

Linguistics, Psychology, and the Ontology of Language

Noam Chomsky's well-known claim that linguistics is a "branch of cognitive psychology" (Chomsky 1972, 1) has generated a great deal of dissent—not from linguists or psychologists, but from philosophers. Jerrold Katz, Scott Soames, Michael Devitt, and Kim Sterelny have presented a number of arguments, all intended to show that the Chomskian subfield hypothesis is incorrect—there is a significant distinction between the disciplines of linguistics and psychology.

On both sides of this debate, two distinct issues are often conflated: (1) the ontological status of language and (2) the evidential relation between psychology and linguistics. The ontological issue is, I will argue, not the relevant issue in the debate. The aforementioned philosophers have provided several reasons to think that the objects in the domain of linguistics—what linguistics studies—are not within the domain of psychology. If these arguments are sound, Chomsky is incorrect to think that the only object of study in linguistics is the I-language, which is "some element of the mind of the person who knows the language" (Chomsky 1986, 22).

Even if this Chomskian position on the ontology of language is false, linguistics may still be a subfield of psychology if the relevant evidence in linguistic theory construction is psychological. Two options are open to the philosopher who denies Chomskian conceptualism: linguistic nominalism or linguistic Platonism¹. The former

¹ These characterizations of the positions on the ontology of language are due to Katz (Katz 1981). There are two difficulties with using these terms: (1) They suggest that linguistics is analogous to mathematics, which begs the question in favor of Katz's position, on which linguistics is a formal science, and (2) There is only superficial similarity between Chomsky's position on psychological reality of language and the

position holds that syntactic, semantic, and phonological properties are primarily properties, not of mental representations, but rather of public language sentence tokens; The latter position holds that the linguistic properties are properties of public language sentence types. I will argue that both of these positions are compatible with Chomsky's claim that linguistics is a branch of psychology, and the arguments that have been given for nominalism and Platonism do not establish that linguistics and psychology are distinct disciplines.

In "Some Notes on What Linguistics is About," Jerry Fodor takes a similar approach to this debate. The question of whether to count a particular theory as part of linguistics rather than psychology or mathematics is, as Fodor notes, not really of interest. "The question what it is for a true theory to be linguistic is a *boring* question" (Fodor 1981, 198). The question at issue in this debate, the *interesting* question, is "what is it for a linguistic theory to be true." The answer to this latter question is a matter of what evidence confirms or disconfirms linguistic theories².

The Conceptualist Ontology of Linguistics: Chomsky

The source of the ontological/evidential conflation can be found the writings of Noam Chomsky. Chomsky makes a distinction between the I-language, the part of the brain of the competent speaker responsible for knowledge of language, and the E-language, an "externalized language" ...understood independently of the properties of the

picture of mathematical objects produced by intuition one finds in the works of mathematical conceptualists such as Brouwer.

² In particular, Fodor argues against the "Wrong View," according to which the only relevant evidence in linguistic theory construction is the intuitions of speakers. Further evidence that Fodor has the distinction between the evidential issue and the ontological issue in mind is his argument that the "Right View" is consistent with Katz's linguistic Platonism.

mind/brain” (Chomsky 1986, 20). It is far from clear what the E-language is. The E-language is *not* “essentially Platonic,” as Michael Devitt has claimed (Devitt unpublished, 18). This could not correct, given that Chomsky’s paradigmatic example of a theory based on the notion of an E-language is Bloomfieldian linguistic nominalism³.

The term E-language is intended to cover a variety of different notions of language. “We can define ‘E-language’ in one way or another or not at all, since the concept appears to play no role in the theory of language” (Chomsky 1986, 26). This characterization—or lack thereof—of “E-language” makes it quite hard to figure out what the target of Chomsky’s critique is supposed to be. Perhaps the best way of approaching E-language is to define E-language as any linguistic object is not part of the “I-language”—any notion of language outside of what is in the head. This may be the only way of understanding certain claims made by Chomsky; For example, he has written that “there is nothing in the world selected by such terms as ‘Chinese’ and ‘German’” (Chomsky 2000, 155). On this understanding, both the linguistic nominalist and the Platonist are committed to a view on which the E-language does play a significant role.

