

AN OUTLINE OF PLATONIST GRAMMAR¹

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I want to raise and answer a question that it will appear strange to be asking in the first place and whose answer will seem obvious to almost everyone. The question is, *What is a grammar, a scientific theory of a natural language, a theory of?*

The considerable progress in formal grammar that has taken place in linguistics over the last three decades makes it seem strange to be asking what a grammar is a theory of. We couldn't, it is felt, have gotten all this far without knowing what we were doing. This is true in some sense of "know," but the real question concerns our explicit knowledge of what we were doing it to. It is not uncommon in science for theories to develop rapidly while the understanding of their foundations remains at a standstill. Quine once observed that "Ancient astronomers knew the movements of the planets remarkably well without knowing what sorts of things the planets were." He added that, although such a situation is not untenable, "it is a theoretically unsatisfactory situation."²

The answer to the question will seem obvious to the vast majority of linguists, philosophers of language, psycholinguists, and computer scientists familiar with the Chomskyan revolution. The seemingly obvious answer is that a grammar is a theory of something psychological. There are disagreements about what kind of psychological theory a grammar is, but almost everyone agrees that it is some kind of psychological theory. But, despite its seeming obviousness, this answer is mistaken. In this paper I will try to show why, and present the answer I think correct.

All scientific concepts that have significantly shaped their field seem obvious for some time after. It is well to recall that this is even true of concepts that are then superseded. Einstein once wrote:

Concepts that have proved useful for ordering things easily assume so great an authority over us that we forget their terrestrial origin and accept them as unalterable facts. They then become labelled as "conceptual necessities." The road of scientific progress is frequently blocked for long periods by such errors. It is therefore not just an idle game to exercise our ability to analyse familiar concepts, and to demonstrate the conditions on which their justification and usefulness depend.³

The concept of grammars as psychological theories had a central place in the thinking that brought about the Chomskyan revolution in linguistics. This concept was an enormous improvement over American structuralism's concept of grammars as theories of disturbances in the air produced in speaking. Chomsky demonstrated that the psychologicistic concept has impressive advantages over its predecessor in leading to more comprehensive, abstract, and precise theories of natural languages. After the revolution, as the psychological concept of grammars was handed down to new generations of linguists, this once revolutionary doctrine attained the obviousness of orthodoxy.

The absence of an alternative to the psychological concept was another significant factor responsible for its seeming obvious. The discredited structuralist concept could hardly be expected to make a comeback so soon after being overthrown, and no other concept of what grammars are theories of was available. But the absence of an alternative to the concept of grammars as psychological theories was only a matter of historical accident. Logically, an alternative concept of what grammars are theories of, one that does not take the discredited position of American structuralism, was always around. On this concept, grammars are theories of the structure of sentences, conceived of as abstract objects in the way that Platonists in the philosophy of mathematics conceive of numbers. Sentences, on this view, are not taken to be located here or there in physical space like sound waves or deposits of ink, and they are not taken to occur either at one time or another or in one subjectivity or another in the manner of mental events and states. Rather, sentences are taken to be abstract and objective. They are entities whose structure we discover by intuition and reason, not by perception and induction.

Given the possibility of a Platonist position, the situation at this point is as follows. Chomsky's choice of a psychological concept with which to replace the physical concept of the structuralists may have been the only reasonable choice in the circumstances, but there is nothing necessary about this choice. Platonism exists as a real, if undeveloped, alternative. Whatever defects Platonism may have, they are surely not those that made the structuralist's concept of grammars subject to Chomsky's criticisms. The structuralist concept of grammars as theories of sound waves and marks represents grammars as insufficiently abstract to account adequately for the grammatical properties and relations of sentences in natural languages.⁴ Since the Platonist concept allows grammars a maximum of abstractness, Platonism cannot be faulted on the same

grounds as the structuralist concept. New and independent reasons have to be found if Chomsky's choice of a psychological concept is to be justified.

While Chomsky launched his attack on American structuralism and developed his new theory of generative grammar with its psychological ontology, he showed no sign of recognizing the necessity for such further justification. Recently, however, under the prompting of Montague grammarians,⁵ Chomsky⁶ has presented an argument against the possibility of Platonist alternative. He claims that a theory of universal grammar in such a purely mathematical sense – one that “attempts to capture those properties of language that are logically or conceptually necessary” – is merely “an inquiry into the concept ‘language’,” and that such an enterprise is “unlikely to prove more interesting than an inquiry into the concept ‘vision’ or ‘locomotion’.”⁷

Is this argument good enough to provide a reason for rejecting not specifically the approach of Montague grammarians but any approach on which linguistics is a branch of mathematics? The argument has a defect that makes it useless against Platonism generally: there is no reason to restrict the Platonist approach to the study of the concept “language” in Chomsky's narrow sense. There are *two notions* of “concept of.” On the one that figures in Chomsky's formulation of the Platonist position, “concept of” means “lexical definition of.” Thus, the concept of “vision” is something like “the power to form mental images of objects of sight,” and the concept of “locomotion” is something like “movement from place to place.” On this sense of “concept of,” what Chomsky says about the triviality of the view that linguistics is realist mathematics is certainly true, but use of this sense of “concept of” in his formulation of the Platonist position is surely unfair, because Platonists would not use it in their formulation. On its other sense, which is the one that I, and I expect other Platonists, would use in the formulation of the Platonist position, “concept of” means “concept of the nature of the thing itself.”⁸ Here one is referring to the thing rather than the meaning of the word that names it. An inquiry into the concept of vision, locomotion, number, language, or natural language in *this* sense is no trivial matter of everyday lexicography, but a highly interesting theoretical enterprise. Granted that, on the Platonist view, the enterprise will not be empirical, still – judging just on intellectual interest, which is the basis of Chomsky's argument – this ought not matter in the slightest. Pure mathematics is surely not devoid of intellectual interest. The interest of an inquiry into the structure of the sentences of a language and into the invariants

of all languages comes from the richness of structure revealed by the principles that account for the structure of the sentences, in the one case, and the invariants in the other. Chomsky's arguments, although successful against the Platonist position he sets up, fail against real Platonism.

A recent set of criticisms of Platonism by Fodor elaborates on this theme of Chomsky's that Platonism is uninteresting. Fodor writes: "The only thing against Platonism, so construed, is that, deep down, nobody is remotely interested in it."⁹ On one way of taking Fodor's remarks, he is simply saying: "Go ahead, be a Platonist if you like. But the action is all at the other end of the town."¹⁰

If this is the claim, the reply is straightforward. The issue of what a grammar is a theory of, or what linguistics is about, does not turn on what Fodor or anyone else thinks is interesting. It turns on the ontological status of languages. Even if everyone were to share Fodor's relish for the science of psychology and exhibit the same disinterest in the question of whether linguistics is mathematics or psychology, this would not make the question itself any the less a question, any the less interesting inherently, or any the less linguistically or philosophically important. Disinterest in mathematics itself coupled with a widespread craze for the psychology of human mathematical ability would have not the slightest bearing on the issue of what mathematical theories are theories of, or what mathematics is about, or whether Gödel's Platonism is important.

There is, however, another way of taking Fodor's remarks. This way results from the manner in which he construes Platonism. On this way, he is quite right about nobody being interested, and would have been right had he gone further to claim that nobody ought to be. But the Platonism that he is right about is only Platonism-as-Fodor-construes-it, which has no serious relation to Platonism as actually held.

Fodor's misconstrual of Platonism begins when he says that the position I call Platonism is unassailable in the unflattering sense that it says that anything goes in linguistics. He writes: "What [Katz] thinks is that linguistics is part of mathematics, and (I suppose) in mathematics you can stipulate whenever you are so inclined."¹¹ This is, in the first place, a bizarre view of mathematics. Try stipulating your way out of trouble when you are caught dividing by zero or stipulating your way into a complete and consistent formalization of arithmetic.

