Title

Starting small: Exploring the origins of successor function knowledge

Permalink

https://escholarship.org/uc/item/8dq7v2pw

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 42(0)

Authors

Schneider, Rose
Pankonin, Ashlie
Schachner, Adena
et al.

Publication Date

2020

Copyright Information

Peer reviewed

Starting small: Exploring the origins of successor function knowledge

Rose Schneider
UC San Diego, La Jolla, California, United States

Ashlie Pankonin
San Diego State University, San Diego, California, United States

Adena Schachner
University of California, San Diego, La Jolla, California, United States

David Barner
UC San Diego, San Diego, California, United States

Abstract

Although most U.S. children can count sets by 3.5 years of age, many fail to understand that adding 1 to a set corresponds to counting up 1 word in the count list (i.e., the successor function). Initially, children have piecemeal knowledge of this relation, and do not understand that it holds for any number. Although generalized successor knowledge emerges around 6 years of age, it is unknown when children's item-based learning begins, and therefore when they begin learning relations between number words – a critical precursor to mathematical reasoning. Here, we explore the timescale and mechanisms underlying this knowledge in 2- to 4-year-old children. We find that these children have established item-based mappings, but that they are unrelated to count list knowledge. Instead, we show evidence that the origins of successor knowledge may lie in mappings made between non-symbolic set representations and known number words.