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Title

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 44(44)

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Publication Date

2022

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Peer reviewed

Neural mechanisms of Event Visibility in sign languages

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Abstract

Event structure in sign languages is reflected in the manual dynamics of verb production. As signed event structure is visible (iconic), non-signers are able to recognize it, despite having no sign lexicon. In this EEG study, hearing non-signers were presented with telic and atelic verb signs, followed by a lexical classification task in their native language. Behavioral data confirmed that non-signers classified both telic and atelic signs with above-chance accuracy. ERP waveforms indicated that non-signers identified the perceptual differences in motion features when viewing telic/atelic signs, and used different processing mechanisms when integrating the perceptual information with linguistic concepts in their native language. Non-signers appeared to segment visual sign language input into discrete events, as they attempted to map the observed visual forms to concepts, and label them linguistically. This mechanism suggests a potential evolutionary pathway for co-optation of perceptual features into the linguistic structure of sign languages.