It is also a bizarre view of the philosophy of mathematics. While it may be that Wittgenstein¹² and the logical empiricists hold something like the view of mathematics that Fodor has in mind, Plato-

nists don't. Ascribing this view to Platonists is like ascribing the verifiability principle to metaphysicians. Those in the philosophy of mathematics who advanced this conventionalist view introduced stipulation in the hope of thereby obviating the Platonist view. Platonists in the philosophy of mathematics have no need for stipulation in their account of the nature of mathematics, since they hold that numbers and systems of numbers are part of what is real and that mathematical truth is correspondence between mathematical statements and these abstract objects. Platonists in the philosophy of linguistics likewise have no need for stipulation, since they hold that sentences and systems of sentences (languages) are part of what is real and that truth in linguistics is correspondence between linguistic statements and these abstract objects. On the Platonist account, mathematicians and linguists neither invent such objects, nor stipulate truths about them; mathematicians and linguists merely discover and describe them.

Fodor says

there is no particular reason why, in choosing a domain for his theory, the Platonist needs to attend to those of the speaker/hearer's capacities that are left when you eliminate contamination from memory limitations and the like. In principle, he might just as well attend to the construction of grammars that predict only intuitions about sentences with more than seven vowels, or sentences whose twelfth word is "grandmother," or sentences that happen to be uttered on Tuesday. Once you start to stipulate, it's Liberty Hall.¹³

Fodor *assumes* that there is some compelling reason why linguists ought to give their professional attention to competence and that it is to the discredit of Platonism that it does not endorse this reason. But this assumption is just what is at issue! Platonists in linguistics deny that such a reason exists – just as Platonists in mathematics deny that mathematicians ought to give their professional attention to human arithmetic capacities. Platonists contend that grammars are theories of abstract objects (sentences, languages). Hence, the implication that it is to the discredit of Platonists that they do not endorse the view that the linguist *qua* linguist ought to pay special attention to the "speaker-hearer's capacities" begs the question. It can no more be to the discredit of Platonism that it doesn't pay attention to psychological capacities than it can be to the discredit of Fodor's psychologism that it doesn't pay attention to abstract objects.

These remarks of Fodor's also confuse the issue with respect to the question of what Platonists take as the framework for linguistic research. Fodor equates Platonism with absolute freedom of choice

in what can be studied in linguistics, which is almost true, but he suggests that adopting Platonism will inaugurate an era of licentiousness in linguistics, which is false. First, since Platonists constrain the choice of what can be studied in linguistics only in the minimal way that they constrain the choice of what can be studied in mathematics, any possible language *may* be taken as an object of study in linguistics, just as any possible system of numbers *may* be taken as an object of study in mathematics. This rules out the counterparts of systems with division by zero but leaves quite a lot. This seems to be a worrying prospect for some, but it is not clear why. It does not impose any priority on what is studied when or any restriction on how much. It does not preclude the linguist from emphasizing the study of natural languages any more than it has precluded mathematicians from emphasizing the study of natural numbers. Moreover, given that things that look at one time to be not worth study often turn out to be highly important in unexpected ways, one would have thought that freedom of the kind Platonism offers is a virtue rather than a vice. Thus, Fodor's idea that there is benefit in limiting the linguist's freedom of inquiry has little to recommend it to those who are not already convinced that linguistics is a psychological science.

Second, Fodor's insistence on restricting the domain of linguistics to a psychological reality is, in fact, insistence on a policy whose acceptance would, depending on contingent and presently unforeseeable circumstances, *commit* linguists to just the absurd grammars (e.g., ones with sentences whose twelfth word is "grandmother") that Platonism merely *allows*. For, since it's an empirical question, it could turn out that the mental or neural structures responsible for the "speaker-hearer's capacities" instantiate grammatical principles that do indeed introduce "grandmother" into the deep structure of every English sentence (deleting it at various derived syntactic levels). As I shall argue in more detail below, this is merely one of an indefinitely large number of absurd possibilities – some of which are not farfetched at all – that linguists let themselves in for in adopting the view that grammars are psychological theories.

The irony is that Fodor should raise the spectre of such absurd grammars when it is *his* position that is haunted by the prospect of embracing them. If the human mind or brain turns out to contain such absurd grammatical structures, Fodor's doctrine about the subject matter of linguistics would force linguists to adopt absurd grammars, and hence it would be Fodor's position that deserves the blame. If the doctrine that linguistics is psychology would saddle linguistics with absurd grammars in a myriad of contingent cases, it

ought to be regarded as far less attractive, other things being equal, than a doctrine that runs no such risks.

It should also be mentioned that Fodor is wrong in suggesting that only his view “defines the goals of linguistics *ex post facto*, in the light of the theories now in the field.” Platonism, too, does this. Theories can be viewed, within the Platonist framework, as explications in the sense of Chomsky:¹⁴ grammars projected from early intuitions are revisable in the light of later intuitions and canons of theory construction; goals are refined, added, and dropped in the process.¹⁵

It must now be clear that Fodor’s claim that “the right view [Fodor’s euphemism for his own view] is the right view *so far as we can now make out*”¹⁶ is supported solely by arguments that either assume Fodor’s view or replace Platonism with Platonism-as-Fodor-construes-it.

One final point. Consider Fodor’s comment on the prospect of present (he supposes) psychologically inspired attempts to construct grammars turning out to have been totally on the wrong track:

In that case, there will be a residual philosophical question whether we ought to say that linguistics was misconstrued by the Right View or that there is no such science as linguistics. I, for one, won’t much care.¹⁷

The “residual philosophical question” that arises in the event of a theoretical disaster is a facet of the perennial question at issue between conceptualists and Platonists from at least the time of Plato. The question of the ontological status of theories in linguistics is merely a special case of the classical philosophical question.¹⁸ For Platonism is an existential claim: it asserts that there are abstract objects. Hence, until the case of linguistics is settled, the classical philosophical question cannot be decided against Platonism. Fodor’s “I, for one, won’t much care.” is the declaration of a philosopher who has hung around psychologists so long that he’s gone native.

Chomsky also has taken the position that a Platonist linguistics is not a study of anything. This is because, as he puts it, “‘language’ is no well-defined concept of linguistic science.”¹⁹ Chomsky’s grounds for this position are that no clear principles have yet been formulated to distinguish languages from one another. But this is no support for his claim about Platonist linguistics. The absence of clear principles distinguishing virtue and vice is not grounds for abandoning ethics, but only reason to make more of an effort to define such principles. Indeed, in the case of conceptualist linguistics, there are no clear principles to distinguish linguistically rele-

vant mental states from linguistically irrelevant ones. This, however, does not lead Chomsky to say that conceptualist linguistics is not about anything. Surely, Chomsky would take the position that specifying the linguistically relevant states (competence) is not something we can expect to have handed to us at the outset, but something that our inquiry aims at achieving in the long run. But, then, the same thing can be said about specifying languages.

The arguments of conceptualists against Platonism in linguistics have little force. If Platonism in its turn can mount a successful argument against the psychological concept of grammars, then, coupling this argument with Chomsky's argument against the structuralist concept, we obtain a strong case for the Platonist view that grammars are theories of abstract objects. The reason is that nominalism, conceptualism, and Platonism exhaust the ontological possibilities. One can take the objects of a theory to be concrete, physical particulars, as the nominalist does, or take them to be psychological, mental, or biological particulars, as the conceptualist does, or deny they are particulars at all and take them to be atemporal, aspatial objective entities, as the Platonist does.

We might dwell for a moment on the special interest of our question for the disciplines concerned: linguistics, philosophy, psychology, and computer science. In linguistics, the question "What is a grammar a theory of?" is pivotal. Any answer to this question is also an answer to others:

"What is linguistic theory a theory of?"

"What kind of science is linguistics?"

"What is a natural language?"

"What sort of object is a sentence?"

"What is the object of study in linguistics, and what are proper methods for studying it?"

If it can be shown that theories of natural languages are about abstract objects, then linguistic theory, being about natural languages collectively, is also about abstract objects, linguistics is a mathematical science, and its objects of study, sentences, are abstract objects.

Even practically minded linguists will have to face the fact that ontological questions are relevant to decisions they have to make between grammars and linguistic theories. I give two examples of how the ontological issue bears on the concerns of a working linguist. The first illustration comes from the controversy between Chomsky²⁰ and Postal²¹ over whether Chomsky's Extended Standard Theory or Postal's version of Generative Semantics is "the best theory." The controversy is slightly dated, since Chomsky has

moved on to his Revised Extended Standard Theory and Postal to his and Johnson's Arc-Pair Grammar, but it is a well-known controversy and the underlying issues are anything but resolved.

