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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

https://escholarship.org/uc/item/8m17g7k4

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 36(36)

ISSN

1069-7977

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Publication Date

2014

Peer reviewed

The effects of learning on learning: Plasticity within infant and adult statistical learning

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Abstract: Adults' linguistic backgrounds influence their sequential statistical learning in an artificial language characterized by conflicting forward-going and backward-going transitional probabilities. English-speaking adults favor backward-going transitional probabilities, consistent with the head-initial structure of English, while Korean-speaking adults favor forward-going transitional probabilities, consistent with the head-final structure of Korean.

We further found that English-learning infants develop this directional bias by 13 months, indicating that statistical learning rapidly adapts to the predominant syntactic structure of the native language. Such adaptation possibly facilitates subsequent learning by highlighting statistical structures that are likely to be informative.

Subsequent testing on adults revealed the possibility to retrain monolinguals towards parsing preferences that are not consistent with their native language, suggesting training interventions to improve second language learning. These infant and adult findings highlight the importance of experience-dependent learning and plasticity across one's lifespan.