UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Finding Structure in Real Time: An Eye Tracking Study on the Statistical Learning of Multiple Linguistic Structures Simultaneously

Permalink

https://escholarship.org/uc/item/926291c3

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 46(0)

Authors

Vleugels, Lucile

Yuan, Lei

Publication Date

2024

Peer reviewed

Finding Structure in Real Time: An Eye Tracking Study on the Statistical Learning of Multiple Linguistic Structures Simultaneously

Lucile Vleugels

University of Colorado, Boulder, Boulder, Colorado, United States

Lei Yuan

University of Colorado, Boulder, Boulder, Colorado, United States

Abstract

Many human-invented compositional systems (e.g., language, mathematics) embody hierarchical relational structures. How exactly these structures are acquired during learning remains an open question. Here, we examine how the structure of a system engages learners' attention and learning. Participants (N=88) learned an artificial language that describes novel combinations of unknown visual symbols while their eye movements were recorded. Participants were randomly assigned to one of two conditions. The 'More' condition had three latent rules that connected components in verbal input to visual input. In contrast, the 'Less' condition had only one latent rule. Despite having more regularities to learn, the 'More' condition performed as well as the 'Less' condition. Eye movement data further revealed that participants in the 'More' condition selectively attended to target symbols more than those in the 'Less' condition. These results suggest a counterintuitive 'More is More' principle: the presence of multiple regularities organizes attention and potentiates learning.