Pre-Training Leads to a Structural Novelty Effect in Spatial Visual Statistical Learning

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Proceedings of the Annual Meeting of the Cognitive Science Society, 43(43)

1069-7977

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2021

Peer reviewed
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Abstract

We investigated the influence of structural properties of previously learned stimuli on Spatial Visual Statistical Learning. Participants (n=170) were first exposed to a stream of scenes containing only one type of regularity (horizontal or vertical pairs), followed by a stream containing both types of regularities. We found that participants performed above chance for the pairs of the first stream (M=54.7%, SE=1.2, p<0.001, BF=91.89) as well as for the novel type of pair of the second stream (M=55.6%, SE=1.9, p=0.005, BF=4.04), but not for the familiar type of pair of the second stream (M=51.5%, SE=2.0, p=0.465, BF=0.11). This observed novelty effect indicates an interference between the similarly structured pairs in the first and second stream of scenes, suggesting representational overlap of pairs of the same orientation.