Chomsky writes as if the relevant issue in this debate is an ontological issue: the question is whether or not the E-language actually exists. The reason Chomsky denies the reality of the E-language is that such a notion is purportedly unnecessary in a well-developed linguistic theory. The objects in a theory are taken “to be real insofar as they enter into explanatory theories that provide insight and understanding” (Chomsky 1991, 5). This approach to the question of the reality of the E-language reflects Chomsky’s

³ Another indication that Chomsky does not think E-languages are essentially Platonic is his coining of a separate term intended to cover Platonic languages, “P-languages” (Chomsky 1986, 33).

commitment to a Quinean account of ontology. There is no need to quantify over E-languages in presenting a theory of linguistics—the only relevant objects in the theory are the I-languages. An exhaustive account can be given of the semantic, syntactic, and phonological properties of all languages qua properties of the I-language. The linguistic properties of the E-language are derivative from the properties of the I-language. In this sense, E-languages do not exist in the domain of the theory, because a discussion of E-languages would be redundant, not providing any “insight and understanding.”

Philosophers have criticized the claim that E-languages are theoretically superfluous, pointing out the possibility of divergence between the E-language and the I-language. It is important to note that the Chomskian claim is an empirical conjecture, to be proven or falsified by forthcoming psychological evidence. It is also a very strong claim in support of the thesis that linguistics is a subfield of psychology. I will label this claim the strong subfield thesis.

It should not be assumed, as some philosophers have, that it is necessary to claim that the E-language is theoretically superfluous in order to claim that linguistics is a subfield of psychology. Making this assumption would conflate the ontological issue and the evidential issue. Even if the E-language and I-language do diverge, there is still reason to claim that there is no distinction between these two fields if the relevant evidence in characterization of the E-language is psychological. I will label this claim the weak subfield thesis.

In other scientific fields, there are distinct domains that nonetheless are considered part of a single science. Consider the relationship between psychology and one of its other subfields, social psychology. The domain of psychology in general

includes the brain and the nervous system of humans and other animals, usually described at a fairly high level of abstraction. The domain of social psychology includes objects outside of this domain—factors regarding specific political systems and historical events, for example. Although the domains of psychology and social psychology differ in this respect, the latter is nevertheless a subfield of the former. Social psychology does not fulfill the requirements of a strong subfield thesis; However, it is very likely that the weak subfield thesis is true in this case. Evidence for psychological theories will certainly bear on theories in social psychology—consider the bearing of psychological evidence demonstrating that homosexuality has a neural basis on approaches to gender relations in social psychology. The burden of proof for a philosopher attempting to show that linguistics and psychology are distinct fields is to show that both the strong and weak subfield theses are false.

The Platonist Ontology of Linguistics: Katz

Jerrold Katz clearly states a position on which there is no distinction between the ontological and evidential issues—not only are linguistics and psychology concerned with different domains, psychological evidence does not bear on linguistics at all. According to Katz, “the nature of the objects which constitute the subject-matter of a science determines the nature of a science” (Katz 1996, 282). The natural science of biology has in its domain only concreta such as humans, frogs, cells, and the golgi apparatus. The formal science of geometry has in its domain abstracta such as squares, lines, and points. These differences in domain mark the distinction between formal sciences such as geometry and natural sciences such as biology. Katz claims that formal sciences, unlike natural sciences, are nonempirical.

According to Katz, the domain of linguistics consists of abstracta, not concreta. Linguists are concerned only with sentence and word types, not tokens. In several books and articles, Katz has presented an overwhelming number of arguments for this claim, too many to be considered in a paper of this size. The most recent argument for this claim, which Katz feels is the clearest and most convincing⁴, relies on a well-known fact about natural languages. If the effects of performance limitations are set aside, the rules of natural languages allow for the construction of infinitely many sentences. There are not infinitely many linguistic tokens, so linguistics must be concerned with types. Types are abstract objects, so linguistics is analogous to geometry, not biology—it is a formal science.