Postal has argued that Generative Semantics, at least in his version, is the best theory because, in stating grammatical rules in the form of derivational constraints, it provides a completely "homogeneous" statement of them. Postal argued that a more homogeneous grammar is preferable on standard methodological grounds in science (Occam's razor) because, in requiring less apparatus to explain the same facts, it is a more parsimonious account. Chomsky replied that Postal might be right if the issue were as simple as Postal assumes. But Chomsky argued that the issue is not merely a matter of parsimony. Chomsky saw the issue as going beyond the question of whether a linguistic theory makes descriptively adequate grammars available for each language. From Chomsky's viewpoint, the issue also encompasses the question of selecting descriptively adequate grammars on the basis of primary linguistic data. Given that a linguistic theory concerns how a speaker acquires grammatical competence, Chomsky is correct in claiming that

the matter is considerably more complex. Given two theories T and T' , we will be concerned not merely with their simplicity or homogeneity, but also with their *restrictiveness*. If T and T' both meet the condition of descriptive adequacy but T permits only a proper subset of the grammars permitted by T' , then we may well prefer T to T' even if it is more complex, less homogeneous. Postal regards it as obvious that we would prefer T' to T in this case, but this conclusion is plainly false in general, if our concern extends to explanatory adequacy.²²

This is a big "if." Linguistic theory concerns questions of explanatory adequacy in Chomsky's technical sense only if Chomsky is correct that a linguistic theory is a psychological theory about the initial competence of a human language learner. Only then is restrictiveness relevant. Faced with the fact that a child learns an extremely complex and abstract system of rules rapidly, under difficult stimulus conditions and with little variation with respect to intelligence, it seems plausible, other things being equal, to prefer the theory that represents the child's choice as a selection from the narrowest set of possible grammars. Such a maximally restrictive theory best fits the facts of language acquisition as we know them. But if Chomsky's assumption about the psychological character of linguistic theory is incorrect, Chomsky's reply to Postal collapses.

Here is where Platonism bears directly on the concerns of the working linguist: it denies that linguistic theory is a psychological

theory of the competence underlying human language learning. On the Platonist view, linguistic theory is no more than a theory of the common structure of the sentences in all natural languages,²³ and so an argument that we ought to severely restrict the class of grammars from which the child selects would belong to psychology rather than linguistics. Therefore, if Platonism can be shown to be preferable to conceptualism, Chomsky cannot claim that the issue between Postal and himself goes beyond the question of whether linguistic theory makes descriptively adequate grammars available for each language. Thus, even on Chomsky's account on the matter, Postal is right in preferring the most homogeneous theory. In short, Postal can exploit Platonism to claim that, although Chomsky's more restrictive theory may be better psychology, his less restrictive but more parsimonious theory is better linguistics.

The second illustration of the relevance of the ontological issue to the working linguist is up to date. Langendoen and Postal²⁴ have recently argued that, if Platonism offers the best answer to what a grammar is a theory of, then every theory of grammar in which grammars have the form of constructive systems is wrong.

Langendoen and Postal argue that, ontological considerations to one side, there is no basis for imposing any size constraint on the sentences of natural languages and, as a consequence, the existence in natural languages of unbounded coordination subject to a natural closure principle entails that their sentences are more numerous than countable infinity. The argument against imposing any size constraint is a generalization of an argument showing that the sentences of a natural language cannot form a finite set as some linguists once claimed in connection with, for example, *very* long sentences and multiple center-embedded sentences.²⁵ The argument was that, for any upper limit on sentence length, there are strings exceeding the limit whose syntactic structure is exactly the same as strings that do not exceed the upper limit and these longer strings must *ipso facto* count as grammatical, since grammaticality is a matter of well-formed syntactic structure. No finite number of morphemes can determine that a string is too long to be a grammatical sentence. Langendoen and Postal generalize this argument by showing that nothing changes when the issue changes to strings of *any* size that exemplify a well-formed syntactic structure.

A linguist who wishes to resist Langendoen and Postal's argument might try to show that considerations outside of pure grammatical theory provide a basis for drawing the line to exclude non-finite sentences. Here the appeal might either be to nominalist scruples or to conceptualist ones. That is, either it is claimed that non-finite

strings can't be grammatical sentences because they cannot be realized physically or because they cannot be generated even by the ideal speaker-hearer. But if Platonism can be shown to provide a better account of what grammars are theories of than either nominalism or conceptualism, then neither of these responses to Langendoen and Postal's argument is possible, and their conclusion about the non-constructiveness of grammars seems to go through.

The interest of our question for philosophers is straightforward. The realist's claim that there are abstract objects is the existential claim that there is at least one special science whose theories are about such objects. Thus, if it can be shown, as I shall argue here, that theories in the special science of linguistics are theories about abstract objects, then – given standard views of ontological commitment – quantifying over abstract objects in the pursuit of true theories in linguistics *ipso facto* commits one to the existence of such objects. Therefore, our question about grammars is relevant to the traditional philosophical controversy about universals: an answer showing that grammars are theories about abstract objects provides a basis for Platonic realism in ontology.

The interest of our question for psychologists and AI scientists has to do with the desirability of a clear-cut division of labor among the several disciplines that in one way or another concern themselves with language. I think many unfortunate quarrels are a consequence of confusion about where the line should be drawn between linguistics and cognitive science. I also think that this confusion exists largely because of a widespread acceptance of the view that linguistics is a branch of psychology. If, as the Platonist view of linguistics claims, linguistics is rather a branch of mathematics, as different from the psychology of language as number theory is from the psychology of arithmetic reasoning, there is a clear boundary between linguistics and psychology that, one may reasonably expect, will provide as clear-cut a division of labor here as exists between mathematics and the psychology of mathematical reasoning.

Let me illustrate how a conception of linguistics as psychology gives rise to such boundary problems. Given this conception, the only thing to separate the linguist's task from that of psychological scientists is the distinction between competence and performance. But competence, as Chomsky has stressed, is a component of performance; it is the knowledge of the language applied in the use of language. "A theory of performance (production or perception), Chomsky writes, "will have to incorporate the theory of competence – the generative grammar of a language – as an essential

part.”²⁶ But, as psychologists and computer scientists have observed, it has hardly been proved beyond all reasonable doubt that the performance system underlying production and comprehension operates on linguistic knowledge *in the form it takes in grammars written in linguistics*. It might even be, as some claim, that no component in the performance system is modeled by standard transformational grammars. This is the line taken by Winograd²⁷ and by Wanner and Maratsos.²⁸ Dresher and Hornstein²⁹ accept the terms of the argument but respond that all that has been shown is that one account of the performance system is not constructed to incorporate the theory of transformational English syntax. Both sides have enough of a point to keep the disputes going.³⁰ The anti-transformationalist side can press their point by claiming that the account in question is not just any account but the best account of the processing underlying production and comprehension. The transformational side can press theirs by producing internal evidence from grammatical intuitions to support the theory of transformational English syntax. Considering the strength of the evidence on each side, how different in nature such evidence is, how committed each side is to its position, and how much weight each side puts on its own evidence, this controversy promises to go on interminably.

But why accept the terms of the argument? That is, why accept that grammars in linguistics, written as theories to explain evidence about the grammatical structure of sentences, are theories of the knowledge that underlies the speaker's use of the language? The only reason is that conceptualism says grammars are psychological theories. Thus, if Platonism is right in positing that grammars are not psychological theories, the two sides on this issue have been talking at cross purposes. Each side can be right and the issue dissolves. Therefore, for psychology, AI, and the related cognitive sciences, the question of what a grammar is a theory of is important because its answer can resolve troublesome issues about where the linguist's work ends and the cognitive scientist's begins. A Platonist answer to this question would clearly divide linguistics and cognitive sciences so that the wasteful and unnecessary quarrels of the past can be put behind us.³¹

The major developments in linguistics over the last thirty or forty years have been concerned in large part with the question of what a grammar is a theory of. The most significant event of this period, the Chomskyan revolution, was basically a new answer to this question. The dominant view before this revolution was American structuralism. Under the influence of a neopositivist picture of

science, it espoused a straightforward form of nominalism for linguistics.³² The idea, as Bloomfield stresses in many places, is that a grammar is a theory of the physical disturbances in the air resulting from articulatory movements (secondarily, deposits of graphite, ink, etc.). Bloomfield wrote in one place, "Non-linguists (unless they happen to be physicalists) constantly forget that a speaker is making noise, and credit him, instead, with the possession of impalpable 'ideas.' It remains for linguists to show, in detail, that the speaker has no 'ideas' and that the noise is sufficient."³³ Linguists collect recordings or descriptions of such acoustic phenomena and classify distributional regularities in them. Taxonomic grammar was the structuralist theory of the proper type of classification of such regularities. The theory imposed constraints on grammatical description to ensure that there would be no backsliding into mentalistic concepts or other concepts not reducible to constructions out of a material corpus.

