so?
 Why do you interrogate me so? (6GE)

In order to isolate the influence of task in this issue, I compared written texts that differed only in assignment: narrative and non-narrative essay, cloze test, and translation, as performed by two groups of Arabic L1-speakers, 8th graders and university students. 6th graders' essays were considered as a secondary source.

8TH GRADERS' ESSAYS AND CLOZE

8 boys and 8 girls from a Bedouin school in the Negev, with yearly average grades in Hebrew ranging from 50–93, were given two written tasks to perform at home at an interval of several days.² The first was an essay on 'The past year and my hopes for the coming year', a task expected to elicit the three main tenses in Hebrew. The second, a

¹ All the examples are from the corpus described below, presented in a 'transliteration-transcription compromise' that distinguishes as many of the Hebrew letters as my computer enables, supplies vowels (marking final vocalic *h* but not *aleph*) and conforms in general to Modern Standard Hebrew. All predicate heads are bolded; deviations from norms of L2 tense use are underlined. The source abbreviations, explained below, are: StT = students' translations; StS = students' summaries (both followed by the story initial); 8GC = 8th graders' cloze; 8GE = 8th graders' essays (both followed by the pupil's average grade); 6GE = 6th graders' essays.

² These tasks were compiled and administered by the MA student Taysir Abu Jami'. The 6th graders' essays were collected by an MA graduate, Ibrahim Abu Jwe'id. I thank both for permission to use their materials.

cloze test, consisted of 15 sentences with verb root and pattern given in brackets (cp. Lev, 1998 for this technique). A sample sentence:

- (3) *ba-shanah ha-ba'ah* (*l-m-d, qal*) *xomer qasheh.*
 Next year (learn, *qal*-pat.) difficult material.

Although only one word is to be supplied by the pupil, this task is fairly complex – it involves deciding on a person and a tense to suit the context, and then conjugating the given verb in accordance. However, in the analysis (of both tasks) only tense choice was actually considered, while choice of person and conjugation were simply ignored. So for (3), answers such as *elmod* (for normative *elmad* ‘I will learn’), *titlamdu* (for *tilmedu* ‘you_{pl.} will learn’), etc. were all considered correct. Moreover, the task was designed to minimize interference from L1. So cases where the two languages diverge, such as the modal uses seen in (1) and (2) above were avoided, as was subordination, e.g. ‘Before he **went**, he **asked** . . .’ Here Modern Hebrew, like English, uses the absolute Past in the temporal clause while Arabic has a relative tense system, and uses the relative Future, lit. ‘Before he **would go**, he **asked** . . .’

The class teacher had expressed the opinion, shared by his colleagues, that essays are ‘problematic’ – they allegedly evoke many more mistakes than ‘closed’ or structured exercises, where only one word has to be manipulated, leaving little room for errors. For this reason, he said, teachers generally prefer ‘closed’ assignments to ‘open’ ones.

RESULTS

In contradiction to the teacher’s expectation, the cloze results showed a deviance in tense usage almost twice as high as that of the essays: while the essays had 13 cases of deviant tense use over 147 predications, i.e. an error rate of 9%, in the cloze 17% of the answers (36 out of 240) deviated from the Hebrew norms. Only 4 of these could be attributed to interference from Arabic. The rest do not reflect Arabic tense use, and must therefore represent interlanguage phenomena independent of L1. Also, whatever it is in the cloze that evokes errors, it seems to do so across the average grade range, as many (though by no means all) ‘strong’, ‘medium’, and ‘weak’ pupils seem to do better in the essay. Taking, for example, the ‘strongest’ pupil, averaging 93%, we see her essay free of mistakes in tense use, but the cloze contained what looks like a very trivial mistake:

- (4) *maxar* (*n-s-‘, qal*) *le-tiyul be-otobus.*
 Tomorrow (travel, *qal*-pat.) on a bus trip.

The girl’s answer was *nasa’nu* ‘we went’. Another, with a 90% average grade, also wrote a mistake-free essay, but made 4 mistakes in the cloze, including (3) and (4) above, where she used the Past.

With the ‘weaker’ pupils the contrast is even more prominent. One pupil with an average grade of 60% had 5 mistakes in his cloze, i.e. graded 66%, but wrote a

mistake-free essay as far as tense use is concerned. His entire short essay, presented as (5), consists of 7 simple coordinated clauses (A-G, each presented on a separate line; \emptyset marks a nominal predication):

- (5) ^A*kol ha-yamim hayu tovim*
 All the days were good
- ^B*ve-yom ha-sport hayah tov kolkax*
 and Sports Day was so good
- ^C*ve-ha-morim hayu tovim me'od*
 and the teachers were very good
- ^D*gam ha-morot ve-ha-menahel hayah tov.*
 also the teachers_{fm.} and the principal was good.
- ^E*kamah melamdin hayu tovim u-melamdor.*
 Some instructors were good and instructors_{fm.}
- ^F*ha-me'anyen be-vet sefer*
 The interesting (= important thing) at school
 (Ar. *muhimm* means both 'important' and 'interesting')
- \emptyset *ha-qri'ah ve-ha-ktivah shel ha-talmidim.*
 is the reading and the writing of the pupils.
- ^G*ha-limud shel ha-talmidim hu ha-qri'ah.*
 The learning of the pupils is the reading (8GE60)

Clauses A-E refer to the past and are easily predicated by the Past copula in otherwise nominal predications. F-G shift to the present for a general evaluation of what school is all about; they are even more easily predicated nominally, preferably with (G) but also without (F) the Present copula. Clearly, this strategy of avoiding subordination and limiting predications to nominal ones prevents complications in tense sequencing. The pattern of nominal predications, tensed when necessary by a copula, can be maintained throughout, allowing even a beginner to express evaluative opinions without worrying too much about tense rules.

In contrast, the cloze task forces abrupt tense change with every single sentence. The change is arbitrary; it is neither initiated nor controlled by the pupil to be maintained at his will, but is prescribed by certain temporal markers. In order to detect the change, these crucial elements must be recognized – usually, however, these are short, confusing words, like 'next', 'past', not too salient nor transparent, with no etymological counterparts in L1 (in fact, Hebrew *maxar* 'tomorrow' has more alliterative resemblance to L1 'yesterday' *imbaariH* than to L1 'tomorrow' *bukrah*). Since the sentences were kept as short as possible in order to minimize lexical difficulties, processing time, and interference, the context was also minimal, not fully explicit, and often ambiguous. In the absence of contextual cues, a single mistake in interpreting the

crucial temporal lexeme was enough to spoil an entire sentence. Even the 'strongest' pupils erred relatively often, as we saw in the above examples.

On the whole, then, we find that the results were twice as good in the essays and that both 'strong' and 'weak' pupils may get confused by the abruptness and minimal context of the cloze task, and benefit from the possibility of self-controlled, consecutive tense use in the essay. Of course, this is not to say that all pupils do better in essays. Many do not. A lot depends on individual 'daring'. The more adventurous writers, at all levels of proficiency, will deviate more from L2 target forms as they venture away from simple nominal predications to tense sequencing in subordinate clauses where Hebrew and Arabic differ most. The following sample from the essay of a 'strong' pupil (90% average) includes 3 subordinations (a, b, c), one of which contains a coordination (b1) in which the tense deviates from Modern Hebrew norms:

(6) ^A*ani meqaveh*

I hope

^a*ba-shanah ha-ba'ah ihyu otam ha-morim*
next year will be_{pl.} the same teachers

^b*ki hem hayu tovim*
because they were good

^{b1}*melamdin otanu dvarim*
teaching_{pl.} us things

^c*she-lo yada'nu otam*
that we didn't know (them) (8GE90)

The deviation reflects Arabic relative tense or aspectual sequencing, with b1 governed by the Past copula of b, hence relative Present with respect to it, whereas Standard Modern Hebrew would use the deictic Past in each of these predications.³

Some of the 'weaker' pupils also wrote complex sentences and erred where the languages differ in temporal sequencing. The following sentence from the essay of a pupil averaging 65% contains two coordinated clauses (A, B); A is complex, containing a subordinate predication (a), which itself is composed of 3 coordinated clauses (a, a1, a2):

(7) ^A*ba-shanah she-'avrah ani ahavti ha-shanah*
last year I liked the year

^a*ki hi o yafah me'od*
because it is very pretty

^{a1}*eyn bah be'ayot,*
there are no problems in it,

³ In informal colloquial Hebrew this sequence is possible, provided a disjunctive pause signals ellipsis of the second copula *hayu* in the pragmatic mode, or *parole* or performance level, as distinct from the syntactic competence rules of the *langue*: *ha-morim hayu tovim*, (*hayu melamdin tov* 'The teachers were good, teaching well').

^{a2}*kol davar* et *na'im me'od*
 every thing is very pleasant

^B*u-va-shanah 'avrah* *ha-limud* et *tov me'od*.
 and last year the teaching is very good (8GE65)

The only correct tense form is the Past in the primary main clause (A); all the rest (a, a1, a2, B) are tensed as relative Presents in nominal predications, following L1 usage, while L2 would tense them all as deictic Past.

So we see that the essay task affords a choice of complexity, with only the more complex choices leading to interference. The cloze task, on the other hand, even when reduced to maximally simple clauses in a motivated effort to reduce interference, induces deviations. These are due to simple confusion and failure to detect the temporal markers and other cues in an environment of minimal context and abrupt changes. The general impression that teachers have of 'essays inducing more mistakes, and therefore best kept to a minimum', could be true in general, of course; but in the specific issue of tense usage, the writer's control over tense sequencing seems to reduce deviations by half. This is most prominent in main clauses, i.e. in simple, basic writing typical of early interlanguage levels, as we shall now see.

6TH GRADERS' ESSAYS

Before proceeding to the more advanced interlanguage group and their comparative tasks, I would like to corroborate the findings so far with a sidestep to a corpus of non-systematic written data supplied by younger pupils, namely 6th graders. Unfortunately I do not yet have contrastive data for different tasks performed by any given group of 6th graders, I only have a fairly large corpus of free essays. But it is easy to see that tense use in these essays is relatively free of deviation. In fact, it is even more L2-like than the older 8th graders' tense use in essays, let alone their cloze task. In one set of personal free narratives, entitled 'I found a purse' totalling about 320 predications, there were only 2% deviations, mostly interference from L1. These were virtually limited to off-the-plotline forms, namely progressive tenses, which L2 does not have, and complex circumstantial clauses where L1 has relative Present-Future, rendered as L2 Future, e.g.:

(8) *ani ra'iti et ha-arnaq ve-hu yinpol*
 I saw ACC the purse and it will fall
 I saw the purse falling (6GE)

In this set of narratives and in others, such as 'My birthday' or 'Our school trip', the basic plotlines were totally error-free as far as tense use was concerned. This is not surprising – narrative by definition is a sequence of events in the past; the plotline thus involves one basic tense, the Past; all deviations for background, planning, explaining, etc. are all optional elaborations, 'decorations'. A simple narrative plotline is thus an optimal environment for controlling tense use in L2, and 'risky' environments can simply be avoided in the earlier stages of interlanguage.

The other type of essay that 6th graders wrote was descriptive, for example 'Me and my family', with typical sentences being 'I have 5 brothers, 3 sisters, my father is a teacher'. Such descriptive assignments promote nominal predications in both L1 and L2, which keeps tense management to a minimum.

Both the narrative and descriptive essays, typically written by the youngest pupils, are thus by nature simple in terms of tense use, whereas the task devised explicitly to elicit simple tense choice and to reduce interference has proved more difficult for older pupils.

STUDENTS' TRANSLATIONS, SUMMARIES, AND EXPOSITORY PROSE

Having suggested that narrative is an optimal setting for tense management in schoolchildren's writings, we can proceed to verify the validity of this proposal at a higher interlanguage proficiency level, namely academic writing. Here, personal narratives are rare; typical narrative genres include summaries and translations, and the most characteristic is non-narrative, expository prose such as analyses.

For a comparison of narrative and non-narrative writing I used ten term papers presented by Arab students (Negev Bedouin; Galilean Bedouin, Muslim, and Christian) in several departments of folklore and Hebrew Literature at two Israeli universities. Each of these papers includes a folktale recorded, translated, and analyzed by the student; most also contained partial plot summaries of the tales, used as supporting arguments within the analysis. Such a paper is optimal for my purpose, as it enables a comparison between three tasks:

- a) translation of a narrative from L1 (Arabic) to L2 (Hebrew);
- b) summary of the narrative in L2;
- c) expository academic writing in L2 – analysis, conclusions, etc.

The most careful style was naturally that of (c), while the translations showed the least care and monitoring – they were obviously considered just an appendix to the paper. Tense use in the translations was characterized by extreme interference, which was more moderate in the summaries and practically negligible in the analyses. This parallel gradation of casuality and interference, dropping from (a) to (c), conforms with some well-known facts: first, that translation tasks tend to induce interference from the source language; secondly, that lack of attention promotes interlanguage features in general, including interference.

As for the first fact, translation studies have shown that interference is a potential by-product of the translation process even as produced by native speakers of the target language, and all the more so in the case of interlanguage. Interference is maximal in 'literal' or 'equivalent' translations, typical of non-professional translators, where translation proceeds word by word, and a direct literal counterpart is sought for every source-language item. This technique of 'low-level decisions' is avoided by professional translators, and in more careful style, for the sake of more 'adequate' or freer translation with large, 'high-level' units (Toury, 1986, 1995) where interference is minimized.

The relation between casuality and interference is less straightforward. On the one hand, highly monitored style induces some interference from formal L1 (Tarone: 40); on the other hand, informal style induces interference from informal L1.

Since none of the students are professional translators, and since the translations were not as carefully monitored as the other text types, a high level of interference is to be expected here, and this indeed emerged very clearly. At the opposite end of the interference scale was the expository, careful academic writing in L2; the narrative summaries were in the middle: between translations of L1 stories and original L2 expository writing.

Interference was strongest in background or orientation sections of the translated narratives, as in this textual segment Modern Hebrew and Arabic diverge most sharply. While in Modern Hebrew narrative backgrounds are no different from other narrative segments – they are marked as Past tense in all main clauses, as well as in some types of subordination – Arabic backgrounds are typically set in the non-past, or are very minimally marked as past, not necessarily in grammatical tense. After an optional preliminary past marker, which could well be a lexical marker, such as a temporal adverb, the rest tends to be non-past. This pattern, when transferred in translation, naturally causes deviations from L2 norms:

- (9) ^A *lifney harbeh zman haytah almanah*
 A long time ago there was a widow
- ^B *ve-yesh⁴ lah ben yaxid,*
 and there is to her a single son (= she had a single son)
- ^C *u-vi-zman zeh be-qomah taxtonah . . . hayu yeshenim*
 and at this time at the lower floor . . . (people) used to sleep
- ^D *u-va-boqer yagish lahem*
 and in the morning will serve to them
- ba'al beyt ha-malon et ha-qafeh . . .*
 the hotel owner ACC the coffee . . .
- ^E *ve-hu o ca'ir me'od*
 and he is very young (StT-WS)

The predications in clauses (B, E) here should be in the simple Past, (D) should be in the compound Past (like C). This kind of interference in the temporal setting of backgrounds was found to be very common in all the translations.

Beyond that, on the plotline, the amount of interference depends a lot on the type of translation: the more literal or 'low-level' the translation process, the more interference; in fact, the translations can be placed on a scale of 'literalness' correlating

⁴ Interestingly, omission of just the existential particle *yesh* would result in a perfectly normative high Hebrew orientation construction *ve-lah* lit. 'and to her', i.e. 'and she has'. This is an example of the Old Semitic non-past orientation preserved in certain constructions of contemporary Literary Hebrew, which thus resemble Arabic orientations. Here, however, the construction is probably the result of Arabic interference, not Hebrew classicizing.

with interference. At the literal end, we find one translation (StT-CM) with non-native tense choice in 82 predications out of 265, a rate of almost 31%.⁵ At the other end of the scale, some translations were so free as to approach the style of summaries. Most, naturally enough, were in between. The technique and style depend, of course, on individual taste and experience in translating, but also on several psycholinguistic and sociolinguistic factors, such as the translator's perception of his task, perceived importance of the content vs. the language, how much Arabic he assumed the lecturer knew or wanted to see through the Hebrew, focus on the particularities of Arabic style, etc.

Those who translated most literally, for whichever reason, simply copied the Arabic syntax in Hebrew words. Often such extreme cases of L1-tense use turn out to be barely comprehensible in L2. This was particularly striking in this corpus of folktales, since Arabic folk narrative style is extremely rich in concretizing tenses (Henkin, 1996, 2002) which cannot be translated literally. There is a multitude of foregrounding tenses ranging from syndetic and asyndetic Narrative Present, Narrative Imperative, motion verb compounds and other dialectal and interdialectal compounds. Additional concretizing is also accomplished by person changes, with 3rd person reference typical of declarative narrative sequences giving way to 2nd person vocatives and Imperatives to characters and inanimate entities, e.g. 'Slice him, O sword!' meaning 'Then he got sliced by the sword'. These give the impression of a hidden stage director giving out commands to the performers, both animate and inanimate. Such folkloristic usages are usually eliminated prior to writing, even in Arabic. When they are copied into written Hebrew, the deviation from target language tense use is extreme, as seen from the following passage. It narrates how the hero got over a ghoul's instinctive drive – to devour humans – by following the procedure known to arouse her motherly instinct, namely to wait until she is in a good mood and grinding sugar, and then to adopt her as a mother. It renders freely as:

'When her sons had gone, she put out the millstones and brought out some sugar and ground it singing 'Ala Dal'ona. And he ran to her and gulped down from her sugar and suckled at her breasts and said, "I am your son"'. (StT-CM)

(10) ^a*kshe-halxu baneha*

When her sons went

^A*ve-hi tasim* *ha-rxi*

and she will put the millstone (Ar. lexeme)

^B*ve-tavi* ⁶ *sukar*

and will bring sugar

^C*ve-titxon* *sukar*

and will grind sugar

⁵ In counting, I disregarded the repetitions so typical of Arabic narrative style and the explanations provided by the translator (cf. Henkin, 2003).

⁶ Cases like *ve-tavi* (B) superficially resemble the Biblical Hebrew 'converting *waw*', which may tempt us to regard them as cases of classicizing, rather than as L1 interference. However, other syntactic environments exclude such an analysis, e.g. *ve-hi tasim* (A); moreover, Biblical Hebrew is less likely to be influencing today's Arab students than their L1 syntax.

^D <i>ve-‘axshav</i>	<i>tashir</i>		<i>‘Ala Dal‘ona.</i>
and now	she will sing		‘Ala Dal‘ona
^E <i>ve-atah</i>	lo <i>hayita</i>	<i>me‘axzev,</i>	
And you	were not	disappointing,	
^F <i>taruc</i>		<i>‘aleha</i>	
you will run		to her	
^G <i>ve-toxal</i>	<i>be-racon</i>	<i>mi-sukarah</i>	
and will eat	with pleasure	from her sugar	
^H <i>ve-tinaq</i>		<i>mi-shadeha</i>	
and will suckle		from her breasts	
^I <i>ve-amar</i>	<i>lah:</i>	<i>ani</i>	• <i>bnex.</i>
and said	to her:	“I	am your son”.

This passage is saturated with traditional concretizing and foregrounding features. It begins with a tense-switch to the Narrative Present, rendered as L2 Future (A-D) followed by a person shift (3rd to 2nd) for addressing the hero rather than narrating about him (E-H); (F-H) are Future forms which translate Narrative Imperatives, since the modern Hebrew Imperative form is often replaced by the Future – the formal Imperative of *tinaq* (H), for instance, is virtually unknown to native Hebrew speakers, likewise *toxal* (G) is far more common than its Imperative counterpart. Finally, in (I) the normal Past and 3rd person return. (E) is also in the Past, but is far from being an ordinary narrative clause. Rather, it is a unique stylistic discourse marker, which literally addresses the hero, informing him that he did not disappoint the audience. This expression functions on two meta-textual levels: on the one hand it signals a successful feat and marks a turning point; and on the other hand it is an external evaluation of the quality of the tale.