Katz contends further that, *pace* Chomsky, linguists cannot be concerned with psychological entities, given that mental states are physical objects, not abstract types. “Given the finiteness and discontinuity of matter, of brain matter in particular, there can’t be an infinity of mental/neural objects” (Katz 1996, 278). A difficulty quickly arises for this claim—the same line of reasoning could be used to argue that psychology is formal science. Thought is a productive capacity: idealizing away from performance factors, there are infinitely many possible thoughts⁵. A psychological nominalist could not account for this infinite number of thoughts, given that there are too few brain states to account for them, so psychologists must become Platonists. Psychology is a formal science, not a natural science, and there is indeed no difficulty for a Chomskian who

⁴ “...My earlier arguments did not make clear the striking fact that the inadequacy which Chomsky exploited to overthrow Bloomfieldian structuralism is also an inadequacy of Chomsky’s position” (Katz 1996, 272).

⁵ The word ‘thought’ is ambiguous—it is used to refer to the psychological states, and to the propositional objects of those psychological states. I am using the word in the former sense.

wishes to claim that linguistics is a subfield of psychology. Surely this line of reasoning regarding psychology leads to a reductio of Katz's initial argument for Platonist linguistics.

The mistake in Katz's reasoning is a failure to notice a shift in modal context. Claims regarding the infinite sentence of natural languages and the productivity of thought abstract away from the limitations of human minds in the actual world. In discussing the possibility of infinitely many sentences and thoughts, it is useful to see these appeals as descriptions of other possible worlds. Such descriptions need not commit us to an infinite ontology for language or thought within the actual world.

Katz argues against this line of reasoning, contending that unactualized possibles have to be construed as abstract objects. Katz cites Quine: "Certainly it is hopeless nonsense to talk thus of unrealized particulars and try to assemble them into classes" (Quine 1960, 34, cited in Katz 1996, 279). This acceptance of Quinean skepticism about modality is presented without argument by Katz; Katz overlooks a good deal of more recent work. In particular, utilizing the approach to necessity developed by Saul Kripke, there is a framework for understanding how talk of infinitely possible sentences and thoughts could be true without carrying any ontological commitment whatsoever. Katz's argument, based on an illegitimate appeal to types, does not succeed in distinguishing psychology from linguistics.

Even if Katz's argument had succeeded in establishing that linguists are concerned with types, not tokens, it is far from clear that this would establish that linguistics is a nonempirical science. It is not clear that having abstracta in the domain of a science is enough to make a science formal and nonempirical. Physics may have to

appeal to abstracta in order to explain certain phenomena, but surely physics is nonetheless a natural, empirical science. Katz also does not have a clear response to Quine's claim that "the abstract entities which are the subject of mathematics" are posits on the same footing as those in other sciences, subject to revision if necessary (Quine 1953, 45). If this Quinean claim is correct, even those sciences whose domains consist entirely of abstracta are empirical.

As Jerry Fodor points out, there is in fact no incompatibility between linguistic Platonism and the dependence of linguistics upon psychological evidence. "Indeed, a reasonable Platonist might want to endorse [representation of grammars]," in order to have some explanation of linguistic intuitions (Fodor 1981, 205); A representational theory will reveal which Platonist grammar is the grammar represented by human language users. The real interest, Fodor contends, is not in the assimilation of linguistics to the formal sciences, but seeing which linguistic theory is true of the speakers of a language.

Conceptual Distinctness: Soames

Scott Soames contents, as Katz does, that psychology and linguistics are concerned with distinct domains of objects, but unlike Katz, Soames does not base the distinction between the domains on the difference between abstracta and concreta. Soames is also a linguistic Platonist, but his arguments do not rely on this position on the ontology of language⁶.