The main thrust and most important consequence of Chomsky's revolution was to replace this nominalist scheme for interpreting grammars with a conceptualist scheme based on the idea that grammars are theories of competence – the idealized speaker-hearer's knowledge of the language. Chomsky's idea that grammars are theories of competence makes the object of study in grammar an idealized mental state; hence the nominalist view of the structuralists was replaced with the conceptualist view that grammars are psychological theories.

Popular culture has it that the Chomskyan revolution introduced transformational grammar into linguistics. However, although Chomsky convinced linguists of its superiority over phrase structure grammar, transformational grammar was invented by Zellig Harris³⁴ well before the Chomskyan revolution. Chomsky himself made this clear in his first paper on the transformational approach to syntax. He states that this approach

developed directly out of the attempts of Z. S. Harris to extend methods of linguistic analysis to the analysis of the structure of discourse. This research brought to light a serious inadequacy of modern linguistic theory, namely, its inability to account for such systematic relations between sentences as the active-passive relation. There had been no attempt in modern linguistics to reconstruct more precisely this chapter of traditional grammar, partly, perhaps, because it was thought that these relations were of a purely semantic character, hence outside the concern of formal, structural linguistics. This view was challenged by Harris, who has since devoted a good deal of research to showing that distributional methods of linguistic analysis can be broadened and developed in such a way as to include, in a rather natural manner, the study of formal rela-

tions between sentences, and that this extension yields much additional insight into linguistic structure.³⁵

Transformational rules, on Harris's version of the theory, were a way of describing distributional regularities at the sentence level. Harris wrote:

Given a number of sentences in a kernel form, which have among them a particular acceptability ordering or differentiation..., all successions of transformations which are permitted, by the definition of their argument will produce sentences to preserve the same acceptability ordering.... If a sequence of words is not decomposable by transformation into one or more kernel sentences ... then that sequence is ungrammatical. If it is so decomposable, then it has a certain kind and degree of acceptability as a sentence, which is some kind of reasonable sum of the acceptabilities of the component kernel sentences and the acceptability effects of the transformations that figure in the decomposition.³⁶

The nominalist interpretation of transformational theory as an account of the distribution regularities that determine acceptability orderings greatly restricts the degree of abstractness with which grammatical transformations can be stated. Chomsky showed how Harris's transformational theory could be significantly improved if the formal theory of transformational structure is stripped of its nominalist interpretation and refitted with a conceptualist interpretation on which the theory represents the internalized tacit principles constituting a speaker's competence. By separating transformational theory from its nominalistic interpretation, Chomsky could make the theory abstract enough to overcome a wide range of explanatory problems that are essentially unsolvable within the structuralist framework.³⁷

Except for the differences due to its generative form, Chomsky's early transformational theory is essentially the same mathematical theory of sentence structure as Harris's, only under a radically different ontological interpretation. Thus, the comparison of Harris's transformational theory with Chomsky's is of special interest here because it can give us a picture of how a formal mathematical theory of grammatical structure can be stripped of one ontological interpretation and refitted with another without its account of grammatical structure undergoing fundamental change. Such a picture will be useful to us in showing how the conceptualist interpretation of theories in current linguistics can be stripped off and replaced with a Platonist interpretation. Such a picture also enables us to see the Platonist proposal as in a direct line of development with earlier nominalist and conceptualist stages in American linguistics. The picture will enable us to construct the argument in favor of replacing the conceptualist interpretive scheme with a Platonist

one as a special case of a pattern of argument appropriate to determining the proper ontological interpretation for theories in a special science. Finally, it will enable us to see that, since the basic theory of sentence structure is preserved throughout changes of interpretation, accepting the argument for the new interpretive scheme sacrifices nothing essential in the theory of sentence structure.

Let me flesh out the claim that Harris's transformational theory is, in all essential respects, the same theory as the early version of Chomsky's transformational theory of syntactic competence. The parallels I shall draw clearly show that we have here the same formal theory of transformational structure which, from the different ontological perspectives of Harris and Chomsky, says different things about the nature of language. The version of Harris's theory in question is that in "Discourse Analysis"³⁴ and "Co-occurrence and Transformation in Linguistic Structure".³⁸ The version of Chomsky's theory in question is that in *Syntactic Structures*¹⁴ and "A Transformational Approach to Syntax".³⁵

The principal parallels between Chomsky's theory and Harris's are these. First, both theories draw a fundamental distinction between *kernel* or *underlying sentence structures*, which serve as the base for the application of transformational rules, and the *derived sentence structures*, which constitute a transformation level superimposed on this base. Second, both theories use the same notion of "transformational rule": a structure-dependent mapping of abstract representations of phrase structure onto abstract representations of phrase structure. True, Harris's transformational rules are less abstract, and even at that, their abstractness was an embarrassment to his structuralist principles; but structuralists have long been accustomed to invoking instrumentalist philosophy of science to explain away their embarrassing use of abstraction.³⁹

Third, both theories classify transformational rules into *singular transformations*, which take a single representation of phrase structure into a single representation of phrase structure and *generalized transformations*, which take two or more representations of phrase structure into a representation of compound phrase structure. Fourth, both theories treat grammatical transformations as constructions out of *elementary transformations*, such formal operations on strings as deletion, permutation, copying, substitution for dummy elements, and insertion.

Fifth, in both theories, the transformational level is the place at which the variety of sentence types found in the language is introduced and also the place at which the indefinitely great syntactic complexity within sentences of a given type is produced. Sixth,

even the particular types of transformations are largely the same. Harris had worked out, in the domain of singularities, the passive transformation, various question transformations, negation transformation, ellipsis (zeroing), and so on, and in the domain of the generalized transformations, the coordinating or conjunctive transformations, relative clause transformations, nominalization transformations, and so on.

Seventh, Harris's theory also takes the kernel or underlying level to be the place at which co-occurrence restrictions are stated, and transformations to be structure-preserving mappings. Thus, both theories enable the grammar to state such restrictions in the simplest way by putting them at the earliest point and having subsequent rules preserve structures that meet them. Finally, Harris's theory also contains ordering restrictions on the application of transformations in derivations, thus providing a form of the distinction between *obligatory* and *optional* rules.

Now, although there is this strong parallelism between Harris's formal theory of transformations and Chomsky's, Harris interpreted his formal theory as a device for predicting the relative acceptability of utterances. As a consequence, for Harris there is no sharp line between well-formed and ill-formed sentences, just a gradient of acceptability, determined distributionally. Furthermore, for him the generative capacity of grammatical rules has absolutely no psychological significance. Harris wrote:

Even when our structure can predict new utterances, we do not know that it always reflects a previously existing neural association in the speakers (different from the associations which do not, at a given time, produce new utterances). For example, before the word *analyticity* came to be used (in modern logic), our data on English may have contained *analytic*, *synthetic*, *periodic*, *periodicity*, *simplicity*, etc. On this basis, we would have made some statement about the distributional relation of *-ic* to *-ity*, and the new formation of *analyticity* may have conformed to this statement. But this means only that the pattern or habit existed in the speakers at the time of the new formation, not necessarily before: the "habit" – the readiness to combine these elements productively – may have developed only when the need arose, by association of words that were partially similar as to composition and environment.... Aside from this, all we know about any particular language habit is the probability that new formations will be along certain lines rather than others, and this is no more than testing the success of our distributional structure in predicting new data or formulations.⁴⁰

The contrast between nominalist and conceptualist interpretations of the same transformational theory is nowhere more striking than in the comparison between this remarkable claim of Harris's and the opposite claim that Chomsky made on behalf of generative

capacity, namely, that the creative aspect of language use is *the* proof that speakers of a language have enduring neural structures that contain an infinite number of sentences in their generative potential. Chomsky stressed that

The normal use of language is innovative, in the sense that much of what we say in the course of normal language use is entirely new, not a repetition of anything that we have heard before and not even similar in pattern.... The number of sentences in one's native language that one will immediately understand with no feeling of difficulty or strangeness is astronomical.⁴¹

Indeed, Chomsky held that the

inadequacy of traditional grammars is [that] although it was well understood that linguistic processes are in some sense "creative," the technical devices for expressing a system of recursive process were simply not available until more recently. In fact, a real understanding of how a language can (in Humboldt's words) "make infinite use of finite means" has developed only within the last thirty years.... Now that these insights are readily available it is possible to return to the problems that were raised, but not solved, in traditional linguistic theory, and to attempt an explicit formulation of the "creative" processes of language.⁴²

The heart of Chomsky's conceptualism is the idea that these new systems of recursive processes – particularly in their most linguistically sophisticated form, transformational grammar – account for "the creative aspect of language use" when taken as a theory of the competence underlying such use. Creativity is formally modeled in the way that recursive rules of a transformational grammar "make infinite use of finite means." The understanding of novel sentences is reflected in the grammatical description that such rules assign the infinitely many sentences they generate.

