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# Theoretical Linguistics and the Ontology of Linguistic Structure[1]

The call for papers for the Linguistic Association of Finland's 1996 symposium on Tacit Assumptions in Linguistics quoted some remarks from Ferdinand de Saussure's famous *Cours de linguistique générale*: "Other sciences work with objects that are given in advance and that can then be considered from different viewpoints," Saussure said; "but not linguistics." And after giving an example, he added: "Far from it being the object that creates the viewpoint, it would seem that it is the viewpoint that creates the object." A common reading of this passage attributes to Saussure the view that linguists not only construct linguistic theories but, by so doing, construct the objects those theories are about. We do not think this is correct. Let us quote the passage in full, because between the quoted phrases lie some remarks that we think are crucial to understanding Saussure's view of the nature of linguistic objects:

> Other sciences work with objects that are given in advance and that can then be considered from different viewpoints; but not linguistics. Someone pronounces the French word *nu* 'bare': a superficial observer would be tempted to call the word a concrete linguistic object; but a more

careful examination would reveal successively three or four different things, depending on whether the word is considered as a sound, as the expression of an idea, as the equivalent of Latin *nudum*, etc. Far from it being the object that creates the viewpoint, it would seem that it is the viewpoint that creates the object; besides, nothing tells us in advance that one way of considering the fact in question takes precedence over the others or is in any way superior to them. (Saussure 1916 [tr. Baskin, 1959: p. 8])

We can distinguish two views that Saussure might be warning his "superficial observer" against. The first is linguistic *homogenism*, which says that there is only one type of object in the domain of discourse for a given linguistic theory. The negation of this can be called linguistic *heterogenism*. The second reading, subtly different, is linguistic *monism*, which says that there is only one domain of discourse for a given linguistic theory.[2] We will refer to the negation of linguistic monism as linguistic *pluralism*.

American structuralist linguists of the 1930s and 1940s seem to have assumed both homogenism and monism, ignoring the warning that (if we read him correctly) Saussure had offered. Indeed, even their sharpest critics maintained both assumptions: the defense of platonist realism launched by Katz (1981) never questions either homogenism or monism. Katz insists that previous linguists wrongly identified the type to which linguistic objects belong, failing to recognize that they are abstract; but he never calls it into question that the truth of linguistic theories must be supported by a single ontology (monism) within which the objects are all of one type (homogenism).

Our aim in this paper is modest. We aim simply to open up a little conceptual space within which heterogenism and pluralism

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[2] In this paper we set aside a third plausible reading of the passage, on which Saussure fronts the idea that distinct linguistic theories — say, a phonological theory, a semantic theory and a historical theory — may contain homophonous singular terms that refer to objects of different ontological kinds.

may at least be entertained. Our strategy is to use the arguments of Katz and others (particularly the recent restatement of the Katzian view in Katz and Postal 1991, henceforth KP91) as a foil for this project. We will demonstrate in section 1 the failure of KP91's arguments for the idea that *all linguistic objects are abstract*, and in section 2 that KP91 also fails to establish that *no linguistic objects can be concrete*. This begins to clear the field for heterogenism and pluralism. In section 3 we summarize, and say some more about the antecedent plausibility of those views.

## 1. Platonist Realism and its Many Rivals

The central aim of Katz and Postal (1991, henceforth KP91) is to establish "the linguistic analog of logical and mathematical realism which takes propositions and numbers to be abstract objects" (KP91, 515) as the most adequate view concerning the ontology of generative linguistic theories. The kind of "mathematical realism" that is a model for the position KP91 advocates incorporates four elements. First, it states a criterion of existence for linguistic objects. Second, given such a criterion, it claims uniqueness and exclusiveness for that type of object. Finally, the view makes a claim about what those objects are like. In section 1.1 we explain this more fully.

## 1.1. Characterizing Platonist Realism

We can make explicit the platonist realist ontological view that KP91 advocate (and refer to as 'realism') in the following way:

(1) *Linguistic platonist realism*
    a.    Linguistic objects are referred to by the singular terms and bound variables of a generative linguistic theory; and
    b.    every such object is
        i.    abstract and
        ii.    mind-independent.

