

Production and comprehension pressures jointly shape lexicon structure



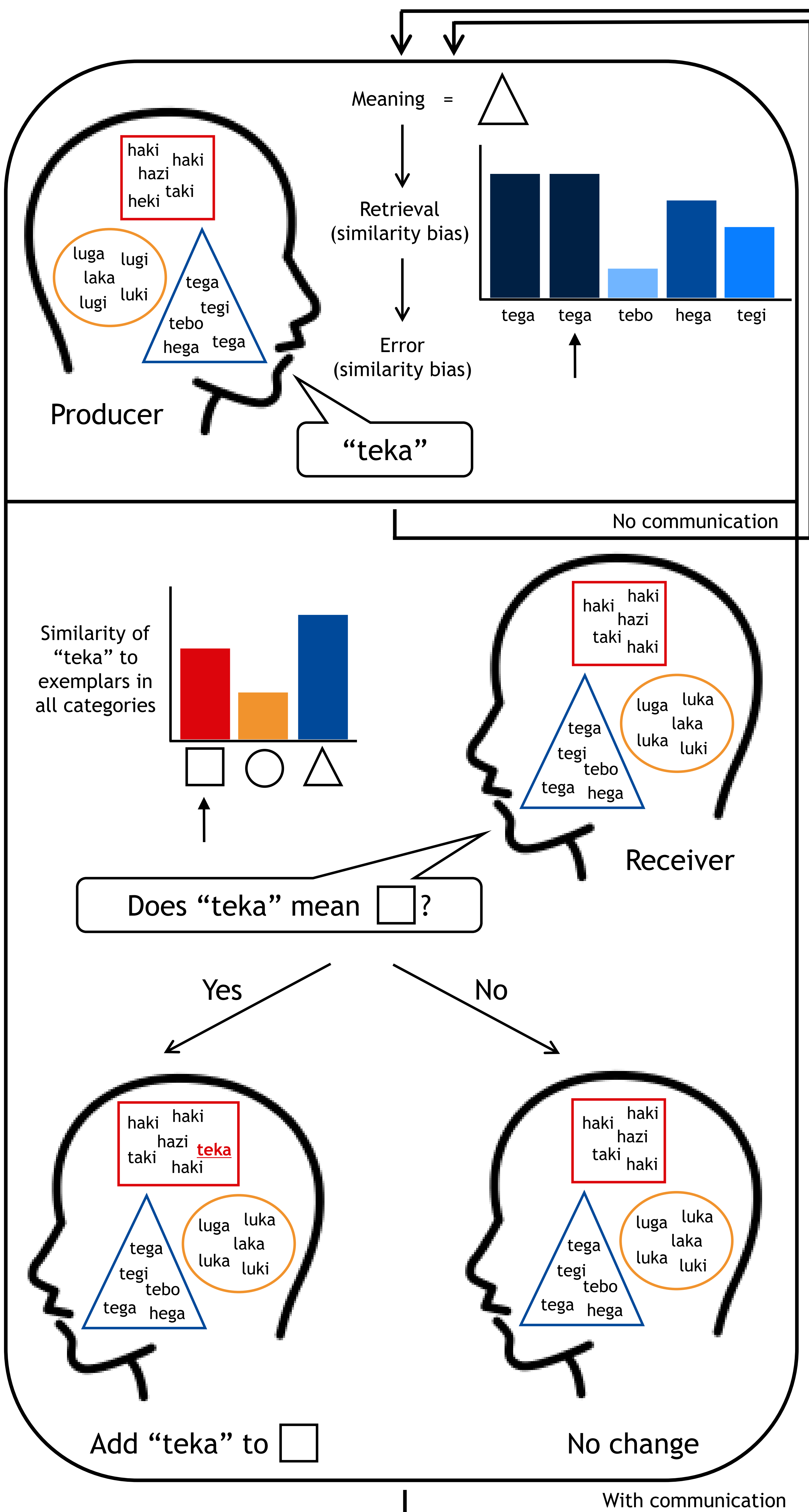
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Background

- Comprehension is easier when words are more distinct [1, 2]
- Yet across languages, words are *less* distinct than they could be given the available phonotactics [3, 4]
- How do lexicons get to be this way?

