Psycho Club

Adapting to Speakers and Integrating Visual Cues: How Predictive Processing Shapes Speech Comprehension

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Room 2C
via Venezia, 12 Padova

Attendance Event

https://www.psicologia.unipd.it/psycho-club-program

DEPARTMENT OF GENERAL PSYCHOLOGY

DPSS Department of Developmental Psychology and Socialization

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Humans excel at understanding spoken language during face-to-face interactions. Successful speech comprehension requires listeners to adapt to different speakers and integrate multiple sensory cues, such as mouth movements. Prominent models of language comprehension assume that individuals implicitly predict upcoming linguistic information at various levels. However, the extent to which predictive processes contribute to comprehension during naturalistic listening remains underspecified. I will present two studies investigating how perceptual adaptation to unfamiliar speakers and visual information from mouth movements shape predictive processes in language comprehension. In two EEG experiments, Italian participants listened to continuous narrated stories under different conditions: (1) with one versus multiple speakers and (2) with the speaker's mouth visible or covered. Neural responses were analyzed using Temporal Response Function modeling to examine the encoding of speech acoustics, phonological and lexical predictability, and visual speech cues. Results showed that adapting to multiple speakers increased reliance on speech acoustics and phonological prediction. Additionally, when mouth movements were available, listeners encoded visual speech information, refining their predictions, and showed enhanced lexical prediction. These findings suggest that predictive processing is flexible, adjusting to changes in speaker identity and sensory availability. The results align with models of language comprehension that emphasize the dynamic interaction between bottom-up sensory input and top-down predictive mechanisms. These findings highlight the importance of audiovisual integration in real-world communication.