Cognitive Linguistics and Its Applications to Second Language Teaching

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Abstract

Cognitive linguistics (CL) is based on the assumption that meaning is embodied and attempts to explain facts about language in terms of other properties and mechanisms of the human mind and body. Meaning is therefore often motivated through metaphor, metonymy, and image schemas, not only at the lexical level but also in syntax and morphology. Even though studies that apply CL theoretical insights to L2 learning and teaching are still relatively sparse, applied linguists such as Nick Ellis (cf. 19 and 1999) and Jim Lantolf (2011) have explicitly stated that CL has a lot to offer to SLA because it provides for meaningful learning, giving insight into the conceptual principles that may give rise to different forms. This chapter first gives a brief overview of how CL has developed, and then after explaining CL in more detail, it shows what a CL view entails for second language development and how it may be used in raising language awareness in second language teaching.

Keywords

Cognitive linguistics • Cognitive-didactic approach • Conceptual metaphors • Connectionist models • Lakoff's theory of metaphor • Langacker's cognitive grammar • Metaphorical meaning extensions • Metonymy • Michael Tomasello's approach • Prototypical count nouns • Semantic extension principles • Usage-based linguistics

Contents

Introduction 56
Early Developments 56
Major Contributions 58

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Prototypes and Radial Categories 58
Core Senses and Meaning Extensions 58
Conceptual Metaphor and Fixed Expressions 60
Radial Categories, Construal, and Grammar 61
Work in Progress 63
Problems and Challenges: Future Directions 63
Cross-References 64
Related Articles in the Encyclopedia of Language and Education 64
References 64

Introduction

Traditionally language has been viewed as an autonomous system, separate from other cognitive and social abilities. In this view, the language system operates under a set of arbitrary and unmotivated rules and properties, and the various subcomponents of the language system such as syntax, morphology, and lexis are independent of each other. The approach to language learning that accompanies this view of language emphasizes the need for the learner to learn vocabulary items separately, master the grammar rules, and memorize their exceptions.

A radically different view of the language system is found in a cognitive linguistic approach. Cognitive linguistics (CL) is based on the assumption that meaning is embodied and attempts to explain facts about language in terms of other properties and mechanisms of the human mind and body. Meaning is therefore often motivated through metaphor, metonymy, and image schemas, not only at the lexical level but also in syntax and morphology.

Even though studies that apply CL theoretical insights to L2 learning and teaching are still relatively sparse, applied linguists such as Nick Ellis (cf. 1998 and 1999) and Jim Lantolf (2011) have explicitly stated that CL has a lot to offer to SLA because it provides for meaningful learning, giving insight into the conceptual principles that may give rise to different forms. This chapter first gives a brief overview of how CL has developed, and then after explaining CL in more detail, it shows what a CL view entails for second language development and how it may be used in raising language awareness in second language teaching.

Early Developments

CL developed in the 1970s from the work of a number of different researchers and has been influenced by many influential linguists, but it would be safe to say that its "founding fathers" are Leonard Talmy (1981), George Lakoff (1987), and Ronald Langacker (1987).

Cognitive linguists hold that language is part of, dependent on, and influenced by human cognition, including human perception and categorization, and that language

develops and changes through human interaction and experiences in the world. In other words, language is part of and influenced by psychological, sociological, and cultural factors. CL does not make any claims about psychological reality, but it does strive to create analyses that are at least psychologically, biologically, and neurologically plausible. Langacker even goes so far as to say that "despite its mental focus, cognitive linguistics can also be described as social, cultural, and contextual linguistics" (1997, p. 240).

In addition, during the 1970s, several other streams of linguistics developed that were quite compatible to CL in that they hold that language is best studied and described with reference to its cognitive, experiential, and social contexts, all broadly fall under the umbrella term of "usage-based linguistics" in that they hold that language emerges and changes through experience. Functional linguists such as Joan Bybee, Bernard Comrie, John Haiman, Paul Hopper, Sandra Thompson, and Tom Givon focused especially on explanatory principles that derive from language as a communicative system, and historical functional linguists such as Elizabeth Traugott and Bernd Heine showed how meaningful lexical units such as adverbs may become grammatical morphemes over time. Influenced by Piaget and by the cognitive revolution in psychology, Dan Slobin, Eve Clark, Elizabeth Bates, and Melissa Bowerman laid the groundwork for a strong functional/cognitive strand in the field of first language acquisition. Other compatible approaches developed in the 1980s. Connectionist models of language processing, such as those developed by Jeff Elman and Brian MacWhinney, which model language acquisition using connectionist networks, also hold the notion that language learning is basically a bottom-up process, approaches also compatible with Herb Clark's approach to language in interaction and Michael Tomasello's approach to first language acquisition. CL is interdisciplinary and strives to be sensitive to findings in the brain sciences, social sciences, psychology, or philosophy (cf. Ruiz de Mendoza and Peña 2005).

