

# Philosophy of Linguistics

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Linguistics in 1945 was a modest discipline, with much to be modest about.<sup>1</sup> Very few universities had linguistics departments; the profession was tiny. The history of American linguistics (on which this brief chapter concentrates, because it has been the main focus of philosophical interest) goes back barely a hundred years. Its foundational documents include the *Handbook of American Indian Languages* (Boas 1911), a posthumously reconstructed lecture course by Ferdinand de Saussure (1916), and Leonard Bloomfield's general survey of the field *Language* (1933).

Linguistics may not have been on the radar for philosophers of science in the 1940s, but linguists had philosophical interests. Much influenced by the positivism and operationalism of the Vienna Circle, they sought general analytical procedures not just for practical use by field linguists working on undocumented languages but as theoretically rigorous methods, applicable to any language, that would both yield a scientifically adequate analysis and confer epistemological justification upon it.

They were divided between realists and antirealists. Householder (1952) introduced the epithets “God’s-truth” and “hocus-pocus” for the two camps. God’s-truthers believed linguistic expressions had structure that linguists should try to discover. Hocus-pocus linguists believed that no structural properties inhered in the acoustic mush of utterances as physically experienced: linguists imputed structure and systematicity to them to render language more scientifically tractable.

Householder drew his distinction in a review of a major work by Zellig Harris (1909–1992), whom he saw as a mainly focus-pocus man. Harris’s monograph (1951) was a meticulous survey of linguistic analysis procedures (originally called *Methods in Descriptive Linguistics*, ‘descriptive’ being later changed to ‘structural’). It had reached a preliminary proof stage by 1947, and Harris sought proofreading assistance from a precocious 16-year-old who had begun taking courses at the University of Pennsylvania in 1945 but was thinking of dropping out and going to live on a

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<sup>1</sup>Winston Churchill supposedly said this about Clement Atlee during a 1946 British election campaign, but the attribution is unverified, hence available for stealing without acknowledgment. However, I do need to acknowledge my intellectual debt to the late Barbara C. Scholz, my philosophical collaborator until her untimely death in 2011. Writing this jointly with her would have made the task much harder, because she would have insisted that it be done much better. I have done what I could alone, within the very tight length limits, helped by useful comments from Fiona Cowie, James Donaldson, John Joseph, Robert Levine, Ryan Nefdt, Brian Rabern, and Pramay Rai, to all of whom I am grateful.

kibbutz. Attracted to Harris's left-wing politics, the apprentice discovered a keen interest in linguistics. Together with a high school friend of his, he took several of Harris's classes, and also studied philosophy with Nelson Goodman.

This all had considerable importance for future relations between philosophy and linguistics, because the school friend was Hilary Putnam (1926–2016), perhaps the most insightful of all philosophers of linguistics, and Harris's young proofreader was Noam Chomsky.

## 1. The Chomskyan era

Having earned his B.A. in 1949 and his M.A. in 1951, Chomsky went on from Penn, with a recommendation from Goodman, to the Society of Junior Fellows at Harvard. The stellar Cambridge intellectual community at the time included Yehoshua Bar-Hillel (1915–1975), Roman Jakobson (1896–1982), W. V. O. Quine (1908–2000), and B. F. Skinner (1904–1990).

During his fellowship, Chomsky produced his first paper, a dense application of logic to the formalization of Harris-style analytical procedures, published in the *Journal of Symbolic Logic* in 1953 and rarely cited since. He also labored over a massive monograph, *The Logical Structure of Linguistic Theory* (revised after Chomsky joined the MIT faculty in 1955, and distributed on microfilm through the MIT library in 1956, but not printed until 1975).

In retrospect, the year 1957 defines a remarkable watershed in linguistics publishing. The classic anthology *Readings in Linguistics I* (Joos 1957) encapsulated American descriptive linguistics from 1926 to 1956. Firth (1957a) and Firth (1957b) coincidentally did the same for the London School in Britain. The extreme empiricist methodological views of the day were crystallized in W. Sidney Allen's inaugural lecture at Cambridge University (Allen 1957). A radical behaviorist psychology of language, foreshadowed a decade earlier in B. F. Skinner's 1947 William James Lectures, was given its definitive formulation in *Verbal Behavior* (Skinner 1957). A half-century of research on language had offered its final report, as if clearing the decks for the arrival of something new.

