Foundations of Language
Ray Jackendoff. New York: Oxford, 2002. Pp. xix + 477.

With so little known about how language is perceived and produced, the field of linguistics could use a fresh perspective on the current state of affairs. Ray Jackendoff's book draws together current thought from mainstream generative grammar and from more recent thinking on the function of the mind. In integrating these areas, Jackendoff illuminates the interfaces between language and other functions of the mind, and at the same time helps define the scope of contemporary linguistic inquiry.

Part I of *Foundations of Language* considers the concept of generative grammar as articulated in 1965 by Noam Chomsky in *Aspects of the Theory of Syntax* and in Chomsky's subsequent reformulations. Jackendoff does not discard generative grammar, but contends that its assumptions need to be re-evaluated in light of recent developments in cognitive neuroscience. To do this, the book's focus is placed on the "functional mind," or the activity of the brain that takes place in between the physical brain and conscious thought (including the world of the unconscious mind that is accessible to conscious introspection). Jackendoff argues that mainstream generative grammar is mistakenly syntactocentric. In response, he proposes, in Part II of the book, a parallel architecture, instantiated in the functional mind, in which phonology and semantics, in addition to syntax, are generative and combinatorial in nature. The primitive elements of these three major generative components are not specific to any one language, nor are they accessible to the conscious mind. These combinatorial systems are connected via interface systems, and the items that make up the lexicon are an important part of these interface components.

The lexicon itself is reconceived in order to accommodate its role as a part of the interface components. Most words, having phonological form, syntactic properties, and semantic meaning, are utilized by (or are "visible" to) the phonological, syntactic, and semantic components of language. However, not every word is a part of every interface. Some words have phonological and semantic, but not syntactic, elements (*yes*, *hello*). Some have phonological and syntactic, but not semantic, elements (dummy *it*, supporting *do*). Still others have syntactic and semantic, but not phonological, elements (PRO). This opens the door to lexical items besides just words and morphemes. The idiomatic resultative construction, used in sentences such as *Clyde cooked the pot black*, is considered to be a lexical item, just as a word or morpheme is. Since the structure, in the lexicon, contains only variables for the subject, verb, object, and predicate adjective, it is a syntactic structure, paired with a semantic structure, which lacks phonological structure. According to Jackendoff, its meaning comes from its syntactic structure, and not the argument structure of the verb. This follows from the assertion that the verb is a variable while the construction is in the lexicon. In language use, the syntactic structure combines with words (which provide additional meaning and phonology) to generate an utterance.

This conception of idiomatic constructions as lexical items is an intermediate step on the way to Jackendoff's ultimate destination. Phrase-structure rules are also considered to be lexical items: items lacking not only phonological structure, but semantic structure as well. As a result, the lexicon contains items ranging from words containing phonology, syntax, and semantics, to phrase-structure rules, containing syntax only.

After establishing the combinatorial nature of phonology and syntax, attention is turned, in the third and last part of the book, to meaning. In order to put semantics on the same footing as phonology and syntax, Jackendoff argues that it must be possible to decompose meaning into primitive elements. These primitives are similar to the distinctive features of phonology in that they are neither language-specific nor accessible to the conscious mind; that is, they are instantiated in the functional mind. However, the book does not introduce a developed system of primitive semantic elements. Rather, it argues for a system, regardless of what the primitives turn out to be, that is compatible with the proposed parallel architecture.

Jackendoff adopts a mentalist approach to meaning. This is done to deal with the problem of explaining the interaction between an internal mind and an external world. The result is a kind of *conceptualist* semantics (as opposed to *realist* semantics), in which the world exists in the mind, having been brought into the mind through the various modes of sensory perception. Meaning expressed by language is thus connected to the world as it is conceptualized by the individual. It is argued to be much simpler to explain a connection between two mental activities than between a mental activity and a real, external world. Of course, individuals must tune their conceptualized worlds to those of other individuals in order to communicate effectively.

This conceptualist semantics allows the mental structures of real-world knowledge to interact with the mental structures of linguistic knowledge through an interface component, much like the three primary generative components of language interact with one another through other interface components.

One other interesting feature of Jackendoff's semantic structure is the division of lexical concepts into two parts: *conceptual structure* (CS) and *spatial structure* (SpS). CS encodes such concepts as predicate-argument relations and category membership, whereas SpS encodes spatial understanding of the physical world, e.g., the shape, motion, and layout of objects in space. The grammar of a language "sees" only the CS. SpS is connected through interface components to sensory perception and actions. While differences in CS are reflected in the grammar, lexical items distinguished only by SpS have identical grammatical behavior. The conceptualized world is thus connected with CS through SpS, and SpS is connected to the phonological and syntactic generative components of language through CS. These interfaced mental structures are what allow us to talk about what we see.

Foundations of Language encourages readers to reconsider the roles played by the traditional subsystems of language (phonology, syntax, and semantics) and the manner in which these subsystems interact. Linguistic entities in this scheme are not symbols or representations, but are structures constructed from discrete combinatorial elements. Jackendoff's departure from mainstream generative grammar is seen in his view of Universal Grammar as a set of "attractors," or "points of stability," that guide the acquisition of language in children. These points of stability coincide with unmarked structures. In addition, an advantage of the presented parallel architecture is that it addresses the absence of a developed theory of semantics in mainstream generative grammar. While Jackendoff chooses not to use *Foundations of Language* to argue for his preferences for semantic primitives, he presents a well thought-out argument for why they exist and why it is worthwhile to seek them out.

Besides the book's obvious appeal to linguists and cognitive scientists, researchers in second language acquisition may also find the ideas presented stimulating. *Foundations of Language* may raise awareness as to neglected tiers within the combinatorial components of second-language learners. In addition, underdeveloped interface systems may cause learners to be blind to important interactions between the phonology, syntax, and semantics of the second language. A language instructor's knowledge of these deficits may lead to more effective instruction in the second language.

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