Spatial category learning: the influence of noise and familiarity on individuals

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Abstract

Second language learners must often learn categories which may not map well with those of their first language. Prepositions often differ between languages, for example, German uses different words for vertically "on" and horizontally "on" which would be novel to an English-speaker. Additionally, learners must contend with varying degrees of noise in the learning environment. A spatial continuum of images was created depicting prepositions such as "above" and "below" (familiar) or horizontal "on" and vertical "on" (novel). We used an artificial preposition learning task in adult English-speakers to explore both the influence of familiarity (familiar or novel) and the degree of statistical regularity in the learning material (noisy or consistent labeling of continuum steps) on learning outcomes. Our results suggest that learners are sensitive to statistics and familiarity and revealed individual differences in the sensitivity to these statistics, suggesting differences in efficiency of learning novel prepositions.

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