We call (1a) the *referential thesis*. In (1b) we combine theses of *uniqueness* and *exclusivity*, which are implicit in the quantifier *every*, with the *abstractness thesis* in (1b.i) and the *mind-independence thesis* in (1b.ii). We will discuss each of these briefly.

(1a) *The referential thesis* expresses a criterion of ontic commitment, and does not differentiate KP91's stance from other realist positions. It is motivated simply by the desire for the standard semantics (basically Tarski's) to apply to the statements of linguistic theories. On this view, 'There are languages' is true just in case at least one entity has the property of being a language.

(1b) *The uniqueness thesis* says that all the linguistic objects to which the referential terms and bound variables of a linguistic theory refer are of the same metaphysical sort. *The exclusivity thesis* is also intended to be implicit in the use of 'every'; it claims that no linguistic theory is made true by more than one ontological type of object.

(1b)i: *The abstractness thesis* is glossed in KP91 by statements that such objects "are not located in space-time" (p. 518) and that they have "no spatial, temporal, or causal properties" (p. 523). Thus if sentences are taken to be paradigm cases of linguistic objects, the abstractness thesis holds that sentences do not exist in space or time and cannot enter into causal relations. This is definite enough for now.

(1b)ii: *The mind-independence thesis* is expressed in (at least) two distinct ways in KP91. First, it is claimed that sentences "are not dependent for their existence on the human mind/brain" (p. 518). Second, linguistic platonist realism is held to involve a "distinction between knowledge [of an object] and the [object] which is known" (p. 522). We take this to mean that our best opinions about linguistic objects answer to

states of affairs that are independent those opinions. The second of these will be more relevant for our purposes than the first.

With this characterization of platonist realism in place, we can proceed to consider the content of the views with which it competes.

## 1.2. Classifying Platonist Realism's Rivals

There are six distinct ways in which platonist realism can be false. It fails to hold if any of the following claims is true:

(2) a. Linguistic objects exist, and all are mind-independent, and none are abstract. (*Nominalism*)

b. Linguistic objects exist, and none are abstract or mind-independent. (*'Conceptualism'*)

c. Linguistic objects exist, and all are abstract, and none are mind-independent. (*Constructivism*)

d. There are no (or very few) linguistic objects. (*Fictionalism*)

e. The domains of discourse for linguistic theories are ontologically heterogeneous. (*Heterogenism*)

f. Linguistic theories are made true by distinct (but individually homogeneous) domains of discourse. (*Pluralism*)

KP91's main argument for linguistic platonist realism is founded on the rejection of (2a), which they call 'nominalism', and (2b), which they call 'conceptualism'. An extended examination of the content of these positions would be appropriate, but will not be undertaken here. We will discuss them only briefly.

Nominalism as set out in (2a) entails both homogenism and monism, and identifies the unique ontological type of linguistic object: all are mind-independent concrete particulars, like inscriptions on chalkboards or movements of tongues or disturbances in air columns. Nominalism has its own motivations. One traditional motivation is an epistemological worry concerning how we could possibly achieve knowledge of abstract objects, given that they have no causal effects on us.

What KP91 calls 'conceptualism', the position sketched in (2b), rejects both abstractness and mind-independence. Noam Chomsky is held by KP91 to be the paradigm conceptualist. We doubt very much that this is correct. No single metaphysical view about linguistic objects persists through Chomsky's wide-ranging writings over the past forty years, and his current views conflict with views he formerly held. This was never clearer than in the case of the sharp discontinuity in his views interjected by his introduction of the neologism 'I-language' for brain-inscribed grammars, and his rejection of 'E-languages' (formerly called 'languages') as having no importance in the study of language (Chomsky 1986). Nonetheless, it does seem that by some time in the 1980s Chomsky had adopted the position that, at least in the case of 'I-languages', linguistic theories dealt with concrete objects that exist only in virtue of cognitive activity; his own term for them is 'mental organs' (Chomsky 1980).

Next we consider (2c): the claim that linguistic objects exist and are abstract, but are mind-dependent. It is not controversial to assume that an abstract object can be mind-dependent. Some medieval philosophers held that (as Quine 1948 puts it) "there are universals but they are mind-made," and that view has traditionally been called "conceptualism". They were not proposing that universals are physical objects located in brains, but did propose that they are constructed by cognitive activity. George (1996, 301) explicitly attributes (2c) to Chomsky, claiming that Chomsky's 'I-languages' (grammars, in earlier terminology) are abstract, but also that they are mind-dependent in the sense that claims about them are claims about minds. What to call (2c), given Katz's appropriation of the term 'conceptualism' for (2b), is something of a problem, but with some misgivings, we propose to call it *constructivism*.

