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<u>*Title:*</u> Towards a unifying computational account of reference production and comprehension

Abstract: Psycholinguistics is replete with puzzling empirical patterns of reference production and comprehension, many of them seemingly at odds with each other. In comprehension, much work has focused on listeners' propensity to derive so-called "contrastive inferences:" anticipatory inferences from the observation of a modifier in a partial utterance like "Click on the big" to the conclusion that the intended target must be a member of a contrast pair of objects of the same type in the visual context. This has been taken as evidence for listeners' sophisticated and rapid pragmatic reasoning about speakers' adherence to the Gricean Quantity-2 maxim, to be no more informative than necessary. But contrastive inferences are sensitive to a number of factors, including adjective type (contrastive inferences sometimes arise for relative, but not absolute adjectives; sometimes the opposite pattern holds) and feature diagnosticity (contrastive inferences are more likely for color-diagnostic objects like bananas, but not for non-color-diagnostic ones like cups).

In production, the focus has been on so-called "overinformative" referring expressions, which appear to violate the Quantity-2 maxim: speakers routinely produce modifiers that aren't strictly speaking necessary for the purpose of uniquely establishing reference. But like contrastive inferences, overmodification is modulated by many factors. These include adjective type (more overmodification with color than size or material adjectives), scene variation (more overmodification in the context of more variable visual displays), property typicality (more overmodification in reference to objects with more atypical properties), object type (more overmodification with clothes than fruit), and language (more overmodification in English than Spanish). In this talk, I propose that the tension between the systematic apparent violations of Quantity-2 in production and the sophisticated (albeit fragile) reasoning that assumes adherence to Quantity-2 in comprehension can be resolved by modeling the link between production and comprehension of referring expressions in a principled way within the Rational Speech Act framework, which treats language use as iterated probabilistic reasoning. I further show that many of the previously observed empirical patterns straightforwardly fall out of the account.