Over the last decade, cognitive linguistic theory has developed further with work by Gilles Fauconnier and Mark Turner (2002) on mental spaces and conceptual blending, which "blends" in interesting ways with both Langacker's cognitive grammar and Lakoff's theory of metaphor. In addition, construction grammars that focus on the meanings of constructions as proposed by Goldberg (2006) or Croft (2001) are considered part of the cognitive linguistic paradigm.

As this brief overview has shown, CL is a complex, dynamic theory. For introductions into CL, the following readings are recommended: Croft and Cruse (2004), Dirven and Verspoor (1998), Evans and Green (2006), Taylor (1995), Ungerer and Schmid (2013), Geeraerts and Cuyckens (2006), and Robinson and Ellis (2008). The remainder of this chapter focuses only on those aspects and notions of CL that have found their application in second language teaching. The advantage of a CL approach to teaching language is that it helps raise awareness of

these form-meaning connections and that once an L2 learner recognizes these connections, he or she may be better able to remember them.

Major Contributions

The two most important works in CL are Lakoff's influential book *Women*, *Fire and Dangerous Things* and Langacker's *Foundations of Cognitive Grammar*, both of which appeared in 1987. Lakoff is especially well known for his work on metaphor and metonymy, and Langacker has developed an explicit theory of usage-based grammar. There is a great deal of overlap between the two approaches to language, and CL does not make a clear distinction between lexis and grammar, but because CL holds that syntax and morphology are governed by the same cognitive principles as lexis, the first few sections deal with motivated meaning at the lexical level and the later ones with motivated meaning at the grammatical level. Where appropriate, applications to SLA will be shown.

Prototypes and Radial Categories

One of the major ideas in Lakoff's work is that human categorization is fundamental to language use and that by looking at language we can often indirectly infer the ways that humans conceive of their world. Human categories are not clear-cut. Basing himself on work by Rosch, Lakoff argues that human categories are clusters of entities that may be more or less central to a category. The best example within a category is considered the prototype. For example, the category "fruit" has many members, such as apples, pears, pineapples, watermelons, strawberries, mangos, and so on. If you asked a group of informants in Western Europe to write down three types of fruit, they would be most likely to include apples, oranges, pears, and bananas. These would be considered the "best examples" or "prototypes," not only because they are most frequently seen but also because they have the most typical sizes and flavors (not too big, not too sour, and so on). Lemons are less central members, probably because they are atypically sour and watermelons and berries are less central because of their atypical sizes. A tomato may be considered a fruit by some if its genetic makeup is taken into consideration, but most people consider it a vegetable because of how it is used. The point of all this is that there are no objective categories out in the world but that humans impose categories upon the world, which are subject to change depending on time, place, and context.

Core Senses and Meaning Extensions

Just as categories have different members, which may be more or less prototypical, words may have different senses, some of which may be more or less central. Almost

any word in a language has more than one sense, but there is usually one sense, called the "core meaning," which typically gives rise to the other senses.

The relation between the core and the peripheral senses of a word is one of meaning extension, which can take place diachronically or synchronically. Diachronically, new senses of linguistic expressions have found their way in the language because speakers saw a conceptual link between an original sense and a newer sense; then the older sense may come into disuse or be forgotten altogether. For example, historically *launch* was metonymically related to *wielding a lance*, which over time has generalized to mean "throw [any object] forward with force."[1] For most speakers the more central sense is now probably associated with rockets or ships rather than lances. Synchronically, this newer sense would be considered a core sense as it pertains more to our everyday experience of the world than a lance and can easily explain related metaphoric senses as in *the magazine was launched last week*.

Two basic semantic extension principles are *metaphor* and *metonymy*. In the case of *metaphor*, conceived associations are among different domains of experience: the logic of one domain is mapped on to another one. For example, in the sentence *the houses had been gutted by grenades*, the verb *gut*, which literally refers to removing the bowels and entrails of an animate being, is used metaphorically to refer to destroying the inside of a building.