Literal translation of the stylistic shifts in (10) results in a sequence that is hard to follow in the target language; the Future in the narrative context is uninterpretable in Hebrew; the direct vocatives to the hero are confusing, and we wonder who on earth is talking to him.

Such high rates of non-translatable stylistic elements are characteristic of the peak segments in narratives, since these are most saturated with language-specific, culture-specific narrative devices. It is in these segments that literal translations cause the most prominent deviations from L2 norms.

In the freer translations there was much less interference on the plotline. The few deviations from L2 tense usage characterized long sequences with complex tense sequencing, and may be due to the additional cognitive load involved in ordering the events. Such is the following case: the hero, turned ghoul, advises his wife, who had just found him in his ghoul-den, on how to avoid being eaten up by his mates. It is just the final section of a very long sentence: [“And you must dance, but before you do, lay down a condition to them to put a lamp on each of your fingers . . . and when they put a lamp on each of your fingers you get up to dance]

and when you see their eyes gone red and their hair completely let loose it means they want to attack you, then put the lamps in their hair and burn them and I will get by.” (StT-DH)

- (11) ^a*u-xshe-tir'i*
and when you (will) see
- ^b*'enehem he'edimu*
their eyes have gone red
- ^{b1}*ve-et ha-se'ar shelahem pizru la-xalutin*
and ACC their hair they let loose completely
- ^A*Ø siman*
It is a sign
- ^c*she-hem rocim litqof otax*
that they want to attack you
- ^B*az simi et ha-mnorot 'al sa'rotehem*
Then put ACC the lamps in their hair
- ^C*ve-tisrefi otam*
and (you will) burn them
- ^D*va-ami mistader.*
and I manage.

Only (D) deviates from standard L2 tense usage, as such an abrupt sentence-internal switch from Future to Present is not a normal sequence. It could, however, be heard in informal native L2 style, especially if a disjunctive break is supplied: “You do this (Imperative or Future). And as for me, I can get by (Present)”. In any case, direct formal interference from L1 cannot be proved here, as the relevant L1 forms are joint Present-Future. Interference in this case, then, is not direct transfer of the present from L1 which has neither Future nor Present as distinct forms; it is rather a lack of discrimination and a non-native, intra-sentential mixture of these in L2.

In contrast with the students' translations, their summaries and expository writing were relatively free of interference. Taking for example the most extremely 'literal' translator with a 31% error rate, a scan of over 20 pages of her analysis style showed only 3 cases of tense use deviations from L2 norms. In her summaries, just one clear case occurred.

Summary style is especially interesting – it is characterized cross-linguistically by two basic tenses: Present and Past (Fleischman 4.3.5), and frequent switching between them that seems comparable to the stylistic alternation between Past and Narrative Present. Since such alternation occurs in spoken Hebrew summaries, it does not in itself constitute an interference phenomenon; however, specific alternation patterns do not sound native, especially in written summaries. Intra-sentential switching is an example, especially between two verbs dependent on one subject, as in the following switch from Present (A) to Past (B):

- (12) ^A*hem* **ʿozrim** *la-zqenah*
 They help the old woman
- ^B*ve-hafxu* *et goralah ha-mar* *le-goral tov*
 and turned ACC her bitter fate to a good fate (StS-SB)

Some switches are fairly clear replications of typical L1 structures. The following seems to reflect the aspectual or relative tense scheme of Arabic, coding background information as non-Past (a, a1) relative to the plotline Past (A):

^AThe cat, ^ahearing and ^{a1}understanding the squabble between the prince and his wife, ^Aran away to another city ... (StS-Mj)

- (13) ^A*he-xatul*
 The cat
- ^a*ha-shomea'* *et* *ha-riv* *beyn ha-nasix* *le-ishto*,
 who hears ACC the fight between the prince and his wife
- ^{a1}*ve-hu* ***mevin***
 and he understands
- ^A*barax* *le-ʿir axeret*
 ran away to another city

In particular, (a1) is an exact calque of the circumstantial *Haal*-clause construction of Arabic (cp. (8) above), and in this case seems to be due to interference. I emphasize again that tense switching is frequent in unplanned spoken summaries in native Hebrew, and the Present could well occur in subordinate clauses such as (a, a1); but then the main clause A would more naturally continue in the Present too.

SUMMARY

Free, contextualized writing, characteristic of narrative and descriptive essays, was found to be an optimal task for tense managing, while cloze tests specifically devised for testing simple tense use and minimizing interference proved to be a stumbling block due to abrupt changes, minimal contextualizing, and minimal cues.

Within narrative, plotlines show the least deviation in tense use, as the simple narrative tenses of L2 and L1 are equivalent. Even beginners can sequence narrative events properly on a basic narrative plotline. Simple plotlines and simple sentences characterize the youngest writers, who tend to minimize evaluation and background details, thus preventing interference in tense use, characteristic of more adventurous writers.

Interference in tense use (as in other linguistic choices) is clearly characteristic of translations, especially of 'low-level' choices aiming at literal word-for-word equivalence. The extremely rich temporal system of Arabic folk literature highlights the deviation from L2 temporal norms in literal translation from Arabic. Temporal interference drops drastically in plot summaries and even more in expository style, where only a few cases of intra-sentential tense switching were found.

These preliminary findings show that the influence of task on tense use in Arabic-Hebrew interlanguage is significant, though not necessarily conforming to the predictions of L2 teachers.

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28. ACQUISITION, ATTRITION, AND REVITALIZATION OF HEBREW IN IMMIGRANT CHILDREN

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INTRODUCTION

Attrition or loss of a language results from the interaction of sociolinguistic, cultural, and affective variables that impact in multifaceted ways on one's choice and use of one language over another. The field of language attrition has been informed, to a great extent, by research that investigated the loss of a first or a native language (L1) and the loss of a second language (L2). L1 attrition was investigated among immigrants in host countries around the world (Ammerlaan, 2001; Extra & Verhoeven, 1993; Fase et al., 1992; Ferguson & Brice Heath, 1981; Fishman, 1989; Garcia & Fishman, 1997; McKay & Wong, 1988, 2000; Romaine, 1991; Silva-Corvalan, 1994; Skutnabb-Kangas, 2000). Attrition in L2 focused on the loss of a language that had been acquired in classroom contexts (Bahrick, 1984; Cohen, 1975; Hedgecock, 1991; Weltens, 1988; Weltens & Grendel, 1993) and the loss of L2 among returnees who come back to their respective homelands after a prolonged sojourn in host countries (Berman & Olshtain, 1983; de Bot & Stoessel, 2000; Hansen, 1999; Yoshitomi, 1999). The underlying theme across language attrition studies has been the progressive decline in proficiency that is linked to contact with a language that is dominant in the sociolinguistic environment and to reduction or cessation of exposure to the language undergoing attrition. A hypothetical context for the study of attrition among immigrants for example assumes decreased proficiency in L1 as the outcome of limited input or termination of opportunities for production in the L2 context. Little attention has been given to the complex interaction between the co-occurring processes of acquisition, attrition, and revitalization of

the native language among immigrant children. In this situation, L1 acquisition, while occurring in settings where input and production opportunities are reduced, continues and periodically intensifies during periods of re-immersion in native language environments through visits to the homeland and through contact with new immigrants from the native country. The acquisition, attrition, and rejuvenation of Hebrew among Israeli immigrant children in the United States (U.S.) are examined in this chapter against a sociolinguistic backdrop of dual allegiance to Hebrew and English. The impact and outcomes of these processes are investigated through oral and written narrative production of children who were born in the U.S. or who arrived prior to having acquired literacy in formal contexts.

The onset of attrition in children occurs shortly after exposure to the language has ceased or has been reduced triggering quick and robust outcomes. This has been documented for children's first and second languages among child speakers of Garo, French, Hebrew, German, Czech, English, and Japanese (Burling, 1978; Celce Marcia, 1978; Kaufman & Aronoff, 1991; Leopold, 1939–1949; Saville-Troike et al., 1995; Yoshitomi, 1999; Yukawa, 1997). In immigrant communities, children drive the process of native language change and loss. Their linguistic production is of particular interest because it is triggered by simultaneously occurring processes of acquisition, attrition, and rejuvenation of the native language. Several features are unique to children's linguistic experiences in this context: First, for children born in the host country or who arrive at a young age, acquisition of the native language is incomplete. Yet, with linguistic input, albeit limited, it continues to develop. Second, continuing development of the native language co-occurs with its attrition, thereby impacting on its lexical, morpho-syntactic, and pragmatic systems. Third, and simultaneous to these processes, the acquisition of L2 is hastened through quantitatively and qualitatively enriched linguistic input and enhanced opportunities for production in the host country. This unbalanced rate of acquisition of each of the two languages differentially impacts on language choice and use among children of various age groups in different domains, such as, home and school and with different conversation partners that include parents, siblings, and peers. Fourth, rejuvenation of the native language is robust during re-immersion in L1 contexts. These include extended summer visits to the homeland, contact with new waves of temporary residents and immigrants from the country of origin, and immersion in the academic settings of L1-dominant supplementary and day schools. Fifth, acquisition, maintenance, and rejuvenation of the native language are stimulated through literacy development and exposure to the scripts of the native language (Kaufman, 2000; Yukawa, 1997).

In order to understand the processes of language acquisition, attrition, and rejuvenation among Israeli immigrant children in the U.S., one needs to consider the sociolinguistic experiences that shape their parents' linguistic orientation prior to emigration from their native country. The following sections consider Israelis' pre-immigration linguistic exposure to English as the backdrop to their linguistic attitudes, their adaptation to their host surroundings, and their communication patterns in the home. The study of Israeli immigrant children whose immersion in L2 contexts occurred prior to

acquiring L1 literacy in formal contexts examines the impact of the two languages on the children's oral and written narrative production in Hebrew.

PRE-IMMIGRATION EXPERIENCE – THE STATUS OF ENGLISH

Pre-immigration experiences often shape immigrants' sociolinguistic orientation and linguistic allegiance in the host country. The high prestige of English and its major role in Israel's sociolinguistic, cultural, and political landscape provide the backdrop for Israelis' linguistic experience prior to emigration and supports their propensity for acquiring proficiency in English, their dual allegiance to Hebrew and English, and their successful integration in the United States. The growing influence and prestige of English in Israel combined with the authorization of the teaching of English in earlier and earlier grades is seen by many as a threat to the hegemony of Hebrew and a challenge to the revitalization of Hebrew (Spolsky & Shohamy, 1999, p. 156). The spread of English in Israel parallels the unprecedented recent spread of English throughout most of the world (Fishman et al., 1977). In recent years, Israelis have experienced increasing exposure to the English language through television, newspapers, popular culture, tourism, travel, the Internet, and education in schools and universities. English has become the second language of academia. Students are expected to have a high level of proficiency to be able to read a large amount of textual material in English. Academic conferences include a significant number of presentations in English and scholarly work is often published in English to reach wider audiences around the globe. Pervasive use of English in electronic communication has further enhanced proficiency and literacy development in English across age groups. In addition, in hi-tech and Israeli-based international companies, all printed material that is produced is geared for English-speaking markets and all written communication, including employees' evaluation, is conducted in English.

The spread and impact of English in Israel is also attributed to large immigration from English-speaking countries. This has led to proliferation of private schools and tutors for English for preschoolers and school-age children, even among Hassidic communities, and has produced a teaching force that includes 40% native speakers of English who teach the language in schools (Spolsky & Shohami, 1999). This immigration has also led to augmented distribution of English language newspapers and increased use of English in commercial signs and advertisements in oral and written domains. Furthermore, the close political, economic, and personal ties with English speaking countries and with English speaking Jewish communities, and links to communities of Israelis who emigrated to English-speaking countries have further enhanced the status and proliferation of English in Israel and have increased employment opportunities for Israelis who are proficient in English both in Israel and abroad.

THE IMMIGRANT EXPERIENCE

Adaptation to a host culture and acquisition of a new language is an integral part of an immigrant's life. For many Israelis, being an immigrant is not a new experience. In a study of over 100 Israeli families residing in the U.S., 42% of the fathers and 32%

of the mothers had emigrated to Israel at a young age from 23 different countries in Africa, Asia, Europe, North and South America and had successfully assimilated into Israeli society prior to immigrating with their own families to the U.S. (Kaufman, 2000). Israeli immigration to the U.S. has grown dramatically by 24% in recent years, ranking Hebrew 23rd among minority languages in the United States. The notable increase of this community is attributed to both outside immigration that has grown significantly and to internal increase due to children born in Hebrew speaking families in the United States. Israelis' high education level and proficiency in English have greatly enhanced their employment opportunities and successful integration in the U.S. (Kaufman, 2000). A secular orientation and shared sociocultural contexts with American society have further reduced the need for a major readjustment to the host society and dependence on local ethnic community organizations. It is for this reason that establishment of such community centers has not been a concern for the Israeli community, nor has affiliation with the local Jewish community been a priority (Schiff, 1996; Shokeid, 1989). To support language maintenance among the younger generation, the community has established supplementary schools, where the Israeli academic curriculum is taught. A visit to these schools underscores the children's integration in the U.S. and their preference of the English language when speaking with Hebrew-speaking school peers. The primary language outside the classroom is English.

Despite Israelis' successful integration into the host society and the high status of English, first generation Israeli immigrant parents are strongly committed to the maintenance of Hebrew and its acquisition by all their children, including the ones who were born in the U.S. Israeli parents' strong sociolinguistic affinity to the homeland and their adherence to active use of the native language at home greatly enhance their children's L1 linguistic skills and socialization into their heritage. Parents' awareness of the critical role of the home as a stronghold for acquisition and maintenance of the native language leads them to provide a rich environment for oral and literate L1 development. Parental commitment to language maintenance, however, is often insufficient for maintaining the children's native language. The parents' sociolinguistic perspective and non-integrative orientation sharply contrast with their children's desire for acceptance into the English-dominant social milieu and peer group that drives their integrative orientation and linguistic acculturation (Kaufman, 2000). As in other immigrant communities, these conflicting approaches often collide and lead to linguistic dichotomy and intergenerational conflict within the home (Fase et al., 1992; Romaine, 1991; McKay & Wong, 2000). Language choice in children and adolescents is inextricably bound within the linguistic, social, cultural, and affective milieu of the family and the community and is driven by the interpersonal interactions and communication patterns prevalent in these domains (Extra & Verhoeven, 1993; Kouritzin, 1999, 2000; Leopold, 1939–1949; Saville-Troike, Pan, & Dutkova, 1995).

The language used by children in the home is often determined by the parents' proficiency in the host language. Israeli children in the U.S. are therefore less likely to use Hebrew with their English proficient parents, despite parental efforts to sustain communication in the native language. This results in pervasive use of unreciprocal

communication (Gal, 1979) in parent-child discourse among Israeli families in the U.S. This unidirectional communication pattern, where parents use the native language and the children respond in L2, has been identified as a key variable leading to language shift in language contact situations (Haugen, 1969; Silva-Corvalan, 1994; Zentella, 1997). At the same time, continuing exposure to the native language through parental unidirectional discourse ensures the continuing receptive development of the native language (Kaufman, 1991).

Another communication pattern that is pervasively used among Israelis is intra- and inter-sentential code switching - the juxtaposition of words and phrases from two languages within or across sentences (Sridhar & Sridhar, 1980). Language contact and code switching is not new to Israelis whose sociolinguistic experience prior to immigration to the U.S. has included the integration of English in oral and written domains. The use of Hebrew-English code switching is practiced by families of high socioeconomic status in Israel (Olshtain & Blum-Kulka, 1988) and further attests to the prestige of English and high level of proficiency among Israelis. Fluent bilinguals often engage in inter-sentential code switching to signal their social, cultural, and affective identity (Poplack 1981; Norton, 2000). In contrast, intra-sentential code switching of L2 words into native language speech, particularly among immigrant children has been shown to be a precursor to language shift. Words and phrases from L2 are intermingled in L1 discourse to fill lexical gaps in the speakers' L1 that are inaccessible, or have never been acquired. These were documented in oral discourse (Kaufman, 1991) and in narrative production (Kaufman, 2001).

EARLY L1 LITERACY PRACTICES AND THE SHIFT FROM CONVERSATION TO NARRATION

Narratives locate themselves within a spatial temporal framework that distances the listener and storyteller from the immediate context. This diverges from the "here-and-now" language of oral communication in the home and reinforces the linguistic structures and external discourse about the past, the imagined, and hypothetical language of the "there-and-then" that enhances the decontextualization of language (Petersen & McCabe, 1996; Wolf, 1993). Literacy practices are important agents of socialization that scaffold children's acquisition of narrative schema and linguistic conventions (Whitehurst & Lonigan, 1998). Literacy-related tasks in the native language are particularly effective in anchoring L1 maintenance and in enhancing receptive and productive skills. Israeli children in the U.S. grow up in print-rich home environments where children's books, magazines, and newspapers are widely available. Immersion in L1 literacy through participation in reading and writing activities from a young age socialize children into the heritage culture, sustain their L1 receptive and productive oral skills, and enhance their L1 literacy skills (Kaufman, 2000). Literacy activities introduce children to L1 print and enhance their awareness of the Hebrew alphabet and its various scripts. Through exposure to L1 literacy and narratives, children develop a richer L1 lexicon and diversity of grammatical structures for narration.

How does immersion in L2-dominant host society prior to having acquired literacy in formal contexts impact on children's L1 narrative production? To what extent do

the children who arrive in the U.S. prior to having acquired literacy in Israel make the shift from oral conversational discourse to mastery of narrative conventions? To what extent do L1 conversational and literacy practices in the home and supplementary schools within an L2-dominant environment provide sufficient input for scaffolding the transition from deictically-anchored picture descriptions to the chronological narrative with its temporal and spatial distance? How does school-based formal instruction of L2 linguistic structures and narrative conventions impact on L1 narration?

This study, embedded within a larger project exploring native language development and attrition among Israeli children residing in the U.S. (Kaufman, 1991, 1995, 2000, 2001), was undertaken to investigate these questions. It focused on oral and written narrative proficiency among a group of twenty-six pre-adolescents, native speakers of Hebrew who had arrived in the U.S. prior to acquiring literacy in formal academic settings in Israel. About a third of the children were born in the U.S. and all have resided in the country for periods ranging from a minimum of two years to over thirteen years. The parents are all first generation immigrants, fluent speakers of Hebrew who are strongly committed to maintaining the Hebrew language among their children. They speak Hebrew with their children at home and with Hebrew-speaking friends in social settings. All the children, in this study, even the ones who were born in the U.S. have acquired proficiency in Hebrew as their native language prior to entering L2-dominant day care settings or schools and have mastered the nominal and verbal paradigms and the required morphological and inflectional operations that are acquired by monolingual native speakers by age three (Berman 1985, 1994; Berman & Dromi, 1984). Prolonged summer visits in Israel and attendance in supplementary Hebrew schools have ensured the maintenance and revitalization of L1.

The data were elicited with the wordless picture book *Frog Where Are You?* (Mayer, 1969). The wide use of this instrument in language acquisition research that has included Hebrew, English, Spanish, and German (Bamberg, 1987; Berman & Slobin, 1994) and its use in studies of first and second language attrition (Cohen 1989; Olshtain & Barzilay, 1991; Yoshitomi, 1999; Yukawa, 1997) have made it especially suited for cross-cultural investigation of acquisition and attrition and have allowed for comparison with monolingual native speakers of both Hebrew and English (Berman & Slobin, 1994). The instrument has also provided a rich context for studying multiple facets of L1 attrition with content that is rich, linguistically and culturally appropriate for all ages, and uniform across children, age groups, and proficiency levels. Its use for monologic narration is particularly suited for attrition studies because production reflects the child's own rendition of the story without an interlocutor's input to facilitate lexical accessibility. Moreover, since this is an adventure story in the genre of children's storybook, it is recognizable and non-inhibiting to children whose familiarity with L1 narrative conventions is grounded in this genre.

