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Authors

Xu, Qihui

Chodorow, Martin

Valian, Virginia

et al.

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Abstract Syntactic Knowledge or Limited-Scope Formulae: A Computational Study of Childrens Early Utterances

Qihui Xu

Graduate Center, City University of New York, New York, New York, United States

Martin Chodorow

Graduate Center, City University of New York, New York, New York, United States

Virginia Valian

Graduate Center, City University of New York, New York, New York, United States

Xiaomeng Ma

Graduate Center, City University of New York, New York, New York, United States

Abstract

Do childrens early utterances reflect abstract syntactic knowledge or slot-filler formulae developed through word imitation? This study compares development of part-of-speech (POS) sequences with word sequences using language models (LMs) trained on mothers utterances (N=1,272,139) from CHILDES English corpora, in which POS tags are automatically assigned by MOR and POST programs (MacWhinney, 2000). Word-based and POS-based LM probabilities for childrens multi-word utterances in the Providence corpus (Brschinger et al., 2013, 15-36 months, Nchildren=6, Nutterances=50,717) were calculated as a function of age. Word-based LM probability of childrens multi-word utterances first increases with age and then levels off after 23 months. By contrast, POS-based probability remains high and stable across all ages. This suggests children have adult-like syntactic knowledge even at a very early age when their word sequences are still not adult-like. The pattern of results supports the abstract syntax view. Additional studies will use more accurate POS-taggers and larger datasets.