And something new arrived, in the form of a slim volume from an unknown small press in the Netherlands: *Syntactic Structures* by Noam Chomsky (1957). Based on lecture notes for a small undergraduate class at MIT, it looked like a technical monograph, replete with novel criticisms of the descriptive linguistics of the day. Its impact was magnified by a long, laudatory review in *Language* (the journal of the Linguistic Society of America) by Robert B. Lees, a mature scientist who had become a major promoter of Chomsky's ideas. Lees had read it before publication, enabling *Language* to publish the review in the same year as the book.

The American descriptive linguistics establishment rapidly realized that this book, and its 28-year-old author, challenged their preeminence. They invited Chomsky to debate with a phalanx of senior linguists at the Third Texas Conference on Problems of Linguistic Description in English

in 1958, perhaps thinking he could be exposed or defeated. The resulting intense discussion was published in Hill 1962.

Meanwhile Chomsky was copublishing with the distinguished psychologist George Miller on finite state machines in a cybernetics journal (Chomsky and Miller 1958); preparing lectures on “linguistics, logic, psychology, and computers” for an artificial intelligence summer school for engineers in Michigan (Chomsky 1958); working on a major paper on the mathematics of grammars (Chomsky 1959a); and writing his devastating review of Skinner’s *Verbal Behavior*, to appear the following year (Chomsky 1959b); Already his work touched linguistics, computer science, and psychology.

## 2. Philosophers weigh in

Philosophers soon became interested. The key philosophically relevant claims about language that Chomsky began to enunciate between 1957 and 1965, familiar to almost all philosophers today, included these (I summarize them very briefly):

- [1] American descriptive linguistics was moribund, having pursued mere taxonomy when **theoretical** insights were needed.
- [2] Flirtation with **behaviorism** had only underlined its inadequacy by linking it to a bankrupt psychological research program.
- [3] Adequate grammars for human languages must be **generative** systems, in the mathematical sense of ‘generate’, predicting the properties of indefinitely many novel utterances, not just classifying the parts of attested ones.
- [4] Being **grammatical** depends on being in compliance with the definition provided by the grammar, and is not reducible to anything like meaningfulness, nor to anything behavioral such as speaker disposition or probability of being uttered.
- [5] Generative grammars can be formally related to **automata**, and thus are crucially relevant to computer science.
- [6] Adequate generative grammars for human languages will need structure-modification rules called **transformations**.
- [7] The extreme complexity of human linguistic behavior suggests that grammars are **psychologically** real — physically inscribed in the brains of language users.
- [8] Ample evidence for such internalized grammars can be obtained by investigators simply reflecting on their own native **competence** (tacit linguistic knowledge).
- [9] Grammars defining the idealized speaker’s competence must form the starting point for any study of the mechanisms of linguistic **performance**.
- [10] Psychology has to take seriously the idea that human minds store and manipulate complex **mental representations**.

- [11] The problem of how infants can accomplish language acquisition so easily demands explanation in terms of **innate** unlearned mental structure.
- [12] Hence 17th-century **rationalism** offers linguists better guidance than most of the 20th century's supposedly rigorous behavioral science.
- [13] The necessary innate mental infrastructure constitutes a framework of **universal grammar**, shared by all humanly possible languages.
- [14] Since only humans, and no other species, can acquire languages, this universal grammar must correspond to some kind of **species-specific** human genetic endowment.
- [15] It is implausible that language could have **evolved** from simpler forms of animal communication — indeed, it probably didn't.

These ideas did not, of course, emerge from nowhere; they had sources in earlier works. The idea in [3] that a linguistic description can be viewed as providing instructions for “generating” sentences had been advanced by both Hockett (1954) (“principles by which one can generate any number of utterances in the language,” 1954, 390) and Harris (1954) (“A grammar may be viewed as a set of instructions which generates the sentences of a language,” 1954, 260). The ‘production systems’ developed by Emil Post in his 1920 dissertation are in essence generative grammars. (Chomsky knew of Post’s work from Rosenbloom 1950, cited in Chomsky 1975a.)