Michael Dummett (1978) has attempted to give new life to constructivist thinking by shifting discussion of realism versus antirealism about mathematics to a focus on identifying the proper semantics for mathematical statements. Dummett has argued that the semantic platonist realist must accept a distinction between the

truth conditions of sentences and our abilities to recognize the truth
(or falsity) of sentences. Thus, for example, a semantic realist
accepts that there may be statements of linguistics that are not
decidable and are forever beyond our ken. This makes it clear why
there is such a strong connection between the platonist realism of
KP91 and the arguments for the existence of sentences of infinite
length given by Langendoen and Postal (1984), and why the latter
work is endorsed enthusiastically by Katz (1984, 1996). A
completed infinite-length sentence cannot even in principle be
mentally constructed, so under constructivism they cannot be objects
of study for linguistics.

   But Katz is surely wrong to think that infinitely long sentences
*show* that platonist realism is the only correct ontology for
linguistics. The presence of infinite-length strings in natural
languages is not an independently assessable fact that we can use to
identify platonist realism as the correct ontology. Some independent
argument that such sentences exist must be given. Only one
argument of this sort has been offered: the argument of Langendoen
and Postal (1984) from the principle of closure under coordinate
compounding. But the argument simply will not do the job.[3] In
brief, the idea is this. The principle of closure under coordinate
compounding is claimed to be a universal of language. Assume for
the sake of argument that it is, and that it can be stated (informally)
as follows:

(3)   For every collection $C = \{S_1, S_2, \ldots\}$ of sentences in a natural language
      $L$ there is a coordinate sentence of the form '$S_1$ and $S_2$ and ...' in $L$, i.e.
      a sentence in which each member of $C$ occurs as a conjunct.

Langendoen and Postal claim it follows that sentences can be of
infinite length (and there are transfinitely many sentences, and
grammars cannot be equivalent to Turing machines), because of a
single fact: $C$ could be an infinite collection. To stipulate that $C$

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[3] George (1996, appendix) agrees that the argument is bad, but our reasoning
here is somewhat different from his.

must be finite, by adding the word 'finite' before the word 'collection' in (3), would be empirically unmotivated; no data could possibly provide evidence for it.

The trouble with this argument is simple enough to see: a constructivist could adopt strict finitism (some do, though many do not), and under that position there are only finite collections. In that case the stipulation vanishes. Collections can only be finite and thus sentences can only be finite. Whether or not strict finitism is untenable (see Wright 1993 for an extended reflection on the question) is not the point here. The point is merely that what turns out to be the simplest statement of the principle of closure under coordinate compounding depends on what is assumed about the existence of the completed infinite sets of classical mathematics. Langendoen and Postal's argument only holds, question-beggingly, for those who have already rejected the strict finitist version of constructivism. Langendoen and Postal are not entitled to shortcut the debate by stipulating that only supporters of classical Cantorian set theory can play.

Turning now to (3d), we consider the view that linguistic objects do not exist (or hardly any of them do). This is known as *fictionalism*. Linguistic fictionalism takes a skeptical view of linguistic objects, on the grounds that they do not satisfy some criteria that any genuinely existing object must have. The view argued for by W. Freeman Twaddell (1935) regarding the fictional status of the phoneme is a classic example in linguistics. Such views have parallels in recent philosophy of science (van Fraassen 1980 argues for fictionalism about all unobservables in science). And in linguistics, notice that the position now adopted by Chomsky (1986) concerning languages (is 'E-languages') is a fictionalist one.

The remaining two views are (2e), heterogenism, and (2f), pluralism. Heterogenism results from denying the uniqueness claim of platonist realism, and pluralism results from denying the exclusivity claim. Pluralism conflicts with heterogenism as well as all the other monistic views about linguistic objects; the pluralist accepts that the principles of a single generative grammar are typically satisfied (if satisfied at all) by a plurality of ontologically

distinct universes of discourse. Thus, if pluralism is true, a generative linguistic theory is, in a sense, ontologically neutral. But this is not the neutrality that the logical positivists attributed to analytic truths, which they took to be about nothing at all. Rather, if pluralism is true, the principles of generative grammar are true of *both* abstract objects *and* concrete particulars, of *both* mind-independent objects *and* mental constructions, simultaneously. We return to this topic in section 3.

