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Representations of Entropy and of the Relations Same and Different Early in Human Development

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Abstract: Animals typically fail 2-item Relational Match to Sample (RMTS), whereas animals from pigeons through primates succeed at 16-item RMTS. Furthermore, training on the 16-item arrays does not transfer to 2-item arrays in these non-human species. Animal researchers conclude that success on 16-item RMTS reflects a perceptual property of the set, variability or entropy, rather than conceptual representations of the relations ‘same’ and ‘different’. Four experiments explore young children’s ability to pass 2-item and 16-item RMTS. Like non-human animals, three- and four-year-olds fail 2-item RMTS while passing the 16-item task. As with animals, training with 16-item cards does not facilitate success on 2-item RMTS in four- and five-year-olds. These data, as well as data from within the 16-item task, suggests that young children, like non-human animals, rely on entropy in RMTS tasks. Data from 5 and 6-year-olds suggest a representational change late in the preschool years.