The Chomskyan revolution also eliminated the nominalist interpretation of linguistic theory as a discovery procedure, that is, a procedure for mechanically producing taxonomic grammars when applied to a rich enough corpus, replacing it with a conceptualist interpretation on which linguistic theory is an evaluation procedure for "selecting a descriptively adequate grammar on the basis of primary linguistic data."⁴³ Linguistic theory is now seen as a theory of how children acquire the competences represented in grammars of natural languages.⁴⁴ Thus, linguistic theory

offers an explanation for the intuition of the native speaker on the basis of an empirical hypothesis concerning the innate predisposition of the child to develop a certain kind of theory to deal with the evidence presented to him.⁴⁵

I want to argue that the conceptualist interpretation of grammars and linguistic theory should be replaced with an interpretation on

which grammars are theories about abstract objects, sentences of a natural language, and linguistic theory is about invariances over all such abstract objects. We should note a few things before beginning this argument. First, although I have referred, and will refer, to Chomsky and to transformational grammar, my focus is *not* Chomsky *per se* and my concern is *not* with transformational grammar *per se*. I realize that Chomsky is far from being the only conceptualist in linguistics at present and that transformational grammar is far from being the choice of linguists everywhere. Rather, my focus is conceptualism of any stripe, and my concern is with the interpretation of any grammar that can lay claim to being a scientific theory. I have focused on Chomsky and transformational grammar because they have an overwhelming historical and systematic position in the field, but my argument is not restricted to them.

Second, Platonism denies that theories in linguistics are about psychological states, processes, etc., but does not deny the existence of such states, processes, etc., or the legitimacy of their study in psychology, computer science, neurophysiology, etc. The Platonist in linguistics no more denies the existence of linguistic knowledge or the legitimacy of its study in empirical science than the Platonist in mathematics or logic denies the existence of mathematical or logical knowledge or the legitimacy of their study in empirical science. Thus, no one should object to Platonism on the grounds that it prevents us from making use of grammatical theories in the explanation of the human ability to acquire and use languages. The use of these theories in such explanations is like applied mathematics. The issue at hand is whether linguistics concerns a realm of grammatical objects beyond psychology.

Platonism draws a fundamental distinction between the *knowledge* speakers have of their language and the *languages* that speakers have knowledge of.⁴⁶ The distinction is simply a special case of the general distinction between knowledge and its object. No one confuses psychological theories of how people make inferences with logical theories of implication, or psychological theories of how people perform arithmetical calculations with mathematical theories of numbers. Yet, in the exactly parallel case of linguistics, conceptualists do not make the distinction, conflating a psychological theory of how people speak and understand speech with a theory of the language itself. Platonism is in part an attempt to be consistent in our treatment of the special sciences by drawing the same distinction between knowledge and its object in the case of linguistics that we draw, as a matter of course, in the parallel cases of logic and mathematics. Platonism claims that the subject-matter of

linguistics is, in this sense, independent of psychological sciences – just as the subject-matter of logic and mathematics is independent of the sciences concerned with people’s logical and mathematical ability.

The issue between Platonism and conceptualism (and also nominalism) is an *a priori* issue, and the competing claims of the Platonist and the conceptualist (and the nominalist) are *a priori* claims. It makes no sense to construe *these* claims as *a posteriori* claims about empirical matters, insofar as the issue between these ontological claims decides the logically prior question of whether empirical matters are relevant to linguistics at all. How could empirical evidence decide between the claim that a discipline is empirical and the claim that it is not? Because this is an *a priori* issue, it would make no difference if by some miracle the grammarian’s theory of a natural language were to satisfy perfectly the empirical demands on a psychological model of the speaker’s linguistic knowledge. Such an extraordinary coincidence would be a stroke of luck for cognitive scientists, whom it would provide with a ready-made formal theory to serve as one component of their overall account of cognition; but it would not have the least relevance to the issue of whether the discipline from which the theory was borrowed is or is not a part of psychology. Such a hypothetical coincidence is comparable to the actual coincidence between the extension of “creature with a kidney,” and the extension of “creature with a heart.” Just as the actual coincidence of the extensions of these expressions is compatible with an *a priori*, logical difference in their meaning, so the hypothetical coincidence of a grammar and a psychological model of competence is compatible with an *a priori*, logical difference between the domains of linguistics and of psychology.

In its most general form, Chomsky’s argument for conceptualism showed that a nominalist scheme for interpreting grammars and linguistic theory puts too low a ceiling on their abstractness for them to qualify as fully adequate by the traditional explanatory standards in the study of grammar. Taxonomic constraints on the admissibility of constructs – imposed to ensure that everything at higher grammatical levels can be reduced back down to the physical events at the lowest – precluded grammatical categories that are required to satisfy even minimal standards of grammatical explanation. Chomsky writes⁴⁷ that he tried for over five years to formulate explicit data-cataloguing procedures that, when applied to a corpus, mechanically produce the appropriate sets of phonological, morphological, and syntactic classes, but found it impossible to

characterize the inductive step necessary for general phonological, morphological, and syntactic classes. He came to realize that there is no inductive basis on which such classes can be built out of the physical material in the corpus, and that the generality required for defining grammatical classes could be attained only if nominalist constraints were eliminated so that grammars, instead of having to be built up from a corpus, could be, as it were, dropped down from above. Chomsky thus conceived grammars, in analogy to formal deductive systems, as generative systems whose principles and categories are directly postulated. Although "dropped down from above," grammars can be empirically justified on the basis of whether their predictions about sentences are confirmed by the judgments of fluent speakers.

Two features merit special attention in constructing a parallel argument for Platonism. One is that Chomsky's argument is basically a demonstration that the nominalist constraints ensuring a physical interpretation for taxonomic grammars are responsible for the inadequacy of these grammars as theories of natural languages. The other feature is that the standards of adequacy Chomsky uses to judge taxonomic grammars are the ordinary standards of grammatical description, namely, conformity of the description to facts about the sound pattern of sentences, word-formation processes, well-formedness, ambiguity, ellipsis, sentence types, agreement, and so on, as reported in speaker's intuitions.⁴⁸

Now, in the light of these features, we can identify one direction to look in for an argument against conceptualism in linguistics. Although the psychological constraints that conceptualism imposes on theories in linguistics are tame by comparison with the physical constraints that nominalism imposes, the conceptualist's constraints are not negligible. In requiring conformity to a concrete reality, psychological reality conditions impose constraints of a kind different from the requirement that grammars correctly describe the sound pattern, well-formedness, ambiguity, and other structural features of sentences. Psychological reality conditions in linguistics do not concern the grammatical structure of sentences but concern particulars of subjective experience or human biology. Since conceptualism imposes constraints requiring grammars to reflect some concrete reality, it could, in principle, prevent grammars from achieving the degree of abstraction necessary for satisfying traditional descriptive and explanatory standards.

Thus, with conceptualism, as with nominalism, there is a possibility of conflict between a demand that grammars satisfy an extrinsic, ideologically inspired constraint and the traditional demand that

grammars meet intrinsic constraints concerning the successful description and explanation of the grammatical structure. If such conflicts can exist, then linguists cannot adopt extrinsic, psychological constraints. Linguists, like other scientists, must always try to choose the best available theories, and hence cannot adopt an ontological policy that would select worse theories of natural languages over better ones.