The distinction between formation rules and transformation rules (see [6]) seems to have been introduced into logic by Carnap. Transformations were first applied to human languages by Zellig Harris, for whom they simply defined mappings on the set of all sentence structures; Chomsky reconceived them as dynamic string-altering derivational procedures.

The idea that sentences have **deep structures**, defined by formation rules, from which **surface structures** are derived by transformations, emerged in Chomsky (1965), where the terms ‘deep’ and ‘surface’ are acknowledged (198–199, n. 12) to be echoing Wittgenstein’s ‘depth grammar’ and ‘surface grammar’ (‘Tiefengrammatik’ and ‘Oberflächengrammatik’: Wittgenstein 1953) and Hockett’s “deep and surface grammar” (1958, Ch. 29).

The most remarkable presaging of Chomsky’s major ideas concerns the claim that the grammar of a language must reflect actual structure realized in the brain of a native speaker. It is found in Hockett (1948), a note responding to another linguist’s hocus-pocus remark claiming that linguistic structure “does not exist until it is stated” (p. 279). Hockett argues that such antirealism is at the very least misleading, for the linguist’s analysis must assign structure to utterances never so far attested. The analytical process ‘parallels what goes on in the nervous system of a language learner, particularly, perhaps, that of a child learning his first language,’ corresponding to “a mass of varying synaptic potentials in the central nervous system” (p. 279).

This foreshadows several characteristic theses about language and the mind (e.g. [3] and [7] above), twenty years before Chomsky published *Language and Mind* (Chomsky 1968). It recog-

nizes the “authority” that accrues to the speaker who has native competence in a language, realized in “the central nervous system,” and distinguishes that from performance, with its “lapses” (see [8]–[9]).

Earlier descriptive linguists had assumed that the subject matter was concretely attested utterance types as recorded in texts. So theses like [8]–[10] came as a shock: Chomsky advocated working not from texts, or records of the habitual practices of speakers, but from native speakers’ intuitive understanding of what is (or is not) in their native language. During the discussion at the Third Texas Conference he asserted: “Intuition is just what I think I am describing. The empirical data that I want to explain are the native speaker’s intuitions” (Hill (1962): 158). Archibald Hill, the convener of the conference, seemed completely unable to take this in, for after half an hour or more (nine pages of transcribed discussion) he returned to it (Hill (1962): 167):

HILL: If I took some of your statements literally, I would say that you are not studying language at all, but some form of psychology, the intuitions of native speakers.

CHOMSKY: That is studying language.

### **3. Mentalism and innatism**

Seven years after the Texas conference Chomsky revealed the full extent of his reconception of linguistics as a study of mental processes and brain states (1965), following up with a monograph arguing that 17th-century French rationalism was closer to the truth about language than 20th-century empiricist science (Chomsky 1966; see Behme 2014a for a recent extended critique). This hit the older generation of American linguists harder than any critique of their analytical procedures had, and raised many philosophical eyebrows.

Chomsky claimed that the subject matter for linguistic theory was the mental state of an adult “ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic)” (1965: 3). Sociolinguists, dialectologists, psycholinguists, and field linguists recording texts would battle for decades against the implied exclusion from the core of linguistic science that they saw in this sentence.

Linguists and philosophers alike were shocked by the proposals in [10]–[14]: that language acquisition must be driven by biologically built-in universal grammatical principles, and that the “innate ideas” doctrine had been underrated. Ancient empiricism/rationalism battles were soon being reenacted in modern dress. At a 1965 Boston Colloquium on the Philosophy of Science (proceedings in *Synthese*, March 1967), Chomsky stated that “the conclusions regarding the nature of language-acquisition ... are fully in accord with the doctrine of innate ideas... and can be

regarded as providing a kind of substantiation and further development of this doctrine” (Chomsky 1967: 10), and was responded to by his old friend Putnam and his former philosophy professor Goodman.