The individual interviews began with the oral narration of the story and ended with the written narration. They lasted approximately thirty minutes and included additional comprehension and production activities between the two narration tasks. The interviews were conducted in Hebrew by a native speaker and were recorded and transcribed. Each child first looked through the picture book in its entirety and

then turned to the beginning of the book to narrate the story to the interviewer. This emphasized the task as storybook narration in contrast to disconnected picture description, in consideration of effect of genre on narration (Berman, 1995, 2001). The book was used in the same way for the written narration of the story. All the children chose Hebrew for their oral narration of the story, but only 61% performed the written narration in Hebrew, the remaining 39% produced the written narrative in English. The results and discussion focus on the 16 narrators whose oral and written narratives were in Hebrew.

RESULTS AND DISCUSSION

The analysis of the oral and written narratives focused on the narrators' adherence to narrative conventions for temporal anchoring, scene setting for story openers, use of code mixing to compensate for L1 lexical gaps, compounding and L1 verb production. Attrition in children affects a native language that is still developing. It therefore triggers linguistic restructuring in the L1 that is both L1-based or developmental, as well as L2-driven or integrative. The former is due to on-going acquisition of L1, albeit with reduced input and the latter to contact between the child's two simultaneously developing languages, one of which is becoming increasingly dominant (Kaufman, 1991; Kaufman & Aronoff, 1991). The autonomous or developmental L1-based process triggers developmental and idiosyncratic forms, for example, 'I **saderet* my chair' (3;6) (arrange.fem), or the combination of L1 elements in innovative verb production. For example, *intra-language morpheme blending* triggers concatenation of L1 nominal and adjectival suffixes in the production of innovative verbal forms generated by 'tris' (shutter): **me-tores-et* (combination of *Paal+Piel* templates); **tris-ot* (fpl.); **tris-im-a* (mpl+fem.suffix); **tris-enet* (fem.suffix); and **tris-it* (Dim). Some of these aberrant forms are unique to the attrition context and do not resemble developmental forms that are likely to appear in monolingual children. Integrative processes are attributed to the reciprocal impact of L1 and L2 that fluctuates with growing dominance of the L2. For example, 'Where is the coat you **ixabes-ed*' (wash-ed) (4;2); 'Not the round ones just the *arox-s* right?' (long-pl) (4;6); 'Here they ipol-z' (fall-pl) (4;7). Typological differences between the mainly templatic morphology of Hebrew and the concatenative morphology of English make the reciprocal influence of the languages more transparent underscoring the complementary operation of autonomous and integrative processes in attrition (Kaufman, 1995). The narratives displayed a combination of both autonomous and integrative processes both in the oral and written narration.

Children acquire the basic linguistic tools for narration at an early age and can express temporal, spatial, and sequential relationships between events by age three (Berman, 1996; Berman & Slobin, 1994; Wolf, 1993; McCabe & Peterson, 1991). The past tense is the unmarked verb tense for temporal anchoring and narration of chronology of events and its use distinguishes narratives from picture descriptions that are anchored in the present. Monolingual Hebrew speakers demonstrate a developmental shift with age from present to past-tense anchoring and exclusive use of the past tense by school age (Berman, & Slobin, 1994). It was hypothesized that while oral narration in the attrition context may be predominantly anchored in the present (Kaufman, 2001),

the formality of the written narratives would trigger past tense anchoring. The results showed that present-tense temporal anchoring was predominant for both the oral and written narratives, with the exception of one narrator whose written narrative was anchored mostly in the past while the oral narrative was anchored in the present. Regardless of age, the least proficient narrators used the present tense exclusively for their narration. The narrators did not successfully make the transition to chronological narration that requires temporal and spatial distance.

Young monolingual preschoolers use overt conventional linguistic means as scene setting elements to begin their stories even prior to the development of well-structured narrative schema (Berman, 2001). Analysis of the story opener markers of the oral and written data showed the robust impact of L2 narrative conventions on L1 story openers. With the exception of one narrator who used the formulaic opening: *paam haya yeled* 'once there was a boy' and another who set the scene with *yom exad* 'one day', most narratives evidenced pervasive use of story beginnings that are typical of English narration and are non-native for Hebrew. These included *yesh yeled* 'there is a boy' and *haya yeled* 'there was a boy' and were used in both the oral and written narration tasks.

Diminishing L1 proficiency reduces a narrator's inventory of lexical and grammatical structures for constructing narratives. Code mixing provides the narrator with words from the L2 lexicon as substitutes for words in the native language that are temporarily or permanently inaccessible, or have never been acquired. Analysis of the data showed surprisingly few cases of code mixing in both the oral and written narratives. Regardless of proficiency, there were only three narrators who code mixed L2 words in their narratives and they did so in both their oral and written narratives. The oral and written data provided evidence for the selective nature of code mixing across lexical categories of animate and inanimate objects. The naming of specific animate beings triggered code mixing more often than the naming of inanimate objects. Naming of the latter generated circumlocutory strategies and myriad words and phrases in the native language to substitute for the specific L1 target words. However, naming of animate beings required specificity that could not be compromised by circumlocutory strategies and the equivalent L2 word was therefore code-mixed in the L1 narrative (Kaufman, 2001). Except for one single instance of the code mixing of the inanimate *cliff*, code-mixed items were restricted to animate beings. These included *gopher*, *owl*, *bees*, and *deer*. The lexical specificity required for naming the animals combined with the narrators' reduced proficiency and decreased lexical diversity resulted in the code-mixed English word or the use of the generic L1 word *xaya* 'animal'. In contrast an unavailable word from the inanimate category, for example, *kaveret* 'hive' generated several L1 lexical alternatives that included: *bayit* 'house', *ken* 'nest', and *davar* 'thing'.

Bound-genitive compounding is acquired by monolingual Hebrew speakers between the ages of 1;6-2;0 as rote-learned structurally-unanalyzed compounds of familiar words in their surrounding (Berman, 1987; Ravid & Shlesinger, 1995). The analytic or periphrastic form with the free genitive (N *shel* N) particle is acquired and is used productively around the age of 2;4 to 2;6. Productive use of bound genitives

that require morphological and phonological changes in the head noun is acquired as late as 4–7 years old (Berman, 1985; Clark & Berman, 1987), in contrast to English compounds that are acquired as early as the age of two (Clark et al., 1985). Analysis of compound production in the oral and written narratives attested to a total absence of bound genitive compound constructions in Hebrew or code-mixed bound compounding. Rote-learned formulaic compounds that were widely used by young children in monolingual narratives (Berman, 1987) were not evident in the attrition data that included only a few instances of analytic compounding.

Narrating a chronology of events requires rich diversity in verb use. This makes narratives especially suited for the study of verb constructions in attrition. The vulnerability of the Hebrew verb in attrition has been documented in previous attrition studies among Israeli immigrant children (Kaufman, 1991, 1995). These showed fragmentation in knowledge about verb formation, inconsistent or inappropriate use of verb templates, creation of new idiosyncratic verb templates, use of nominal templates as verbs, and concatenation of nominal suffixes to the verb root. These aberrant forms attested to varying degrees of attrition in the native language and were unprecedented in monolingual data. Analysis of verb production in the oral and written narratives attested to paucity in verb diversity and choice of verb forms that ranged from developmentally juvenile to non-native. Idiosyncratic verb forms in the data deviated from developmental verb forms in monolingual speakers and writers. The data also attested to a systematic shift from lexically-specified verbs, where lexical information is encoded in the verb to analytic verb+particle (bi-lexemic) constructions to encode movement, direction, and manner. This demonstrated a shift from the pervasively used Hebrew lexicalized verbs to analytic verb+particle forms that are predominant in English (Kaufman, 2001). The shift to verb+particle constructions is attributed to the interaction between L1 and L2 and to the impact of the prolific use of this L2 structure through integrative processes. The influence of L2 integration was especially evident in the extensive use of the generic verb go+participle in the data. Mono-lexemic *radaf* ‘chased’ and *tipes* ‘climbed’ which are commonly used by young monolingual speakers were substituted by *halax axrey* ‘went after’ and **halax al* ‘went up’. Decreasing proficiency triggered increased use of the analytical bi-lexemic form and attested to augmentation of the integrative impact of L2 on L1. Indeed, the least proficient narrators used the verb+particle structure exclusively and their narratives demonstrated no evidence of mono-lexemic production of verbs.

In sum, the structuring of events in the oral and written narratives was constrained by linguistic limitations. Autonomously- and integratively-generated grammatical constructions were abundantly evident in the data. Use of developmental forms that are characteristic of juvenile narratives combined with present-tense temporal anchoring demonstrated lack of linguistic sophistication and inaccurately reflected cognitive immaturity. The oral narratives displayed frequency of pauses, hesitation, false starts, and repairs and both the oral and written narratives attested to lexical substitution, circumlocution, redundancy, and simplification as compensatory strategies for loss of lexical specificity.

SUMMARY

Pre-immigration sociolinguistic experiences have shaped Israeli immigrants' integrative orientation and dual linguistic allegiance in the U.S. The high prestige of English has been counterbalanced with strong linkages to the homeland and commitment to maintaining the Hebrew language. Such loyalty, combined with social and academic support networks in the U.S. and extended visits to Israel have promoted L1 acquisition, maintenance, and revitalization among the children, even the ones who were born in the U.S. or those who arrived prior to having acquired literacy in formal settings. Immersion in the L2-dominant host society prior to literacy acquisition had a robust impact on the children's L1 narrative production. When the narratives were compared to monolingual norms, the data showed significant fragmentation in all aspects of the language. At the same time, L1 literacy practices in the home and L1 supplementary schools within the L2-dominant environment have enhanced acquisition and provided input, albeit inadequate, for scaffolding L1 oral and written narrative production. Simultaneously, school-based formal instruction of L2 narrative conventions has also impacted on L1 narration. The developmental and integrative constructions that were evidenced in the narratives resembled constructions that are typical of both juvenile monolinguals and learners of Hebrew as a foreign language.

Further research is warranted on immigrant children's acquisition of literacy, their awareness of Hebrew orthography and the extent to which their acquisition of writing reflects the early stages identified for acquisition in monolingual contexts or foreign language contexts. The language of Israeli children in the U.S. will continue to evolve as their exposure to L2 increases in the host country and will rejuvenate with continuing extended annual immersion in L1 environments. Increased functionality for L1 communication in oral and written domains will augment opportunities for production and enhance L1 maintenance and growth. Further crosslinguistic research among Israeli immigrant children in countries with dominant languages other than English will increase our understanding of autonomous and integrative processes in the acquisition, attrition, and revitalization of Hebrew in other linguistic contexts.

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29. WORD CLASS DISTINCTIONS IN AN INCOMPLETE GRAMMAR*

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INTRODUCTION

The acquisition of word classes and their distinctions has long attracted researchers of language, and Ruth Berman's contribution to this topic has played an important role in first language acquisition literature (Berman 1985, 1986, and particularly 1988).¹ This paper examines the knowledge of word classes under incomplete acquisition, a previously uninvestigated area of inquiry.

Incomplete acquisition is defined here as the acquisition of L1 by a healthy child who starts out either monolingual or dominant in L1 but switches to another language (L2) as primary before age 10.² Such speakers, who end up controlling two or more languages but are dominant in the language they acquired later (L2), are referred to as "incomplete learners," or alternatively, as "heritage speakers" (Valdés, 2000).³

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¹ The very notion of word class has many names in linguistic literature: aside from 'word class', the terms 'lexical category' and 'part of speech' are also often used. All these terms are interchangeable, and I will be using 'word class', simply following the terminology used by Berman.

² No matter what cut-off age is chosen, it will always be a bit arbitrary. The choice of age 10 allows us to stay safely below the critical period (Newport, 1990; Hurford, 1991) and avoid problems that arise in studies of later bilinguals (12–14) whose language competence is not clearly known.

³ Each of these two terms corresponds more or less to a different field of study; the term 'incomplete learner (acquirer)' is more common among scholars interested in the acquisition and structural characteristics of such language; the term 'heritage speaker' was originally introduced by specialists in language pedagogy but has been gaining popularity in other fields as well. Other terms are used as well (attriters, semi-speakers), see for example Seliger and Vago, 1991; Dorian, 1981, 1989. Throughout the paper, I will be using the term 'incomplete learners'. Incomplete learners are compared to uninterrupted learners, that is, the learners whose first language acquisition was unimpeded by another language.

An incomplete learner, therefore, is arguably a competent speaker of L2 who does not fully control his/her L1 as a result of the order in which he/she acquired the languages.⁴

Little is known about incomplete acquisition in general, let alone the fate of word classes under incomplete acquisition. In this paper, I will present the results of an experimental study which investigated the knowledge of major word classes (verb, noun, adjective) under incomplete acquisition. These results, however preliminary, may in the long run bear upon general questions pertaining to the acquisition of lexical categories.

In presenting my study, I follow the outline of Berman's 1988 paper on word class distinctions in uninterrupted acquisition. Like most researchers in this area, she initially describes the general distinctions between nouns, verbs, and adjectives – the three major classes of content words (see also Maratsos, 1981, 1982, 1988). In section 1, I will review typical motivations for the distinction between verbs, nouns and adjectives. Two main schools of thought exist with respect to the way in which a child develops word class distinctions: through semantic associations or through formal associations. Whichever is right, researchers agree that the knowledge of word class distribution develops by age 4–5 (Berman, 1988: 54). While many researchers focus on the developmental stages prior to the acquisition of lexical category distinctions, it is probably safe to assume that an L1 speaker whose acquisition was interrupted at or after age 5 already possessed the knowledge of word class (lexical category) distinctions; this is one of the crucial assumptions made in this paper.

Assuming that an incomplete learner retains word class distinctions after switching to his/her dominant language, what are those distinctions and how do they differ from/resemble the distinctions observed in a fully acquired language and in the language which is dominant for the incomplete learner? Specifically, are verbs considered similar to nouns and/or adjectives in incomplete acquisition? This question is at the core of the experiment described in section 2 of this paper. The results of this experiment are presented in section 3. Section 4 presents a general discussion of these results; the overall summary and questions for further study are outlined in the conclusion to the paper.

VERBS, NOUNS, AND ADJECTIVES IN LANGUAGE

The representation of word class in general is a complicated issue in and of itself. It is generally assumed that word classification relies on the formal properties of words (distribution, range of syntactic functions, and the morphosyntactic properties associated with a given class) but may also rely on some semantic principles which are arguably somewhat independent of language-specific characteristics (Schachter, 1985; Maratsos, 1982; Braine, 1987).

⁴ Conditions leading to incomplete acquisition can occur under emigration, where a young child moves from the area where L1 was dominant to a new place where that language is a minority language. Similarly, incomplete acquisition can take place if a child is born in a minority language speaking family in the L2 area. Since the interaction of dominant and minority language has traditionally been studied under the rubric of sociolinguistics, little is known about structural properties of incomplete acquisition.

Speakers are known to possess several distinctions between various word classes, although the mechanisms of their storage in the brain are not well understood. The first distinction is between content(ive) words and function words (or in the generative tradition, between lexical and non-lexical categories).⁵ Content words include nouns, adjectives, verbs, whereas function words include adpositions, determiners, conjunctions. The next distinction, one among content words, is the contrast between nouns and verbs. They have been contrasted in terms of various features: concrete vs. abstract, lexical-semantic vs. grammatical information, less vs. more inflectional categories (see Schachter, 1985; Druks, 2002 for useful reviews).

The noun-verb distinction figures prominently in first language acquisition. Research on healthy complete acquisition shows that children use different strategies in learning nouns vs. verbs (Braine, 1987, 1988; Maratsos, 1981, 1982, 1988, 1991; Berman, 1988; Levy, 1988). It is also possible that there may exist a number of developmental profiles with respect to the acquisition of grammatical classes (Fenson et al., 2000; Thal et al., 1997). Evidence also exists of cross-linguistic variation with respect to the learning of nouns and of verbs; the acquisition of some languages seems to be noun-centered whereas others show less noun bias in acquisition (Choi & Gopnik, 1995; Choi, 1998; Tardif et al., 1999; Caselli et al., 1995; Maratsos, 1998). Research on language impairment shows selective impairment with respect to word classes (see Shapiro & Caramazza, 2002; Druks, 2002 for reviews). Thus, word classes show different behaviors under both healthy acquisition and language impairment. If this is the case, one might expect that incomplete learners would also show selective control of word classes. However, it is impossible to predict exactly how the differences in word classes are realized in incomplete grammars.

Predicting selective control of word classes in incomplete learners is difficult partly because no clear consensus exists among researchers with respect to which word classes are favored over others, and partly because little is known about the principled ways in which incomplete learners differ from uninterrupted learners. There are several possibilities. First, an adult incomplete learner could have the same word class knowledge as an adult uninterrupted learner, an unlikely but not impossible scenario. Second, incomplete learners could have selective control of word classes such that it matches the stage at which their acquisition was interrupted; this would mean that they are simply 'frozen' at the developmental stage where their L1 acquisition was no longer progressing. Third, they could show word class knowledge different from that found in the fossilized stage and also different from the knowledge exhibited by adult uninterrupted learners. And finally, incomplete and uninterrupted learners could differ in their knowledge of lexical items based solely on frequency: on the assumption that incomplete learners know fewer lexical items, it is plausible that they would know the more frequently encountered ones and would not show any selective control of word classes.

⁵ To be precise, the content/function word distinction and the lexical/non-lexical category distinction do not exactly match; the main difference is in the treatment of adpositions which are considered function words in the former approach but are included in lexical categories in the latter approach (Chomsky, 1995). For a more fine grained approach to adpositions in generative grammar, see Yadroff (2000), Baker (2003). The differences between the two approaches do not affect the main points pursued in this paper and I will ignore them below.

To test which of these possibilities occurs in an incomplete grammar, we conducted a set of simple comprehension experiments involving complete and incomplete learners of Russian. These experiments are described in the next section.

NOUNS, VERBS, AND ADJECTIVES IN INCOMPLETE AND UNINTERRUPTED LEARNERS: AN EXPERIMENTAL STUDY

Subjects

The subjects of the experiments were five incomplete learners of Russian and four competent speakers of Russian, all males. Of the incomplete learners of Russian, three were born in the former Soviet Union and arrived in the USA at ages four (D; M) and six (V). The two other subjects were born in the USA, and, according to self-report, had been monolingual in Russian until they started preschool at age four (Z) and kindergarten at age five (B). The subjects were in college at the time of the experiment; their average age is 19.8. None of these subjects can read Cyrillic; they all assess themselves as 'fairly good' speakers of Russian (usually a sign of a weak speaker) but they almost never use Russian to speak to their family members; the usual pattern is of being spoken to in Russian and responding in English. The four competent speakers were all recent arrivals in the USA from Russia (Moscow and St. Petersburg) and had been in the USA for less than a year at the time of the experiment. They all completed high school in Russia, and two of them had a higher degree. Because it is harder to find college age speakers with a short-time exposure to English, the average age of these subjects was higher, at 33.

Materials and procedure

The stimuli included nouns, verbs, and adjectives taken from three frequency ranges of the Russian frequency dictionary (Brown, 1996): high frequency items (100–1,000 frequency range), mid-frequency items (1,500–4,000 frequency range), and low-frequency items (4,001–10,000 frequency range). Within each frequency range, 11 items were selected from each word class, giving a total of 33 per class. Words which have Latinate or Anglo-Saxon cognates were avoided. Within a single frequency range, words across classes were chosen to match in frequency and in word length, but in case of conflict between these two criteria, frequency was given preference.