⁶ In a reply to Katz and Postal (1991), Soames claims that his Platonism is consistent with considering linguistics an empirical science: "I don't think the refutation of Chomsky's 'Conceptualism' depends on [linguistic Platonism]; nor do I think characterizing languages in that way requires one to view linguistics as non-empirical" (Soames 1991, 580).

Soames argues that the fields of linguistics and psychology are conceptually distinct. Conceptual distinctness is defined as follows: “the are concerned with different domains, make different claims, and are established by different means” (Soames 1984, 155). This definition is a clear example of conflation of the ontological and the evidential issues; It is an ontological claim that the domains of linguistics and psychology are distinct; It is an evidential claim that evidence in favor of psychological theories does not bear (directly) on linguistic theories.

Soames attempts to establish the conceptual distinctness of these fields by showing that the linguist and the psychologist are concerned with two different sets of questions. The questions that concern the linguist are the “leading questions.” These leading questions concern linguistic properties that individuate languages:

the linguistically significant properties... grammaticality, ambiguity, synonymy, entailment, analyticity, contradiction, and so on. These properties and relations are characteristics which define languages and serve to identify and distinguish them (ibid., 159).

Such properties are, according to Soames, the concern of linguistics proper, not psychology.

As noted above, Chomsky would contend that these properties are primarily properties of the I-language. If this claim is correct, there is no reason to think that a purely psychological answer to the leading questions cannot be given. In a response to this Chomskian hypothesis, Soames claims that there are two different sets of facts involved—for example, facts regarding grammaticality in linguistics, and facts regarding judgments of grammaticality in psycholinguistics. An exhaustive psychological account

can be given of the latter but not the former. In distinguishing these sets of facts, Soames is just arguing from his own position. The important question is whether a representation of syntactic properties is involved in speakers' judgments of grammaticality. If this is so, then a wholly psychological theory can provide a complete characterization of both grammaticality and judgments of grammaticality. Soames responds by claiming that this representational thesis is unlikely—"no theorist would assume in advance that things would turn out this way" (ibid, 169).

In support of this rejection of the representational thesis, Soames offers an analogy between linguistics and mathematics. There are a number of different axiomatizations of mathematics, all producing the same elementary number theory. There is no need for a mathematician to suppose any of these axiomatizations must be represented in the minds of the arithmetically competent. Such a representational thesis would be implausible given the complexity of the axiomatizations. In the case of linguistics, there are a number of different grammars, each of which provides identical accounts of the "linguistically significant properties." There is no need for the linguist to concern herself with the question of which of these grammars, if any at all, is represented in the minds of the linguistically competent. Simpler, more general grammars involve the need for a great deal of memory storage and computation—"economies in grammatical principles will be pursued regardless of computational costs" (ibid., 170). The complexity of such grammars is, for Soames, the source of the implausibility of the representational thesis.

The complexity argument provides reason to think that the strong subfield thesis is false—the domain of linguistics diverges from that of psychology, because linguistic

properties cannot be explained entirely in terms of the properties of the I-language. Is there good reason to accept the complexity argument? Would psychologists accept, as a general principle, the claim that limitations in memory storage and computational capacity make Chomskian computational theories unlikely? It is very common in one well-developed subfield of psychology, the study of vision, to posit highly complex mechanisms in order to explain certain facts. The research program that began with the work of David Marr has been highly successful explaining phenomena such as the derivation of structure from objects in motion. Explanations of these phenomena involve the claim that visual input modules carry out fairly complex computations on visual representations. If one could not claim in general that fairly complex computation is involved in psychological processing, such a research program must be rejected. Soames' complexity argument is not at all convincing.

As noted above, anyone seeking to distinguish linguistics from psychology must deny both the strong and weak subfield thesis. Soames' unsuccessful arguments against the representational thesis do not provide reasons to deny the weak subfield thesis. Soames has a separate argument against the evidential dependence of linguistics upon psychology. Soames contends that evidence that does not provide answers to the leading questions only plays an indirect role as evidence for linguistic theories. At some points, Soames writes as if psychological evidence plays no role whatsoever: "There is a theoretically sound... conception of linguistics...considered in abstraction from the cognitive mechanisms" (ibid., 157). At other points, Soames makes the evidential relation clearer: "the relevance of such psycholinguistic data to theories in linguistics is limited to this indirect [evidential] role" (ibid., 160).

