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Information Locality: An information-theoretic principle of natural language word order

I explore the hypothesis that certain word order universals of human languages can be explained in terms of efficient communication given fixed human information processing constraints. First, I show corpus evidence from 54 languages that word order in grammar and usage is shaped by working memory constraints in the form of dependency locality: a pressure for syntactically linked words to be close to one another in linear order. Next, I develop a new model of incremental sentence processing difficulty that captures effects of both probabilistic expectations and memory limitations, and I show that the model generalizes dependency locality into a new principle called Information Locality, which holds that words that predict each other should be close. I give crosslinguistic corpus evidence for Information Locality. Finally, I show how Information Locality can explain crosslinguistic biases in the ordering of demonstratives, numerals, and adjectives inside noun phrases, as well as biases in the ordering of multiple adjectives.