Procedure. The incomplete learners were tested in two separate experiments on separate days. In Experiment 1, they were presented with the randomized audio recording of the test materials (using PsyScope Experimental Shell—Cohen et al., 1993). The instructions, presented in English, asked the subjects to push the 'yes' button if they know the word they hear and the 'no' button otherwise. For each subject, reaction times before response were recorded. In Experiment 2, the same subjects were asked to translate the randomly presented words into English. The goal of this experiment was to double check whether or not the responses received in Experiment 1 were realistic or the subjects were assuming they knew more than they actually did. The subjects were not informed of Experiment 2 until Experiment 1 was completed. In Experiment 2, the subjects' interviews were recorded, and the accuracy of translations was checked. If a subject made an error in translation, the errors were analyzed

with particular attention to related words that might have influenced the choice of an incorrect translation.

The comprehension of isolated lexical items poses more of a challenge than comprehension of words in sentences, and the decision to use individual lexical items represented an attempt to create a more difficult comprehension environment and to avoid the influence of contextual factors. Presumably, the contrast between isolated lexical items and lexical items in sentential context had no effect on uninterrupted learners. The latter were tested only in Experiment 1, where the instructions were the same but given in Russian. Both sets of subjects had a training session prior to recording of reaction times; the words used in the training session were different from the stimuli.

RESULTS

Experiment 1. The reaction times for incomplete learners (averaged over all the subjects) are presented in Table 1. The reaction times for uninterrupted learners are presented in Table 2. For each subject pool, the data are broken down by the word class and by frequency range.

Experiment 2. Recall that in this experiment, which involved only incomplete learners, the subjects were offered the test words in Russian and asked to translate them into English. Table 3 summarizes the accuracy of translations broken down by word class and frequency range.

As I mentioned above, we also monitored the strategies used by the incomplete learners when they did not know the translation of a given lexical item. Many individual differences occurred in the use of such strategies, which is why the results are presented for each subject separately.

Table 1. Incomplete learners: reaction times, ms, for three word classes/three frequency ranges (null reactions filtered out; averaged over 5 subjects)

	Verbs	Nouns	Adjectives
High frequency	460	580	698
Medium frequency	612	766	780
Low frequency	744	812	950

Table 2. Uninterrupted learners: reaction times, ms, for the for three word classes/three frequency ranges (null reactions filtered out; averaged over 4 subjects)

	Verbs	Nouns	Adjectives
High frequency	350	360	390
Medium frequency	395	370	360
Low frequency	380	390	410

Table 3. Translation accuracy for three word classes/three frequency ranges (averaged over 5 subjects)

	Verbs	Nouns	Adjectives
High frequency (11)	82%	73%	55%
Medium frequency (11)	80%	64%	27%
Low frequency (11)	59%	27%	9%

Two of the five subjects (D and B) typically ‘gave up’ when they did not know a lexical item and simply acknowledged that. The other three subjects, however, used different strategies in response to the lexical items they did not know. They clearly identified verbs as a class and tried to translate as many as they could. If they did not know a given verb they tried to translate it as something else, usually on the basis of formal similarity between two items. For example, the verb *čtit* ‘honor’ was assimilated to the better known *čitat* ‘read’; the verb *struit’sja* ‘flow’ was assimilated to *stroit’sja* ‘be built’ (M translated it as ‘build’); the verb *bormotat* ‘mumble’ was translated as ‘coil’ based on its similarity with *motat* ‘coil, skein, reel’.

The subjects were less consistent translating nouns, where the number of the lexical items they admitted to be unaware of was higher (Z: 5 nouns; M: 3; V: 7). In two cases nouns were assimilated to words of other classes: Z translated *dolžnost* ‘position’ as a verb, presumably based on the similarity to the frequent verb *dolžen* ‘must’; V assimilated *milost* ‘grace’ to the adverb *malo* ‘a little’ and translated it as such.

The subjects failed to translate more adjectives than nouns or verbs (see Table 3) and in a number of cases they simply acknowledged that they did not know those lexical items. Where compensatory mechanisms were used, the speakers were more liberal in assimilating adjectives to words from other word classes, thus:

- (1) Formal assimilation of adjectives
 - a. *krotkij* ‘meek’ assimilated to *korotko* ‘short’ (adverb)
 - b. *smirnyj* ‘docile’ assimilated to *mir* ‘peace’ (noun)⁶
 - c. *smuglyj* ‘dark, tan’ assimilated to *smogli* ‘were able to’ (verb)

DISCUSSION

Incomplete learners’ knowledge of word classes: The range of analytical possibilities

The experiments outlined above contrast two pools of adult speakers, incomplete learners and uninterrupted learners. Ignoring possible individual differences, let us start by recalling the possibilities with respect to the two subject pools that were sketched in section 1.

Hypothesis A: no difference across the groups (incomplete learners and uninterrupted learners have the same word class knowledge, either selective or non-selective)

⁶ This is an etymologically valid connection but it is doubtful the two lexical items are closely connected in the synchronic mental representation.

Hypothesis B: fossilization (incomplete learners' knowledge of word classes is frozen at the developmental stage where their L1 acquisition was interrupted)

Under Hypothesis B, it is reasonable to expect the incomplete learners to show selective control of word classes with preference for nouns over verbs and over adjectives. This expectation is endorsed by the existing research on young acquirers' knowledge of word classes (Berman, 1988; Maratsos, 1981, 1982). Although the acquisition of word classes seems to favor verbs over nouns in Korean (Choi & Gopnik, 1995; Choi, 1998), Mandarin (Tardif et al., 1999), and Tzeltal (Brown, 1998), such selective control, which is opposite to that observed in a number of other languages, occurs much earlier.⁷ At age 5, which is the age when the acquisition was impeded or interrupted for the incomplete learners studied here, the selective control of word classes seems to favor nouns over verbs if only slightly and verbs over adjectives (Berman, 1988).

Hypothesis C: group-specific knowledge (each group shows different control of word classes, but the incomplete learners' knowledge is not due to fossilization)

If Hypothesis C holds, one needs to address the question of what factors other than fossilization determine the selective control of word classes in incomplete learners. In section 1, I mentioned one possible factor: frequency. An incomplete learner and an uninterrupted learner could differ in their knowledge of lexical items based solely on frequency: on the assumption that incomplete learners know fewer lexical items, it is plausible that they would know the more frequent ones and would not show any selective control of word classes.

Let us now see how the experimental results bear on each of these hypotheses.

Overview of main results

The main result is that incomplete learners show selective control of word classes—in other words, they do not treat nouns, verbs and adjectives equally. The selective control of word classes is apparent from the difference in reaction times across classes and is confirmed by the differences in the speakers' translation results for nouns, verbs, and adjectives (Table 3).

This result is robust but not too surprising; after all, the selective knowledge of word classes is observed both under acquisition and language impairment. However, in maintaining selective control of word classes, adult incomplete learners differ from adult uninterrupted learners. The latter are quite balanced in their recognition of word classes, as shown in experiment 1 (Table 2). Across all the frequency ranges, the uninterrupted learners show a slight preference for nouns, but it is not statistically significant. Thus, Hypothesis A is untenable.

It is more surprising that the results with respect to verbs and nouns argue against Hypothesis B. Recall the assumption that fossilization of the 4–5 year old stage in the

⁷ I am certainly at a disadvantage with respect to Russian in that there are no studies on word class acquisition in Russian. Gvozdev (1961: 375) indicates that the production of nouns develops before that of verbs, around 1;9; verbs appear between 1;10 and 2;0. There is no explicit comparison of word classes in a five year old learner, but one gets an impression that the derivation of nouns is richer than that of verbs at that stage (Gvozdev, 1961: 315–320). This would tentatively put Russian in line with the other noun-dominant languages described in the literature. Of course the investigation of word class knowledge in monolingual Russian-speaking children would be a crucial component in expanding this study.

knowledge of word classes should entail favoring nouns over verbs over adjectives. The incomplete learners, however, show a clear preference for verbs in their knowledge of word classes. Thus, while Hypothesis B predicts the ranking in (2), the actual ranking observed in the experiment is shown in (3):

(2) nouns > verbs > adjectives

(3) verbs > nouns > adjectives

The ranking in (3) is confirmed both in the reaction time experiment and in the translation task; the procedures yield consistent results.

These results are further confirmed by the behavior of incomplete learners in the translation task. Recall that the subjects tried to replace verbs with verbs and were less concerned with not translating nouns and adjectives. They allowed some word class leakage with nouns and adjectives, but not with verbs. Thus, the use of compensatory mechanisms with the lexical items that the subjects did not know also supports the ranking in (3).

In contrast, the adult uninterrupted learners surveyed here do not show selective control of word classes. Their response times are comparable across the three word classes and only a negligible increase in response time occurs as the items become less frequent. The incomplete learners differ from the uninterrupted learners in two respects: first, in the duration of the reaction times, second, in the verb bias and the general selective response to word classes.

The difference in reaction time is expected; incomplete learners do not control the vocabulary as well as uninterrupted learners, and the difference in reaction times reflects the predictable difficulty in lexical access experienced by incomplete learners. This difficulty is quite apparent in incomplete learners' production (Seliger & Vago, 1991; Dorian, 1989; Polinsky, 1995, 1997, among many others); some researchers suggest that on-line performance is the sole aspect of language that poses a challenge to incomplete learners (Au et al., 2002).

Differences in reaction times notwithstanding, the two groups also differ in their response to different word classes. The uninterrupted learners show no comprehension distinctions for nouns vs. verbs; the incomplete learners show a verb bias. This supports Hypothesis C: incomplete learners do not treat all word classes equally. In addition, the results suggest that the mental representation of incomplete learners includes knowledge of word classes and distinction between those classes. Despite some leakage from nouns and adjectives evinced by the compensatory strategies, the overall boundaries of each of these two word classes seem well-delineated. The performance on adjectives is the weakest on all measures: in terms of reaction times, accuracy of translation, and the use of compensatory strategies when a lexical item is not known. Overall, adjectives do not lend strong support to Hypothesis C and the incomplete learners' performance on adjectives can actually be taken as evidence for Hypothesis B; I will discuss this in section 4.3.

These results go beyond suggesting that incomplete learners have the knowledge of word classes and word-class distinctions. They also show, somewhat surprisingly, that

incomplete learners have a better knowledge of verbs than nouns or adjectives. The next two sections will present some tentative explanations for the observed asymmetries in word classes.

The adjective deficit

Let us start with a simpler problem, that of the incomplete speakers' inferior performance on adjectives. Part of the explanation is suggested by Berman's own work—in discussing the acquisition of adjectives by Hebrew-speaking children she notes that adjectives “constitute a more fluid, less autonomous category” (1988: 64). Berman cites two reasons for such fluidity. First, the semantics of adjectives can be like that of verbs, with the emphasis on transitory properties (e.g. ‘obedient’ or ‘daring’ in our sample) or like that of nouns, denoting more permanent, stable properties (e.g. ‘huge’, ‘difficult’ in our sample). Second, and more important, is the fact that distributional properties of adjectives place them halfway between nouns and verbs (Berman, 1988: 63). In Russian, adjectives share with verbs the ability to function as predicates (without taking verbal inflections), and they share with nouns the morphosyntactic categories of case, gender, and number.

The third factor, one that Berman also notes in passing (1988: 63) regards the learners' restricted experience with adjectives (as compared to their experience with nouns and verbs). One could argue that the incomplete learners perform poorly on comprehension of adjectives that are in the same frequency range as the nouns and verbs that have better comprehension rates. However, the frequency data are based on adult spoken and written corpora, and we have no frequency data on word classes in child-directed speech in Russian. One could hypothesize that even older children (ages 4–6) are exposed to fewer adjectives in the input, which hinders their comprehension. If children's production is any indication, Berman notes a relatively low frequency of adjectives in Hebrew-speaking children's output before age 3 (Berman, 1988: 63), and Gvozdev comments on the late development of adjectives in L1 Russian speakers (Gvozdev, 1961: 437–438).

It is possible that the knowledge of adjectives is more or less a luxury; like relative clauses, adjectives are ‘rhetorical devices’ (Berman & Slobin, 1994: 127), and speakers can say what they need without using them. Likewise, they may achieve a general level of comprehension without knowing the meaning of a certain adjective, especially if the adjective is used to modify a noun: it is sufficient to interpret the head of a noun phrase and the comprehension of an adjective can be sacrificed. Also, if adjectives are less common in spoken language, their overall knowledge gets enhanced by reading literary texts, something that incomplete learners cannot do.

The frequency explanation remains tentative without a quantitative study of the frequency of adjectives in spoken Russian in general and child-directed Russian in particular. If they are on the right track, however, a problem arises for the choice between Hypotheses B and C outlined above. I mentioned earlier that the data argue in favor of Hypothesis C. But if incomplete learners do not know adjectives because they were not exposed to them before their acquisition was interrupted, this argues in favor of fossilization, Hypothesis B. More importantly, it also argues for treating

the core classes such as verbs and nouns different from the class of adjectives. In other words, the possible fossilization on adjectives may corroborate Berman's observation that "children approach the task of adjective-learning rather differently than for nouns and verbs". If so, the poor performance on adjectives is quite unsurprising. Parallels may exist in the performance on adjectives demonstrated by uneducated uninterrupted learners, something we have yet to investigate.

The verb advantage

Why are verbs more thoroughly acquired than nouns (and adjectives)? In addressing this question, let us start with the well-attested observation that young children show a noun bias in their production (unless they speak Korean, Tzeltal, or Mandarin). The following three disclaimers make this observation less relevant for the data discussed here. First, the results on noun bias are generally found in very young children, typically under age 2;6. The speakers surveyed here had their acquisition interrupted later, around age 5; even under the fossilization hypothesis, they could have lost their noun bias somewhere along the way. Second, the results on noun bias are based predominantly on production.⁸ Berman's own conclusions are also based on production, and as she notes, by age 5, Hebrew-speaking children have just a slight noun bias. The third disclaimer to the noun-bias observation has been offered by Maratsos (1998: 844): the strength of noun bias in vocabulary learning may be overrated and may generally fail "to cause a clear, universal persistent difference".

If noun bias is what Maratsos calls "a partly local custom" (1998: 845), then we can assume as the null hypothesis that nouns and verbs have an equal chance in the vocabulary organization following early acquisition. However, recall that nouns and verbs were compared across the same frequency ranges and that the incomplete learners favored verbs within each of those ranges. Why, then, do incomplete learners show such a bias towards maintenance of verbs? (Of course, the concept of 'maintaining' or 'dismissing' lexical items should be treated only as a metaphor; I do not mean to imply that incomplete learners make a conscious decision as to which word class to favor.) The subjects showed deterioration in comprehension as the frequency decreased, but this decline was much steeper for nouns and adjectives than for verbs. Thus, frequency alone cannot be the deciding factor. The role it plays in comprehension is subordinate to the division of lexical items into word classes. Let us consider some alternative hypotheses.

One possible explanation is that the verbs used in this study were acquired earlier than the nouns (and adjectives), which facilitates their retrieval. In production tasks based on picture-naming, a number of researchers show that age of acquisition is a strong predictor of performance on lexical tasks after frequency, word length and word class are controlled for (Carrol & White, 1973; Ellis & Morrison, 1998; Iyer et al., 2001 and further references therein). No conclusive data exist on the age of acquisition

⁸ The bias in comprehension is documented less well; if found, it is also observed in very early acquisition (Goldin-Meadow et al., 1976).

of individual lexical items tested in Experiments 1 and 2, but many of the verbs and nouns denote abstract concepts that are acquired fairly late. For instance, in the high frequency range, the following verbs denote abstract events: 'recall', 'create', 'consist', 'introduce; imagine', 'wish', 'relate', 'judge', 'allow', and 'strive'. Abstract nouns in the same frequency range include: 'occupation', 'state', 'victory', 'happening, event', 'sense, reason', 'structure', 'fame, glory', and possibly 'nature'. Based on the sheer number of abstract concepts, the comprehension of nouns should be equal to or slightly better than that of verbs. Thus, the age of acquisition hypothesis cannot account for the verb bias.

In the following paragraphs, I will consider four other possible explanations for the observed verb bias: morphological identifiability, frequency distribution, syntactic function, and conceptual complexity.

Let us start with morphological identifiability. The citation form for Russian verbs is the infinitive, with the most common ending *-Vt'*, and the second most common ending *-ti*.⁹ The only other ending that can follow the infinitival marker is the reflexive *-sja*. The experiments described above used the infinitive for all 33 verbs, which may have helped the subjects identify the word class as a whole. This morphological identifiability could also contribute to the specific reliance on verbs in compensatory strategies: when the subjects did not know a given verb, they at least knew that the translation should be a *verb*.¹⁰ This explanation may be partially correct, but it cannot be the only explanation for at least three reasons. First, the reaction times were measured at the onset of each word, before the subjects reached the infinitival ending. Second, other word classes also have morphologically identifiable surface features; in particular, the citation form of adjectives is always the masculine nominative, with the ending *-Vj*. The availability of this generalization had no effect on the comprehension of adjectives, however. Third and most important, morphological identifiability cannot assist in translating lexical items; this hypothesis therefore fails to explain the data in Table 3, where the incomplete learners translated a higher proportion of verbs than nouns accurately, across all frequency ranges. This means that they actually *knew* the meaning of the verbs they were asked to translate.

An additional reason for improved performance on verbs is the size of the class and its frequency distribution. Nouns constitute about 48% of the Russian lexicon, verbs, about 18% (Anatoly Shaikevich, pers. comm.). In the mid-frequency range used here (1,500–4,000), there are 1,013 nouns and 821 verbs. Nouns are thus a more typical instance of an open class, and open classes tend to have a large number of members in the mid- and low-frequency ranges. If this is the case, the 22 nouns from mid- and low-frequency range selected for this study must 'compete' with a larger number of

⁹ The experiments used citation forms that are standard for monolingual/uninterrupted speakers of Russian: the infinitive for verbs, the nominative singular for nouns, and the masculine singular (nominative) for adjectives. Incomplete learners understand these citation forms but rarely use them in production tasks. For verbs, they use either imperative or past tense; for nouns, they use a variety of case forms, and for adjectives, non-masculine forms (Polinsky, 1995).

¹⁰ The Russian situation is the opposite of what is found in Hebrew, where verbs 'do not have any clear unequivocal... citation form' (Berman, 1988: 59); Berman suggests that this may be one of the factors impeding Hebrew-speaking children's acquisition of the verb class.

other mid- and low-frequency nouns. The number of mid- and low-frequency verbs is smaller, lowering the degree of “competition” and potentially accounting for higher verbal retention. However, the difference is not as dramatic as one would expect (1,023 vs. 821). Even if the numbers were more different, for this explanation to work nouns and verbs have to be stored differently in the brain—a reasonable but not yet fully proven assumption.

Now let us consider two additional explanations. Recall the developmental profiles of the incomplete learners surveyed in this study. They all started out as monolingual Russian speakers whose acquisition of Russian was interrupted around age 5. By that age, the noun bias observed in early acquisition across a number of languages seems to disappear. Thus, we might hypothesize that the incomplete learners’ starting point was a grammar with a roughly equal representation of verbs and nouns. In their end state, they either lose more nouns than verbs or fail to acquire nouns in sufficiently large numbers. The explanation then must address the question of *what forces an incomplete learner to keep more verbs than nouns*.