Metaphorical meaning extensions can also be based on image-schema transformations (e.g., Lakoff 1987, p. 440). Consider the sentence *there was a bulge in the birthrate*. Through an image-schema transformation, the multiple births are conceived as a "mass" object, and then through metaphor, the collection of births is spread over a timescale resulting in the conception of a graph with a bulge, literally a bump, representing an uneven spread.

In the case of *metonymy*, the association is within one domain of experience. An example of a metonymic meaning extension is "taut," which literally refers to "having no give or slack." When applied to a person's facial expression, it points to emotional tension as in *eye blinking*, *showing no signs of being emotionally* taut, *President Clinton looked like an ordinary man defending the ordinary lies he had concocted to hide an ordinary affair*.[2]

The conceptual links between senses of a linguistic expression mentioned earlier are not limited to the ones that occur between a core and a noncore sense, but the senses are all interrelated, as one peripheral sense may form the base for an even more peripheral sense. Cognitive linguists have demonstrated in numerous cases that the multiple senses and uses of a polysemous word are systematic. For example,

[1]In Late Latin, the verb lanco occurred, related to the noun lancea. The English verb launch and noun *lance* are derived from two different French dialects. In its earliest attestation, launch is used with the sense of *wielding a lance*.

[2]Because there is also a degree of metaphor involved (tension projected on face) in addition to the fact that the tautness points to the person's emotion, Goossens (1990) would label this example "metaphtonymy."

seemingly unrelated uses of prepositions are actually connected in explainable ways (e.g., Brugman 1981; Boers 1996).

In second language teaching, Lindstromberg (1998) and Tyler and Evans (2004) have applied a core meaning approach to understanding English prepositions and Dirven (2001) and Rudzka-Ostyn (2003) to teaching English phrasal verbs. Empirical evidence for a core meaning approach to vocabulary learning has been provided by Verspoor and Lowie (2003).

Conceptual Metaphor and Fixed Expressions

The meaning extensions that pertain to individual words also apply to concepts, which in turn may give rise to fixed expressions and idioms. Cognitive linguists have shown that idioms, often thought to be "dead" figures of speech with unpredictable meanings, are usually motivated by conceptual metaphor or metonymy.

For example, as Kövecses (1986) has shown, English has a lot of expressions to describe anger that are motivated by overarching conceptual metaphors, each of which may give rise to a variety of expressions. The overarching conceptual metaphor anger as a hot fluid in a container may give rise to expressions such as *anger welled up inside me*, *I was boiling with anger*, *she was all steamed up*, *she erupted*, *simmer down*, *he flipped his lid*, *I was fuming*, and *he blew up at me*. The anger as fire conceptual metaphor gives rise to expressions such as an *inflammatory remark*, *adding fuel to the fire*, *he kept smoldering for days*, *she was breathing fire*, *she exploded*, and *he's hot under the collar*. And the angry people as dangerous animals conceptual metaphor gives rise to expressions such as *he has a ferocious temper*, *don't snap at me*, *she unleashed her anger*, and *don't bite my head off*.

In an experiment, Boers (2000) offered these expressions to Flemish-speaking learners of English, to one group organized according to their common conceptual metaphors, and to another group organized randomly. This experiment and several others showed that helping language learners to retrace idioms to their conceptual metaphors or original source domains helps them appreciate the motivated nature of such expressions and thus encourage insightful learning. In addition, other controlled experiments have shown that CL approaches to teaching idiomatic expressions can be effective in terms of in-depth comprehension, retention, and even appreciation of usage restrictions (for an excellent overview, see Boers 2013). Different cultures may use different conceptual metaphors reflecting varying degrees of preoccupation with certain "source domains," motivated by their different historical or cultural factors (Boers 2003). A contrastive analysis of metaphors as provided by Barcelona (2001), who compared English and Spanish conceptual metaphors for emotional domains such as "sadness"/"happiness," "anger," and "romantic love," shows that discovering a target language's conceptual metaphor may help not only to learn the language but also to make students aware of the differences between L1 and L2 cultural concepts. In addition, Sharifian (2001) and Sharifian and Palmer (2007) show that discovering underlying metaphors may help the learner better understand the L2 culture.

