

## Noam Chomsky (1928– )

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Noam Avram Chomsky, born in Philadelphia, Pennsylvania, received his Ph.D. in linguistics from the University of Pennsylvania in 1955. Since 1955 he has taught at MIT, where he currently holds the position of Institute Professor. Chomsky gained the attention of philosophers early on in his career by the introduction of mathematical/logical tools for the description of linguistic phenomena. In this respect his early work was influenced by figures such as Nelson Goodman and W. V. Quine, both of whom are thanked in the introduction to his *Syntactic Structures* (1957). Nevertheless, Chomsky's principal philosophical significance relates to his rejection of the approach to language and mind taken by Quine and many other analytic philosophers. Indeed, Chomsky has been a direct participant in several key philosophical debates in the last half century, taking issue with interlocutors such as Quine, Donald Davidson, Hilary Putnam, Saul Kripke, and John Searle on the nature of language and mind.

In the view of many analytic philosophers, language is a social object that has been established by convention for purposes of communication. Chomsky's take is different: the conception of language as an external social object is unfruitful (if not incoherent), and the only plausible strategy for the empirical scientist is to view language, or rather, the language faculty, as a natural object that is part of our biological endowment.<sup>1</sup> The exact nature of this picture has evolved since the 1960s, and it has taken the form of a "principles and parameters model," which can be viewed in the following way: think of the language faculty as being a largely pre-wired mechanism with a set of switches (parametric settings) which can be set in various ways depending upon the environmental setting into which the language-learner is born. The task of the linguist is to study this mechanism, to deduce its initial state, and to understand what the possible parametric settings are, that is, to determine precisely what variation is allowed by the language faculty.

Chomsky (1986a) introduces the terms "I-language" and "E-language" to distinguish his general thesis about the language faculty from the loose collection of theories about language that hold that it is social or external. The I-language/E-language distinction is useful, since it highlights the idea that the object of study in linguistics is "internal" in a sense, and is not directly concerned with "external" phenomena like written corpora of data. Chomsky is thus opposed to the conception reflected in the definition given by the American linguist Leonard Bloomfield: language is "the

totality of utterances that can be made in a speech community.” For Chomsky, I-languages are “in the mind, ultimately the brain.”

To highlight the difference between these two approaches, consider the two different pictures of linguistic rules that emerge. Traditional grammarians (citing conventions and common practice for written English) give us superficial rules such as “Do not end a sentence with a preposition” or “Use ‘whom’, not ‘who’ when the pronoun has accusative or dative case.” On the other hand, generative grammarians like Chomsky note that there are more subtle and interesting linguistic rules which go unnoticed by the traditional grammarian but which seem to be employed by a broad class of speakers. For example, no native speaker of English would recognize (1) (below) as a well-formed question in English, even though there are seemingly similar structures like (2) that *are* quite acceptable to language users:

- 1 \*Who did John see the boy that Bill hit?
- 2 Who did John say that Bill hit?

The account for the difference in these cases is subtle, and the details of the explanation have changed as generative grammar has evolved.<sup>2</sup> The fact remains, however, that native speakers of English know that (2) is acceptable and that (1) is not, and further it is clear that no one is taught to have this preference. Whatever rules account for the judgments about (1) and (2) they are far more subtle than the usual prescriptive rules.

Similar considerations apply to the following examples, discussed in Chomsky (1986b; see also 1982, 1986a).

- 3 John filed every letter without reading it.
- 4 What letter did John file without reading it?

Somehow speakers of English know that if we delete the pronoun “it” in these two sentences (as in (3′) and (4′)) the effects on meaning are different.

- 3′ John filed every letter without reading.
- 4′ What letter did John file without reading?

