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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

11-month-old infants infer a physical constraint from a probabilistic anomaly

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Keywords: ; ; ; ; ;

Abstract: Infants can make probabilistic inferences, inferring the composition of a sample from a population. Preschoolers and toddlers will infer a constraint on a sampling process when samples are unrepresentative of populations. In the present experiment, we asked whether 11-month-olds can use probability information to infer a physical constraint on object movement in a looking-time experiment. Infants in one condition saw a population with a ratio of many large blue balls to few small pink balls and infants in another condition saw the opposite ratios. When five small balls are randomly sampled from the boxes, this constitutes an unrepresentative sample in the former condition and a representative sample in the latter condition. Infants who saw the population with a larger proportion of large balls inferred a constraint on the sampling process: that the opening for the balls must be small. Infants in the other condition did not infer a constraint.