## 1.3. The Main Argument of KP91

With the foregoing review of the alternatives as background, we are now ready to examine the main argument of KP91. As we construe it, it takes the form of a disjunctive syllogism:

(4)   The main argument of KP91
    (I)    There is only one correct ontological view concerning linguistic objects;
    (II)   the correct view is either nominalism or conceptualism or platonist realism;
    (III)  nominalism is not the correct view;
    (IV)  conceptualism is not the correct view; therefore,
    (V)   platonist realism is the correct view.

In order for this argument to be sound, the disjunctive premise (II) would have to exhaust the range of possibilities. But instead it misses three of the distinct views listed above in (2), which means it is unsound.

The only attempt to forestall such a demonstration of unsoundness in KP91 is the following explicit statement (p. 515, n. 1) that there are no positions but the three they consider:

> We are aware that some philosophers and linguists think there are foundational positions distinct from nominalism, conceptualism, and realism. Although we cannot deal with this issue here, every such putative alternative with which we are familiar reduces to one of the three standard ontological positions.

But clearly, neither fictionalism, nor constructivism, nor heterogenism, nor pluralism can be reduced to the three views that KP91 considers.

Thus the lack of attention KP91 has received in the linguistics literature has a rational basis (though not one that has been made explicit before): KP91's argument in favor of linguistic platonist realism fails (and so does the fuller statement of it in Katz 1981, which follows the same logic).

KP91 argues not only for the truth of platonist realism but also for the falsity nominalism (2a), and of what they call 'conceptualism' (2b). We now want to address the negative arguments offered by KP91 against these rivals to platonist realism. We will show that these arguments of KP91 fail too. This is significant, because it enhances the plausibility of pluralism.

## 2.    On the Coherence of Conceptualism

KP91 presents three *a priori* arguments against conceptualism: the Veil of Ignorance Argument, the Type Argument, and the Necessity Argument. In the next three subsections we show that all of these fail.

### 2.1.  Behind the Veil of Ignorance

The Veil of Ignorance argument (KP91, pp. 524–525) attempts to establish the conclusion that conceptualism would be incompatible with current generative linguistic practice if certain possible future discoveries were to be made in neuroscience. According to KP91, conceptualism claims that the sentences of a speaker's language, $L$, are all and only those strings characterized by "the human competence system" (p. 524), i.e., the sentences of $L$ are those strings that are accepted by the concretely realized organization of the speaker's brain as described by a generative grammar. But, KP91 claims, it is both logically and physically possible that a future discovery might reveal a finite bound on the length of sentences characterized by that system. Such a future discovery, according to

KP91, would require a revision in the current practice in generative linguistics of assuming that there is no size bound on the sentences of *L*.

This does not follow. The discovery of a fixed size limit on human representational capacities would not prevent a conceptualist from claiming that the limit in question is *irrelevant* to her theoretical interests — say, the formal modeling of those capacities. The conceptualist could argue for a theory that explains some phenomenon by idealizing away from any particular bound on linguistic competence. The possibility that future science might discover a specific size bound on sentences tells us nothing about admissible idealizations of linguistic performance, let alone competence.

## 2.2. Types and Tokens

A second argument KP91 levels at conceptualism is the one they call the Type Argument. It amounts to two distinct objections to the view that sentences, in the context of generative grammar, are inscriptions or tokens only, and not types. The first objection is simple: linguistics must be about sentence types, not tokens, because generative grammar aims to explain (for example) ambiguity, which according to KP91 is a feature of sentence types. The second is more obscure. KP91 alleges that if ambiguity were a property of sentence tokens then discussions between linguists "would lack a common subject matter," (p. 523): linguists in New York and linguists in San Francisco writing about the ambiguity of *Flying planes can be dangerous* would be writing about properties of different things, namely distinct, spatiotemporally located utterance tokens, if concretely realized tokens (brain inscriptions) were what they studied.

