Language as Systems for Online Concept Construction
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As is now becoming increasingly recognized, context, content and even linguistic structure are subject to development within a communicative exchange, being incrementally developed by any party to that exchange. It is arguably the definition sine qua non of a natural language system that it be endowed with this sort of flexibility: all aspects of interpretation can be resolvable both within and across sentence, utterance and turn boundaries, thus leading to very considerable apparent variability in the types of the ensuing contents and structures. Despite extensive formal semantic and pragmatic research over the past thirty years, the development of natural-language grammars has not kept pace with this recognition. Grammars retain the assumption that the sentence/proposition provides the basis of grammatical description and explanation, a unit of analysis relative to which the all analytical concepts have to be defined. Thus, given the abstract and context-independent characterization of the sentence/proposition, phenomena that are not strictly resolvable within a sentence boundary are then treated as external to the specification of the grammar itself, with no expectation of any unified explanation of the homogenous processes that pervade communicative exchanges, such as pronominal resolution, ellipsis, split utterances and so on.

For this talk we adopt a grammar formalism, *Dynamic Syntax*, which addresses these issues directly. The grammar articulates constraints on the incremental building up of interpretations, objects in the Language of Thought (LOT), represented as binary tree-structures of predicate-argument form, relative to context; and the principles underpinning this process are taken to be the "syntax" of natural language. In effect, the grammar is a set of principles for progressive building up of LOT formulae relative to a multi-dimensional specification of context expansion. The core concept is that of underspecification and its update, in all domains, conceptual content, quantification, and even tree-structure. All specifications (lexical, quantificational, syntactic) are thus defined at a meta-level with respect to the representations themselves, being seen instead as procedural definitions of how parts of representations of content can be incrementally introduced and updated. Context, equally, is defined in dynamic structural terms, with storage and manipulation of all aspects of the procedures involved in natural-language interpretation.

The specific focus of this talk is NP-construal which is taken to involve the progressive construction of "arbitrary names" within the framework of the epsilon calculus. This provides the basis for formulating a process of name-extension expressing the gradual refinement of the concept introduced, thus in effect being a means of formally capturing the notion of ad-hoc concept formation. We illustrate this with the construal of relative clauses, appositional and plural noun phrases, and the interaction of tense and adjunct processing, showing how in all these cases there is incremental construction of naming devices that, by definition, reflect their containing environment. This allows for arbitrary richness in the resulting composite concepts. Accordingly, we suggest that mechanisms for ad-hoc concept construction are based on a core mechanism of natural-language grammars.