I would like to propose that it is less ‘costly’ for an incomplete learner to lose a noun than it is to lose a verb. The reason regards the syntactic function and conceptual density of verbs. Syntactically, verbs typically function as predicate heads. In both production and comprehension, the head is more important than its dependents. The overall processing of a clause is head-driven, and access to the head is crucial to the parser’s success. If the predicate cannot be recovered (or produced), the comprehension/production of the rest of the clause is in jeopardy. A problem with this explanation is that adjectives, a category in which the incomplete learners fared poorly, can function as predicate heads as well. This was the case even for the more frequent adjectives, which ostensibly have a better chance of assuming a predicate function. I don’t have a solution to this paradox, for the syntactic function is only a partial explanation.

The main explanation for the improved performance on verbs is their conceptual complexity, noted by a number of researchers (Gentner, 1981; Langacker, 1987; Markman, 1989). Conceptual density comprises a number of parameters. First, the underlying structure of verbs is more complex than that of many (but not all) nouns because verbal structure includes information on the predicate and its arguments. This is the basis of the so-called relational meaning associated with verbal semantics.¹¹ Next, verbs refer to events, which are less static than entities and can involve more complex semantics. If a noun is inaccessible, one can use a deictic (*that*), a generic place-holder (*that thing, the thing*), or a paraphrase. As a corollary, verbs are characterized by what Gentner calls ‘differential compositional latitude’: since there are many ways to describe one event, “there is more variation in the way in which languages conflate relational components into the meaning of . . . predicates” (Gentner, 1981: 169). Inaccessible verbs are very difficult to replace with generic place-holders; hence, the loss of information associated with those verbs is quite costly. This again argues for incomplete speakers to retain verbs over nouns.

¹¹ Some nouns have relational meanings too, most notably kinship terms; importantly, many of those terms are of very high frequency which may facilitate their acquisition and retention.

Another reason relates to the breadth of meaning associated with verbs. Verbs and nouns differ in that the semantics associated with a verb (or another relational term) is “more likely to be altered to fit the context than the semantic structure” associated with an object–reference term (Gentner, 1981: 168). Such elasticity of verb meanings allows speakers to use one and the same verb in a large number of contexts, typically larger than the number of contexts possible for a noun. This again argues that the loss of a verb is harder to compensate for than the loss of a noun. Overall, conceptual complexity relies on the fundamental representational differences which apply at the perceptual level and at the level of abstract reasoning. It can actually account for asymmetries observed in the linguistic representation of adults whose language continued to form beyond early acquisition. Incomplete learners’ treatment of nouns and verbs may follow from the profound asymmetry between object terms and relational terms, one which cuts across different languages and different mental domains.

Ultimately, the ability of a lexical item to function as a predicate and the lexical item’s conceptual complexity may form a unified account for what I have called the “verb bias.” At this point, the explanation for the bias demonstrated by incomplete learners is speculative and certainly requires further research. If this explanation is on the right track, it makes at least one specific prediction: namely, that the verb bias should not be found in incomplete learners whose acquisition was interrupted very early (under age 3), because these learners presumably did not have a chance to acquire a sufficient number of verbs. This requires further testing.

SUMMARY

We have discussed a comprehension experiment designed to compare incomplete and uninterrupted first language learners’ knowledge of word classes. In the experiment, the subjects responded to a sample of verbs, nouns and adjectives across three frequency ranges. The goal was to determine whether or not adult speakers show selective control of word classes and to establish the role (if any) of frequency in their knowledge of word classes.

Uninterrupted learners showed no specific bias in any of the word classes; a slight increase in reaction times occurred as the frequency of lexical items decreased, but this increase was rather small and did not correlate with any particular word class. Incomplete adult learners, on the other hand, displayed significant differences in response to nouns, verbs, and adjectives. The differences in word class were stronger than frequency differences; the latter played only a marginal role within each word class. The difference in response to the word classes examined here suggests that an incomplete grammar has word class representations. Incomplete learners performed rather poorly on adjectives, which may be due to the optionality of adjectives as a lexical class and their intermediate position between nouns and verbs. The results obtained for adjectives are quite similar to the results on adjectives in uninterrupted acquisition, where they tend to be acquired late and play less of a role in the architecture of grammar than other core contentive categories. In addition, the distribution of adjectives varies across styles and registers: adjectives are more common in literary language. The poor

performance of incomplete learners may be related to a lack of familiarity with this register.

The most striking finding is that the incomplete learners show a significant verb bias: the overall comprehension of verbs is stronger than that of nouns. This is evident from the response time measures and the number of accurate translations. At first glance, such verb bias seems to contradict the noun bias often cited in the literature. However, the findings on noun bias are based on production in young uninterrupted acquirers (under age 2;6), not on comprehension in older learners. There is no direct evidence of verb or noun bias in older children, which suggests that the verb bias in incomplete learners is not due to fossilization. The tentative explanation for the verb bias observed here relies on representational differences between nouns and verbs. In particular, incomplete learners maintain verbs more consistently because their loss is 'costlier' than the loss of nouns. Verbs also have greater conceptual complexity than nouns and often play the role of clausal heads, which is crucial to processing. These details support the need to maintain verbs.

Selective control of word classes has previously been reported in a number of populations including young children and brain-damaged patients (who show a range of variation in their biases). Healthy incomplete learners represent an additional population that exhibits selective control. The biases observed across these groups currently have different explanations. Further work will be needed to determine whether a unified explanation of such biases is possible. The first stage in this process will be additional studies on adult uninterrupted learners and older child learners across the world's languages.

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CONTEXTS OF LITERACY

30. LITERACY DEVELOPMENT ACROSS LANGUAGE BOUNDARIES

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INTRODUCTION

During the past decades literacy has gradually become a major concern all over the world. Though there is great diversity in both the distribution and degree of literacy in different countries, there has been an increasing general awareness of the number of illiterates and the consequences of being illiterate for personal life. However, literacy is no longer seen as a universal trait. Focussing on culturally-sensitive accounts of reading and writing to social practices the concept of literacy as a single trait does not seem very feasible. A multiplicity of literacy practices can be distinguished which are related to specific cultural contexts and associated with relations of power and ideology. As such, literacy can be seen as a lifelong context-bound set of practices in which an individual's needs vary with time and place.

With respect to modeling the competence of literacy, the particular sociolinguistic position of minorities should be recognized (cf. Fishman, 1980; Hornberger, 1989, 1990; Verhoeven, 1987a, 1987b; Verhoeven, 1994a; Extra & Verhoeven, 1998; Droop, 1999). Minority groups are often confronted with the task of communicating in the dominant language of a majority environment in order to cope with daily life. Usually, this language is learnt as a second language. From a linguistic point of view minority people are often conceived of as 'second language learners'. However, this conception is problematic for at least two reasons (cf. Extra & Verhoeven, 1993a, 1993b). First of all, not all members of minority groups acquire the dominant language of the majority environment successfully. In fact, L2 acquisition may come to a halt at a stage that is far removed from near-native competence. Secondly, the first language is taken into

account as a potential source of (un)successful transfer in L2 acquisition, rather than a language variety in its own right. Language varieties of the countries of origin, being learnt in the process of primary socialization, can be used as a vital instrument for in-group communication. These language varieties may therefore have an important value as symbols of ethnic identity.

In a multilingual society, minority groups may use various written codes serving at least partially distinct sets of functions. The written code with the highest status will primarily be used in societal institutions, whereas the written code of the minority language can be used for intragroup communication and expressing one's ethnicity. Besides, another written code may be used for religious identification. In order to do justice to the literacy needs of minorities, the competence of functional literacy should be defined in terms of their multilingual and multicultural background. With an eye on assessment, it is important to evaluate to what extent people belonging to a minority group are literate in the minority language, in the language of wider communication, or in another language. It is essential to assume that literacy skills in all these languages are seen as relevant human resources.

The migration of people around the world has a profound effect on literacy education in the host countries. When a speech community moves to a new environment the schools in that environment will have to help the immigrant children acquire literacy. Literacy can be taught in the children's mother tongue and in the language spoken in the new environment. Whether one or more languages are used for instruction at school and which language and literacy abilities are taken as educational objectives for minority children depends on language education policies.

This chapter deals with the development of language and literacy in a multilingual context with special reference to the research outcomes of current and recently completed studies on minorities in the Netherlands. First of all, the early acquisition of language and literacy in a multilingual context is examined. In addition, literacy development in the second language and in the minority language are dealt with. Predictors of individual variation in literacy development are also discussed. Finally, a perspective on language and literacy education for minority children is given.

EMERGENT LITERACY IN A MULTILINGUAL CONTEXT

Studies of first language acquisition have made clear that children typically command the grammatical principles and rules governing their native language by the age of four years (see, for example, Slobin, 1985; Radford, 1995). Several studies have also shown language development to continue into the school years at both the levels of grammar and language-use preferences (Karmiloff-Smith, 1992; Nippold, 1998; Berman & Slobin, 1994; Hickman, 1995). The later language development of children can be characterized by a growing command of discourse and according to Karmiloff-Smith (1986), discourse can be seen as the most significant domain of later language acquisition. Around the age of five years, critical developmental shifts take place from the use of intra- to inter-sentential devices for discourse purposes from basic structures to additional functions. In the process of narrative development, children must learn that linguistic forms are multifunctional and that the use of any particular form is multiply

defined. Berman (1997) has explored what preschool children know about language structure and language use. By the age of five, children are adept at combining clauses and have mastered a great deal of complex syntax; they can also construct sequentially well-organized narratives and express different perspectives on events. As Berman (1998, 2001) has made clear, children must go through several stages of language development in order to achieve native-like narrative production. To start with, the core grammatical principles needed to generate simple clause structures must be mastered: the rules for word order, temporal inflection, verbal agreement, and case marking. At the same time, the process of lexical selection involving the precise encoding of specific semantic categories and distinctions must occur and requires a substantial stock of words. Thereafter, rhetorical expressiveness comes into play, which involves the selection of appropriate lexical and grammatical devices to establish connectivity, perspective via shifts in voice and valency, and foreground versus background information via tense and aspect switches. The final stage of narrative development involves so-called register appropriateness or the use of the cultural and genre distinctions related to the communicative setting (cf. Berman & Verhoeven, 2002).

The language patterns of children living in a multilingual context can be quite complex. Most minority children learn two languages in a successive manner: They learn the ethnic group language in the home and immediate community; the second language gradually enters their lives via television, contact with peers, and occasionally daycare. When these same children enter school, the language input is almost exclusively L2. Such minority children thus take part in lessons in the second language to some extent but to a greater extent acquire the language naturally through interactions with teachers and peers. Depending on the cultural values and the language input in the home environment, a large variation in first and second language acquisition patterns among minority groups can be expected. In a cross-cultural study (Narain & Verhoeven, 1993; Verhoeven et al., 1993) we examined the patterns of first and second language development of 91 Turkish, 111 Moroccan and 104 Antillean children living in the Netherlands. In a longitudinal design oral language data were collected at three moments of measurement: at the beginning of kindergarten, and after one and two years of instruction in school. It was found that the Turkish children were quite dominant in their mother tongue at all three moments of measurement. To a lesser degree the same was true for the Moroccan group. The language proficiency levels of the Antillean children tended to be more balanced. The difference in first and second proficiency levels in the three groups could be explained from the language input in the family and the wider community, on the one hand, and from the cultural orientation of the children and their parents, on the other hand.

Multicultural studies of early literacy show that in spite of differences in cultural background and language diversity, children are able to learn the essentials of literacy at a very early age. Studies by Hanson (1980), Mino Garces (1981), Kupinsky (1983) and Moore (1990) showed that bilingual children in collaboration with parents or older peers are able to acquire literacy skills spontaneously. However, it turns out that there are large differences in the knowledge of, and the desire for literacy among minority children entering school. This can be explained from a large variation in literacy

support in the home environment. Wells (1985) and Snow and Ninio (1986) have shown that success in early literacy acquisition is related both to the values attached to literacy in the home and to the steps that parents take to explain this value to their children. It is clear that the role of parents in helping their children to (re)discover the principles of literacy is crucial.

For many minority children first language (L1) starts from a favorable position. Its development benefits from rich input from the family and the neighborhood, but later the conditions of exposure to L1 may become very poor. At school the mother tongue is often banned; at best it constitutes only a minimal portion of the curriculum. In such cases there is a mismatch between the linguistic abilities minority children bring to the classroom and the language and literacy curriculum at school. Minority children who receive early literacy instruction in an L2 will usually be faced with a complex task. They have to learn the structure and functions of literacy in an unfamiliar language. Downing (1984) has claimed that the cognitively confusing effects of teaching literacy in a second language will primarily concern children's awareness of language, or metalinguistic awareness. This awareness implies the ability to focus attention on language, and reflect upon its nature, structure and functions, and plays an important role in the development of literacy. According to Downing, children's metalinguistic awareness will be more readily developed, when instruction is based on familiar exemplars from the mother tongue than in less familiar exemplars from a second language.

In a recent study (Verhoeven & Van Kuijk, 1991) the acquisition of metalinguistic knowledge in Dutch as a first and second language was compared. A battery of metalinguistic tasks, measuring literacy concepts, literacy conventions, rhyme, word conservation, sentence segmentation, word segmentation, word blending, and knowledge of graphemes, was administered with 298 4-year-old children. The informants were divided into three groups: high SES and low SES Dutch children, and minority children. The results showed that there is a small effect for SES and a much larger effect for ethnicity. Factor analyses were conducted on the the test scores for the Dutch children and the minority children apart. For the Dutch children, there was evidence for one factor underlying the metalinguistic tasks under consideration. For the minority children, two factors were found: besides metalinguistic knowledge there was a second factor referring to word blending skills. In word blending children must blend individual speech sounds into words. It is clear that this task is difficult since the target words in Dutch as a second language are not familiar to them. From this study it can be concluded that the acquisition of metalinguistic skills not only proceeds slower in a second language; there is also evidence that in a second language curriculum the ability of word blending has to be learned as a separate skill. As such, this study shows that minority children who receive language and literacy instruction in kindergarten are faced with a dual task: besides the characteristics of written language, they have to learn an unfamiliar language.

Stoep, Bakker and Verhoeven (2002) considered the conditions for emergent literacy of children from various social-cultural backgrounds in the Netherlands. Using data from a longitudinal study, they assessed determinants of literacy development as

grapheme knowledge, book orientation, and phoneme analysis in relation to parental and teacher judgments on parent involvement in pupils' education. With respect to the latter aspect, an attempt was made to determine the weight of the separate perceptual constructs. It will be studied whether teachers' evaluation of parental involvement reflects the ideas parents hold for themselves regarding home support for school, varying over different sociocultural groups. It was expected that children who are victims of a mismatch between parental and teacher views of involvement, are pre-eminently candidates for so-called Pygmalion effects that were described in Rosenthal and Jacobson's study: the pupils whose parents are rated "educationally detached" are the same ones for which the teacher holds low expectations. These stereotyped concepts about children may influence the ways in which teachers approach their pupils. In effect, the development in literacy of children who are modestly evaluated may progress at a slower rate.

It was found that at the end of kindergarten, minority children display a significant lag in book orientation development. Moreover, in the field of phoneme and grapheme knowledge, children from low socioeconomic homes also account for low achievement. Although these different aspects of emergent literacy undergo similar growth for all children (apart from phoneme knowledge), the education these children receive does not seem to be capable of solving initial disadvantages. Such obstacles at the threshold of primary education could explain the lack of achievement in reading for children from at risk populations, that has been recorded in the Netherlands for years (Van der Leij, Meijnen, & Leseman, 1995; Verhoeven & Gillijns, 1994; Vallen & Stijnen, 1991). With respect to teachers' and parents' ideas of parent involvement, it was observed that the discrepancy is largest in the event of cultural differences between home and school. The stereotypical image of non-involved minority parents seems to be present in the body of thought of teachers. However, when minority parents are interviewed for their educational involvement, they indeed claim to be not as involved as parents from Dutch high socio economic homes. Yet, they do feel they are responsible partners in their child's process of learning to read, and they relate to give more help to their children, as opposed to other parents. Furthermore, regression analysis on the post tests indicated that parental involvement in school has a strong link with educational outcomes regarding emergent literacy of kindergartners. Remarkable were the findings that this link is not established on a direct basis; rather, the parental involvement embedded in the perception of the teacher turns out to be a strong correlate for success in literacy. It is not inconceivable that teachers have low expectations for the possible achievement of minority pupils, on the basis of the low expectations they harbor for their parents. Such low expectations can lead to a situation in which minority children are underserved in kindergarten education because of lower goals they are supposed to meet, or circumstances in which their potential is not recognized.

DEVELOPMENT OF SECOND LANGUAGE LITERACY

In many places throughout the world, children from ethnic minorities are totally immersed in a second language (L2) reading curriculum with minimal attention to

their native language literacy. These children are thus confronted with the task of learning to read in a language that they have yet to master. Given that reading instruction strongly builds on oral language proficiency, second-language speaking children may therefore experience a considerable gap. Reading involves the decoding of language forms from written forms—that is, the spoken form of a language provides the relevant linguistic units: phonological strings, morphemes, and words. Native first-language learners come to the task of reading with substantial oral language skills, including the necessary phonological, morphosyntactic, and lexical skills. In many comparative studies, the individual variation in achievement and/or rate of learning to read and write has been found to be much larger among non-native learners than native learners (e.g., Durgunoglu & Verhoeven, 1998). However, it is by no means clear how the specific linguistic characteristics of L2 learners affect the course of their reading development. A major attempt to model second-language reading comprehension processes has been made by Bernhardt (1991, 2000). In the latest model, second-language reading comprehension is taken to be a function of general literacy ability, word knowledge, and syntactic knowledge leaving about half of the variance in reading scores to still be explained.

With respect to monolingual children's word decoding skills, researchers agree that children gradually shift from accessing word representations via their phonic representations to accessing the word representations directly. There is also ample evidence showing children's word recognition ability to be strongly related to their reading comprehension during the initial stages of learning to read and that the strength of this relation declines as language increases in importance (Perfetti, 1998). For second language readers, it can be expected that the network of connections between the various graphemic, phonological, and semantic nodes needed to read in L2 will be weaker than for first language readers. Limited exposure to the second language may lead to qualitatively weaker word representations and thereby both slower and less accurate reading. In one study of the role of the L2 word recognition abilities of Turkish first and second graders in their learning to read Dutch, Verhoeven (1990) found slower word decoding for these children when compared to Dutch first and second graders. The differences in the children's word reading efficiency were initially attributed to the Turkish children's restricted knowledge of the Dutch grapheme-phoneme correspondence rules and various orthographic constraints at the end of first grade and the still restricted vocabulary knowledge of these children hampering direct lexical access at the end of second grade. A study by Chiappe and Siegel (1999) provides further evidence for the strong role of phonological processing in L2 word recognition. When the reading capacities of English-versus Punjabi-speaking Canadian children were compared, phonological awareness was found to discriminate between average versus poor readers for both groups of children. In yet another study, Cormier and Kelson (2000) examined the influence of phonological and syntactic awareness on children's word spelling in French immersion classes and found auditory analysis but not syntactic awareness to be related to the children's L2 spelling achievement. Nassaji and Geva (1999) and Verhoeven (1990) have also shown both phonological and orthographic processing to significantly contribute to L2 reading comprehension. And, finally, Wagner (1993)

found Berber-speaking children to attain native-like standards of word recognition in Standard Arabic after five years of literacy instruction, which shows initially slowed L2 word recognition to not necessarily lead to retardation in the long run.

