Two's company, but what about three ?
Informativity in the interpretation of numerals

Brian Buccola

Bio : Brian Buccola is a postdoctoral researcher at the Laboratoire de Sciences Cognitives et Psycholinguistique in Paris. He specializes in formal and experimental semantics and pragmatics and has published on such topics as numerical expressions ; distributivity and collectivity ; free-choice, indifference, and ignorance inferences ; and questions. He was previously a postdoctoral fellow at the Hebrew University of Jerusalem, after having completed his PhD in linguistics at McGill University.

Abstract : Formal semantics is concerned with assigning precise meanings to the words of a language, and to syntactic rules for combining them, so that for any sentence, the meaning so obtained corresponds to the intuitive meaning of the sentence. Numerals pose a sharp challenge to this enterprise due to the range of interpretations they seem to have. For instance, in (1) "three" is readily construed as 'exactly three', while in (2) it is construed as 'at least three'.

(1) Alice solved three problems.
(2) Alice needs to solve three problems in order to pass.

According to Horn's (1972) classic treatment of numerals, "three" literally means 'at least' three, but can often come to be interpreted as 'exactly three' by way of implicature, i.e. pragmatic reasoning about more informative sentences the speaker could have used instead but did not. A more recent family of approaches takes the opposite view : "three" literally means 'exactly three', e.g. because it encodes maximality as part of its lexical meaning, but can be interpreted as 'at least three' via certain semantic or pragmatic mechanisms (Geurts 2006; Breheny 2008; Kennedy 2015).

In this talk, I present novel arguments in favor of (a certain version of) the classic, implicature-based treatment of numerals, and against the 'exactly' approaches. The relevant data come from the domains of collectivity and genericity. The classic approach, however, is not without problems, well known in the literature, and part of the original motivation for the 'exactly' approaches.

To resolve each of the two accounts' shortcomings, I discuss two revisions : the classic account is upgraded with a device for computing implicatures 'locally' (Chierchia, Fox & Spector 2012), while the 'exactly' approach is upgraded so that numerals encode an informativity-sensitive notion of maximality, rather than a standard one. These revisions end up actually resulting in two very similar theories : both take numerals to be interpreted 'exhaustively' relative to their linguistic environment, but the theories differ in the source of exhaustification (part of the lexical meaning of numerals vs. a separate grammatical mechanism ; cf. Buccola & Spector 2016). Time permitting, I will discuss some methods, beyond traditional linguistic data, that may weigh in favor of the upgraded classic approach, such as recent experimental investigations into non-linguistic cognitive preferences and capacities (e.g. Buccola, Dautriche, & Chemla 2018).