# Informativeness: A review of work by Regier and colleagues (and a response)

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A growing body of work from Terry Regier's lab at Berkeley suggests that semantic variation is grounded in efficient communication: well-adapted semantic systems should be both simple and informative. This has parallels with work done here at the Centre for Language Evolution, although we typically use the words 'compressible' and 'expressive' to refer to roughly the same ideas.

In their view, a language is simple if it uses few words or rules; for us, a language is compressible if structure inherent to the system allows for a compressed cognitive representation. Whatever we choose to call it, this pressure for a compact representation is countered by a pressure to be, in their words, informative or, in ours, expressive; for a language to be communicatively useful, it must be able to make useful meaning distinctions. Regier and colleagues define 'informativeness' in terms of how effectively a meaning can be transmitted from one individual to another: how much information will be lost every time a meaning is transmitted. Our framework, on the other hand, defines expressivity as the number of words available to interlocutors to make meaning distinctions.

In this talk I will synthesize the findings from several of their papers with a view to highlighting the similarities and differences between their work and ours. In particular I want to focus on an iterated learning experiment they have conducted (Carstensen et al., 2015), and I will also describe their information-theoretic model of informativeness and the predictions I believe it should make. I want to suggest that a fruitful way forward could be to combine their formalization of informativeness with our formalization of compressibility. Finally, I'll top this off with two experiments we have conducted that look at the differences between two ways of partitioning a space into categories.