Radial Categories, Construal, and Grammar

CL theory holds that grammatical categories, albeit more abstract, are just as meaningful as lexical categories (Langacker 1987, 1991). In fact, grammatical and lexical meanings are not two discrete types of meaning but exist along the same continuum at opposite ends of a spectrum. Just as with lexical entities, the different senses of grammatical morphemes such as case endings or classifiers, grammatical constructions such as tenses, or syntactic constructions such as SVO can be more or less central, with a central sense, the more salient prototype, giving rise to the more peripheral ones. In other words, as Taylor (1995, p. 197) explains, "[linguistic] constructions . . . need . . . to be regarded as prototype categories, with some instantiations counting as better examples of the construction than others." It is these "better examples" that are represented in the intuitions of speakers, not only about their own first language but also about the language to be learned. A principled approach to the description of textbook grammar could, therefore, start out by teaching prototypical grammar items and gradually introduce less prototypical examples. In this way, the teaching of grammar would tap into learners' intuitions.

Another key concept in cognitive grammar is the notion of construal. According to Langacker (1991), an expression's meaning does not only call to mind some conceptual content but also how the speaker construes it. For example, looking at a group of stars, a speaker can refer to them as *a constellation*, *a cluster of stars*, *specks of light in the sky*, and so on, expressions that are semantically distinct. In other words, speakers can construe the same objective content in alternate ways. The notion of "construal" certainly has an impact on the teaching of grammar. For example, if one wants to explain to L2 learners of English the use of the definite versus indefinite article as in "I will have *the* tuna fish sandwich" versus "I will have *a* tuna fish sandwich," one could point out that the definite article, which implies that both speaker and hearer have mental access to the entity referred to, is more likely to be used in a more individually catered restaurant, where the sandwich is construed as unique to that restaurant.

One of the first to discuss in detail the cognitive-didactic approach to grammar is Dirven (1989), who investigated where CL can make a contribution to the general process of facilitating language learning. He argues that discovering the conceptualizations laid down in linguistic expressions in the L2, especially where they differ from the L1, facilitates the learning process. Taylor (1993) also makes the claim that a cognitive approach to grammar is inherently contrastive, albeit focused on semantic content and conceptualization rather than on formal properties. He argues that target language structures that are difficult to acquire are usually those that symbolize conceptual categories that are not in the learner's L1. Some clear examples of conceptual categories that are difficult to acquire for learners of English as an L2 are the use of the present versus the present progressive tense, the use of the *to* infinitive versus plain infinitive and *-ing* form as complements of verbs, and the use of articles in English.

Two volumes edited by Pütz et al. (2001a, b) show how pedagogic cognitive linguistic approaches to different topics may be worked out. In one of the papers, for example, Tyler and Evans (2001) offer a systematic, motivated account of how

English tense usage works, and they show that a number of distinct and fundamentally nontemporal meanings associated with tense can be distinguished, such as intimacy (between speakers), salience (foregrounding vs. backgrounding), actuality (realis vs. irrealis), and attenuation (linguistic politeness), which are all shown to be related to each other in a systematic principled way. Bielak and Pawlak (2013) provide an in-depth view at cognitive grammar and test its application in the L2 classroom. Holme (2012) gives some more ideas on how to incorporate CL in the classroom.

To show how a cognitive approach to grammar could be implemented in a classroom, the teaching of the notoriously difficult English article system will be used as an extended example. Huong (2005) addresses Vietnamese learners, whose L1 has a classifier system that does not mark for definiteness. He suggests that rather than giving incorrect "rules of thumb," lots of isolated rules, long lists of uses, and loads of exceptions to the rules, as given in many standard textbooks, a cognitive approach gives a coherent account of the whole article system, showing how the core meaning associated with each form may also be used in nonprototypical senses.

The approach would first address the fact that in English, one must always mark whether an entity (the person or thing the noun refers to) is definite or not. An entity is considered definite when in a given context a speaker and hearer can both make mental contact with it. In other words, both know which particular entity is referred to. This is the case with most proper nouns, such as *Tom* and *Vietnam*, but also with names of sports, meals, days of the week, and months of the year such as *tennis*, *lunch*, *Monday*, and *November*. These proper nouns and names have the ultimate sign of definiteness: the "null" article. The fact that "null" is very definite can be inferred by contrasting (a) "father helped me" versus (b) "my father helped me" wherein (a) the speaker probably assumes the hearer also knows the father.