(4′) is ambiguous in a way that (3′) is not. Both (3′) and (4′) have the meaning in which the filing was done without some (unspecified) reading taking place, but (4′) also preserves the most salient possible meaning of (4): it can still be understood as asking what letter John filed without reading *it* – the filed letter. Clearly, no one taught us this, there is no convention (tacit or otherwise) to use language in this way, and no prescriptive grammarian ever stipulated that we should interpret these sentences in this manner. But, just as clearly, these facts describe the linguistic competence of a large class of individuals.

This is just one of the problems for traditional grammars and for the more general assumption that languages are objects that are established by convention. Our best attempts to stipulate the rules – or to make explicit the conventions – just scratch the surface about our linguistic competence. In Chomsky’s words,

Traditional grammars do not describe the facts of language; rather, they provide hints to the reader who already has, somehow, the requisite “notion of structure” and general conceptual resources, and can use the hints to determine the expressions of the language and

what they mean. The same is true of dictionaries. . . . Traditional grammars and dictionaries, in short, presuppose “the intelligence of the reader”; they tacitly assume that the basic resources are already in place. (1994b: 160)

Likewise, institutions such as the Académie Française do not stipulate as much as they think they do. At best they give some superficial rules of thumb for proper linguistic behavior regarding French. They cannot even begin to cover the range of facts of interest to practicing linguists.

Indeed, for a generative linguist, the traditional notion of a language like French or German is suspect at best (see Chomsky 1980b: ch. 6). In what sense is a “speaker of German” from the Dutch border of Germany and a “speaker of German” from Bavaria speaking the same language? (Especially given that their languages are not mutually intelligible?) The fact that we say these individuals speak the same language is more of a political decision than anything else, and indeed an individual raised in northern Germany and an individual raised in The Netherlands may find that their languages are more mutually intelligible than the two aforementioned German citizens do. Saying that the two German citizens speak the same language is at best a loose way of talking about some contextually relevant (and certainly political rather than linguistic) similarities. Chomsky (1994b) compares it to saying that two cities are “near” each other; whether two cities are near depends on our interests and our mode of transportation and virtually not at all on brute facts of geography. The notion of “same language” is no more respectable a notion in the study of language than “nearness” is in geography. Informally we might group together ways of speaking that seem to be similar (relative to our interests), but such groupings have no real scientific merit. As a subject of natural inquiry, the key object of study has to be the language faculty and its set of possible parametric variations.

One might think it possible to retreat slightly by giving up on the idea of an E-language and endorsing a notion of E-dialect or E-idiolect, but even this retreat will not save the language-as-external-object position, according to Chomsky. Considerations that make it arbitrary when to say that two individuals speak the “same language” also apply to saying when they speak the “same dialect.” Furthermore, we have no way of identifying the linguistic forms that would be part of a given individual A’s E-idiolect. In the first place, A speaks in different ways with different groups of individuals (say A uses a different vocabulary among philosophers than among family members) and indeed at different stages of life (contrast A’s use of language at age 3 and age 30). Do all of these ways of speaking count as being part of the same idiolect? What unifies them other than that they are ways in which A happens to have spoken? Still worse, we certainly can’t identify A’s E-idiolect with some corpora of utterances and inscriptions, for these intuitively include speech and spelling errors. On the basis of what can we say that a given hiccup is an error and not part of the spoken corpus of A’s E-idiolect? If we try and identify errors by appealing to A’s language community, that lands us back in the problem of individuating E-languages and E-dialects; there is simply no fact of the matter about which language community A belongs to.

On the I-language approach, however, this problem takes the form of a well-defined research project. The idiolect (I-idiolect) is determined by the parametric state of A’s

language faculty; the language faculty thus determines A's linguistic *competence*. Speech production that diverges from this competence can be attributed to *performance* errors. Thus, the competence/performance distinction is introduced to illuminate the distinction between sounds that are part of A's grammar and those that are simply mistakes. The E-language perspective has no similar recourse.