But suppose the conceptualist does indeed claim that sentences are concrete particulars. She could straightforwardly insist that there is no common subject matter to be lost. To say that would be to adopt a fictionalist stance regarding sentence types — not the blanket fictionalism of (3h), but a selective fictionalism about a

certain theoretical linguistic notion. Sentence types could be claimed to be fictional either in the sense of being nothing but pragmatically useful posits (the *instrumentalist* version) or in the sense that our ontology should be purged of them altogether (the *eliminativist* version). That is, the conceptualist might claim either that sentence types are useful fictions — shorthand ways of making reference to equivalence classes of neural inscription tokens — or that they can be eliminated altogether. We do not want to be taken as advocating either instrumentalist or eliminativist fictionalism about languages or sentence types. We merely want to point out that the Type Argument is not going to be decisive against conceptualism if these fictionalist routes are left open for the conceptualist to take.

## 2.3.  Concreteness and Contingency

The final argument that KP91 fronts against conceptualism, their Necessity Argument, seems to have struck previous commentators as the strongest or most philosophically interesting of the three; all three of the commentaries that accompanied the original publication of KP91 discuss it, and both Soames (1991) and Israel (1991) concentrate on it exclusively. It purports to show that no linguistic theory that takes sentences to be concrete, mind-dependent objects is compatible with the claim that some sentences express necessary truths. We want to expose the failure of the argument here in a way somewhat different from the previous contributions, and also to show that what looks like a defense available for KP91 turns out not to be. To begin, consider the schema in (5):

(5)    'P' entails 'Q' in *L*.

As an example instantiating this schema, let *L* be English, let P be the sentence 'John killed Bill', and Q is 'Bill is dead'. It is uncontroversial that (6) is necessarily true:

(6)    'John killed Bill' entails 'Bill is dead' in English.

KP91 points out that if an instance of (5), such as (6), is a concrete object like a brain inscription, then it is, against what we just agreed, contingently rather than necessarily true. If there were no brains, then there would be no brain inscriptions. KP91 reasons,

> the relation between ['P' and 'Q'], arising from an aspect of the mind-brain, is contingent. In that case the relation could be otherwise. So, on a model-theoretic evaluation of the inference from ['P'] to ['Q'], there is a model on which ['P'] is true but ['Q'] false. . . . Hence, conceptualism cannot explain the validity of inferences like that from ['P'] to ['Q'] (KP91, p.524).

But why must we accept that all sentences that express necessary truths, e.g. (6), must *exist* necessarily? No doubt anyone who antecedently sympathizes with platonist realism will find it tempting to think that necessary truths exist necessarily; but we must be careful not to beg the question. The conceptualist actually thinks that the possessors of meaning and the bearers of truth values are concrete, contingently existing objects. The conceptualist *accepts* that it is merely a contingent fact that sentences with the form of (5) express necessary truths. And clearly, it is only a contingent fact that there are any brains or brain inscriptions at all. It does not follow, however, that there is no conceptualist account of necessary truth, unless we beg the question by insisting on the platonist realist's position that necessarily true sentences exist necessarily.

We need to consider, then, what kind of account a conceptualist might give of necessity — what a conceptualist would *mean* by saying of some sentence that it was necessarily true. On a conceptualist account, a brain inscription whose content we can write down as (6) has only a contingent *existence* in the sense that it could have failed to exist in some world — namely those worlds where there are no brains. But it is nonetheless a necessary truth in this sense: it cannot both exist and fail to be true. This could be the conceptualist's explication of necessary truth.

The recent literature contains what could be read as a potential response to this suggestion, and thus a potential rejoinder on behalf of KP91. Plantinga (1993) has argued that it is no improvement for

the advocate of the view that sentences are brain inscriptions to take 'P is necessary' to mean 'P cannot both exist and fail to be true'. If the "concretist" (Plantinga's term for the sort of position KP91's conceptualist and nominalist maintain) adopts this view, Plantinga argues that there will turn out to be far too many 'necessary truths':

> the concretist thinks that propositions are brain inscriptions: then the proposition *There are brain inscriptions* obviously enough will be such that it could not have been false. It is therefore necessary that there are brain inscriptions, and hence necessary that there are brains; what we have here is a sort of ontological argument for the existence of brains and brain inscriptions. (p. 119)

The idea is that if propositions (or sentence types) are brain inscriptions, then (the conceptualist's counterpart of) the proposition expressed by (7) cannot both exist and fail to be true:

(7)    There are brain inscriptions.

