Public Abstract
First Name: Ali
Middle Name:
Last Name: Anderson
Adviser's First Name: Kristy
Adviser's Last Name: vanMarle
Co-Adviser's First Name: 
Co-Adviser's Last Name: 
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Previous research with infants suggests that they understand object permanence (Baillargeon, Spelke, & Wasserman, 1985); objects continue to exist even when out of sight, and follow continuous paths through space and time. In other words, objects maintain spatiotemporal continuity, and do not spontaneously appear or disappear. Recent research with infants suggests that impossible disappearances are more salient than impossible appearances. We extend this research to preschool children in order to examine the developmental course of this phenomenon. In three experiments, preschoolers witnessed seemingly magical appearances and disappearances of objects in box and were asked to report, yes or no, whether a magic trick had occurred on each trial. Like young infants, preschoolers successfully detected magical appearances and disappearances in this task. However, unlike infants, they detected spontaneous appearances and disappearances equally well, suggesting that for preschoolers, both types of violations are equally noticeable. Experiments 2 and 3 tested whether continuity violations (impossible number changes) were more or less well detected compared to other impossible changes, namely, impossible volume changes. Unlike previous research with infants, preschoolers overwhelmingly responded to impossible number changes, but not impossible volume changes, even when familiarized to the possibility of such changes (Experiment 3). The present results suggest that like infants, preschoolers are sensitive to violations of spatiotemporal continuity. However, unlike for infants, the two types of violations, appearances and disappearances, were equally salient to preschoolers. These findings can potentially inform early education initiatives by suggesting that number may be more salient than continuous extent.