For Chomsky, these are among the myriad reasons we have for abandoning the idea that language (as studied by the linguist) is a social object, and adopting the perspective that it is a natural object. But what kind of natural object? Since children acquire their linguistic competence without serious formal training (certainly none that would cover the facts in (1)–(4)) and indeed with impoverished data, Chomsky hypothesizes that there must be an innate language acquisition device which accounts for this competence. The task of the linguist is to learn the initial state of this device, and to determine the possible parametric variations of the device that are brought about by exposure to linguistic data.

This thesis has led to controversy; indeed, it has come to be at the center of recent innateness debates between Chomsky and Piaget, and Quine among others (see QUINE). The debates have turned on whether language acquisition requires a dedicated language faculty or whether “general intelligence” is enough to account for our linguistic competence. Chomsky considers the “general intelligence” thesis hopelessly vague, and argues that generalized inductive learning mechanisms make the wrong predictions about which hypotheses children would select in a number of cases. Consider the following two examples from Chomsky (1975, 1980a).

- 5 The man is tall.  
6 Is the man tall?

Chomsky observes that confronted with evidence of question formation like that in (5) and (6) and given a choice between hypothesis (H1) and (H2), the generalized inductive learning mechanism will select (H1).

- (H1) Move the first “is” to the front of the sentence.  
(H2) Move the first “is” following the first NP to the front of the sentence.

But children apparently select (H2), since in forming a question from (7) they never make the error of producing (8), but always opt for (9).

- 7 The man who is here is tall.  
8 \*Is the man who here is tall?  
9 Is the man who is here tall?

Note that this is true despite the fact that the only data they have been confronted with before encountering (7) is simple data like (5) and (6). Chomsky's conclusion is that whatever accounts for children's acquisition of language it cannot be generalized inductive learning mechanisms, but rather must be a system with structure-dependent principles/rules. In effect, one has to think of the language faculty as being a domain-specific acquisition *module*.<sup>3</sup>

Obviously the distinction between I-language and E-language puts Chomsky at odds with a number of philosophers on the nature of language, but it also leads to a number of subsidiary philosophical disputes, not least of which are those disputes that are

driven by questions about the nature of rules and representations (or principles and parameters) in cognitive science.

For example Quine extends his “gavagai” argument and attendant skepticism about meanings to similar skepticism about grammatical rules. At the core of Quine’s worry is the idea that if several rule systems are consistent with the linguistic behavior of an individual, then there can be no fact of the matter about what set of rules is actually being employed (see QUINE). Chomsky (1969, 1975, 1980) has made several responses to this argument. In the first place, Chomsky takes Quine’s argument to be a rehash of the standard scientific problem of the underdetermination of theory by evidence. So, for example, even if there are several grammars that are consistent with the available linguistic facts (not linguistic behavior, for Chomsky, but intuitions about acceptability and possible interpretation) we still have the additional constraint of which theory best accounts for the problem of language acquisition, acquired linguistic deficits (e.g. from brain damage), linguistic processing, etc. In other words, since grammatical theory is embedded within cognitive psychology, the choice between candidate theories can, in principle, be radically constrained. But further, even if we had two descriptively adequate grammars, each of which could be naturally embedded within cognitive psychology, there remain standard best theory criteria (simplicity, etc.) which can help us to adjudicate between the theories.

A more recent assault on rules and representations has come from Kripke’s reconstruction of Wittgenstein’s private language argument (see KRIPKE). According to that argument, there can be no fact of the matter about what rules and representations a system of unknown origin may be following. Kripke concludes:

*if statements attributing rule-following are neither to be regarded as stating facts, nor to be thought of as explaining our behavior . . . it would seem that the use of the idea of rules and of competence in linguistics needs serious reconsideration, even if these notions are not rendered meaningless. (1982: 31 n. 22)*

Chomsky’s initial (1986b: ch. 4) response to the Kripke/Wittgenstein argument appears to be that there is a fact of the matter about what rules a computational system is operating on, but in more recent articles (1993, 1994b, 1995a) he has argued that the Kripke/Wittgenstein argument applies only to artifacts and not to natural objects. That is, computers are artifacts – the products of human intentions – and hence there is no fact about their design that exists apart from those intentions. The principles and parameters of the language faculty, on the other hand, are embedded within cognitive psychology and ultimately facts about human biology. Therefore the structure of the language faculty is no less grounded than, for example, the human genome.

