

MENTALISM AND UNIVERSALS IN *ASPECTS*

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The field of generative-transformational grammar emerged in the late 1950s as the ascendant research paradigm of modern linguistics, created and led by Noam Chomsky. When *Aspects* was published in August 1965, the field was already ten years old; Chomsky had already published two previous books on linguistic theory, and the first generation of his graduate Ph.D. students had completed their dissertations at MIT.

Nevertheless *Aspects* is effectively the most important foundational document of the field. First, *Aspects* provided the definitive exposition of the classical theory of transformational-generative grammar—the so-called Standard Theory. It introduced influential constructs, such as the level of Deep Structure, and provided an outline of the theory of the Lexicon that has been quite enduring (though various theoretical frameworks have added to it in various ways). Nevertheless, the importance of *Aspects* rests less on its exposition of the technical details of the Standard Theory than on its presentation of Chomsky's vision of linguistic theory as a mentalistic theory, a component part of a broader theory of the human mind. This position is set forth explicitly in the first section of the first chapter (p. 4):

The problem for the linguist, as well for the child learning the language, is to determine from the data of performance the underlying system of rules that has been mastered by the speaker-hearer and that he puts to use in actual performance. Hence, in the technical sense, linguistic theory is mentalistic, since it is concerned with discovering a mental reality underlying actual behavior.

Theories of grammar, by definition, are “psychologically real” insofar as they seek to characterize properties of the system of unconscious knowledge that underlies human linguistic ability. This mentalistic interpretation of linguistic theory has been a central guiding assumption of mainstream syntactic theory ever since, even though it has never been universally accepted by linguists of all persuasions. It alone has been responsible for shifting the place of the field within the intellectual landscape, away from being an adjunct to Anthropology and into a central role within the Cognitive Sciences.

By viewing grammar as an attribute of the human mind, Chomsky provided the conceptual foundation for viewing linguistics as a natural science: in this conception, theories of grammar are no more and no less than theories about the nature of something that exists in the physical world--namely, the human mind/brain. Viewing grammar as a mental object also explains why native speakers' intuitions about grammaticality and meaning are of central importance. This clarity of vision swept away numerous conceptual and metaphysical problems associated with non-mentalistic theories of grammar, such as the notion of a grammar as a "social construct."

This mentalistic interpretation of linguistic theory gave new importance to the study of language acquisition by children. If the system of linguistic knowledge in the mind of a mature speaker-hearer is the field's central object of study, then the way in which this system arises is of central concern too. Knowledge of grammar must be shaped during childhood, as a result of the child's innate cognitive capacities responding to language data that it is exposed to in observing and participating in actual language use. Therefore the grammar of a particular language is the product of both the innate predispositions of the mind of the language learner and the sample of utterances in the particular language that the child is exposed to. The study of various intermediate stages of language acquisition may therefore inform, and be informed by, the general theory of grammar.

Neither *The Logical Structure of Linguistic Theory (LSLT)*, completed in 1955, nor *Syntactic Structures* (1957) explicitly endorsed mentalism *per se*. Parts of *LSLT* actually seem to dismiss the usefulness of mentalistic constructs in grammatical theory construction, while *Syntactic Structures* takes a quasi-mathematical set-theoretic approach to language (p. 13):

I will consider a *language* to be a set [...] of sentences [...] The grammar of [a language] L will thus be a device that generates all of the grammatical sequences of L and none of the ungrammatical ones.

Both studies also seem relatively unconcerned with accounting for language acquisition by children. A more central concern is the question of whether, and in what way, general linguistic theory should guide a linguist who is seeking to discover the correct grammar of a language. In *Syntactic Structures*, Chomsky argued against a tenet of the Structuralist tradition, which held that linguistic theory should provide a set of *discovery procedures* by which a linguist can programmatically infer the correct grammar on the basis of exposure to a representative sample of utterances. He argued instead (p. 56) that the theory should simply provide a means to evaluate hypothesized grammars relative to each other:

we shall never consider the question of how one might have arrived at the grammar whose simplicity is being determined; e.g. how one might have discovered the analysis of the verb phrase presented in § 5.3. Questions of this sort are not relevant to the program of research that we have outlined above [...] Our ultimate aim is to provide an objective, non-intuitive way to evaluate a grammar once presented [...] We are thus interested in describing the form of grammars (equivalently, the nature of linguistic structure) [...] rather than in showing how, in principle, one might have arrived at the grammar of a language.

