Overview of Logic and Engineering of Natural Language Semantics (LENLS) 2007

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LENLS 2007 was held at World Convention Center Summit (Phoenix Seagaia Resort), Miayzaki, Japan on June 18 and 19, 2007 as one of the international workshops collocated with the 21st Annual Conference of the Japanese Society for Artificial Intelligence (JSAI 2007). This year the workshop was held for the fourth time, with its predecessors taking place annually. Since the time it started in 2004, LENLS has developed both in its scale and in the quality of presentations into an academic meeting unique in Japan and the surrounding area at which participants can exchange innovative ideas about dynamic semantics, its related fields, and the application of the theories.

LENLS 2007 had a special topic 'Dynamic approaches to semantics, syntax, and pragmatics.' In the past few decades, Dynamic Semantics (DSem) and its analogue Discourse Representation Theory (DRT) have been developed to elucidate how a sentence is interpreted in relation to the context and how the sentence meaning updates the context. On the other hand, more and more attention has been paid recently on investigating syntactic theories which enable parsing of sentences in the same manner as humans do. To take an instance, Dynamic Syntax (DSyn) advocated by Ruth Kempson and her colleagues proposes a theoretical framework which builds up partial trees incrementally following the left-to-right sequence of sentence processing. It is important to note that these two significant trends in formal linguistics are complementary to each other: while DSem or DRT has mainly shown little interest in parsing or interpreting each sentence incrementally or compositionally, in DSyn it remains unclear how contextual information is referred to during sentence analysis/interpretation and conversely how the output logical formula contributes to context updating. It was therefore of theoretical importance that in the workshop linguistic researchers shared and exchanged information under the same rubric 'dynamic approaches.' Furthermore, LENLS 2007 offered two invited lectures by Kōiti Hasida and Gerhard Jäger on the application of Game Theory to linguistics, another field of research which is shedding a new light on dynamic aspects of dialogue. It is also noteworthy that at the workshop Yoshiki Mori gave an invited lecture titled 'ATM once more dynamically approached', which is not published in this post-proceedings.

This post-proceedings contains eight papers related to dynamic approaches. While some of them follow the Dynamic Semantics framework, others adopt the continuation approach, Scope Control Theory, and syntactic theories such as

Dynamic Syntax and categorial proof net. Elin McCready compares existing formal semantic theories including his own based on modal subordination to evaluate the extent to which evidential phenomena in various languages can be accounted for. Tomoyuki Yamada proposes an extension of the logic of acts of commanding in order to model acts of promising together with those of commanding. For this purpose, changes in deontic status of relevant action alternatives are modeled as deontic updators. Norihiro Ogata has developed a generalized QG-semantics of Quantified Modal Logics (QMLs) to solve the problem of Kripke-incompleteness of QMLs and proposes a dynamic semantics of a quantified modal mu-calculus. There are two contributions from the 'continuation' perspective. Chung-chieh Shan models operational semantic interpretation and applies the notion of *context* and *order* to explanation of inverse-scope quantifiers and their polarity sensitivity. Rui Otake and Kei Yoshimoto exploit a continuation mode in multimodal type logical grammar to give an analysis of the interaction of scrambling and quantifier scope and focus and split-QP constructions. In his paper first presented as an invited lecture, Alastair Butler develops Scope Control Theory he advocates by giving a uniform formalism to subordinating and coordinating pronominal binding relations. One of the syntactic approaches is taken by Hiroaki Nakamura, who applies the categorial proof net to incremental parsing of the topicalized sentence construction in Japanese including sentence-internal topics, cleft-constructions, and multiple topic sentences. Masahiro Kobayashi proposes an algorithm to optimize the application of transition rules in Dynamic Syntax by dividing parsing states into distinct partitions to which different rules are applied.

This proceedings also contains papers with miscellaneous interests. Emar Maier argues for compositional interpretation of expressions with quotation based on a hybrid use-mention account. Mana Kobuchi-Philip, attempting to solve the difficulties with the analysis of the *mo*-phrase in Japanese as a generalized quantifier, presents an analysis as a modifier and applies it to cases in which the particle combines with a PP and IP. Koji Mineshima advances a proof-theoretic analysis of presuppositions involving definite descriptions based on the natural deduction system of ϵ-calculus and construction type theory. Lastly, Kōiti Hasida, Shun Shiramatsu, Kazunori Komatani, Tetsuya Ogata, and Hiroshi G. Okuno propose the *meaning game*, a formalization of intentional communications based on game theory, and demonstrate that centering theory is derived from a meaning game.