Chomsky has also clashed with Searle over the possibility of rules in cognitive science that are “in principle” inaccessible to consciousness. Can there be aspects of the mental which are not “in principle” accessible to consciousness? Searle argues that there cannot be (see SEARLE). Chomsky (1990, 1994a) argues that the notion of “in principle” in Searle’s argument is vacuous. For example, what evidence is there that the grammatical principles governing our judgments about examples (1)–(9) can’t be accessible to consciousness? Is it a law of logic that there could not be a species with a language faculty just like ours but with full conscious access to its principles and

parameters? Chomsky also notes that Searle must introduce the notion of “blockage” to cover those cases in which an individual, perhaps through brain damage, is able to correctly solve a problem, but be unable to say how it was solved. On Searle’s theory, such a person has “in principle” access but suffers from “blockage.” But Chomsky observes that it is entirely arbitrary as to what counts as blockage and what counts as in principle inaccessibility (e.g. perhaps an unfortunate mutation blocked our access to the language faculty). Accordingly, Chomsky argues that such notions have no role in naturalistic inquiry into the nature of the mental (and indeed, cognitive science rightly ignores such notions).

For Chomsky, it is not enough to defend the idea that rules and representations (principles and parameters) be a part of our naturalistic investigation into the mind, their character must also be *individualistically* determined. That is, there is a brute fact about the state of an individual’s language faculty and that fact is determined in turn by facts about the individual in isolation, not by the environment in which the individual is embedded. The thought is that if the language faculty is part of our biological endowment, then the nature of the representations utilized by the language faculty are fixed by our biology and are not sensitive to environmental issues such as whether we are moving about on Earth or Twin Earth.

This appears to put Chomsky on a collision course with figures such as Tyler Burge, who argues in “Individualism and Psychology” that the content of the representations posited in psychology are determined at least in part by environmental factors. If the notion of content involves externalist or environmental notions, then Chomsky is dubious that it can play an interesting role in naturalistic inquiry in cognitive psychology. Furthermore, since for Chomsky “the mental” is simply an aspect of the natural world that is investigated by sciences such as cognitive psychology (see Chomsky 1994a), the nature of the mental itself must be individualistically and not environmentally determined. Thus Chomsky (1993, 1995a) rejects the contentions of figures such as Putnam (“The Meaning of ‘Meaning’”), Burge (“Individualism and the Mental”), and Davidson (“Knowing One’s Own Mind”) that the contents of our mental states are environmentally determined. More accurately, he dismisses the talk of “contents” as ill-defined. Indeed, he is dismissive of the thought experiments (Putnam’s “water/twater,” Burge’s “tharthritis,” and Davidson’s “Swampman”) that purport to support externalism, and suggests that they reflect philosophical prejudice more than any genuine facts about the mind/brain.

If environmentalism is to be rejected in psychology, then it naturally must be rejected in semantics as well. That is, if the task of the linguist is to investigate the nature of I-language, and if the nature of I-language is a chapter of cognitive psychology, and if cognitive psychology is an individualistic rather than a relational science, semantics will want to eschew relational properties like reference (where reference is construed as a relation between a linguistic form and some object in the external environment). Thus Chomsky (1981, 1995b) rejects the notion of reference that has been central to the philosophy of language since about 1970, characterizing it as an ill-defined technical term (certainly one with no empirical applications), and suggesting that in the informal usage of “refer,” individuals refer but linguistic objects do not.