Whereas the "null" article marks definiteness in proper nouns and names, the definite article *the* must be used with a common noun used in a definite sense, no matter whether it is a count noun, singular or plural, or a mass noun as in *I saw the bike*/*the cars*/*the water*. The prototypical examples of definite entities are unique ones in the world, in the larger context, or in the immediate context such as *the sun*, *the president*, or *the door*. Other definite entities are those that are unique to the speaker and hearer's discourse, either explicitly or implicitly as in *I rode a taxi home*; *the taxi was yellow* or *I rode a taxi home*; *the driver was friendly*. More peripheral members of definiteness would be entities that are not necessarily identifiable to both the speaker and hearer, but the hearer can infer that the speaker refers to a unique one in his or her mind as in *be aware of the dog*, *I went to the park*, or *I took the bus*. An even more peripheral example of definiteness is one where the noun does not refer to a particular unique entity but to a whole class of entities in a so-called type hierarchy. For example, in *the dog is a domestic animal*, the dog refers to a type (rather than a token) within the hierarchy of animal-domestic animal-dog. (A similar account is possible for nonprototypical use of generic *a* or generic plurals.)

If the L2 learner wants to determine which article to use, it is best to first determine whether the common noun is definite or not because there is only one form: *the*. If the noun is used in a nondefinite sense, some further choices have to be

made. Singular count nouns must have *a*, but plural count nouns and noncount nouns do not. Now it is important to know whether the noun is count or noncount. As Taylor (1993, p. 211) points out, the prototypes of "count noun" can be seen as a three-dimensional, concrete "thing" and of "mass noun" as an internally homogenous, divisible "substance" (i.e., "bottle" vs. "beer"). Prototypical count nouns refer to entities that are "bounded" such as bikes, tables, or pens, and prototypical noncount nouns are entities that are "unbounded" such as water and gold. One way to distinguish a bounded entity from a nonbounded one is as follows: If you take a piece of the table, such as a leg, you do not have a table, but if you take some water, you have some water in your hand and in the container. In other words, an unbounded entity is more diffuse than a bounded one. What seems most difficult for L2 learners is to understand why some nouns may be count in one case and noncount in the other as in (a) *I had a good sleep* versus (b) *I need sleep*. The notion of construal is important in understanding why: in (a) the noun refers to an instance of a bounded event with a clear beginning and end but in (b) to any instantiation of a more diffuse event. In addition, a noun like education may be confusing: (a) *He needs an education* versus and (b) *children need access to education*. In (a) *education* is construed as a rather linear training with a beginning and end, but in (b) *education* is a rather diffuse, abstract concept that includes any activity of learning and instruction and those that impart knowledge or skill.

This brief treatise of the English article is of course not complete but shows that, with a cognitive approach, it may be possible to explain in a systematic and coherent manner the conceptualizations that give rise to forms, starting from more prototypical examples to more peripheral ones. The assumption is that such an approach would raise awareness, constitute insightful learning, aid retention, and finally aid correct application.

Work in Progress

Within the field of CL, an enormous amount of research has addressed the motivation of linguistic constructions in a host of different languages, and a few of the findings have found their way into published articles about and textbooks for second language teaching and acquisition.

Problems and Challenges: Future Directions

There is sound evidence that making learners aware of core meanings of words or of conceptual metaphors that give rise to figurative expressions helps learners to retain these noncentral and figurative senses. There is no doubt that CL can also aid learners in becoming aware of cross-cultural differences in conceptualization. But as far as a CL approach to teaching grammar, there is mixed evidence. There are several reasons. For one thing, in the light of the popularity of communicative approaches to language teaching, grammar teaching has received very little attention, and secondly effect studies are notoriously difficult to conduct. The only systematic study into the effect of

a cognitive approach that I am aware of so far is by Huong (2005), who compared the cognitive approach with teaching articles described earlier with a commercially available functional approach. The short-term results were very favorable, but the long-term effects showed no significant differences. More research needs to be done in this area. Even though the role of explicit grammar teaching might be debatable, the fact is that there are many grammar books for both teachers and students, which are often consulted by second language learners. As Corder (1967) already pointed out, "It is a defining concern of second language research that there are certain aspects of language to which second language learners commonly prove impervious, where input fails to become intake," and in such cases, a qualitatively sound and meaningful explanations are needed. CL can offer these.

Cross-References

- ▶ Attention and Awareness
- ▶ Early Multilingualism and Language Awareness
- ▶ Implicit and Explicit Knowledge about Language

Related Articles in the Encyclopedia of Language and Education

Constant Leung: Second Language Academic Literacies. In Volume: Literacies and Language Education

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