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Title: Studying natural language (more) naturally with fMRI: An informatics approach

Abstract: Natural language is a defining feature of human cognition, and a considerable amount of effort is directed at understanding its neural substrates. Despite major advances, however, progress remains constrained to some degree by both domain-general and language-specific methodological limitations of imaging techniques such as fMRI. In this talk, I review recent and ongoing work that uses large-scale informatics approaches to try and ameliorate a number of these limitations. In the first part, I illustrate how the Neurosynth framework--an automated platform for large-scale synthesis of fMRI data--can support stronger quantitative inferences about brain-behavior relationships across a broad range of cognitive domains. In the second part, I introduce a novel analytical approach that enables naturalistic fMRI investigation of a broad range of language-related phenomena. To illustrate the utility of this approach, I demonstrate how its application in two separate fMRI datasets reveals a confluence of orthographic, phonological, and semantic effects in an inferotemporal brain region often assumed to play a predominantly visual role in reading. I conclude with a discussion of ongoing efforts to develop an openly accessible, centralized, web-based infrastructure for large-scale fMRI investigation of language, and argue that similar platforms have the potential to make important contributions to theoretical and applied research throughout the cognitive sciences.