These conflicts can arise on a conceptualist metatheory but not on a Platonist one because the latter imposes *no* restriction on the degree of abstraction in grammars. Conceptualists have to construct grammars as theories of the *knowledge* an ideal speaker has of the language, whereas Platonists construct grammars as theories of the *language* that such knowledge is knowledge of. Therefore, the conceptualist's theories address themselves to the *internal cognitive representation* that humans have of such things as well-formedness, ambiguity, word-formation, ellipsis, and synonymy, whereas a theory of the language should address itself to well-formedness, ambiguity, word-formation, ellipsis, and synonymy themselves. Because the mental medium in which human knowledge is internally represented can materially influence the character of the representation, there can be a significant divergence between what a theory of such an internal representation says and what is true of the language. Hence, only in the case of conceptualism is there the possibility of conflicts between ideologically inspired, extrinsic constraints and intrinsic constraints.

I now give a number of such conflicts. The first class of such conflicts contains cases in which the character of human cognitive representation makes the speaker's tacit linguistic knowledge take the form of one rather than another strongly equivalent rules. For example, the character of human cognitive representation might make the speaker's tacit linguistic rules take a form differing from other possible forms just in the way that a propositional calculus with only conjunction and negation as primitive connectives differs from an equivalent one with only disjunction and negation. This is surely a possibility. But now conceptualism would have to say that the psychologically real version of these explanatory equivalent theories is *the* true theory of the language because it is the psychologically real one. This seems obviously wrong: the theories are equally simple, equally adequate from a descriptive and explanatory viewpoint. Since the theories make exactly the same prediction about the grammatical properties and relations of every sentence in the language, they are just different ways of expressing the same

claims about the language. Since the theories are equally simple, neither has an edge in how the claims are expressed.⁴⁹

Consider a slightly different case involving notational variants instead of different but strongly equivalent systems. We are now talking about a case in which the character of human cognitive representation causes the speaker's tacit linguistic rules to have a form that differs from other possible forms in only the way that a system of propositional calculus expressed in Polish notation differs from one expressed in *Principia* notation (e.g., "KCpqCqp" versus " $p \supset q \ \& \ q \supset p$ "). Here there can be no linguistically relevant difference between the theory that conceptualism prescribes and the theory it forbids. Therefore, if one accepts conceptualism, one could be committed to claiming that, say, a grammatical counterpart to the calculus in Polish notation *is* the true theory of the language and a grammatical counterpart in *Principia* notation is not, even though they are mere notation variants, since the human mind could be constructed in such a way as to represent its grammatical knowledge in the one form rather than in the other. This is comparable to claiming that a Polish notation propositional calculus is preferable *as a theory of propositional logic* to a *Principia* notation propositional calculus when both express the same theory.

Things get even worse. The psychologically preferable theory might not only be on all fours with theories disallowed by conceptualism, but it might even be outright inferior to them on either methodological or explanatory grounds. A methodological difference would exist if, say, the psychologically preferable theory is less parsimonious than some disallowed theories but otherwise the same. It is surely possible that the human mind is so constructed that its representations of grammatical knowledge use more theoretical apparatus than is necessary to formulate the grammatical rules of a language. For example, let us suppose that the grammar of English is transformational and that there are transformations in English, such as the passive or dative movement, in which lexical material is moved from one position to another. Transformations are formulated out of a fixed class of formal operations on strings like deletion, permutation, copying, substitution for dummy elements, etc. One can imagine a grammar of English, G_i , in which some movement transformations are constructed out of an operation of permutation that, as it were, picks up a constituent and puts it somewhere else, whereas other movement transformations are constructed out of an initial operation of copying a constituent into the new position and then an operation of erasing the copied occurrence. We can also imagine another grammar of English, G_j , without permuta-

tion, in which all movement is accomplished by copying and deletion, but which is otherwise identical with Gi. Since the effect of permutation can be obtained by a combination of copying and deletion, and both these operations are in both grammars, Gi is less parsimonious because it uses more theoretical apparatus to do a job that can be done with less (with a proper subset of the apparatus in Gi). Hence, by Occam's razor, the preferable scientific theory of the language is clearly the more parsimonious grammar, Gj. But it could certainly happen that the child is genetically programmed for knowledge of a language in which formal operations are overdetermined with respect to the construction of movement rules. Accordingly, speakers acquire a competence system corresponding to Gi. Therefore, in the situation in question, conceptualism requires linguistics to prefer the more complicated grammar, Gi, over the simpler but otherwise identical grammar, Gj. Whereas in the preceding case conceptualism would force us to make a completely arbitrary choice among linguistically indistinguishable theories, in the present case it would force us to choose the less scientifically desirable theory over the more scientifically desirable one. Surely, abandoning conceptualism is preferable to committing ourselves to such methodologically perverse choices.

But not only could adopting conceptualism in linguistics force us to make choices that run counter to sound methodological practice in science, but it could force us to choose false theories where true ones are available, and known, and nothing else stands in the way of their acceptance. Let me make the point by way of an analogy. Major calculator companies, such as Texas Instruments and Hewlett-Packard, construct some calculators on the basis of principles that incorrectly determine the values of a function for a range of arguments that, for empirical reasons, can never be inputs to the device. Companies do this because such "incorrect principles" are either less complicated to build into the device, hence less expensive for the company, or more efficient in on-line computation, hence less costly to the customer. Since computations that produce the incorrect values of the function will never take place, these savings are free and clear. Now, it is plainly absurd to suppose that God, Nature, or Evolution would find it impossible to do what Texas Instruments and Hewlett-Packard can do. Hence we may imagine that, for essentially similar reasons, such heuristic principles have been built into the human brain as internalized competence rules for language processing, that is, as its knowledge of the language. In this best of all possible worlds, we have been provided with a language mechanism that requires less brain utilization and is

more efficient in on-line processing. But for all such benefits, and not withstanding the fact that these internalized rules give the correct results for all sentences that can occur in performance, the rules *falsely* predict grammatical facts about sentences that can never occur in performance (because they are, say, too incredibly long or complex). For example, the internalized rules might convert all strings of words above a certain very great length, n , into word-salad, so that the best theory of the speaker's competence falsely predicts that strings of English words exceeding length n are ungrammatical. Or, the internalized rules might turn out to be nothing but a huge, finite list of n sentences, each of which is paired with a structural description. If this is what turns out to be in our heads, a psychologically real grammar must falsely predict that English contains only finitely many sentences, and only n of them at that. Given that no acceptable metatheory for grammars ought to allow us to be committed, even contingently, to false theories of natural languages when they are avoidable, it follows that, in committing us to these and indefinitely many further potentially psychologically real but linguistically false grammars of natural languages, conceptualism is unacceptable.⁵⁰

Finally, some grammatical properties of sentences are not explainable in grammars taken as psychological theories. Sentences like (1)–(4) have the property that Kant called “analytic”:

- (1) Nightmares are dreams.
- (2) People convinced of the truth of Platonism believe Platonism to be true.
- (3) Flawed gems are imperfect.
- (4) Genuine coin of the realm is not counterfeit.

The meanings of the words in these sentences and their syntactic arrangement guarantee the satisfaction of their truth conditions.⁵¹ Two things are clear. First, analyticity is a semantic property, since it is determined by meaning, and hence it must be accounted for at the semantic level of grammars. Second, analyticity is a species of necessary truth. Sentences (1) through (4) express propositions that are true *no matter what*, unlike the synthetic sentences (5)–(8) which, though in fact true, could be false if circumstances were different:

- (5) Nightmares usually take place at night.
- (6) Few are convinced of the truth of Platonism.
- (7) Flawed gems would be more valuable with less flaws.

(8) Genuine coin of the realm exists.