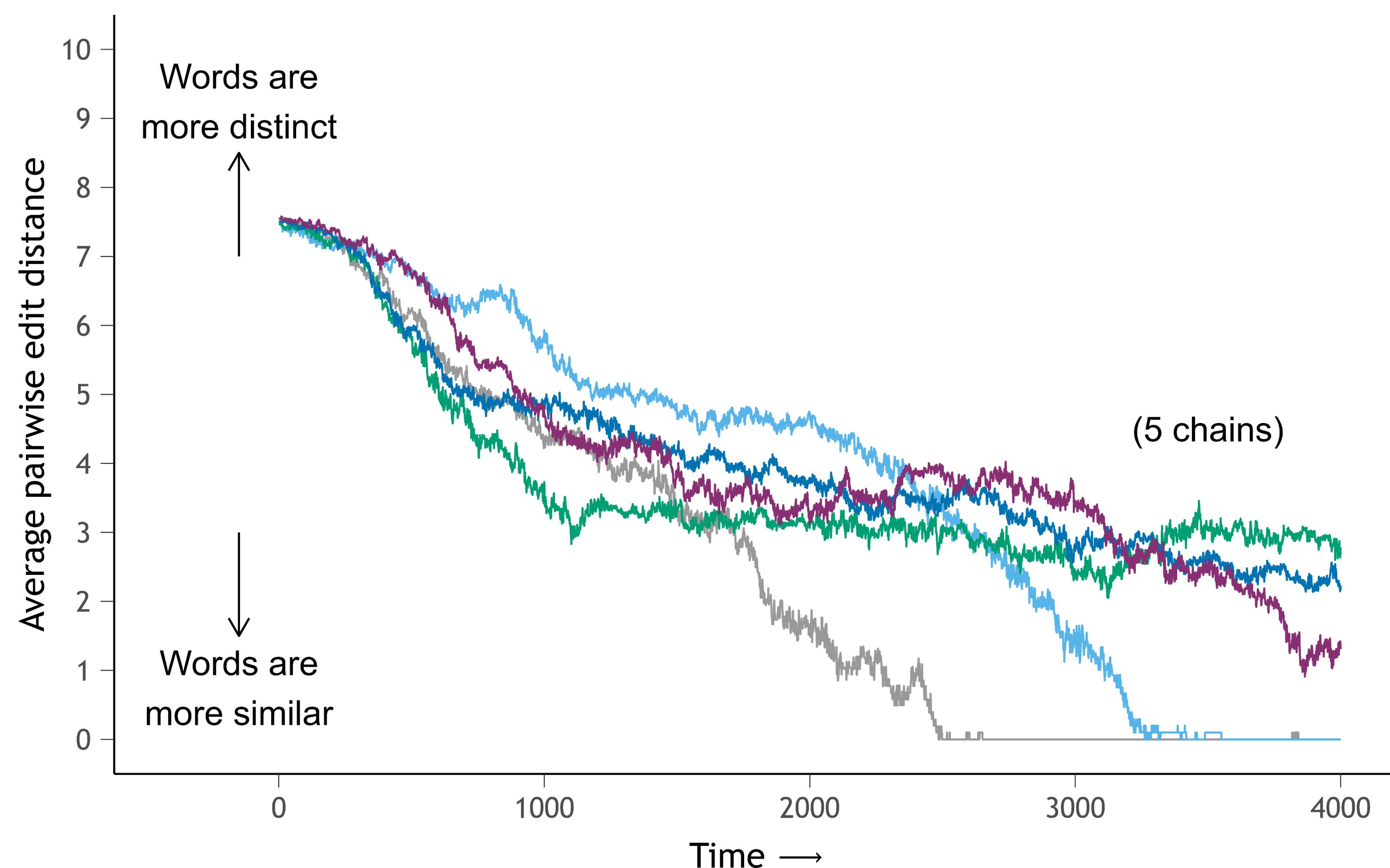
An agent-based exemplar model



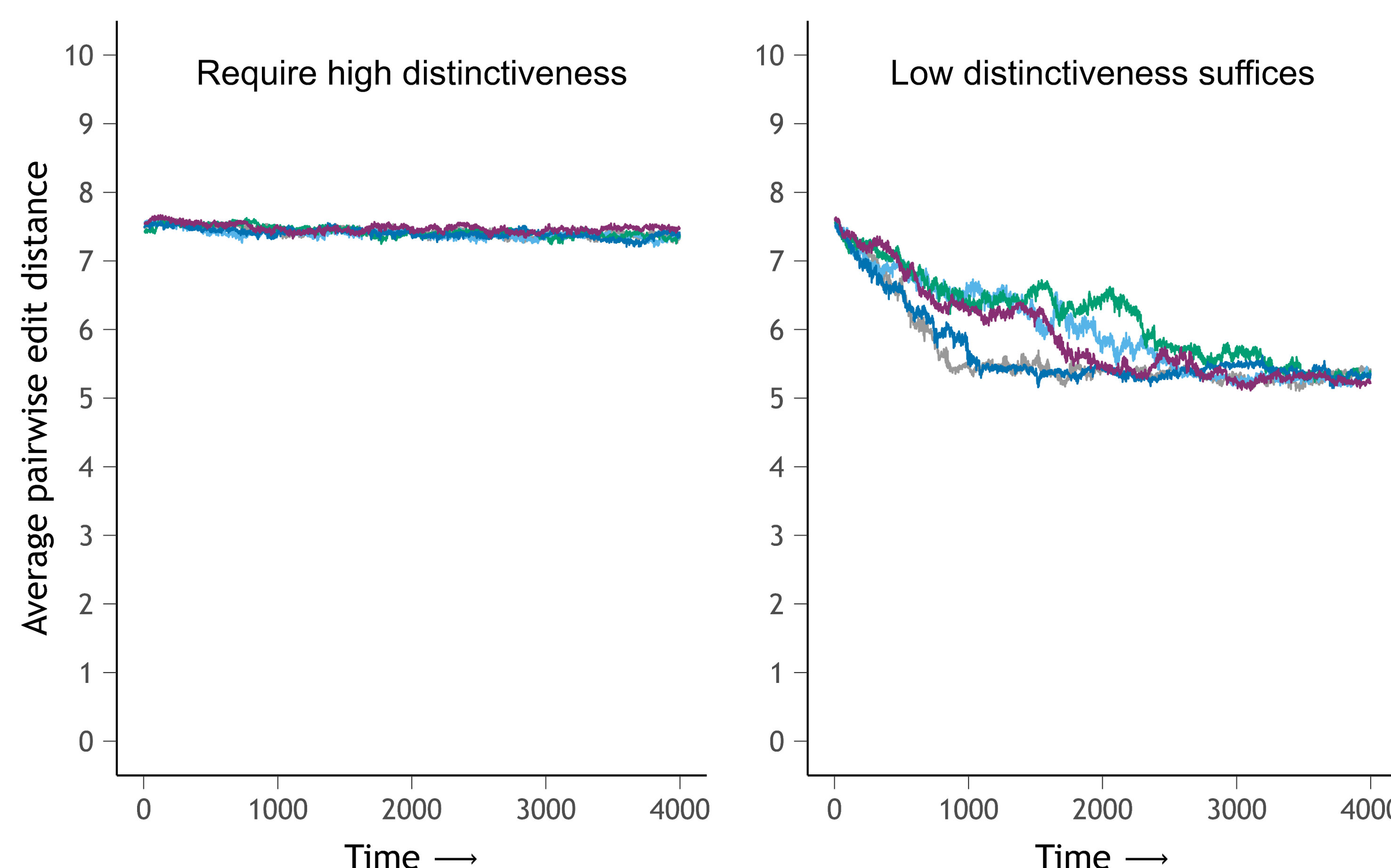
Agents take turns as producer and receiver for all meanings
Repeat for n rounds of communication

Results so far

Without communication, words become highly indistinct – sometimes to the point of collapse (one word for all meanings)



With communication, the amount of change depends on the strength of the receiver's preference for distinctiveness



Outstanding questions and next steps

- How strong is the pressure for distinctiveness in real communication?
- What is the role of frequency e.g. are producer biases stronger for high-frequency words?
- What is the role of new words entering the lexicon?

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References and further reading

[1] Vitevitch & Luce (2016), *Annual Review of Linguistics* [2] Chen & Mirman (2012), *Psychological Review* [3] Dautriche et al. (2017), *Cognition* [4] Mahowald et al. (2018), *Cognitive Science* [5] Wedel (2012), *Language and Cognition* [6] Winter & Wedel (2016), *Topics in Cognitive Science* [7] Nosofsky (1986), *Journal of Experimental Psychology* [8] Dell (1986), *Psychological Review*