Putnam (1967) concluded, in urgent italics: “*Let a complete 17th-century Oxford education be innate if you like. . . Invoking ‘innateness’ only postpones the problem of learning; it does not solve it.*” And Goodman was outright contemptuous. He wrote up his remarks as a dialog with a supercilious interrogator calling the doctrine “intrinsically repugnant and incomprehensible. . . unsubstantiated conjectures that cry for explanation by implausible and untestable hypotheses that hypostasize ideas that are innate in the mind as non-ideas” (Goodman 1967: 27–28).

Chomsky responded point for point in several publications (Chomsky 1968, Chomsky (1969b), Chomsky 1969a), answering objections from other philosophers such as Quine and Harman as well. His 1969 Russell lectures (Chomsky 1971) addressed Quine’s *Word and Object* (1960), a work combining philosophy of language with philosophy of descriptive linguistics. A summer conference at Stanford in 1969 spurred further philosophical discussion of linguistics and led Quine to comment directly on the methodology of generative linguistics (1972), questioning whether a speaker could ever be said to be following one set of internalized rules rather than another extensionally equivalent one (as opposed to just being in compliance with both), if the speaker was not conscious of what the rules said. Lengthy counterargument appeared in Chomsky (1975b).

Throughout the 1970s, in books and public lectures, Chomsky regularly responded to criticisms by prominent philosophers like Quine, Putnam, Goodman, Harman, and Searle. Lesser figures were ignored. Itkonen (1978), for example, argued that Chomsky’s theorizing could not possibly be empirical, but was never answered or cited. Philosophy of linguistics was dominated by exegesis of Chomsky’s writing and, for the privileged few whose work Chomsky addressed, answering his counterattacks.

#### 4. Katzian Platonism

Jerrold Katz was a key philosophical ally of Chomsky’s in the 1960s and 1970s, but he eventually came to the conclusion that Chomsky’s views on semantics were all wrong (Katz 1980), and the following year he announced a complete break with the idea that linguistics dealt with the mind (1981). Linguists had twice misidentified the metaphysical status of their subject matter, Katz now claimed. Repurposing terminology from the *Encyclopedia of Philosophy* article on the medieval theories of ‘universals’ (i.e., properties), Katz posited an exhaustive tripartite classification of ontologies for linguistics: **nominalism**, **conceptualism**, and **Platonism**. Nominalist linguists claimed to be studying physical facts about utterance tokens. Conceptualism was the Chomskyan mentalist view, which Katz had once warmly advocated (1964). What Katz now urged was Platonism: the view that linguistics deals solely with abstract objects.

Katz took ‘nominalism’ to be discredited by Chomsky’s arguments (e.g. in Chomsky 1964) against pre-1950 phonemic analysis. These are actually thin grounds for dismissing the link between linguistics and speech. Chomsky’s arguments against Harris-style phonemic analysis procedures were ingenious, but hardly suffice to crush the whole idea of linguistics addressing concrete phenomena. For example, Ruth Millikan’s highly original subsequent work e.g. in 1984, on understanding linguistic behavior in terms of “reproductively established families” of utterance tokens, has a distinctly nominalistic flavor, but is hardly to be challenged by allegations of inelegant duplication in phonological rules.

Chomsky’s ‘conceptualism’ was little better than nominalism, Katz believed: tied to human brains, it was incompatible with the existence of grammatical sentences that were too long or complex for a brain to store or apprehend, and with explaining how brain representations could make a sentence true in all possible worlds (Higginbotham 1991 and Soames 1991 respond on the latter point).

Platonism leaves no room for linguistics to be empirical. Katz simply bites the bullet on that, asserting (without reference to Itkonen 1978) that linguistics is a nonempirical a priori discipline like logic or mathematics. Issues like learnability and usability are for psychologists, not linguists, he claims. He posits just one key property distinguishing what he called “natural languages”: he claims they are **effable**, meaning that every natural language has the resources to permit exact expression of absolutely any proposition. This claim is sorely in need of support. Consider Pirahã. Spoken by a hunter-gatherer people who do no counting and build no permanent dwellings, this language has no terminology for numbers, money, colors, art, or architecture (Everett 2005). In what serious sense could one claim to be able to translate into Pirahã the statement that before renting out the house we should get an estimate for repainting the dining room walls in turquoise between the dado rail and the crown molding?