Theories of natural languages ought not preclude explanation of the grammatical properties of their sentences. At the very least, a theory of natural language ought not rule out the possibility of accounting for necessary truths like (1)–(4) which owe their necessity to the language. But this is exactly what conceptualist theories of natural language do in treating grammars as theories of psychological principles and in treating linguistic theory as a theory of the innate basis for internalizing such principles. Conceptualist theories are limited to accounting for necessary truths like those expressed by (1)–(4) as nothing more than consequences of principles that human beings, by virtue of their psychological or biological make-up, cannot take to be false. Such necessary truths come out on the conceptualist's account as merely what human beings are psychologically or biologically forced to conceive to be true no matter what. But this is a far cry from what *is* true no matter what. On the conceptualist's account, impossible objects like *genuine coin of the realm which is counterfeit* are nothing worse than something humans cannot conceive. Conceptualists must treat such *impossible* objects as four-dimensional space was once treated, inconceivable by us but for all we know quite possible.

If we raise the prospect of beings different from us whose psychology makes them take (1)–(4) to be false, the conceptualist must embrace relativism. The conceptualist must say, "We have our logic, they have theirs." The Platonist is the only one who can say, as Frege said in a similar connection, "We have here a hitherto unknown type of madness."⁵² Only Platonism enables us to say that such necessary truths are true no matter what – no matter even if we discover that *human* cognitive apparatus is built to take (1)–(4) to be false.

I have described a number of ways in which theories of the competence underlying human linguistic ability are not abstract enough to be adequate theories of the grammatical structure of a natural language. Linguists, like other scientists, are obliged to prefer the best available theory. Thus, linguists cannot adopt a general policy for interpreting their theories that would lead to their preferring worse theories over better ones. Hence, linguists cannot adopt the conceptualist policy.

We come now to what linguistics is like without conceptualism. The psychological view of linguistics has been so prevalent that even the present attempt simply to outline an alternative must consider some of the questions that will undoubtedly arise concern-

ing whether we stand to lose anything valuable in relinquishing conceptualism.

One such question is whether, in eliminating constraints on the psychological reality of grammars, we are dropping constraints that we need in order to choose among theories. Pointing to the proliferation of theories in recent linguistics and the trouble linguists have had in obtaining consensus on which theory is closest to the truth, some conceptualists say we ought to welcome the introduction of new constraints that narrow the range of theories, and they will surely complain that, in rejecting psychological constraints, the Platonist is looking a gift horse in the mouth. But it makes no sense to insist on constraints *just* because they narrow the range of theories. After all, constraining the range of theories about a natural language by requiring them to be theories of hiccups or the origin of life does a pretty good job of narrowing. There is the prior question of establishing that the constraints are the right kind. This is the question begged when Platonism is criticized on these grounds.

Underlying the conceptualist's demand for psychological constraints to narrow the range of theories of a language is the further assumption that it is desirable to narrow it so drastically. Why ought we welcome such new constraints solely because they reduce the number of theories that have survived confrontation with the grammatical evidence? It is a common fact of scientific life that evidence underdetermines the choice of a theory, even given methodological criteria like simplicity. Presumably, then, the conceptualist wishes to say something stronger, namely, that, even assuming we had *all* the evidence about the grammatical properties and relations of sentences in the language, there would still be a choice remaining between equally simple (and otherwise methodologically equal) theories for which the new constraints are needed. But why suppose that such a further choice is substantive? Theories that are equivalent in grammatical description, and on all methodological grounds, are completely equivalent theories of *grammatical* structure. So at least the Platonist claims. One question that divides Platonists and conceptualists is thus whether there is a *linguistically significant* choice between theories of a language that do not reflect a difference either in what grammatical properties and relations they predict or in how methodologically well they predict them.

All such equivalent theories of a language can be taken as optimal grammars of the language because, on the most natural definition, an "optimal grammar" is *a system of rules that predicts each grammatical property and relation of every sentence in the language and for*

which there is no simpler (or otherwise methodologically better) such predictively successful theory. The fact that more than one theory of a language will count as an optimal grammar just puts the situation in linguistics on a par with the one familiar in logic and mathematics.

Platonism also offers a natural conception of the notion "correct linguistic theory." Linguistic theory, on the Platonist view, is a theory of the invariances in the grammatical structures of all natural languages: the relation between linguistic theory and grammars of natural languages is like the relation between topology and the geometries whose invariances it studies.⁵³ A "correct linguistic theory" states all invariances and essential properties of natural language in the simplest way.

Another question concerning whether we stand to lose anything in replacing conceptualism arises in connection with the three fields that came into existence with the Chomskyan revolution: linguistic semantics, formal properties of grammars, and cognitively oriented psycholinguists. These have become important research fields, and no one would suggest giving up any of them. But there is no risk of that. Though they came in with the conceptualism ideology, they would not go out with it since none of these fields depends on conceptualism.

Linguistic semantics did not exist within structuralism, because concepts in the theory of meaning are not reducible to features of the acoustic material in a corpus. But, insofar as Platonism does not replace the extrinsic constraints it removes by others, the liberalization that brought linguistic semantics into existence is not jeopardized by Platonism.

The field of formal properties of grammars came into existence with the Chomskyan revolution because the revolution provided the stimulus for various new kinds of grammar and because of the special attention Chomsky gave to the study of formal properties. But since the field of formal properties of grammars never concerned itself with more than the mathematical structure of grammars, it has no investment in the conceptualist ideology.

Finally, cognitively oriented psycholinguists, too, would continue without alteration under Platonism. Platonism makes no criticism of the new psycholinguistics. Platonism leaves this discipline in its proper place, namely, in psychology.

Nothing of value is lost in Platonist linguistics and much is gained. Linguistics proper gains a conception of what its theories are theories of that is free of inherent conflicts between ideology and its commitment to descriptive and explanatory aims. On the Platonist

conception, theories in linguistics are subject only to traditional descriptive and explanatory aims and the methodology of science generally. Grammars thus are under no constraints that force linguists to choose arbitrarily between equivalent theories or notational variants, to settle for uneconomical theories, or, worst of all, to accept false theories when true ones can be had. Nor is linguistics forced to rule out the possibility of explaining necessary truths in natural languages. In fact, Platonism in linguistics offers an explanation of the necessity of truths like (1)–(4) in terms of its conception of sentences and their senses as abstract objects.⁵⁴

Philosophy gains a new approach to the long-standing issue over the existence of abstract objects.⁵⁵ Moreover, in coming at the issue from the perspective of the ontological status of languages, the approach is particularly timely in the light of recent nominalist contributions to the issue which assume that a nominalist reconstruction simply can take the status of language for granted.⁵⁶

Psychology, artificial intelligence, neurophysiology, etc. gain a clear, sharp boundary between where the work of the linguist ends and the work of the cognitive scientist begins. This boundary makes the division of labor between the linguist and the psychologist, artificial intelligence scientist, and neurophysiologist as clear as that between the mathematician and the empirical scientist.

One final thought. The conceptualist criticized the nominalist for confusing competence and performance: the speaker-listener's *knowledge* of the language with the *speech* resulting from the exercise of this knowledge. The Platonist criticizes the conceptualist for confusing the speaker-listener's *knowledge* of the language with the *language* that the speaker-listener has knowledge of. The nominalist's constraints require faithfulness to the facts of speech; the conceptualist's require faithfulness to the facts of knowledge. Only Platonist constraints require faithfulness to just the facts of language.

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17. *Ibid.*, p. 206.
18. Another example of the failure to appreciate the philosophical nature of the question that linguistic Platonism raises is found in J. Higgenbotham's "Is Grammar Psychological?" [in *How Many Questions?* L.S. Cauman, I. Levi, C. Parson, and R. Schwartz, eds. Indianapolis: Hackett Publishing Co., 1983, pp. 170-179.]. Higgenbotham is replying explicitly to my *Language and Other Abstract Objects*. He accuses it of merely stipulating that linguistics is not psychology (pp. 172-174). What is peculiar about the accusation is that Higgenbotham ignores the arguments that the book gives for this thesis, while his own case for the opposite thesis itself rests on nothing more than a stipulation. Higgenbotham says, "Defense of this thesis Katz appears to take as entirely straightforward, once we distinguish between theories of a domain D and theories of the *knowledge* of D." (p. 172) He seems not to have looked beyond the first section of Chapter III, particularly, the next section of that chapter and Chapters V and VII, which contain the fuller form of the arguments at the end of the present essay.
Higgenbotham's stipulation that linguistics is "an empirical inquiry into the identity of human languages" begins with the quite true statement that "one may also be interested in questions like (1): For which (S, S') is Jones's language = (S, S'), and why?" (p. 172). This is no more objectionable than saying that one may be interested in questions about the identity of human systems for arithmetic calculation. But then the unobjectionable statement is superseded by a full-blooded stipulation when Higgenbotham claims that "it is only by seeing the consequences of the attribution of such systems [(S, S')] to persons that linguistic theory can be tested" (p. 174). This only makes sense

if we assume already that the principles being tested are principles about "the identity of human languages". If not, then it is a flat *non-sequitur*. Could one sensibly claim against a Platonist in the philosophy of mathematics that it is only by seeing the consequences of the attribution of mathematical theories to persons that mathematical theories can be tested? Neither mathematical intuition nor linguistic intuition presuppose that mathematical or linguistic theories are attributable to people in the sense required for claiming that linguistics is empirical. (See *Language and Other Abstract Objects*, Chapter VI.)

