Harvard Linguistics Talk Series

Title: LANGUAGE AT A GLANCE: How do our brains order syntactic and semantic computations when no temporal order is imposed from the input?

Speaker: Liina Pylkkänen, New York University

Time: Friday Nov 8th, 12pm

Location: Fong Auditorium, Boylston Hall (1st floor)

Abstract:
Language can be expressed and received through various modalities, such as sound, sight, and touch. Each modality has its own temporal dynamics, including different degrees of serialism and parallelism. In the neurobiology of language, we are limited by the fact that for each study, we must choose some specific modality. This hinders our ability to discern whether the observed results stem from properties of language or modality-specific dynamics. Comparing modalities directly is a slow way to uncover any inherent modality independent organization within the language system. In this talk, I discuss new work in which we approach this question from a different angle and ask: How does the language system organize itself when the input lacks temporal sequencing, allowing the brain to order computations in whatever way is natural? That organization should be a useful window into the brain's inherent way to travel from form to meaning. We present short written sentences all at once, quickly enough to eliminate eye movements, in so-called rapid parallel visual presentation (RPVP). Psycholinguistic work has shown that full sentences can elicit syntactic and semantic effects in RPVP even if flashed for only 200ms (Snell & Grainger, 2017). We use magnetoencephalography (MEG) to reveal the neural organization of syntactic and semantic computations for parallel visual language input. Our initial results show that in a simple matching task, grammatical sentences in RPVP drive increased neural activity in left fronto-temporal cortex starting at ~200ms after sentence onset as compared to word lists. By varying the linguistic properties of the sentences, we aim to characterize the spatiotemporal organization of syntactic and semantic computations for a stimulus that does not its