Does psycholinguistic data play such a limited role? In his paper “Is Linguistics a Branch of Psychology,” Stephen Laurence notes several examples of psycholinguistic data that does play a direct evidential role. In particular, experiments by Fodor, Bever, and Garrett demonstrated how a certain aspect of the grammar, phrasal boundaries, are to be assigned to sentences. Errors resulting from the placement of click sounds revealed the location of constituent breaks: “There was a significantly greater error for location of clicks not objectively placed at the major boundary than for those which objectively occurred at the boundary” (Fodor, Bever, and Garrett 1974, 252). As Laurence points out, these experiments have a clear explanation in the Chomskian theory: “Such data can be made sense of on the assumption that the internalized grammar is one that assigns phrasal boundaries in a way consistent with data from these experiments” (Laurence unpublished, 5).

The click experiment presents a dilemma for Soames. Soames must either accept that psycholinguistic evidence does bear directly on linguistic theory, or deny that phrasal boundaries are truly an aspect of the grammar. The latter position is simply false—Soames would have to hold that all of the various grammars that produce the same results regarding “linguistically significant properties” such as grammaticality are equivalent. A difference in phrasal boundaries is certainly a difference in the grammar—any grammar that located the boundaries at different locations is a different grammar. If Fodor, Bever, and Garrett had discovered that errors resulted from placement of clicks at locations that were not previously thought to be major structure boundaries, a revision of the linguistic theory would be required. Soames also has not provided a clear reason to reject the weak subfield thesis—psychological evidence does bear directly on linguistic theories.

The Nominalist Ontology of Language: Devitt and Sterelny

Michael Devitt and Kim Sterelny offer a nominalist position—the linguist is concerned with the semantic, syntactic, and phonological properties of tokens, “datable, placeable, parts of the physical world” in the language, not Platonic abstract types (ibid, 515). Devitt and Sterelny contend that the prevailing Chomskian views on the relationship between linguistics and psychology rest on a conflation. “The transformational linguists conflate two distinct theoretical tasks: one concerned with linguistic symbols and the other concerned with linguistic competence” (Devitt and Sterelny 1989, 499). The linguistic symbols are the output of the competence, the competence itself is a psychological process that leads to those outputs.

On the interpretation of the term “E-language” offered above, Devitt and Sterelny are claiming that there is a theoretical interest in study of the E-language. Not only is this a proper object of study, *pace* Chomsky; The study of the properties of public language tokens is prior to the study of competence in a language. We cannot construct a psycholinguistic theory without first constructing the separate theory of linguistics proper. In order to understand the competence involved in language use, we must first understand what the syntactic, semantic, and phonological properties of the outputs are.

The contention that the study of properties of the output of the competence is prior to the study of the competence is a position that shares a problem with Soames’s. Namely, if one must characterize the outputs of a competence first, psycholinguistic data concerning the competence cannot bear directly on the characterization of the outputs. This is simply not true—as noted above, the Fodor, Bever, and Garrett click experiments use psychological evidence regarding competence in order to establish claims about the

nature of the output of the competence. In this case, the study of the competence is prior to the study of the outputs of the competence.

The claim that outputs are prior to competence is an evidential claim, and one that is false. To deny that Devitt and Sterelny have the correct view of the evidential relation is not to deny that their ontological position could be correct. One could still hold that phrasal boundaries, among other linguistic properties, are properties of tokens of the language, although the evidence that reveals the nature of properties such as phrasal boundaries is psychological. Even if linguistic nominalism is true, as Devitt and Sterelny contend, the weak subfield thesis can also be true, and linguistics ought still to be considered a subfield of psychology.

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