The Telephone Game: Exploring Inductive Biases In Naturalistic Language Use

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Abstract: In the classic telephone game, the content of a spoken message evolves as it passes from player to player. Beyond its entertainment value, the telephone game may have consider- able scientific utility: Here we investigate the nature of the linguistic knowledge people use to comprehend language by tracking the evolution of a set of visually-presented sentences in a web-based version of the telephone game. Initial sentences are selected from a range of probabilities according to n-gram language models. Both unigram and trigram probabilities of responses increase over the course of iterated transmission for sentences with the lowest initial probabilities, suggesting that edits are conditioned on participants' implicit probabilistic knowledge of their native language. Further investigations of word-level changes reveal not all words and sequences are subject to edits; rather, participants are more likely to change lower probability words and sequences, and replace them with higher probability content.