Tellingly, the concern here is with the linguist, rather than with the child. Indeed, children (unlike linguists) presumably *are* endowed with some kind of discovery procedure which guides them to a particular (and correct) grammar.

In his highly influential review of B.F. Skinner's book *Verbal Behavior*, Chomsky (1959) endorsed an explicitly mentalistic interpretation of grammatical theory, positing it as the basis of an alternative to Skinner's behavioristic account of language. Here the impressive feat of language acquisition by children is a matter of central concern for the first time:

The construction of a grammar [...] characterizes abstractly the ability of one who has mastered the language to distinguish sentences from nonsentences, to understand new sentences (in part), to note certain ambiguities, etc. [...] The speaker and the listener, we must assume, have already acquired the capacities characterized abstractly by the grammar [...] The child who learns a language has in some sense constructed the grammar for himself; [...] this grammar is of an extremely complex and abstract character [...] the young child has succeeded in carrying out what from the formal point of view, at least, seems to be a remarkable type of theory construction [...] The fact that all normal children acquire essentially comparable grammars of great complexity with remarkable rapidity suggests that human beings are somehow specially designed to do this, with data-handling or 'hypothesis-formulating' ability of unknown character and complexity.

The shift to mentalism is complete in *Aspects*; this new vision of the field, hinted at in the Skinner review, is presented in considerable detail in the first chapter. Many of the central issues associated with a mentalistic linguistic theory are identified and clarified here, including the crucial distinction between competence and performance. The problem of explaining language acquisition by children is discussed in depth, and the notion of an innate "language acquisition device" is introduced. The evaluation procedure that chooses between grammars is no longer just a theoretical aid to a linguist, but rather a facet of the innate acquisition device:

The device would [...] select one of these potential grammars by the evaluation measure [...] the device has now constructed a theory of the language of which the primary linguistic data are a sample. The theory that the device has now selected and internally represented specifies its tacit competence, its knowledge of the language. The child who acquires a language in this way of course knows a great deal more than he has "learned." His knowledge of the language, as this is determined by his internalized grammar, goes far beyond the presented primary linguistic data and is in no sense an "inductive generalization" from these data. (pp. 32-33)

Moreover, theories of grammar are now judged in terms of their ability to account for language acquisition (p.27):

The problem of internal justification—of explanatory adequacy—is essentially the problem of constructing a theory of language acquisition, an account of the specific innate abilities that make this achievement possible.

In this context, Chomsky discusses the notion of linguistic "universals" and gives it a distinctly mentalistic and theoretical spin. He argues (pp. 27-8) that:

A theory of linguistic structure that aims for explanatory adequacy incorporates an account of linguistic universals, and it attributes tacit knowledge of these universals to the child. It proposes, then, that the child approaches the data with the presumption that they are drawn from a language of a certain antecedently well-defined type, his problem being to determine which of the (humanly) possible languages is that of the community in which he is placed

[...] Consequently, the main task of linguistic theory must be to develop an account of linguistic universals that, on the one hand, will not be falsified by the actual diversity of languages and, on the other, will be sufficiently rich and explicit to account for the rapidity and uniformity of language learning, and the remarkable complexity and range of the generative grammars that are the product of language learning.

Later on, he dismisses almost in passing Joseph Greenberg's proposals regarding implicational universals of surface word order patterns (p. 136):

Insofar as attention is restricted to surface structures, the most that can be expected is the discovery of statistical tendencies, such as those presented by Greenberg (1963).

