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Kindergarteners and adults learn fraction-rules in a categorization task

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Abstract: Both children and adults can learn new categories when presented with a rule about a perceptual feature. Like categorization, numerical abstraction requires the ability to ignore irrelevant (non-numeric) perceptual features when making decisions about relevant (numeric) features. The present study fuses these two lines of research by training 5-7 year olds and adults in a categorization task, in which they must form a rule about a fraction-based category. Can children form this mathematical category readily? Will they be able to do so without any formal instruction? How does this ability develop or change across the lifespan? We find that young children and adults readily form fraction-based categories, indicating that children can think about proportional information prior to formal schooling. Additionally, an ability to map between visual and symbolic representations aided both children and adults in this numeric categorization task, with children showing additional gains in traditional fraction knowledge.