But then, given the notion of necessity that we are suggesting for the conceptualist's use, (7) is a necessary truth. So if the conceptualist attempts to avoid KP91's necessity argument by claiming that sentences and propositions are necessary just in case they cannot both exist and fail to be true, he avoids the unwelcome consequence that all sentences are contingent only to be forced to accept the equally objectionable consequence that (7) is a necessary truth. And that is surely wrong: (7) is true, but only contingently so.

      However, this is not the way KP91's critique of conceptualism is going to be upheld, because there is a problem with Plantinga's initially supportive-looking argument.[4] Plantinga is illegitimately interpreting the right-hand side of the biconditional 'P is necessary iff P cannot both exist and fail to be true' to mean 'P cannot both exist *in a given world* and fail to be true *in that world*'. So the argument presupposes that a necessary truth is one that must both

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[4] This response to Plantinga emerged from discussions with Holly Thomas and Robert Adams.

exist in a world and not fail to be true in that very same world. But clearly, (7), is false of some worlds, namely those in which there are no brain inscriptions. So (7) is not a necessary truth on anybody's account.

To see that it is illegitimate to suppose that all sentences or propositions must exist in the very worlds at which they are evaluated, consider the proposition that (8) expresses.

(8)    I do not exist.

Suppose in some world there is a brain inscription with that content — having the meaning and truth value that (8) does. Clearly, (8) is contingently true of just those worlds where the utterers — the owners of the brains in question — do not exist, and false of the actual world (where, *ex hypothesi*, an inscription of (8) does exist). But there is no reason to suppose that (8) must exist *in* any of those worlds where it is true. Indeed, it cannot. Rather, if (8) exists in the actual world, then it makes a true claim only about those worlds containing neither the brain in which it is inscribed nor the inscription itself.

But if this is right, then, *mutatis mutandis*, (7) is after all only *contingently* true, because (7) can both exist (in the actual world) and fail to be true (of certain non-actual worlds where there are no brains). And that is the right result regarding (7): it does not meet the defining condition for necessity (that it cannot both exist and fail to be true), so it is not a necessary truth.

This argument leads us to the conclusion that KP91's Necessity Argument does *not* show conceptualism to be incompatible with an adequate semantic theory, and Plantinga's argument does not offer an escape because it fails to show that the conceptualist is forced to admit too many necessary truths.

We should stress that we are not to be taken as advocating the view that the bearers of truth values are concrete, contingently existing electrochemical inscriptions in brains. But it is important for our more general purpose to get straight about whether conceptualism has been eliminated *a priori* as a potentially tenable

view about linguistic objects. We have concluded that the answer is negative.

It is important that KP91's arguments against 'conceptualism' would, if successful, have served (also) to refute nominalism. This follows because they are all arguments against the abstractness claim rather than the mind-independence claim. KP91 does not explicitly argue against nominalism. There are ways in which one might do this (for one attempt, see Friedman 1975), but KP91 does not attempt it. Instead, the reader is referred to a list of *linguistic* references ("C[homsky], 1962, 1964a, 1964b, 1966; Lees, 1957; Postal, 1966a, 1966b, 1968" (p.517)) which are alleged to show that nominalism with respect to linguistic objects has been refuted. We do not think this is a correct view of what is accomplished in those works (as we argued in Pullum and Scholz 1993). If we are right, and convincing arguments against nominalism are just as much lacking as arguments aganst 'conceptualism', then far from having knocked platonism's only rival out of the ring, KP91 has left standing an array of competing ontological views about what a linguistic object is. Included, along with platonist realism, are nominalism, what KP91 calls 'conceptualism', constructivism, heterogenism, pluralism, and various forms of fictionalism.

## 3.    Concluding Remarks on Heterogenism and Pluralism

We have shown that the main argument of KP91 fails, that the three central arguments against conceptualism fail, and that even nominalism remains unrefuted by KP91's exposition. In short, we have carved out a certain amount of conceptual space for heterogenism and pluralism, about which we will now make a few concluding remarks.

