



## WHAT DOES MEANING COMPOSITION TELL US ABOUT THE LOGIC OF OUR MINDS?

Language makes us human. To study language is to get face to face with a fundamental cognitive skill of our species. Meaning composition is at the very core of this skill. Human languages allow us to produce and understand very complex meanings with a computational efficiency unmatched by artificial systems. Formal semanticists, like myself, aim at developing formally explicit models of the algorithms that underlie this process.

Quite remarkably, it is the simplest words that offer the best window into the secrets of meaning composition. Take *or*. Unlike *dog* or *plane*, *or* does not seem to refer to anything out there. Like *and*, *not*, or *if*, this word simply provides the glue to combine meanings. Consider what you do when you search for a book in the library catalog. You use words like *or* or *and* to create complex search terms. You can search for books by Abby, or by Abbie or Babbie. *Or* connects two phrases and creates a new complex phrase whose meaning is related to the meaning of the original phrases in a predictable way: *books by Abbie or Babbie* searches for those books by at least one of these two authors. Here we see the process of meaning composition in action. So-called 'functional words', like *or* or *and*, are to semanticists what fruit flies are to geneticists.

Formal semanticists are not the first to wonder about meaning composition. In their search for patterns of valid reasoning, logicians provided very explicit models for the meaning of functional words. When you search for books by Abbie or Babbie, for instance, the search algorithm blindly applies the meaning of *or* that you find in introductory logic textbooks. Since we understand what *or* does in that case, we can ask ourselves whether that is in fact what speakers do across languages when they interpret this word. The picture is far from clear. When I tell Abbie that she may register in Stats or in Biology, for instance, I am not conveying that she may register in at least one of these courses, I am in fact conveying something stronger: that she may register in Stats and that she may register in Biology too.

The interpretation of *or* in cases like these has puzzled generations of judges, logicians, and linguists. In work that stems from my dissertation, I have pointed out several inadequacies with the logic textbook meaning of *or*. Following pioneering work on the interpretation of questions by the computer scientist Charles Leonard Hamblin, I have proposed to treat *or* phrases as devices that introduce lists of alternative meanings into the process of meaning composition.

Research in Formal Semantics usually proceeds by discovering generalizations about particular languages that can reveal something about universal linguistic patterns. My research is no different in this respect, and has frequently drawn theoretical conclusions from the analysis of subtle facts about Spanish, a language that is still badly underrepresented in the literature.

The process of coming up with, testing, and refining explicit hypotheses about how a certain language works (and how it differs from others) is of particular interest to those learning or teaching languages. They routinely come up with grammar questions for which descriptive grammars and textbooks give no answer. I have a strong interest in teaching audiences like this about what we linguists do, and I hold a joint appointment in the Department of Linguistics and in the Department of Languages, Literatures and Cultures, where I am developing courses dealing with a variety of topics that introduce language students to the fundamentals of linguistic analysis.

LUIS ALONSO-OVALLE

*Assistant Professor, Departments of Linguistics  
and Languages, Literatures, and Cultures*



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