

How young children integrate information sources to infer the meaning of words

Manuel Bohn¹, Katja Liebal², & Michael Henry Tessler³

¹ Department of Comparative Cultural Psychology, Max Planck Institute for Evolutionary
Anthropology

² Institute of Biology, Leipzig University

³ Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology

Abstract

Before formal education begins, children typically acquire a vocabulary of thousands of words. This learning process requires the use of many different information sources in their social environment, including including their current state of knowledge and the context in which they hear words used. How is this information integrated? We specify a developmental model according to which children consider information sources in an age-specific way and integrate them via Bayesian inference. This model accurately predicted 2-to-5 year-old children's word learning across a range of experimental conditions in which they had to integrate three information sources. Model comparison suggests that the central locus of development is an increased sensitivity to individual information sources, rather than changes in integration ability. This work presents a developmental theory of information integration during language learning and illustrates how formal models can be used to make a quantitative test of the predictive and explanatory power of competing theories.

Keywords: language acquisition, social cognition, pragmatics, Bayesian modeling, common ground

23

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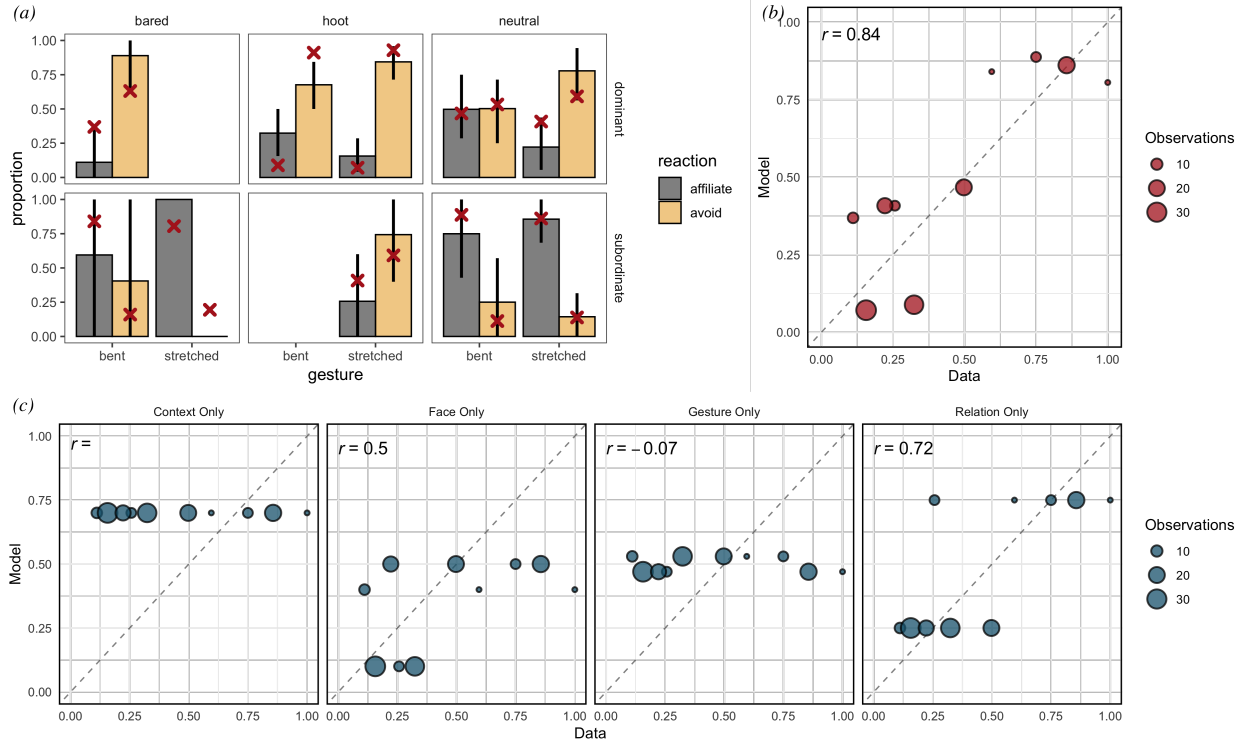


Figure 1. ...

24

Awesome paper [1,2].

$$P_{L_1}^{no-wk}(r \mid u; \{\rho_i, \alpha_i, \theta_i\}) \propto P_{S_1}(u \mid r; \{\alpha_i, \theta_i\}) \cdot P(r \mid \rho_i) \quad (1)$$

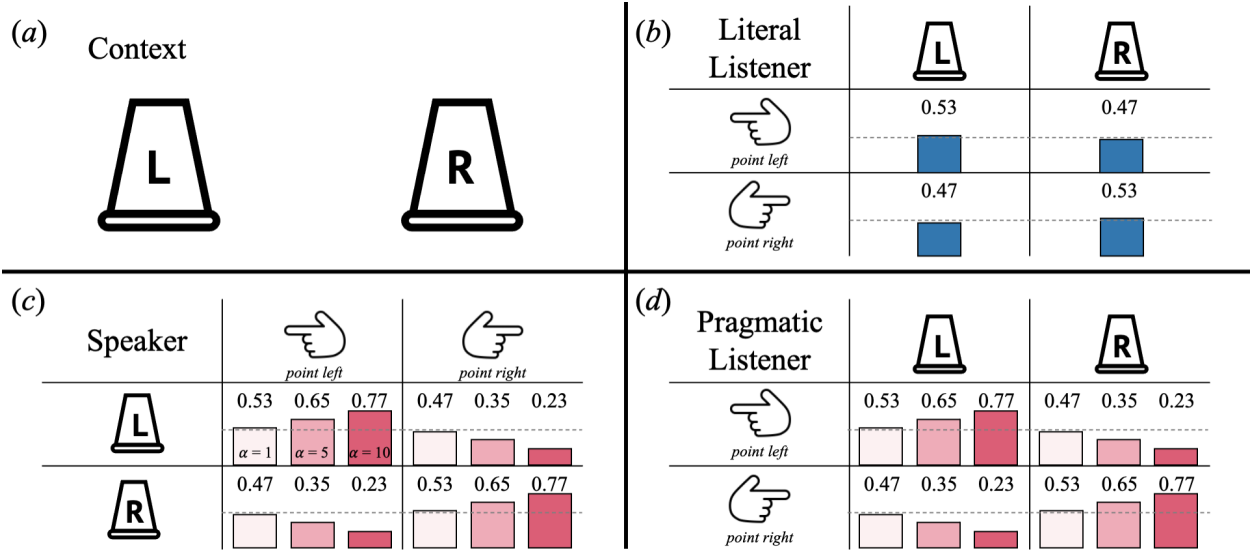


Figure 2. ...

References

1.

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2.

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