With regard to the role of children's vocabulary knowledge in their learning to read in general, a strong relation has been observed between the size of their vocabularies and reading comprehension scores (cf. Anderson & Freebody, 1981; Beck & McKeown, 1991; Daneman, 1991). For second language learners, this relation appears to be even stronger (Ammon, 1987; Garcia, 1991). Estimates of vocabulary knowledge have revealed major differences between L2 and L1 learners, and the smaller L2 vocabularies of second-language learners may therefore seriously impede their L2 reading. Considerable individual variation has nevertheless been found to exist in the vocabularies of L2 learners. Grabe (1991) has estimated that the vocabulary knowledge of beginning L2 learners can vary from 2000 to 7000 words. And not only quantitative differences but also qualitative differences in the vocabulary knowledge of L2 learners have been reported (Verhallen, 1994). The semantic networks of L2 learners appear to be less tight than those of L1 learners. That is, L2 learners not only have less extensive vocabularies than L1 learners but also fewer associative links between words. These major differences in the vocabulary knowledge of L1 versus L2 learners obviously have significant consequences for their reading comprehension as well. And along these lines, Carver (1994) has suggested that almost all of the words in a text should be known for deep comprehension of the text by elementary L1 readers and that a text with more than 3% unknown words will generally be experienced as difficult to read.

With respect to the role of children's morphosyntactic knowledge in learning to read, a significant relation to reading comprehension can be expected. The limited syntactic sensitivities of young and less experienced readers make the discovery of the structures underlying sentences a particularly difficult task and may therefore create problems with reading comprehension at times (cf. Goldman & Rakestraw, 2000). Along these lines, Verhoeven (1990) has found the morphosyntactic knowledge of L2 learners to significantly predict their L2 reading comprehension by the end of second grade. From studies with more advanced learners, moreover, limited syntactic knowledge and a basic unawareness of syntactic boundaries has also been found to hamper the L2 reading process (Bossers, 1992; Kitajima, 1997).

In a study by Droop and Verhoeven (2003), the role of word recognition and oral language proficiency in the development of reading comprehension was examined with children learning to read in Dutch as a first and second language, living in the Netherlands. The purpose of the study was to investigate the development and interrelations of language proficiency and reading ability in children learning to read in their native language and children learning to read in a second language. The authors studied the development and interrelations of reading comprehension, word decoding, and oral language skills of high and low SES Dutch and low SES minority children with a Turkish and Moroccan background in the third and fourth grades of primary school in the Netherlands. Several tests to measure reading comprehension, word decoding, oral text comprehension, morphosyntactic knowledge, and vocabulary knowledge

were administered at the beginning of third grade, the end of third grade, and the end of fourth grade. The results demonstrated that the minority children were even faster decoders than Dutch low SES children. With respect to reading comprehension and oral language proficiency, however, it was found that the minority children lag behind the Dutch children in all respects. With respect to interrelations between oral language and reading, it was found that for both first and second language learners the development of reading comprehension tends to be influenced more by top-down comprehension-based processes than bottom-up word-decoding processes. Relative to the Dutch children, however, for the minority children the role of oral Dutch appears to be more prominent in the explanation of the variation in reading comprehension.

In Verhoeven (2000) an attempt was made to uncover any differences in the early reading and spelling processes of children learning to read in a first language and children learning to read in a second language. The reading and spelling development of native Dutch-speaking children and minority children in the first two grades of elementary school were compared. The children were given a number of tasks to test their vocabulary knowledge and the efficiency of their word decoding (including grapheme knowledge and word blending), word spelling (including cipher knowledge and phonemic segmentation), and reading comprehension processes. Analyses of variance were used to test for differences between the first and second language learners. LISREL analyses were used to explore the components underlying the reading and spelling processes in the two groups of children. The results showed the minority children to keep up with the native Dutch-speaking children on word blending and word decoding tasks. On word spelling and reading comprehension, however, the minority children were found to be less efficient than their monolingual Dutch peers. The structural models for word decoding and word spelling were highly comparable for the two groups. For reading comprehension, vocabulary knowledge was found to have more of an impact on the second language learners than on the first language learners. This finding suggests that children learning to read in a second language should be helped to build their lexical knowledge and that reading instruction should be matched to this knowledge.

A recent study by van Elsacker and Verhoeven (2002) examined how reading skills, reading strategies and reading motivations, and leisure time reading develop among Dutch children of varying socioeconomic backgrounds and minority children (i.e. children from ex-colonies, and children from Turkey and Morocco) in Grades 3 and 4 of primary school. The development of reading skills in the different groups of students showed no surprises. In line with previous research (Sijstra, 1997), the Dutch high SES group showed the highest scores on listening comprehension, reading vocabulary, and reading comprehension. Second came the Dutch low SES group, third the Ex-colonies, and last the Mediterranean group, who lagged behind for about two years. The Ex-colonies students scored consistently higher than the Mediterranean students. This can be explained from the fact that Dutch is being used to a greater extent in the former group. On decoding, the minority groups caught up with their Dutch peers. At the end of Grade 4 the Ex-colonies group outperformed the Dutch low SES group, ending at the same level with the Dutch high SES group. This latter result seems

to indicate that the decoding test is the only reading skills test on which insufficient knowledge of the second language does not have a detrimental effect in the long run.

Strategy use did not increase or decrease over time. The minority groups reported much more strategy use than the Dutch groups, while the Dutch high SES group, in general, reported the least strategy use. This result is in line with findings of Jiménez et al. (1996), who found that monolingual English students reported less strategy use than their bilingual Latino peers. In the present study, the poor readers reported more strategy use than the good readers. The routine strategies in particular, were very popular among the poor readers. Moreover, all strategy dimensions (except the monitoring strategies for the Dutch group) correlated negatively with the reading skills. These results are in contrast with previous research that has suggested that better readers use strategies more often than poorer readers do (Pressley & Afflerbach, 1995). However, the findings in the present study confirm the results of the study by de Jager & Reezigt (1996), who found poor achievers to use more strategies than good achievers. A possible explanation for these contradictory outcomes may be the difference in conscious and unconscious strategy use (cf. Baker & Brown, 1984). Baker and Brown state that, when good readers read easy texts, they read on their automatic pilot, using their monitoring skills unconsciously. In the present study the students were asked to tell how often they used certain strategies when they had to read a narrative or expository text at school. Schools typically use the same texts for all children in the year group. This means that for the poorer readers these texts usually are difficult, whereas for the better readers they are relatively easy. Thus, it is possible that good readers read these texts using their automatic pilot, employing their monitoring strategies unconsciously. The result may be that better readers report less use of strategies. This tentative hypothesis needs further exploration.

As expected, reading motivations declined over the years for all groups (cf. McKenna et al., 1995; Otter & Schoonen, 1996a). The Dutch low SES students scored lowest on intrinsic motivation, while the Dutch high SES students scored lowest on extrinsic motivations. At the same time there was no significant difference in their leisure time reading. This suggests that the latter group in their spare time reads for pleasure more than the former group. This is in line with research of Baker, Scher, and Mackler (1997), who showed that children of middle-income families are more likely to use literacy as a source of entertainment than are children of low-income families. Contrary to the popular view among many teachers and educators that minority students have lower reading motivation than mainstream students, the minority groups and the Dutch high SES group scored equally high on intrinsic reading motivation. Besides, both minority groups scored higher than the Dutch low SES group on intrinsic as well as extrinsic reading motivations, and reported a greater amount of leisure time reading. This finding is in line with previous research by McKenna et al. (1995), and Baker and Wigfield (1999).

DEVELOPMENT OF MINORITY LANGUAGE LITERACY

An interesting question is what level of literacy in their native language will be attained by minority children in an L2 submersion environment. Owing to a restriction of

language models in the community and lack of support for the mother tongue through educational institutions, a lag in L1 development can be expected. In a recent study we discovered that such does not necessarily needs to occur (Aarts, De Ruijter & Verhoeven, 1993). In this study we collected oral and written language data of Turkish and Moroccan children by the end of primary school. In the Dutch schools the children attended to, home language instruction was offered for 2–4 hours a week within the school curriculum. The L1 proficiency of 263 Turkish and 222 Moroccan children in the Netherlands was compared with that of a reference group of 276 Turkish and 242 Moroccan peers in Turkey and Morocco respectively. The overall results showed that the Turkish children in the Netherlands attain native-like performance in their mother tongue. On most of the oral and written tasks a remarkable correspondence between the groups in the Netherlands and Turkey was discovered. The high level of proficiency was not only found for typical school tasks; for functional literacy the children in the Netherlands showed a high proficiency level as well. The Moroccan children in the Netherlands showed more variation on the language proficiency tasks. They obtained reasonable scores on the oral language tasks. However, on written language tasks their proficiency level lagged far behind their peers in Morocco. In the same study it was found that home language instruction at school was positively related to the first language proficiency of the two groups of children.

From this study we may conclude that the modest amount of home language instruction in Dutch schools supports children's literacy development in the mother tongue. For the Turkish group of pupils it was even sufficient to reach an almost native-like performance. This may be due to the fact that both Turkish and Dutch make use of the Latin alphabet, so that literacy skills can be easily transferred from one language to the other. However, the same amount of home language instruction turned out to be insufficient to bring about a native-like literacy performance for the Moroccan students. This result is indicative of the great distance between the orthographic systems of Arabic and Dutch, on the one hand, and the large differences between spoken and written Arabic, on the other.

An important question is to what extent there is transfer during the process of biliteracy development from one language to the other. In a bilingual program, the interdependency hypothesis would predict that reading instruction in one language not only leads to literacy skills in that language, but also to a deeper conceptual and linguistic proficiency which is strongly related to literacy and general academic skill in the other language. In other words: although surface aspects of linguistic proficiency, such as orthographic skills, fluency, etc. develop separately, an underlying proficiency is presupposed which is common across languages. This common underlying proficiency is said to facilitate the transfer of cognitive/academic such as literacy-related skills across languages. The role of language transfer in the initial stages of reading acquisition has been examined in only a small number of studies. Verhoeven (1991a, 1991b; 1994b) found empirical evidence for cross-language transfer in his study on early biliteracy development of Turkish children in the Netherlands. Word decoding skills and reading comprehension skills being developed in one language turned out to predict corresponding skills in another language acquired later in time. Interdependency for word

decoding could be explained from the cognitively demanding nature of metalinguistic skills required. For reading comprehension, the decontextualized nature of text handling seemed the best explanation.

SOURCES OF INDIVIDUAL VARIATION

From research on parent input to young children, we know that such interactive activities as storybook reading greatly influence children's narrative development (see Sulzby & Teale, 1991). Conditions that highlight the relevance and purpose of story telling for learners also appear to be quite important for the development of narrative comprehension and production. The most important facilitator of narrative development turns out to be the extent to which parents are sensitive to their children's conversational attempts and the endeavors of parents to extend the conversation with such attempts as the starting point (see Snow et al., 1991). The semantic contingency of adult speech is thus a critical factor. Semantically contingent utterances include expansions limited to the content of previous child utterances, semantic extensions adding new information to the topic, questions demanding clarification of child utterances, and answers to child questions. Bus and IJzendoorn (1988a, 1988b) explored parent-child interaction patterns as related to emergent literacy skills. They found the affective dimension of mother-child interactions to be strongly related to children's literacy development. First of all, securely attached children appeared to show more interest in written material than did insecurely attached children, regardless of their intelligence and the amount of preparatory literacy instruction at school. In particular the variables measuring children's exploration of letters and words were significantly different for the attachment groups. Moreover, they found that the mother-child interactions of children with high literacy scores were more focussed on literacy aspects, such as words and sounds, and less on the meaning of illustrations or objects. It seems that the mothers of these children typically are sensitive to the child's level of development and modify their language accordingly. As such, emergent literacy has to be seen as an informal learning process rather than a natural process. Bus and Van IJzendoorn (1997) showed that children between 12–15 months developed referencing behavior supported by their mothers. The infants' responses at books gained significance as denotative symbols through responding together with the mother.

Leseman (1994) examined the effects of the socio-cultural context on home literacy, and in particular on styles of parent-child story book reading. Departing from a constructivistic view he concluded that children's development of literacy is determined by the opportunities for literacy-related interactions, the kind of guidance and informal instruction provided, and the affective experiences accompanying literacy interactions. By comparing the effects of literacy practices in the family on children's literacy learning in different communities in The Netherlands, he also showed that differences between families on these dimensions arise primarily from the socio-cultural context, especially from everyday cultural and religious practices and job content. In a follow-up study, Leseman and De Jong (2001) investigated the impact of home literacy on school literacy development in a multicultural sample of low-SES and minority children as compared to middle-class children in the Netherlands. They found small

but significant effects of home literacy practices on vocabulary and word decoding development. Moreover, they found home literacy and informal education at home to be rather strongly related to the family's socioeconomic and cultural context.

An important general conclusion of the research on emergent literacy was that the attainment of literacy can be stimulated by offering children a school environment where valid understandings about literacy can continue to emerge. In such an environment children have the opportunity to enhance the positive literacy experiences they have had prior to school. The development of a broad literacy curriculum in which language experiences are highly emphasized was therefore often promoted. Though in many publications a language experience approach to literacy acquisition is promoted, it is generally accepted that a naturalistic model which relies exclusively on exposure and immersion does not fully justify the complex task of learning to read and write. Accumulated research evidence indicates that, especially in a more advanced stage, children need sequentially structured activities that are mediated by a teacher or by skilled peers in order to acquire automaticity in (de)coding and appropriate strategies for reading and writing (Adams, 1989; Perfetti, 1998; Snow et al., 1998).

However, learning to read and written involves much more than the ability to decode print to speech and to encode speech in print. Registers of written language require a different selection and organization of ideas than those of oral language. In written communication logical and ideational functions are primary, whereas oral communication has more informal characteristics. In oral communication the listener has access to a wide range of contextual cues, while in written communication such cues are almost completely absent. A basic assumption of literacy education is therefore that gaining power in all modes of language must take place in all courses at varying school levels (cf. Verhoeven, 1996). Literacy learning should be viewed as inherently integrative. As children participate in classroom activities they are naturally able to connect the different modes of language use to learning. Besides the learning of literacy, children learn how to use literacy as an effective learning device. Given the close connection between literacy and thinking, literacy can be viewed as an instrument to develop higher-order cognitive skills. In order to support children's motivations towards literacy it is important to focus on meaningful experiences, and to stimulate critical thinking in reading and creative expression in writing (cf. Verhoeven & Snow, 2001).

PERSPECTIVE

Literacy education is not an end in itself. Literacy is at the center of the school curriculum because written language is used to learn across the curriculum. The cognitive processes involved in literacy learning also apply to other curriculum areas. Integrated literacy strategies can be used in curriculum domains, such as science, social studies, mathematics, and arts. Besides, literacy learning has clear social and emotional characteristics. Children engaged in communication learn to construct a sense of social identity and personal relationships. Moreover, they learn to deal with cultural and linguistic diversity. As interaction among individuals from very different cultures increases, there is a need to construct meanings from different perspectives (cf. Hiebert, 1991).

Evaluation research has shown that those basic education programs have been successful that focused on well-identified needs, provided training to special interest groups on request, or combined income generating programs with literacy education. Not only can literacy be seen as a life-long continuum, it must also be seen as deeply involved in social practice and cultural tradition. Within a local community the ability to read and write can be seen as a crucial means to communicate one's own views and to have access to cultural institutions and scientific resources. Beyond one's immediate community, literacy leads to participation in the world, providing access to alternative sources of information and means to express one's views and beliefs on the basis of informed choices.

Discussing the notion of literacy development across cultures, we should be aware of the fact that there is a great diversity in both the distribution and degree of (il)literacy in different parts of the world (see Verhoeven, 1994; Wagner, 1995). There has been an increasing general awareness of the numbers of illiterates and the consequences of being illiterate for personal life. Literacy policies initiated by the local authorities in various countries have brought about literacy campaigns, including basic education, in order to reduce the proportion of illiterates. Initiatives began to focus on the functional dimensions of, and the personal needs for, literacy. It was acknowledged that literacy programs should recognize the different realities of diverse groups of learners. In order to achieve this goal, the sociolinguistic position of minority groups with respect to literacy practices should be recognized. In order to do justice to the literacy motivation of minority groups, their literacy needs should be defined in terms of their multilingual and multicultural background (Durgunoglu & Verhoeven, 1998). According to Au (1993, 1998) the literacy achievement gap between cultural groups in a society can highly be explained in terms of linguistic and cultural differences that conflict with mainstream education. Following a social constructivist perspective, she argues that poverty and school failure are both manifestations of historical and systemic conditions rooted in discrimination in that the conditions of low income students' lives and communities, as well as the material circumstances in their schools lead to savage inequalities in educational opportunity.

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31. PERCEPTIONS AND EVIDENCE OF EARLY LITERACY IN HEBREW¹

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INTRODUCTION

Hebrew is among the first alphabets to be used intensely and extensively from the beginning of the first millennium BCE. The inception and development of the Canaanite alphabet as unique writing system occurred in an area where writing was in fact a long-standing and well-established tradition. The cities of Canaan lay in the midst of (or near enough to) the traffic of goods, merchants, and armies among the superpowers of the time: Egypt to the southwest, Sumer and Babylon to the northeast. Under the governance of these superpowers, writing had already been used since 3100 BCE, at least a millennium and a half before the invention of the alphabet. In particular, those Hebrews who were in Egypt were bound to have observed the monumental writing of the Egyptians. In this way the meta-language of literacy, and literacy as a state of mind, preceded and then accompanied the origination of alphabetic literacy. From this vantage point one may construe the invention of the alphabet by the Canaanites in the early second millennium BCE, as a local phenomenon of adapting a universal device to the local tongue.

The story of early literacy in Hebrew may be told on the basis of two sources: texts found in archaeological sites and biblical documents. Each of these sources is somewhat problematic. As for archaeological evidence, the media for most of the writing at that time was either papyrus or parchment. Unfortunately, except for the very arid land

¹ Parts of this chapter are abridged from my forthcoming book, to be published by Laurence Erlbaum Press. In writing this chapter I was helped by several experts. Among them are Prof. Aaron Demsky, and Terry Fenton. Mr. Murray Rozovsky and my daughter Yonat helped me editing the chapter. I thank them all. Needless to say, the mistakes are mine.

such as the Judean desert, or Egypt for that matter, papyrus and parchment could not survive the humid climate of the area. Indeed a number of books mentioned in passing in the Bible do not survive.

In addition, since our focus here is on early literacy among the Israelites, it should be mentioned that with regard to archaeological or epigraphic findings, particularly those of the very early ages, it is not always clear whether the text in question was written in what is recognized today as biblical Hebrew or in another Semitic dialect of the time.

With regard to biblical documents, the Bible is not a history book. Many domains of daily life in the biblical era are hardly mentioned, if at all. For example, the Bible tells us little about the agriculture, administration, and education. The information culled from the text about these areas is incidental to religious issues. In addition, the historical validity of the stories should be subjected to particular scrutiny. Many of them are mythical or legendary, and some were passed down the generations orally for centuries before being put into writing.

In this chapter, however, my concern is not limited to the historical (factual) description. I am equally interested in the **perceptions** of early literacy, regardless of the historical validity of the stories told. I believe that even from biblical stories that seem to have no factual validity much can be learned about the views of the writers and their perception of what was believable in the context of their time. I will start with a definition of literacy suggested by Olson (1991) and continue with observations about the perception and the evidence of literacy deriving from biblical documents and archaeological exploration in the biblical era.

DEFINING LITERACY

Several questions arise that are pertinent to an evaluation of literacy in the context of a particular society at a particular time. Thomas (1992) pointedly puts it thus: “We might define literacy as the ability to read and write, but read and write what?” (p. 8). One may add: reading by whom, and for what purpose? Also, what impact does reading have on the individual, the community, and the relationship between citizen and community?

