

What can you say without syntax? A hierarchy of grammatical complexity
Ray Jackendoff (Tufts University and MIT) and Eva Wittenberg (CEU)

Abstract

What would a language be like which lacked syntactic structure, and which mapped directly between phonology and meaning? To explore this question, we propose a hierarchy of grammatical complexity for natural languages. Unlike the familiar Chomsky hierarchy, which deals only with uninterpreted formal languages, this hierarchy concerns the machinery available to map between sound and meaning. It ranges from languages that allow only one-word utterances to fully complex languages such as English, and includes a number of possibilities that lack recursion.

Corresponding to each of these types of grammar, we propose a set of possible interface rules that correlate linguistic form with meaning. In particular, the interface rules allow for pragmatic elaborations of meaning beyond that provided by the individual words. As the formal structure becomes more complex, it offers more affordances for complex principles of interpretation. In many cases, interface rules can do the sort of work normally attributed to syntax. For instance, a rule such as “Agent First” correlates a thematic role in semantics with a linear position in linguistic expression. Such a principle can constrain word order even with a grammar that lacks grammatical categories and that simply concatenates words. Crucially, it turns out that the interface rules that are useful for less complex languages scale up to fully complex languages as well.

This hierarchy proves useful in differentiating various linguistic and quasi-linguistic phenomena for which linguists have previously had only the binary distinction “grammar” versus “no grammar.” Examples include the early stages of language acquisition by children and adults, homesigns, emerging sign languages such as Al-Sayyid Bedouin Sign Language and Central Taurus Sign Language, and the “perceptual strategies” found in language comprehension by normal speakers. Many peripheral constructions of English and other fully developed languages utilize only the power of lower steps in the hierarchy. Finally, some “full” languages such as Riau Indonesian and Pirahã appear only to use principles from lower domains of the hierarchy.

We conclude that the human language faculty is a palimpsest that includes many of these layers. The upper layers are more difficult to acquire and process, and possibly require the lower layers for scaffolding. It is plausible that some of these layers represent stages in the evolution of the modern human language capacity.