

Thursday, September 24th, 2pm ET

Presentation in Zoom, accessible via the C-STAR website:

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**The neural mechanisms of language processing
and their relationship to executive function mechanisms**

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There is a long tradition in psycholinguistics and cognitive neuroscience to describe linguistic processes using domain-general cognitive constructs, like storing information in and retrieving it from working memory, inhibiting irrelevant information, selecting an option among alternatives, and predictive processing. These kinds of mental operations may be implemented in domain-general circuits of the fronto-parietal cognitive control or Multiple Demand (MD) network, or in domain-specific brain areas that store the relevant knowledge representations—the core fronto-temporal language-selective network. In healthy adults, the core language network appears to do the ‘heavy lifting’: activity in language but not MD regions ‘tracks’ linguistic input, exhibits sensitivity to lexicalized and syntactic surprisal, correlates with behavioral comprehension difficulty measures, and does not depend on the presence of a secondary task. In tandem, this evidence suggests that the engagement of the domain-general MD network during language processing in neurotypical adults likely reflects effort associated with extraneous task demands rather than core linguistic computations. However, recent behavioral and neuroimaging studies have begun to suggest a possible role for the MD network in recovery from aphasia, although the functional importance of this engagement remains to be determined.

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