Olson (1991) put forward a set of conditions he considered necessary for the development of literacy. (a) Texts must not only be written employing some type of fixing device, but also preserved and accumulated in an archival fashion so that communal texts may be accessed and so that the community of readers and writers may mutually benefit from each other’s writing. (b) For literacy to have an effect, institutions, such as religion, law, science, government, schools, and literature, must make use of texts. (c) There must also be institutions inducting learners into those institutions, such as family, church, and schools. Inducting – or educating – institutions train children, as well as adults, to take roles in literate institutions or, at least to understand the function of these institutions and cultivate attitudes towards them. Finally (d), a meta-language must also evolve, making possible discourse on texts and literacy.

These four conditions seem to have been defined with a well-developed literate society in mind. They are less suited to the initial stages of literacy development. In

the earliest stages of literacy, fixing devices could be devised: for example, scratching a stone or a piece of pottery was perhaps the simplest device. But archives take years to accumulate and institutions begin to benefit from literacy only after a sufficient proportion of their constituency and employees have become literate. For education to take place, there must be enough people able to teach literacy and enough students convinced that such a pursuit is worth their while.

Olson's conditions can apparently only be fulfilled through a process of gradual establishment of each condition and the eventual interaction of them all. An interactive view of literacy assumes a developing relationship among the individual, the language, the writing system, the community and its institutions, and the practice of literacy. The reciprocal stimulation must increase gradually, to promote the strength, and complexity, of each factor. For my purposes, I intend to examine early Hebrew literacy by referring to Olson's criteria when appropriate.

EARLY PERCEPTIONS OF LITERACY IN THE BIBLE

I would like to distinguish three perceptions of literacy in the Bible: (a) A mythical approach to texts, believed to be written by God or God's messenger (prophet); (b) Literacy in the service of the administration (monarchy) of that time; and (c) Modern literacy in the making. In my discussion of each perception, I will dwell on a few examples without attempting to exhaust the diversity of the references.

A mythical approach to the text

The discussion here is strictly limited to a perception of literacy as reflected in the biblical ethos. The analysis of the biblical documents does not assume that the portrayed events actually happened. Clearly, most of them have a legendary (mythical) character.

The most prominent religious event in the Pentateuch, namely the presentation of the Ten Commandments to the Hebrews in the Sinai desert on their journey to the Promised Land, is ultimately a monumental event of public literacy, involving, at one fell swoop, both writing and "un-writing" (breaking the tablets). As the biblical story illustrates in unfolding this dramatic and mythical event, writing itself appears perfectly natural, and by no means a miracle. The meta-language of literacy seems to have been embedded in the Israelite conception of religion and nationality from at least the time when this text was created and incorporated into the Israelites' construction of their history.

Let us take a closer look at the confirmation of the covenant (Exodus 24).²

Moses wrote down all the words of the LORD, and built an altar at the foot of the mountain, and young men sacrificed peace offerings of oxen to the LORD. (4–5)

And Moses took half of the blood and put it in basins, and half of the blood he threw against the altar. Then he took the Book of the Covenant and read it in the hearing of the people. (6–7)

² The English translation used in this chapter is the Standard English Version.

And Moses took the blood and threw it on the people and said, “Behold the blood of the covenant that the LORD has made with you in accordance with all these words.” (8)

The LORD said to Moses, “Come up to me on the mountain and wait there, that I may give you the tablets of stone, with the law and the commandment, which I have written for their instruction.” (12)

Note the relation between the *Book of the Covenant* (7), and the *blood of the covenant* (9), the two material auxiliaries at the confirmation of the covenant. The blood, the most central entity of living, is used in this text to bind the people to the book and the covenant, to create the unity of people, book, and covenant. God gives Moses the tablets of stone, the law (the Torah), and the commandments, as if glued together with blood.

In this text, the book is not just a medium on which the covenant is written for future remembering; it is inseparable from the law and the commandments—they are one. Moreover, as we see later in the text, this unity includes a physical touch of God:

And he gave to Moses, when he had finished speaking with him on Mount Sinai, the two tablets of the testimony, tablets of stone, written with the finger of God. (31, 18)

The tablets were the work of God, and the writing was the writing of God, engraved on the tablets. (32, 16)

Not surprisingly then, when God regretted making the covenant its retraction is realized by the destruction of the book (tablets) of the covenant: breaking the tablets of stone. Finally, when the covenant was re-established, a new text has to be rewritten:

The LORD said to Moses, “Cut for yourself two tablets of stone like the first, and I will write on the tablets the words that were on the first tablets, which you broke.” (34, 1)

The renewal of the covenant is not materialized until the book is rewritten:

And the LORD said to Moses, “Write these words, for in accordance with these words I have made a covenant with you and with Israel.” (34, 27)

We do not know the time when this text was created, but the mythical attitude to texts apparently continued throughout the entire biblical era and beyond. It appears vividly in the books of the three major prophets of the Hebrew Bible (the Old Testament).

Jeremiah’s scroll

The story is well known (Jeremiah, 36). When Jeremiah is banned from going to the temple, he dictates a message to Baruch the son of Neriah who reads the message, written on a scroll, in the temple on a day of fasting. Then Baruch is asked to read the scroll to the officials in the king’s house. When the officials report on the scroll to king Jehoiakim, he asks that the scroll be read to him. Having listened to three or

four columns, the king cuts the scroll with a knife, and throws it into the fire on the hearth, until the entire scroll is consumed by the fire.

Here again, the king doesn't distinguish the message from the text and the medium (the scroll) upon which it is written. As in the story of the tablets of stone in the confirmation of the covenant told in Exodus, abolishing the scroll is not a symbol, it is an act by which the message itself is voiding prophecies of doom. Not surprisingly, after the burning of the scroll God tells Jeremiah to write the scroll again, in a way reminiscent of the mythical nullifying of contractual agreement—a covenant.

Ezekiel

A similar approach to literacy, albeit somewhat more imaginative, is evident in the beginning of the book of Ezekiel when he is called to assume the role of a prophet (Ch. 2–3):

“But you, son of man, hear what I say to you. Be not rebellious like that rebellious house; open your mouth and eat what I give you.” And when I looked, behold, a hand was stretched out to me, and behold, a scroll of a book was in it. And he spread it before me. And it had writing on the front and on the back, and there were written on it words of lamentation and mourning and woe. (2, 8–10)

And he said to me, “Son of man, eat whatever you find here. Eat this scroll, and go, speak to the house of Israel.” So I opened my mouth, and he gave me this scroll to eat. And he said to me, “Son of man, feed your belly with this scroll that I give you and fill your stomach with it.” Then I ate it, and it was in my mouth as sweet as honey. And he said to me, “Son of man, go to the house of Israel and speak with my words to them”. (3, 1–4)

In this story the call to Ezekiel and his personal confirmation as a prophet (messenger) are mediated by a scroll in a very special manner. In eating the scroll the prophet Ezekiel internalizes the word of God. Again there is no distinction between the message, the text, and the medium upon which the message is recorded. The additional element here is the making of a person—the prophet Ezekiel—part and parcel of the text and the message.

At a later stage God commands the prophet to eat the scroll, as if by consuming the scroll the prophet will internalize some divine power. The prophet is also asked to write down his prophecy (43, 11–12) for the purpose of recording the future plan of the temple.

Isaiah

The prophet Isaiah tells how God commanded him thus: “Take a large tablet and write on it in common characters” (stylus of man) (8, 1; 8, 16). In this context, writing down God's words seems to be an act of substantiating the message as well as underlining its non-ephemeral nature. Later in the book the order is repeated: “And now, go, write it before them on a tablet and inscribe it in a book, that it may be for the time to come as a witness forever.” (30, 8). Such an order was also given to the prophet Habakkuk (2, 2). As with the book of the covenant, writing on stone was not just a matter of

documenting the message, it eternalized the message, and incorporated it into the people's reconstruction of their history.

In sum, these texts give the impression that at least in the eyes of those who edited the Bible, the three major prophets, Isaiah, Jeremiah, and Ezekiel, were committed to writing down some or all of their prophecies. However, in their case writing was more than a communicative act. It involved an empowerment of the prophets as messengers of God and their prophecies as the word of God. It also had the function of recording prophecies for future generations.

It seems likely that the major prophets probably could read and write, and their listeners were at least aware of the possibility of literacy and its inherent power. It is also conceivable that at least some of the prophecies were written down from the outset and were originally conveyed in written—not just oral—form.

The mythical, religious, approach to the text as a sacred physical entity symbolizing special meanings and involving with practical application has survived to the present day as an essential element of Jewish worship. Notable forms include the *tefillin* (phylacteries) and *mezuzah* (see below), as well the manner in which the sacred books are treated in religious rituals. The origin of worship involving the *tefillin* and *mezuzah* is in Deuteronomy 6:

You shall love the LORD your God with all your heart and with all your soul and with all your might. And these words that I command you today shall be on your heart. You shall teach them diligently to your children, and shall talk of them when you sit in your house, and when you walk by the way, and when you lie down, and when you rise. You shall bind them as a sign on your hand, and they shall be as frontlets between your eyes. You shall write them on the doorposts of your house and on your gates. (6: 5–9)

In contemporary Judaism the *tefillin* are a set of two small, black leather, cube-shaped cases containing texts written on parchment. In accordance with Deuteronomy 6:8 (and similar statements in Deuteronomy 11:18 and Exodus 13:9, 16) they are to be worn by adult Jewish males as a reminder of God and of the obligation to keep the Law during daily life. The *mezuzah* is a small folded or rolled parchment inscribed by a qualified scribe (in Hebrew, *sofer stam*) with scriptural verses (Deuteronomy 6:4–9, 11:13–21) to remind Jews of their obligations to God. The parchment is placed in a metal, wooden, or glass case so that the word Shaddai (“Almighty”) can usually be seen on the back of the parchment, and is attached to doorposts in Jewish homes.

Note that a plain, simple, interpretation of Deuteronomy 6 cited above could (perhaps should) be understood, (“You shall bind them as a sign on your hand, and they shall be as frontlets between your eyes. You shall write them on the doorposts of your house and on your gates . . .”) to imply a total devotion to God and the words as we read “And these words . . . shall be on your heart”. But these words came to be interpreted literally, and they still are, and thus they have become the center of a daily ritual of observant Jews from the age of 13 years. Every morning they bind the *tefillin* on their left arm and forehead; and some Jews kiss the *mezuzah* whenever they enter

a room or a building where it is attached to the post of a door or a gate. For them, the wording of God's message and its inscription on the parchment are not symbols or metaphors—they are real sacred entities, in which the message and the medium upon which it is written are indivisible.

Note that the rituals surround the *tefillin* and the *mezuzah* form a very special act relating to a type of literacy events. Here, the texts are covered, in fact impossible to be read. Both the *tefillin* and the *mezuzah* are encapsulated in boxes, which are not to be opened, and, consequently, are not directly read. Thus although the text is central in these rituals, the events as a whole are hardly literary events. True, an educated observer presumably knows the message written in these texts inside these boxes. Moreover, the prayer, which accompanies the ritual of wearing the *tefillin* on the arm and on the forehead, makes some reference to the texts inside. It cites one central phrase and mentions the common names of the four excerpts written on the parchment. Still the text as a whole is not necessarily read. So just as we can think of literary events that convey meaning but do not involve a text (a lecture or a speech), we may take the rituals of the *tefillin* and the *mezuzah* as literary events devoid of reading, or any other direct exposition to the text and its meaning (cf. Goodman, 1994). To a certain extent, what is true for the *tefillin* and the *mezuzah* today is similar to the fate of the tablets, the book of the covenant according to the biblical story: After it was placed in the ark, it was never to be looked at by common people.

TOWARD A MODERN LITERACY

In modern literacy, all aspects of the literary event: the message, the text, and the medium that carries it are crucial, but they maintain (at least some) independence. In many cases we are indifferent to the type of material on which the text is written or even to the exact wording of the text. We see ideas and their implications as what matters most. For us today, literacy is mostly about expression and communication, which enable a literate person to acquire knowledge, and to interact with others—people and institutions—so as to satisfy her or his needs in a literate society.

There is however a type of literacy, **record keeping**, in which the wording, and even the type of medium on which the record is kept, do matter, even in our modern society. Examples are the contracts we sign with regard to our property, or the record that determines our status or relationship with the bank, our employer, or our government (ID cards, passports, credit cards etc.) These are relatively fixed documents, with fixed phrasing and fixed forms; to be effective, they have to remain in their fixed phrasing and form.

An important difference between record keeping as opposed to expression and communication is that in keeping records only one side in the literacy event need know how to read and write. One can be listed in governmental records or even sign a contract without knowing how to read or write. Still, record keeping is essential for the orderly management of the society, and it is in this sense that record keeping was already practiced in ancient societies. Because the subject of the record is not required to be able to read and write, records could be kept even in eras when reading and writing was not yet widespread in the population.

In ancient Israel the administrative procedures of the Israelite monarchy were undergoing a gradual process of formulation. The Bible rarely reports on these aspects of Israelite life, but fortunately for us such details are revealed in the concomitant details of biblical stories. An exemplary case is set forth in 1 Kings 21, the story of Naboth's vineyard. Jezebel, King Ahab's wife, orchestrated a plot against Naboth, an Israelite citizen and owner of a vineyard near the king's palace in Samaria (1 Kings, 21). King Ahab coveted the vineyard, and when Naboth refused to give it up on the grounds that it was inherited from his ancestors, Jezebel took the matter in her own hands and forged a letter to enable Ahab to annex the vineyard to his estate. Thus, the story goes, she wrote a letter (the bible name it "books") of accusation and blasphemy for treason, signed with the king's seal, and had delivered it to the elders of Jezreel, Naboth's city. The letters accused Naboth of cursing God and the king (and therefore deserved to die). As regards our concern with biblical literacy, the story demonstrates how written correspondence and documentation were essential in the legal proceedings between the palace and the city elders sitting in the local court:

And Jezebel his wife said to him, "Do you now govern Israel? Arise and eat bread and let your heart be cheerful; I will give you the vineyard of Naboth the Jezreelite." So she wrote letters in Ahab's name and sealed them with his seal, and she sent the letters to the elders and the leaders who lived with Naboth in his city. (21, 7–8)

Evidently, the Israelite monarchs of ancient times were not all powerful. To the extent that this story reflects a reality, which existed at least as early as the time when this story was written, it shows that keeping records in the biblical monarchy was obligatory. Decisions were to be recorded in books and signed by authoritative figures. Even a message to the "elders," most likely a council or a court of justice, which had to approve the royal decisions, were customarily delivered as official documents.

Documenting decisions at the royal court was not the only reason for record keeping of course. Public census for the purpose of taxation and army recruitment was then, as today, a crucial necessity of the regime, as documented, for example, in 2 Samuel 24 (see also 1 Kings 4):

So the king said to Joab, the commander of the army, who was with him, "Go through all the tribes of Israel, from Dan to Beersheba, and number the people, that I may know the number of the people." (2 Samuel 24, 2)

We may never know the portion of the population who knew how to read and write at that era. Yet it seems likely that reading and writing as a form of record keeping were perceived as an everyday activity in the administrative circles.

Keeping a record of religious (and judicial) texts

In another story (2 Kings 22), King Josiah wished to renovate the temple in Jerusalem. To this end he sent Shafan, the scribe, to recover tax money collected by the priesthood for the temple's maintenance. In the process of renovation Shafan was told by one of

the priests about a book they had found in the temple, whereupon Shafan took the book and read it before the king. The book, *Sefer Ha-brit* (The Book of the Covenant), was subsequently read in front of the entire people of Israel.

A similar event re-occurs later, after the return of the Jews from Babylon (Nehemiah 8). When the people of Israel returned from exile in Babylon, they gathered in Jerusalem for a public reading of the Torah (“the Book of Moses”). This occasion, however, went beyond a typical reading for it also included the social contract—the *ketav amana*, a covenant reaffirming the community’s commitment to the principles found in the Torah, they had read, as well as certain appendages to the laws (Nehemiah 10, 1). Thus the public reading together with the writing of the covenant became additional major literary events (Demsky, 1988.)

The documents presented here do not indicate how extensive the spread of literacy was among the common citizenry of Israel (excluding professional scribes and the priesthood). It remains unclear whether the people had to be assembled for a public reading because common people were unable to read or because copies of the holy books could not be made available. In any event, everyone apparently knew what the books were for. The meta-language of literacy, Olson’s fourth condition, had already become deep-rooted in the pre-exilic period.

Literacy as transporting messages

One of the most typical uses of writing, according to biblical narratives and pre-biblical sources, was the transmission of messages. Reports from Egypt refer to letters borne and read aloud by messengers in the presence of a ruler (Widengren, 1948). As we have seen, the Bible describes such an event in reference to Baruch the scribe (Jer. 36), who delivered a written message by declaring its contents initially in the presence of the common people and then once again before the king. A detailed portrayal of another scribe’s appearance is given in Ezek. (9, 2–3):

And behold, six men came from the direction of the upper gate, which faces north, each with his weapon for slaughter in his hand, and with them was a man clothed in linen, with a writing case at his waist. And they went in and stood beside the bronze altar. Now the glory of the God of Israel had gone up from the cherub on which it rested to the threshold of the house. And he called to the man clothed in linen, who had the writing case at his waist.

Here is a magnificent juxtaposition of the power of six men equipped with weapons of destruction, presumably armed with shields, and the one man simply clad in linen and whose only “weapon” is his ink-horn.

Recording oral traditions

As may be expected, writing gradually came to be employed for recording oral traditions. Biblical authors were in fact careful at times to quote their exact sources. For example, in Numbers (21), we find one of two poems relating to *Sefer milxamot Yahweh* (The Book of the Wars of Yahweh)—perhaps a book recording the wars of the Israelites. Another ancient book, *Sefer hayashar*, probably also a collection of oral

traditions, is quoted on several occasions (e.g., 2 Samuel 1, 18; Josh. 10, 13; 2 Kings 8, 53). Not one of these books has been discovered, suggesting that all succumbed to humid climate conditions. However, references to these books almost certainly imply that in biblical times these books were not only known but were also accessible. A reference makes sense only when it can be verified and validated. It is in this context that the discovery of the book in the temple at the time of Josiah should be considered.

Incidental mentions of writing in the Bible

In view of the formidable loss of the main sources of literacy (see above), that is, sources written on perishable media, our only alternative is the analysis of biblical texts. The biblical story of Joshua and the Judges in the early stages of Israelite settlement is replete with incidental references to writing events, thereby attesting that writing was by no means a novel or unusual occupation, at least at the time of compilation of the Hebrew Bible. For example, in dividing the Promised Land among the tribes, Joshua commands their representatives to write down seven parts of the country in preparation for a lottery that was to determine the rules of division (Josh. 18, 7–9). In the song of Deborah (Jud. 5) the tribe of Zebulun is characterized as one renowned for its scribes. A few chapters later, the judge Gideon seizes a young man and orders him to write down the names of the officers of the city of Succoth (Jud. 8, 14). Since it is unlikely that all young men of this time could read and write, perhaps he was a scribe's apprentice, but the important testimony of this story is that writing was already established in the administrative procedures of the kings of Canaan (Demsky, 1977). This testimony should satisfy Olson's second condition regarding the institutionalization of literacy.

Existing evidence of the congenital ties between writing and delivering letters perhaps resides in the common Hebrew root KTV found in the words *ketav* (writing) and *mixtav* (letter as a written message). These ties may also be indicated by the polysemy of the word "letter" in English, sharing the dual meaning of a written character and a written message.

ARCHAEOLOGICAL EVIDENCE OF EARLY LITERACY IN HEBREW

The first findings of unequivocal Hebrew texts, as opposed to writing in other Semitic dialects—evidence of full-scale literacy—are believed to be from the 8th century BCE, during the First Temple period. These were papyri discovered in a cave in the Judean Desert together with more than 20 pieces of clay that served as seals for the papyrus scrolls. Now it seems quite certain that only a relatively poor number of texts remains from the first 400 years of Israeli settlement in Canaan because most of the writing was done on papyrus, which could not withstand the climate of central and northern Canaan.

