

Development of basic numerical abilities: a review of literature and evidence from typically and atypically developing children

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Thursday, October 23, 2003
102 Bradley Hall, 4:00 pm
(Tea 3:30 pm Math Lounge)

Abstract

In this talk, I aim to review literature from cognitive neuroscience, developmental psychology and neuropsychology into how children develop an understanding of number from infancy onwards. I will also discuss how children's development of number both converges with and differs from numerical representations in animals. I will be reviewing both behavioural and brain-imaging evidence. Against the background of this review I will present data from my own studies showing how basic representations of number change over developmental time. I will then present data from a group of children with a rare genetic developmental disorder: Williams syndrome, who present with a strong impairment in mathematical abilities. In light of experimental evidence I will consider how the developmental trajectory of basic number abilities diverges from the typical case among individuals with this syndrome. I will then consider the broader implications for the study of developmental impairments of numerical cognition.