Chomsky posits two types of linguistic universals in *Aspects*: substantive and formal. Substantive universals claim that "items of a particular kind in any language must be drawn from a fixed class of items;" he cites Jakobson's inventory of distinctive features and traditional universal grammar's inventory of the syntactic categories *noun* and *verb* as examples. On the other hand, formal universals "involve rather the character of the rules that appear in grammars and the ways in which they can be interconnected." (p. 29) These are "universal properties of a more abstract sort:" (pp. 29-30)

Consider a claim that the grammar of every language meets certain specified formal conditions. The truth of this hypothesis would not in itself imply that any particular rule must appear in all or even in any two grammars. The property of having a grammar meeting a certain abstract condition might be called a *formal* linguistic universal, if shown to be a general property of natural languages. Recent attempts to specify the abstract conditions that a generative grammar must meet have produced a variety of proposals concerning formal universals, in this sense. For example, consider the proposal that the syntactic component of a grammar must contain transformational rules (these being operations of a highly special kind) mapping semantically interpreted deep structures into phonetically interpreted surface structures, or the proposal that the phonological component of a grammar consists of a sequence of rules, a subset of which may apply cyclically to successively more dominant constituents of the surface structure (a transformational cycle, in the sense of much recent work on phonology). [...] The existence of deep-seated formal universals, in the sense suggested by such examples as these, implies that all languages are cut to the same pattern, but does not imply that there is any point by point correspondence between particular languages... whereas substantive universals have been the traditional concern of general linguistic theory, investigations of the abstract conditions that must be satisfied by any generative grammar have been undertaken only quite recently. They seem to offer extremely rich and varied possibilities for study in all aspects of grammar.

On this view, linguistic universals are, fundamentally, innate properties of the mind; more specifically, they are properties of the mind's language acquisition device and also of the mature grammar of a speaker/hearer. They include constraints on the form and application of grammatical rules and processes.

Like almost every other proposal in the first chapter of *Aspects*, the conception of formal linguistic universals laid out there is still completely applicable today. Indeed, formal universals have largely eclipsed substantive universals as the standard examples of linguistic universals that generative syntacticians are inclined to cite today. On the other hand, the actual examples of

formal universals that linguists today are most likely to cite are far more intricate than the examples that Chomsky cited in *Aspects*. The formal universals that contemporary syntacticians are likely to cite include islands and locality constraints on movement, binding conditions on anaphora, licit and illicit patterns of agreement, principles governing the interface between syntax and logical form, and highly articulated principles of phrase structure of the sort proposed within so-called cartographic theories of functional categories. These changes reflect the natural development and further articulation of syntactic theory over the past half century.

It is striking that Chomsky was able to foresee the general character of these subsequent developments in his discussion of the issue in 1965, given that the available evidence for formal universals was comparatively scanty at that time. Very few languages other than English had so far been analyzed in depth within the framework of generative grammar; thus, the conjecture that the grammars of all languages contain fundamentally the same kinds of rules and constraints as are found in the grammar of English was largely an article of faith.

The two central rule systems of the *Aspects* framework were the set of context-free phrase structure rules of the base (discussed in Chapter 2) and the set of transformational rules mapping deep structures to surface structures (discussed in Chapter 3). Both rule types were largely unconstrained by current standards, thus leading to considerable uncertainty about the nature of actual grammars—the theory allowed for a lot of competing analyses of individual constructions. Moreover, it wasn't even clear that all languages had rules of the type posited for English. Traditional analyses of syntactic cross-linguistic variation had bequeathed to the field a widespread assumption that many languages have “free word order,” leading many linguists to suspect that phrase structure rules might be unmotivated and unnecessary for such languages; a common view was that the grammatical functions served by syntactic phrase structure in languages with fixed word order like English were handled by rules of morphology and agreement in certain other languages. Even if the grammars of all languages that had been analyzed at that point were assumed to have transformational rules, there was still considerable variation in the actual rules involved, many of which were construction-specific. Constraints on rules were generally stated on a rule-by-rule basis. Thus, the prospects of finding much in the way of formal universals in these rule systems must have struck many people as being rather unlikely.

Thus, in proposing the theory of formal universals in *Aspects*, Chomsky relied more on the force of the logic of his account of grammar as a mental construct and his proposed solution to the associated problem of accounting for language acquisition. Not for the first or last time in his career, Chomsky had identified a problem that few other linguists acknowledged as a problem, and proposed a completely original solution to it, bringing with it numerous implications inside and outside of the field of syntax. There wasn't a lot of substantive evidence supporting this view, but he had faith that such evidence would some day be found, and he was proved right.

References

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