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Friday, January 25th, 10:30 am - 12:00 noon, GFS 101  
Reception to follow in GFS 330  

The Computations of the Composing Brain: Cross-modal generality and steps towards mechanisms  

Abstract:  
Regarding the combinatory system of language, two of the most elementary, yet hard to study, questions are (i) what is the internal architecture of composition – is it monolithic or computationally subdivided – and (ii) what is the scope of linguistic combinatory operations, i.e., to what extent do they also operate outside of language? For the past decade or so, research in my laboratory has used magnetoencephalography (MEG) to uncover the brain bases of linguistic composition with an approach strongly rooted in linguistic theory. In this talk I describe our basic findings and the extent to which they at present speak to (i) and (ii). In sum, our findings indicate a general combinatory mechanism in the ventromedial prefrontal cortex that also functions outside of language and a computationally more specific one in the left anterior temporal lobe whose function appears limited to modification environments. I will show that both of these regions operate in both comprehension and production. Overall, our work suggests that the answer to the question ‘is linguistic composition monolithic or computationally subdivided?’ is neither a straightforward ‘yes’ or ‘no,’ but rather, the computational specificity of combinatory brain mechanisms varies by region. Future work will need to engage in systematic hypothesis testing regarding the specific contributions of each component of this network.