The major challenge for Platonism is explaining how spatiotemporally located beings like us can come to know languages, or even be aware that they exist. Katz posits a special intuition permitting humans to discern the existence and properties of objects like triangles, numbers, and languages (Katz 1998).

Katz’s classic a priori philosophy of science, laying down appropriate beliefs for linguists derived from first principles rather than drawing philosophical conclusions from examining how they actually work, insists on a unique metaphysics for linguistics. Ontological pluralism, as advocated by Stainton (2014), seems far more appropriate for the language sciences.

## 5. Kripkean skepticism

The year after Katz’s book came a very different challenge to Chomskyan linguistics. Kripke (1982) discusses a paradox drawn from Wittgenstein’s discussion of rule-following in *Philosophi-*

*cal Investigations*. Wittgenstein had remarked that “no course of action could be determined by a rule, because every course of action can be made out to accord with the rule” (1953: §201, p. 81). In an interpretation that does not satisfy some Wittgensteinians, Kripke expounds a paradox which he illustrates with the meaning rule for the word ‘plus’.

Consider someone who has often in the past added together numbers neither of which exceed some finite bound  $k$ , but denies ever having followed the rule that ‘ $a$  plus  $b$ ’ is synonymous with  $a + b$ , claiming instead that it means  $a + b$  if  $a$  and  $b$  are less than  $k$ , but denotes 5 in the case of all higher numbers. Kripke’s worry is that nothing about their prior use of ‘plus’, nor anything else about them, even full knowledge of the workings of their mind, can refute this absurd claim.

And that worry holds for a simple explicitly formulated meaning rule. The difficulties “are compounded if, as in linguistics, the rules are thought of as tacit, to be inferred by the scientist and *inferred* as an *explanation* of behavior” (1982: 31, n. 22).

Kripke adds: “The matter deserves an extended discussion elsewhere” (1982, pp. 30–31, n. 22). The beginnings of such extended discussion emerged in Chomsky (1986), Wright (1989), Scholz (1990), and Katz (1990), but the rule-following literature is now vast, too large for even a brief review here. Regrettably, it seldom digs deep into matters of syntax, but instead sticks to very simple examples of “going on in the same way” with some sequence or practice like addition.

One philosopher who did firmly connect the problem to Chomskyan linguistics is Crispin Wright. He called Chomsky’s response to the Kripke/Wittgenstein argument “unsatisfying,” describing Chomsky as having “conspicuously declined to take up the invitation, preferring a frontal attack on the Sceptical Argument” (1989: 235, referring to Chomsky 1986: 223–243). Wright sees Chomsky’s attack as failing in the same way as the “dispositional” response—the idea that following a rule is a matter of being disposed to behave in accordance with it (see Kripke 1982: 24–32). First, it ignores the normativity of linguistic rules: grammars define what’s correct, not events in brains or dispositions to behave. And second, Chomsky’s view threatens “to make a total mystery of the phenomenon of non-inferential, first-person knowledge of past and present meanings, rules and intentions” (Wright 1989: 236).

## 6. The poverty of the stimulus

Linguists themselves have shown little interest in Katz’s ontological challenge or Kripke’s rule-following paradox. The philosophical issues they find most compelling are those about how linguistic and psychological phenomena are related: the psychological reality of grammars, the status of universals of grammar, and the problem of language acquisition.

On acquisition, Chomsky made a casual aside about “a variant of a classical argument in the theory of knowledge, what we might call ‘the argument from poverty of the stimulus’ ” (1980: 34), thus introducing the phrase “poverty of the stimulus,” which became enormously popular among



linguistic nativists, along with other slogans, including “the logical problem of language acquisition” (Baker and McCarthy 1981), and “Plato’s problem” (Chomsky 1986).

