



February 15, 2019

Dear Editors of Cognitive Science,

I am hereby submitting for your consideration a manuscript entitled “The growth of children’s semantic and phonological networks: insight from 10 languages” co-authored by Michael C. Frank, Yuan Bian, and myself. The paper studies how early receptive and productive vocabularies develop in different cultures. We addressed this question using tools from network science. In this framework, words and their phonological/semantic relationships are represented in terms of the network’s nodes and edges, respectively. The interdisciplinary aspect of this research makes the submission appropriate for Cognitive Science.

We systematically compare two divergent accounts of growth in the literature. On the first account, learning is largely constrained by past knowledge. On the other, learning is primarily driven by the structure of the learning environment, regardless of how past knowledge is organized. We found that network connectivity in the learning environment—rather than connectivity in past knowledge—predicts future network growth, even controlling for word frequency and length. This pattern of findings is important as it suggests that early word learning may be driven more by statistical learning abilities, enabling children to learn highly connected words in the learning environment.

I note that: (1) the results reported in the manuscript have been in part presented to the Cognitive Science Society as Fourtassi, A., Bian, Y., and Frank, M. C. (2018). Word learning as network growth. Proceedings of the 40th Annual Conference of the Cognitive Science Society, but have not been published in any peer reviewed publication, nor are they under consideration for publication elsewhere; (2) all authors have agreed to this submission; and (3) none of the authors have any financial interest or a conflict of interest regarding this work and this submission.

The manuscript in its entirety is 30 pages long, and it includes 3 tables and 7 figures. All data and analytic code are available on [github.com](https://github.com). The link to the repository was provided in the manuscript.

Sincerely,

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