Heterogenism asserts that the referents of the theoretical terms of a single generative linguistic theory are ontologically diverse. We believe that this view has some initial plausibility. Languages are structured connections between sound and meaning. At the phonetic end, no linguistic theory can adequately describe human languages without a predicate 'nasal' being involved. And

statements containing the predicate 'nasal' are satisfied by concrete (and mind-independent) objects; specifically, the relevant objects here are velums (a segment is nasal if and only if the velum is lowered during its production so that the velic port to the nasal cavity is opened). And at the semantic end, it would be widely agreed that all linguistic theories must make reference to truth values, which are plausibly good candidates for being abstract (as well as mind-independent). So some terms refer to concrete mind-independent objects and some to abstract ones.

Generative grammars refer to mind-independent objects as well. Every adequate theory of English syntax must refer to what are generally called 'heavy NPs': noun phrases eligible to participate in the Heavy NP Shift construction in English. This is illustrated in (9). The normal order of direct object and indirect object is shown in (9a). Reversing the two in this case yields the ungrammatical (9b). We would expect from this that (9c) would be grammatical and (9d) would not; but this is not the case. If anything, (9d), which illustrates the Heavy NP Shift construction, is more acceptable than (9c).

(9)  a.  They gave those to each student.
     b.  *They gave to each student those.
     c.  ?They gave a large scroll on which were written some words in Latin to each student.
     d.  They gave to each student a large scroll on which were written some words in Latin.

The property that makes a noun phrase heavy is not a structural property like having a subordinate clause contained in the NP, as shown by (10a), where there is no such subordinate clause but Heavy NP Shift is permitted; nor is it concrete, like phonetic length (milliseconds of time taken to utter it), as (10b) shows.

(10) a.  They gave to each student a large parchment scroll.
     b.  They gave to each student . . . one of these!

Yet as we saw in (9b), not every NP can count as heavy. So what makes an NP heavy? The answer is that it is heavy if it is judged heavy. Certain qualities — length, syntactic complexity, prosodic prominence, pragmatic surprisingness, 'newness' of the information conveyed — may influence a speaker to treat an NP is heavy enough to be shifted to the end of the verb phrase (assisting the hearer in processing it); but no properties independent of the speaker's judgment detemine heaviness. There is no difference between seeming heavy and being heavy. The representation and the object are the same thing. Thus a heavy NP is a mind-dependent object in the second sense we discussed under (1b.ii).

Thus the heterogenist view has some *prima facie* plausibility. Some singular terms and/or bound variables in linguistic theories refer to concrete objects while others refer to abstract objects; some refer to mind-independent objects while others refer to mind-dependent objects. Debate about heterogenism should not be closed off in advance.

Pluralism too has some initial plausibility. Pluralism asserts that any adequate linguistic theory is *ontologically neutral*, not in virtue of being about nothing, but in the sense that it must be about many ontologically distinct domains simultaneously. For example, any adequate theory of vowel quality must, on the pluralist view, refer to *both* mind-independent and mind-dependent objects. It is a commonplace that the vowel [e] is between the vowels [i] and [ɛ], equidistant from each. One ontology that satisfies statements of this sort involves a domain of vowel percepts, which are mind-dependent objects — auditory/perceptual mental templates for vowel quality that were once taught to linguists through a gramophone record of Daniel Jones uttering the Cardinal Vowels. But there are also mind-independent objects that the theory is also about. Vowels differ acoustically in their formant structure. Formants, briefly, are overtones: components of the overall sound of a vowel that result from peaks of intensity in air vibrations at certain frequencies. The first and second such peaks are known as F1 and F2. The vowel [e] has a higher F1 value than [i], and a lower difference between F1 and F2, to the same extent that [ɛ] has a

higher F1 value and lower F1/F2 difference than [e]. Any theory that made reference to only one of these two domains would be inadequate. What is needed is a theory that is simultaneously satisfied by *both* percepts and formants.