The literature on arguments for linguistic nativism (see Scholz and Pullum 2006 for a survey) is rife with confusions. Some cite the underdetermination of theory by evidence as relevant, but Hume’s insight that a finite corpus of data never determines a unique nontrivial theory implies only that the child’s input data cannot logically force the assumption of a unique grammar, and nobody ever doubted that. The “poverty of the stimulus” — the claim that the infant’s linguistic environment is informationally too thin to support grammar learning that occurs — is an entirely different matter, raising potentially empirical and quantitative questions.

The mathematical theorems of Gold (1967) are also sometimes thought to offer a pro-nativist argument (see e.g. Matthews 1984), but they have nothing to do with either underdetermination or stimulus poverty. Gold assumes no informational poverty at all: his “identification in the limit from text” paradigm assumes an input consisting of an infinite sequence of grammatical sentences in which every grammatical sentence eventually occurs. Since successful algorithms exist for some infinite classes of languages but not for others, Gold’s idealizations do not uniformly imply that utterance-presentation environments are always too meager to permit language identification. His results shed light on the preconditions for text-based algorithmic grammar-guessing, but have no serious relevance to practical language acquisition.

Controversy about innate grammatical ideas has not ebbed. Fiona Cowie’s critique of linguistic nativism (1999) elicited a polemical assault by Jerry Fodor taking up nearly 50 pages of *Mind* (Fodor, 2001) and over 50 pages of debate in the pages of *Mind and Language* (vol. 16 [2002], 193245) in which each side charged the other with acting like creationists.

## **7. Intuitions and the science of language**

Nor have other areas of the philosophy of linguistics mellowed. Devitt (2006) made an important and novel contribution to the debate about linguistics and psychology, proposing that linguists’ descriptions and theories of linguistic phenomena are not about the psychological abilities and mechanisms underlying the abilities of speakers, nor are the rules defining well-formedness of sentences to be equated with routines used by a language user in processing or constructing an utterance. Processing and constructing sentences can (and must) respect grammaticality-defining rules, but not subsume them.

Devitt rejects the allegedly Cartesian view that we can discern our mental processes and content by peering into our own minds. Our ability to use a language does not give us information about its workings through the medium of intuitions, he believes; instead utterances in our language trigger certain “immediate and fairly unreflective empirical central processor responses” in us. These are not opinions or judgments, and not always easily reportable — and “not the main evidence for

grammars” (2006: 276).

Devitt’s book was criticized (often harshly) by more philosophers than can be discussed here (Louise Antony, John Collins, Gareth Fitzgerald, Guy Longworth, Peter Ludlow, Nenad Mišćević, Paul Pietroski, Peter Slezak, Barry Smith, and others). Devitt responded energetically in various forums (one is the *Croatian Journal of Philosophy*, which has become an important publication outlet for philosophy of linguistics).

Devitt believes what was once a truism from the dictionary: that linguistics is the scientific study of language. His critics do not. Antony (2008: 656) says that “Devitt has yet to show that a science of Language is viable — or desirable.” She takes linguistics to be, as Chomsky claims (*pace* the title of Chomsky 2012), a study of mental processes and brain states. The view that such studies belong in the psychology department is now controversial.

But so is almost everything in philosophy of linguistics today. Intense debate continues about the reliability of intuitions, the mental reality of grammars, the innateness of human language acquisition abilities, and so on. Philosophical commentary on Chomsky’s thinking has filled numerous edited volumes (Harman 1974, George 1989, Otero 1994, Antony and Hornstein 2003, McGilvray 2005, etc.), and enthusiasm has not been diminished by recent developments like the strangely inexplicit “Minimalist Program” or Chomsky’s eccentric saltationist speculations on the phylogenetic emergence of language (see Chomsky 2012 on both topics, and Behme 2014b for a ruthlessly critical review). The issues Chomsky raises still almost entirely dominate the philosophy of linguistics.

Regrettably, this keeps philosophical discussion focusing on linguistic and psycholinguistic approaches that are now a half-century old. For example, while attention continues to be lavished on questions about how creatures like us came to have brains perfectly adapted to learning languages, few philosophers (or linguists) consider the possibility that the right question is how natural languages adapt themselves so well to being learned by creatures like us (Kirby 2001).

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