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Modelling the Emergence of Linguistic Conventions for Word Order: The Roles of Semantics, Structural Priming, and Population Structure

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Abstract

We used agent-based modelling to study the emergence of linguistic conventions for basic word order (the order of subject, object and verb) in different populations. As a starting point, we take word order variation based on semantic properties, as observed in improvised gesture experiments. In our first simulation we explore the relative contributions of two pressures, one for semantically conditioned variation, and the other structural priming (which takes place when two individuals engage in communication), and show that a relatively increasing influence of structural priming best explains an increase in word order regularity. Next we implement a larger simulation, investigating how properties of the population affect regularization of word order. Our models compare population sizes with different population densities, and show that the speed of regularization in languages is heavily influenced by population density, and population size has little effect.