Another reason for the dearth of texts in Hebrew from this period is the Israelites' failure to develop a standard of writing on monuments. They did not erect monuments in the name of kings or God, and indeed, most Hebrew writing of the time was cursive rather than lapidary, even when incisions were made on hard material. When

texts eventually did begin to appear in abundance, a great many of them (such as the collection of letters found in Arad and Lachish) were written in ink on shards—a method of inscription commonly known as ostraca (singular ostrakon).

The archaeological evidence of literacy may be classified into several types: **domestic writing** practiced by literate citizens (not necessarily scribes), **educational materials** for cultivating professional scribes, **correspondence** written by scribes in the service of rulers, artistic, **belletristic writing** such as poetry, and **seals**.

Domestic literacy

In “domestic literacy” I include evidence written by the inhabitants of Canaan unearthed in archaeological excavations. Typically, these were written at home for personal or family purposes. The content of many instances of writing concerns practicalities, such as stock-taking, marking property for protection, devoting gifts to gods, or complying with a religious command such as inscribing texts on house entrances (Deut. 6,9: see above). Occasionally people were also interested in transmitting messages by a fixed medium to remote destinations.

A marvelous example of this kind of literacy was discovered by Meshel (1978) in a tiny settlement, Kuntillet Ajrud, between the Negev desert and the Sinai peninsula, dating to the First Israelite Temple in the early part of the first millennium BCE. The entire settlement consisted of just two buildings, of which the larger measured 25 × 15 meters. In this building the floor, the walls, and some benches were covered with a shiny white plaster. Parts of the walls had been painted and written on. Surprisingly, among the plaster debris on the floor were fragments of inscriptions in Phoenician letters written in ink on plaster. In addition, inscriptions bearing names were found on two large pithoi (pots used for storing wine or grain). Inscriptions in various colors of ink were also found near the entrance to the rooms, apparently written on the doorjambs, reminiscent of the biblical verse: “And you shall write them on the door-posts of your house and on your gates” (Deut. 6,9).

This evidence in itself does not reveal much about the general literacy of this era, but at the very least it corroborates and therefore lends additional credence to technological details with regard to writing as depicted in the Bible:

“And on the day you cross over the Jordan to the land that the LORD your God is giving you, you shall set up large stones and plaster them with plaster. And you shall write on them all the words of this law . . .” (Deut. 27, 2–3)

Demsky (1988) submits that this practice of writing at home might have been more widespread in ancient Israel, thus explaining the paucity of monumental inscriptions chiseled in stone (p. 17). There may, I think, be other reasons for the absence of stone monument writing in ancient Israel. The propensity for domestic literature may have coupled with the disinclination to public monuments, reflecting the nomadic tribal nature of ancient Israel and the resistance (or at least ambivalent attitude) to central government and the institution of monarchy (cf. 1 Samuel 8).

Meshel (1978) sorts the signs of literacy from Kuntillet Ajrud into several categories: (a) Single letters incised on pottery before firing, probably written to identify their contents; for example, the letter *kof* to mark “*korban*” (sacrifice), or the letter *tav* to mark “*truma*” (offering). (b) Inscriptions in early Hebrew script incised on pottery after firing, signifying either the names of people who owned the jars or people to whom the jars were delivered (e.g., the governor of the city). (c) Inscriptions in early Hebrew script incised on stone vessels. One of these vessels was imprinted with the following sentence (translated from Hebrew): “To Obadia son of Adnah. May he be blessed by God.” Conceivably, these particular stone bowls were dedicated by one of the guests to Adnah or to the entire settlement. (d) Inscriptions written in Phoenician characters on plaster, some of them probably coming off the doorjambs, that contained texts of blessings (see above). (e) Perhaps the most important find in our quest for the earliest Hebrew literacy is inscriptions accompanied by drawings on pottery vessels. Among them are three abecedaries—lists of the letters of the alphabet—from the ninth letter to the end, in almost the same traditional order that became typical of most Semitic alphabets (and to some extent Greek and Latin). The findings of these abecedaries are particularly important for literacy research because they are an indication that even in this remote settlement a degree of literacy education took place: perhaps the abecedary shards were the homework of a novice student.

The entire collection of early domestic Semitic writings uncovered by archaeologists obviously cannot be reviewed in this chapter. The interested reader is referred to Cross (1967), Naveh (1982), Pritchard (1955), Sass (1988), Densky (1977), and Na’aman (2000). Nonetheless, featured here is a representative selection of archaeological evidence.

Literary (belletristic) texts

The discovery of ink inscriptions on plaster in Deir ‘Alla in the Jordan Valley (7th or 8th century BCE) containing a poetic text attributed to the biblical figure of Balaam Ben Beor (Numbers 22–24) suggests early attempts at committing oral literacy to some form of “hard copy.” The language of the text could be spoken by Israelites as well as Moabites and Ammonites. Still, it bears a striking affinity to the Balaam story in the biblical text. Levine (1985) concludes, “contacts across the Jordan, in both directions, were normal throughout the tenth to the late eighth century BCE, allowing for continuous cultural interaction” (p. 338). It may well be that some of the two-way literary traffic over the Jordan river was carried out in writing. Presumably, whoever wrote the Deir ‘Alla text on plaster could just as well have written it on a more portable (yet perishable) medium. Thus, there should be no question that to the extent that reading materials existed and were accessible, enough members of the Hebrew-speaking community could read them and generally participate in literary exchange.

Literacy education

Is there evidence in biblical texts for the existence of formal literacy education, Olson’s third requirement? As indicated above, the Bible is not a history book. If history is

told in the Bible it is to serve a purpose beyond the mere recording of historical facts. So to answer this question one has to recover from the biblical text incidental notes or references upon which a historical background may be reconstructed. One such reference that may be conceived as evidence for the existence of formal schooling in the pre-exilic period is the following complaint made by the disciples of the prophet Elisha (2 Kings, 6, 1) in their complaint that “the place where we sit before you is too small for us.” Although these were novitiates for prophecy, and not for scribing, it is reasonable to conclude that a schooling of some sort took place.

Another possible complaint of perhaps a student scribe may have been preserved in the book of Isaiah (50, 4–11). The question of course is who authored this text. But whoever is the author, he clearly enjoyed and appreciated daily learning, whether he was also occupied by reading and writing or was associated with systematic learning is hard to tell:

“The Lord GOD has given me the tongue of those who are taught, that I may know how to sustain with a word him who is weary. Morning by morning he awakens; he awakens my ear to hear as those who are taught. The Lord GOD has opened my ear, and I was not rebellious; I turned not backward. I gave my back to those who strike, and my cheeks to those who pull out the beard; I hid not my face from disgrace and spitting. But the Lord GOD helps me; therefore I have not been disgraced; therefore I have set my face like a flint, and I know that I shall not be put to shame.”

Were there professional teachers? In Proverbs 5, 13 a student expresses his remorse, saying: “Neither have I hearkened to the voice of my teachers, nor inclined mine ear to those who instructed me”; and in Psalms 119, 99 the Psalmist says: “I have learned from all my teachers.”

Did students pay tuition? The literal meaning of the Hebrew verb for “*getting* knowledge” (or wisdom) in a famous phrase from Proverbs (4, 7; 17, 16) is *knh*, meaning “to buy” (i.e., to buy wisdom). Although most English translations have “get” instead of “buy,” we must tread carefully because all other uses of the verb *KNH* in the Bible are consistent with what is today meant by buying—a transaction in which money changes hands (e.g., Gen. 23, 18; 25, 10). Thus, if the literal translation is valid (a possibility supported by Prov. 23, 23), it means that at least in some circumstances teachers were remunerated.

When trying to account for the meager number of biblical references to formal schooling, one wonders whether schooling was so uncommon or, on the other hand, so prevalent that it demanded no particular mention. Appraising the evidence presented here and comparative evidence from neighboring regions, Davies (1995) concludes that “. . . persuasive indirect arguments can be built up for the existence of schools in ancient Israel, and these arguments also imply that such schools would have been, at least in part, associated with the training of government officials” (p. 204).

Among other scholars, Lemaire (1981, cf. Crenshaw, 1998) lists eleven types of evidence for the existence of schools in the biblical era. He asserts that literacy education in ancient Israel had expanded during the 8th century BCE to such an extent that

by the end of the monarchy it had spread to outlying villages, so that reading and writing was in the possession of common people. Shards (ostraca) were probably their preferred mode of writing material. Papyrus and leather were more often used by the administration, the priests, and the prophets. It is quite likely that sacred texts were copied in these schools, and in this manner, rather than by oral transmission, Hebrew tradition was preserved and conveyed from generation to generation. There may have been varied traditions in literacy education, namely royal as opposed to clerical schools, but it seems that all these schools were ultimately responsible for the canonization of biblical texts.

Abecedaries

The simplest sign of learning to read and write is evidence showing students practicing systematic writing of the alphabet in a fixed order. The English term for a list of letters, more or less ordered in a fixed manner and written on some available material, is **abecedary**, derived from the names of the four first letters of the Latin alphabet. The first examples of abecedaries were found in Ugarit in Northern Syria. They date to the 14th century BCE. Interestingly, although the letter order in the alphabet was apparently determined at least as early as the 14th century, the direction of writing was not resolved until some centuries later. For example, in the abecedary found in Izbet Sartah (East of Rosh Ha-Ayin) was scribed on a shard apparently in the 12th century BCE (era of the Judges), and considered by some to be the earliest evidence of alphabetic literacy (Demsky, 1977, p. 52), contains a complete set of 22 letters, in almost conventional order, is written, like the earlier Ugaritic abecedaries, from left to right, contrary to the later Hebrew (Kochavi & Demsky, 1978).

The spread of abecedaries from Syria in the north to the Negev in the south is in itself remarkable. In addition to Ugarit and Izbet Sartah, such texts were also found in Gezer, Lachish, Kuntillet Ajrud, Kadash Barne'a, Qumran, and Shiqmonah. Abecedaries were also found on seals whose original source and location is unknown (see Carmon, 1972; Sass, 1993).

Special training in the cuneiform tradition

Additional evidence indicating the systematic training of scribes in the cuneiform tradition may be gleaned from lists of international vocabularies and exercises found in Gezer, Ta'anak, and Shechem (central Israel). A trilingual word list, perhaps used as a dictionary was found in Aphek in a cuneiform writing. In all likelihood, these were lists of terms, probably of Babylonian origin, employed in international correspondence and whose use was continued in later periods. The acquisition of these terms seems to have been part and parcel of scribal education (Demsky, 1990).

Observing the entire bulk of findings in Syria and Canaan, written in cuneiform, Demsky (1990) concluded that there is enough evidence to indicate that as early as the 2nd millennium BCE a cadre of local scribes in Canaan maintained the Mesopotamian (Babylonian) scribal tradition traced back to the 18th century BCE. Demsky argues that the evidence points to the existence of several scribal centers. He mentions Hazor, Meggido, and Aphek as possible sites for such centers. Indeed, there is ample evidence

showing that Hazor (in northern Israel) maintained strong commercial ties with cities in northern Syria and Babylon itself. As mentioned above, a trilingual dictionary from the 13th century BCE was found in Aphek, apparently compiled to facilitate the work of scribes who corresponded with remote countries. Letters found in El Amarna in Egypt contained cuneiform letters that indicate correspondence with major Canaanite cities such as Jerusalem, Shechem, Lachish, Gezer, Akko, Ashkelon, Hazor, and Meggido. In addition to the Babylonian influence, some of the El Amarna letters reflect an Egyptian writing tradition while others represent a more local, Syrian tradition. The findings mentioned in this section suggest that alphabetic writing tradition and schools had taken root in an area where a limited scribal class already existed. These were channels of higher culture that influenced early alphabetic training.

There is very meager evidence about the education of the scribes in the biblical era. One possible find that perhaps indicates a scribal schooling is a letter written on a tablet in cuneiform, found in Tel Balata, ancient Shechem, in 1926. The letter is dated to the 14th century BCE and reflects a Mesopotamian tradition in Canaanite life of the time; it has several interpretations and the identity of the writer is debated. One of these interpretations prompted by Albright (1942) and recently supported by Demsky (1990) to explain the letter as a letter from a teacher to a nobleman, named Birashenna, living in Shechem, requesting food allotments as payment for instruction.

Therefore, even though there is not much archaeological evidence for a “school” as we know it from later periods (despite some indications in the biblical text: see above), one may still elicit from epigraphic documents the breadth of a local scribe’s education in the second millennium BCE. Evidently, many scribes were proficient in more than one language. In fact, the trilingual text found in Aphek shows that some scribes had considerable mastery of more than two languages. In addition to writing skills in their local tongue, scribes apparently also knew Akkadian—the lingua franca of governments of the time in this region. Investigation of the writing quality of El Amarna scribes indicated Akkadian as their second language.

Seals

The account of archaeological evidence emanating from the 8th century BCE and onward, relating to popular literacy in ancient Israel should include the excavated findings of an enormous number of personal seals, of which a great number contained texts. Sass (1993) reports that out of the total number of 1500 west Semitic stamp seals he documented, the number of Hebrew seals approached 700. Of these, close to 500 are aniconic—just containing some form of writing—of which 370 bear merely two lines of script. Sass thus suggests that this high proportion of Hebrew-written seals motivated the more talented seal-cutters to pay greater attention to Hebrew calligraphy. The attempt to avoid iconographs in Hebrew seals (see Avigad, 1986, and some reservations in Sass, 1993) may indicate that seals engravings in Israel did, in effect, observe the prohibition against making idols, as ordained in the second of the Ten Commandments (Ex. 20, 4; Deut. 5, 8). Alternatively, as suggested to me by Demsky (personal communication, 2003) the larger number of aniconic seals indicates a higher level of literacy of seals’ engravers and readers.

Who wrote?

An important question in this regard is who could read and write in this era? The Bible tells us about scribes (*sofrim*) who were without doubt professional writers; many of them were directly employed by the royal court for general record keeping or for serving the king in jobs that required reading and writing. In this capacity they were also known as secretaries *mazkirim* (cf. 2 Samuel 8, 17; 1 Kings 4, 3; 2 Kings 18, 18.) Some were probably employed by the clergy for making copies of sacred books such as the one found by Josiah (2 Kings 22), and some may have worked in the service of citizens.

It seems likely that the Canaanite, and later on the Israelite scribes, inherited at least some of the traditional privileged status of the scribes in Mesopotamia and Egypt. They were not only able to execute jobs that required their literate expertise as teachers and mentors or in serving the administration and the clergy, they also formed a special elite minority group for whom the doors of knowledge—knowledge of foreign texts, and knowledge of the emergent sciences such as mathematics were opened. Many of them had to know several languages, and writing systems, and thus held important keys to the cultural progress of their community. Evidence of their elitist mood is exposed in a composition found in Egypt known as “In Praise of Learned Scribes”:

Be a scribe, put in it your heart that thy name may fare similarly. More effective is a book than a decorated tombstone or an established tomb wall. . . . It is better than a (well-) founded castle or a stela in a temple.” (Pritchard, 1955, pp. 431–432).

As I understand it, this is not an elitist arrogance; it is a sober even critical, view of one’s worth for the advancement of culture in his society. Another praise of the scribe from a much later period appears in the treatise of Ben Sira (38. 24–39. 11), believed to be composed in about 180 BCE.

But the point also at issue here is whether the literacy of that time was limited to a few professionals. If this were the case, one would expect that in densely populated areas residents would routinely enjoy and perhaps rely on the services of a number of professional writers. But this assumption would then lead one to ask what a professional writer would be doing in such a small and remote place like Kuntillet Ajrud (see above). Presumably, no professional scribe could make a living serving the very small community there. It appears, therefore, that literacy during the era of the Judges and the Israelite monarchy was widespread throughout the country. The variety of literary practices seems **not** to have been entirely in the hands of the scribes. Moreover, writing was evidently practiced for more than strictly administrative and religious purposes, such as the writing on door-jambs, but, as mentioned above, it was also employed for more private and mundane needs such as marking ownership and transcribing dedications. For some portion of the population, it certainly satisfied the kind of intellectual, emotional, and aesthetic needs, which we derive from reading today. It must have been so because where there were texts of the kind we know to exist in this area, there must have been readers.

As many experts on the development of the alphabet suggest, the invention of the alphabet created the possibility for increasing literacy among the common people. We

may not appreciate enough the huge leap in cultural development, which became possible with the invention of the alphabet.

SUMMARY

Millard (1985) reviewed the entire collection of early writings from the Biblical era discovered by archaeologists in ancient Israel. He cited a total of 39 locations (the number has probably grown since), and plotted the dispersion of archaeological sites where evidence of writing was found. The sites extended broadly from the Mediterranean Sea to the Jordan river in the east, and from the mountains bordering Syria, in the north, to the central Negev and still farther south towards Elat. Observing this entire array of findings, Millard noted, as indicated above with regard to Kuntillet Ajrud, that although scribes were undoubtedly responsible for the majority of Hebrew texts written in biblical times, the content of epigraphic material found throughout Israel makes it hard to imagine that any one scribe could possibly take the trouble to make journeys, lengthy by ancient standards, in order to write notes of purely local and ephemeral interest. Yet if scribes refrained from traveling extensively in order to offer their services, this further endorses the supposition that local military or government employees, or even private citizens, were capable of writing during the First Temple era.

Furthermore, one may assume, as Millard proposes, that “where there was writing there was certainly the possibility of literature, and of reading of it” (p. 307). Of course, the question also arises in reference to what kind of literature existed or was available to the readers of that time. This is a thorny question to resolve because, again, an unknown number of scripts written on papyrus, parchment, or wood no doubt failed to survive the humid climate of central and northern Israel. We may infer the existence of such writings from the prodigious number of scripts found in the Judean desert, where humidity is extremely low.

Regarding techniques of writing, Millard suggests that scripts written in ink might be attributed to those experts who possessed the appropriate knowledge and equipment, while writings done by scratching or pecking on pots might be the work of anyone who knew how to shape letters. Indeed, some of the latter leave the visible impression of the work of schoolboys, artisans and laborers. Aside from scripts written in major cities, the remaining material could have been written by anyone. Altogether, these considerations combine to make “a strong case for writing as a well-known phenomenon during the monarchy” (p. 305).

Finally, as I indicated in various sections above, the picture portrayed by the epigraphic findings in Israel is liable to be severely distorted. With the exception of findings from the Judean desert, most of the manifested epigraphy is inscribed on hard materials such as shards, metal, stone, and plaster. However, writing on shards was mainly for purposes similar to those for which we use a scrap paper today, e.g., either recording immediate and mundane matters or exercising writing skills. Important books, namely those documenting traditions of oral literature or chronicling governmental records, were not written on shards but on parchment or papyrus—fixed media of very short life span in a humid climate.

In a careful analysis of both archaeological findings and biblical texts, Haran (1983) demonstrated that, albeit with some exceptions, the main form of writing in biblical times was on papyrus scroll. Although papyrus materials could not survive the climate in Israel, traces and remnants of papyri from the pre-exile period have been found in a number of places in Israel (Haran, 1983, p. 165). Evidently, papyrus was readily available to Canaanite writers. There is evidence, beginning from the 12th century BCE, of import of papyri from Egypt to the city of Gebal (Byblos) in Lebanon. It was from there that the Greeks received papyrus. They called this city Byblos, from which the Greek word *biblion* “book” was derived. Interestingly, the word Bible “The Book” has thus been etymologically associated with papyrus, a fair amount of evidence shows that the biblical texts themselves, as an exception to the rule, were copied onto parchment. This was certainly the case during the Roman age in Palestine as confirmed by the findings of the Dead Sea scrolls, as well as Mishnaic and Talmudic literature (e.g., *Megilah Yer.* 71d).

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