The confusion that runs through Higgenbotham's reply is between the sense of abstractness in which we speak of the objects in an empirical idealization being reached by abstracting away from certain aspects of real situations and the sense of abstractness in which Platonists speak of abstract objects. The former depends on empirical reality while the latter does not. Here, I think, is the reason for the failure to appreciate the nature of the question that the linguistic Platonist is raising: confusing these two notions of abstractness makes Higgenbotham and others think that they can do justice to the Platonist's stress on the abstractness of linguistic theories while still maintaining that linguistic theories are empirical.

19. Chomsky, *Rules and Representations*, p. 217.
20. N. Chomsky, "Some Empirical Issues in the Theory of Transformational Grammar." In *Goals of Linguistic Theory*, S. Peters, ed. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1972, pp. 63-130.
N. Chomsky, "Chomsky." In *Discussing Language*, H. Parret, ed. The Hague, Holland: Mouton and Company, 1974, pp. 47-49.
21. P. Postal, "The Best Theory." In Peters, ed., op. cit. pp. 131-170.
22. Chomsky, "Chomsky," p. 48.
23. This neglects the Platonist's conception of what the essence of language is, but the omission does not affect the argument in the text. See Katz, *Language and Other Abstract Objects*, pp. 221-240.
24. D.T. Langendoen and P.M. Postal, *The Vastness of Natural Languages*. Oxford: Basil Blackwell, 1984.
25. J.J. Katz, *The Philosophy of Language*. New York: Harper and Row, 1966, p. 122.
26. N. Chomsky, "The Formal Nature of Language." In *Biological Foundations of Language*, E. Lenneberg, ed. New York: Wiley, 1967, pp. 435-436.
27. T. Winograd, *Understanding Natural Language*. New York: Academic Press, 1972.
28. E. Wanner and M. Maratsos, "An Augmented Transition Network Model of Relative Clause Comprehension." Cambridge, MA: Harvard University (unpublished manuscript).
29. B.E. Dresher and N. Hornstein, "On Some Supposed Contributions of Artificial Intelligence to the Scientific Study of Language." *Cognition* 4 (1967): 321-398.
30. An overview of this debate is found in V.V. Valian, "The Wherefores and Therefore of the Competence-Performance Distinction." In *Sentence Processing*, W.E. Cooper and E. Walker, eds. Hillsdale: Lawrence Erlbaum Associates, 1979, pp. 17-19.

31. An attempt to exhibit the relevance of Platonism for language acquisition can be found in T.G. Bever, "Some Implications of the Non-specific Basis of Languages." In *Language Acquisition State of the Art*, L. Gleitman and E. Wannar, eds. Cambridge, MA: Cambridge University Press, 1982, pp. 429-449.
32. L. Bloomfield, "Linguistic Aspects of Science." In *International Encyclopedia of Unified Science, I*, O. Neurath, R. Carnap, and C. Morris, eds. Chicago: The University of Chicago Press, 1938, pp. 219-232.
33. L. Bloomfield, "Languages or Ideas?" *Language* 12 (1936): 93.
34. Z. Harris, "Discourse Analysis." *Language* 28 (1952): 1-30.
35. N. Chomsky, "A Transformation Approach to Syntax." In *Proceedings of the Third Texas Conference on Problems of Linguistic Analysis in English, 1958*, A. A. Hill, ed. Austin, TX: The University of Texas, 1962, pp. 124-158.
36. Z. Harris, "Transformational Theory." *Language* 41:3 (1965): 363-401. Reprinted in *Papers in Structural and Transformational Grammar*. Dordrecht, Holland: D. Reidel Publishing Co., 1970, p. 555.
37. For further discussion, see Katz, *Language and Other Abstract Objects* (pp. 21-44), and also the earlier discussion in J.J. Katz and T.G. Bever, "The Fall and Rise of Empiricism." In *An Integrated Theory of Linguistic Descriptions*, T.G. Bever, J.J. Katz, and D.T. Langendoen, eds. New York: T.Y. Crowell, 1976, pp. 11-64.
38. Z. Harris, "Co-occurrence and Transformation in Linguistic Structure." *Language* 33 (1957): 283-340.
39. Bloomfield saw the practical need to order grammatical rules, but such ordering was an embarrassment since ordering is too abstract to be in the corpus. Hence he claims that it is mere fiction. See L. Bloomfield, *Language*. New York: Henry Holt and Co., 1933, p. 213.
40. Z. Harris, "Distributional Structure." *Word* (1954): 146-162. Reprinted in *The Structure of Language: Readings in the Philosophy of Language*, J.A. Fodor and J. J. Katz, eds. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1963, p. 37.
41. N. Chomsky, *Language and Mind*. New York: Harcourt, Brace, and World, Inc., 1968, p. 10
42. N. Chomsky, *Aspects of the Theory of Syntax*. Cambridge, MA: The MIT Press, 1965, p. 8.
43. Ibid. p. 25.
44. Ibid. pp. 18-59.
45. Ibid. pp. 25-26.
46. See Katz, *Language and Other Abstract Objects*, pp. 76-93.
47. Chomsky, *The Logical Structure of Linguistic Theory*, pp. 30-33.
48. In *Language and Other Abstract Objects* (pp. 64-73), I develop this observation into a conception of a neutral framework for evaluating competing ontological positions.
49. Someone might object that it makes a difference what the primitives of a theory are insofar as the primitives express a theory's conception of the fundamental notions in the domain. But the objection begs the question

because in the present case such a difference can only be significant from a psychological viewpoint. From a mathematical viewpoint, which set of notions from equivalent sets is chosen as primitives matters no more than which of the true statements of a deductive system are chose as postulates. Asking which states should rank as postulates, as Quine once said, is "as meaningless as asking which points in Ohio are starting points." *From a Logical Point of View*, p. 35.

50. It does no good to reply that false rules cannot appear in competence because competence is knowledge, since then, in the case in question, grammars are not about anything.
51. Katz, *Semantic Theory*, pp. 171-200.
52. G. Frege, *The Basic Laws of Arithmetic*, M. Furth, trans. and ed. Berkeley, CA: University of California Press, 1967, p. 14.
Also, Katz, *Language and Other Abstract Objects*, pp. 160-173.
53. For further discussion, see Katz, *Language and Other Abstract Objects*, pp. 221-240. Platonist linguistic theory formulates an account of the nature (or essence) of natural language in logical rather than in psychological terms. Chomsky and Halle [*The Sound Pattern of English*. New York, Harper and Row, 1968, p. 4] give a psychological account in which the essential properties of natural language are those contributed to all competences by the child's innate endowment for language acquisition. Such an account will, of course, contain the same problems noted above with a psychological account of grammars because, on conceptualist theory, universal grammatical structures must reflect the mental characteristics of the medium of representation. Such problems are eliminated when the conceptualist interpretation of linguistic theory is abandoned and a psychological account of the essential properties of natural language replaced with a logical one. One such account is that the essential properties of natural language are the invariants of the sentence/meaning correlations in particular natural languages that are necessary in order for natural languages to be expressively unrestricted, that is, effable.
54. Katz, *Language and Other Abstract Objects*, pp. 179-186. Furthermore, it offers an explanation of *a priori* knowledge of analyticity and other grammatical properties and relations of sentences in terms of a new theory of intuition. *Ibid.* pp. 192-216.
55. And a more comprehensive and viable Platonist position; see Katz, *Language and Other Abstract Objects*, pp. 12-17, 192-220.
56. For example, H. Field, *Science Without Numbers*. Oxford: Oxford University Press, 1981.