It also follows that semantic theories that employ the technical notion of reference should be rejected in favor of semantical theories which do not purport to state lan-

guage/world relations or, following Chomsky (1975a), in favor of a Wittgensteinian approach in which there is no semantics *per se*, but rather one in which the linguistic forms are *used* in certain ways.

With this rejection of referential semantics also comes a rejection of any attempt to use the semantics of natural language to gain insights into ontology. It is no good to argue from the structure of language to the existence of events, or plural objects, or times, etc. As Chomsky has argued, there are a number of constructions where the structure of language and the structure of the external world diverge. For example, some noun phrases intuitively have counterparts in the world (for example, the noun phrase “coats in the closet”) while others do not (“flaws in the argument”):

If I say “the flaw in the argument is obvious, but it escaped John’s attention,” I am not committed to the absurd view that among things in the world are flaws, one of them in the argument in question. Nevertheless, the NP *the flaw in the argument* behaves in all relevant respects in the manner of the truly referential expression the coat in the closet. (1981: 324)

Still more, Chomsky holds that there is a deep reason why our ontology cannot be reflected in natural language: ontology is determined by human intentions, while the representations in the language faculty are naturalistically determined.

We do not regard a herd of cattle as a physical object, but rather as a collection, though there would be no logical incoherence in the notion of a scattered object, as Quine, Goodman, and others have made clear. But even spatiotemporal contiguity does not suffice as a general condition. One wing of an airplane is an object, but its left half, though equally continuous, is not. . . . Furthermore, scattered entities can be taken to be single physical objects under some conditions: consider a picket fence with breaks, or a Calder mobile. The latter is a “thing,” whereas a collection of leaves on a tree is not. The reason, apparently, is that the mobile is created by an act of human will. If this is correct, then beliefs about human will and action and intention play a crucial role in determining even the most simple and elementary of concepts. (1975b: 204)

The upshot is that pursuing metaphysical questions by appeal to natural language (I-language) is a dead end.

Perhaps less clear are the prospects for recent philosophical attempts to employ the resources of generative grammar in carrying out Davidson’s program of defining truth in natural language (see DAVIDSON). Chomsky’s view appears to be that everything depends upon how these enterprises are interpreted. If they are taken to be ways of executing a referential semantics, then they are misguided. If the “semantic values” of these theories are taken in a non-referential way then there is presumably room for interesting theorizing.

In this entry I’ve only scratched the surface of work by Chomsky that is potentially of interest to philosophers (analytic or otherwise). One glaring omission is his writing on social issues (see, for example, Chomsky 1987) and on the media (see Herman and Chomsky 1988). I’ve also passed over his contributions for formal language theory (Chomsky 1956, 1959) and general issues in epistemology (Chomsky 1981). Finally, there is much that could have been said about his earlier syntactic work (1957, 1965,

1975a) and the influence that it had in the philosophy of language in the 1960s and 1970s. I hope, however, that the forgoing discussion has helped to illuminate some of Chomsky's work and placed it in the context of the debates that have taken place in analytic philosophy since the mid-twentieth century, debates which remain open largely due to his efforts.<sup>4</sup>

## Notes

- 1 Chomsky often suggests that if one digs beneath the surface, one finds that these philosophers (even the behaviorists) are also believers in a language faculty which is part of our biological endowment. See his discussion of Quine in Chomsky 1975b: 198ff. On Chomsky's view, of course, no coherent story can be told without this assumption.
- 2 In Chomsky 1975b, 1977, for example, the idea is that (1) represents a *subjacency* violation; formation of the question would require the wh-element "who" to move out of both an NP (noun phrase) and an S (clause) without a safe intermediate landing site. For more current accounts of these constructions see Chomsky 1986a, 1995b.
- 3 However, Chomsky observes that it is not modular in the sense of Fodor's *Modularity of Mind*, but is an acquisition module more in the sense of Gallistel in *The Organization of Learning*.
- 4 I am indebted to Noam Chomsky, Richard Larson, and A. P. Martinich for comments on an earlier draft of this article.

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