According to pluralism, an adequate linguistic theory must also be about both abstract and concrete objects. We can illustrate this from syntax. Adequate principles defining syntactic structure must be satisfied by both abstract and concrete objects. For example, consider the generalization expressed within generalized phrase structure grammar as 'P ≺ NP'. This linear precedence rule says, intuitively, that a member of the category P (a preposition) must not follow any NP sister that it may have. The generalization it expresses is satisfied by abstract sentence structures, as platonist realists propose; for example, consider a class of binary phrase structure trees representing prepositional phrases that no one has ever uttered or been disposed to utter, nor ever will. Such a class is plausibly made up of abstract objects. Such a class satisfies 'P ≺ NP' if and only if no tree in the class has a constituent with a left branch labelled NP and a right branch labelled P. (It matters not at all, incidentally, if some of the objects in the class are of infinite size by virtue of having infinite depth of embedding down some path.)

But the same statement, 'P ≺ NP', is also true of all corpora of concrete English inscription tokens. This is why this statement — basically, the statement that English is prepositional — inclines linguists to think that inscription token sequences like (11a) are to be expected in tomorrow's newspaper, while sequences like (11b) are not.

(11) a.   ⌴ a t ⌴ t h e ⌴ W h i t e ⌴ H o u s e .
     b.   ⌴ t h e ⌴ W h i t e ⌴ H o u s e ⌴ a t .

The expectation is warranted; for example, not a single sequence of marks like (11b) appeared in the *Wall Street Journal* between 1987

and 1989, while sequences like (11a) showed up many times.[5] When we assert that the statement 'P < NP' is about concrete inscription tokens as well as abstract grammatical structures, we mean that it is a condition of adequacy on theories of English grammar that they must say something about English inscription tokens, and they must say something about abstract constituent structure, grammatical relations, etc.

The attractiveness of the sort of pluralism we are sketching should be perceptible to authors such as Katz and Postal, for it offers a fairly robust link between the ontologies of generative linguistics and mathematics. At least, it does if the ontological neutrality of linguistic pluralism can be identified with the ontological neutrality that Islam (1996) suggests is the hallmark of mathematics. Mathematics, Islam suggests, is defined by the fact that it is simultaneously about many different things. It embodies those statements of science that are general enough that their subject matter is entirely open.

According to Islam, mathematical statements are not solely about relations between abstract objects, but directly about coins and tomatoes and fence posts. But on the other hand, they are not *solely* about coins or about tomatoes or about fence posts; they are about all these things (and others) simultaneously. Pythagoras' Theorem is about ideal, abstract right-angled triangles with infinitely thin perfectly straight lines, and it is also about the relative areas of two square fields on sides of a triangular plot and a third one on the hypoteneuse, and it is also about what pieces of wood can be cut out of a piece of plywood, and so on.

Islam himself cites the example of the theory of weak partial orders, which says things about organisms and their descent relationships and also says things about part/whole relationships between chunks of stuff. Indeed, he might have added, it says

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[5] We verified this by a computer search of the CD ROM (no. LDC93T1) made available by the Linguistic Data Consortium of the University of Pennsylvania, made from the original magnetic tapes that were used to produce the newspapers.

things about trees (botanical ones), about the course of computations, about administrative hierarchies, and so on. Under Islam's view we can grant to Katz, Postal, and others that the ontology of linguistic theories is very much like the ontology of mathematical theories. Under a pluralistic view of linguistic ontology, the statements in linguistic theories are about many kinds of object all at once. To that extent, Katz's thesis that the ontology of generative linguistics is very much like that of mathematics can be accepted (though his monistic assumption that it is purely about abstract objects is wrong).

In conclusion, we return to the passage from Saussure that we quoted at the outset. We are not certain we know what Saussure meant by saying that "the viewpoint creates the object." We assume no one thinks that viewing syntactic generalizations as statements about concrete inscriptions creates newspapers. But if, as seems plausible, Saussure meant that there are many sorts of object in the world, and the proper ontological view of linguistic theories is a pluralist one that says linguistic theories are made true by the facts of a number of different domains of discourse simultaneously, we can agree that it is reasonable to attempt to develop such a view.

As we have shown, one of the most recent discussions of ontology in linguistic theory, KP91, neither presents a cogent argument for its thesis that all linguistic objects are abstract nor offers a reason for doubting that they might be concrete. We are not mandated by KP91's arguments either to accept platonist realism, or to entirely reject the idea that linguistic theories sometimes refer to abstract objects. The monism and homogenism that Katz and Postal share with the structuralist linguists they criticize should not be unthinkingly accepted by philosophers of linguistics.

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