

Foundations for symbolic mathematics: development and evolution of the approximate number system

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ABSTRACT: Adult humans quantify, label, and categorize almost every aspect of the world with numbers. The ability to use numbers is one of the most complex cognitive abilities that humans possess and is often held up as a defining feature of the human mind. In my talk I will present a body of data that demonstrates that there are strong developmental and evolutionary precursors to adult mathematical cognition that can be uncovered by studying human infants and nonhuman primates. Developmental data and controversies will be discussed in light of comparative research with monkeys and other animals allowing us to see both parallels and discontinuities in the evolutionary and developmental building blocks of adult human cognition. Despite the profound discontinuity between primitive number sense and uniquely human symbolic mathematics I will present evidence that primitive number sense serves as a foundation for symbolic math.

21 June 2018, 11.00 a.m.

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