ABSTRACTS

C4.8 Philosophy of the Cognitive and Behavioural Sciences

Learning Natural Language Semantics Through Coordination
Dariusz Kalocinski, Department of Logic, Institute of Philosophy, University of Warsaw, Warsaw, POLAND
Nina Gierasimczuk, Institute for Logic, Language and Computation, Amsterdam, NETHERLANDS
Marcin Mostowski, Institute of Philosophy, University of Warsaw, Warsaw, POLAND

In the formal modeling of natural language it is quite common to assume that syntax and semantics are predefined, and that they can be learned on the basis of social interactions. Even though this seems to be an appropriate idealization in the case of syntax, it is less so for the case of semantics. Humans learn new concepts all the time and constantly adjust those already in use. There is no given, prescribed semantics, even for a coherent population of language users. However, successful communication requires that semantics is sufficiently common.

We present a plausible iterative mechanism for learning natural language semantics through coordination amongst communicating language users. We identify meanings of expressions with algorithms for recognizing truth values of sentences built up from these expressions. Language users test their algorithms on examples (finite models), i.e., situations they encounter and describe in everyday language. We know this phenomenon from our experience - algorithms (meanings) are rarely compared directly; we confront them extensionally, by observing the outputs for different inputs. In fact, we may have non-equivalent algorithms that equally well conform to examples seen so far. The subtle difference between quantifiers "half" and "every other" illustrates such cases. Effective communication requires that language users evaluate natural language sentences in accordance with other interlocutors. Using the coordination mechanism, they guess new semantics that would make them more likely to communicate effectively. We extend the mechanism by ascribing authority to language users so that guessing new semantics is directly affected by the authority parameter. Another extension we study is related to spatial separation. It influences frequency of communication and thus may have severe impact on differentiation of language.

Analogical Thinking in Formal Semantics
David Rey, Logic, History, and Philosophy of Science, University of Barcelona - LOGOS group, Barcelona, SPAIN

In the last forty years or so, formal semantics has become one of the leading areas of research in modern linguistics. It is widely acknowledged that an adequate formal-semantic theory must account for the intuitions of competent speakers about the truth-conditions of sentences uttered in context. It is also acknowledged that formal-semantic theories must be informed by developments in the study of syntax. But some methodological aspects of theory-building in formal semantics have not been studied in depth. In this paper I will focus my attention on a methodological tool that has influenced the work of formal semanticists since the early seventies: the use of analogical arguments.

Barbara Partee (1973) famously argued for a variable-based account of tense –and against a Priorian operator-based account– by pointing out that there are certain structural analogies between the linguistic behavior of pronouns and the linguistic behavior of tenses. Partee's analogy argument led various linguists to look for theories that accounted for the semantics of pronouns and tenses in a uniform way. In the last two decades, some theorists have suggested that Partee's structural analogies extend to the realm of modality (see e.g. Stone 1997, Speas 2004, and Schaffer 2012). They have advocated specific views about the formal treatment of modals by arguing that modals exhibit the kind of pronominal behavior that tenses have.

In this paper I will analyze the analogy arguments mentioned in the previous paragraph from a methodological perspective. I will describe their structure, thereby making explicit certain assumptions that remained implicit in the original formulations of the arguments. By drawing on the recent literature on the
distinction between semantic content and assertoric content (see Ninan 2010, Rabern 2012, and Yalcin 2013), I will argue that the arguments at stake are less dialectically effective than it has been thought.

References


