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Katz Astray

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Abstract: The foundations of linguistics continue to generate philosophical debate. Jerrold Katz claims that the subject matter of linguistics consists of abstract objects and that, as a consequence, the discipline cannot be viewed as part of psychology. I respond by arguing (1) that Katz misinterprets work in the philosophy of mathematics which he believes sheds light on foundational questions in linguistics; (2) that he misunderstands aspects of Noam Chomsky's position, against whose conception of linguistics many of his claims are directed; (3) that Katz fails to dispose of a much more plausible analysis, according to which linguistics remains an empirical inquiry in spite of its abstract subject matter; and, finally, (4) that his arguments against what he calls 'generativism', appealing to the existence of an infinitely long grammatical sentence of English, are flawed.

There is a general problem facing all sciences, Jerrold J. Katz argues in his 'The Unfinished Chomskyan Revolution,' namely that of 'the representation of abstractness' (p. 273). Katz seeks to illustrate the problem by first considering David Hilbert's work in the philosophy of mathematics. According to Katz, Hilbert sought 'an empiricist epistemology for mathematical knowledge' (p. 273), one which avoided having 'to say that mathematical theories are about abstract objects' (p. 273). He reconstructs Hilbert's reasoning as follows:

(1) Mathematics refers to infinite collections of objects;
(2) The universe and its contents are all finite;
(3) Mathematics is not about objects in the universe, but rather abstract objects [from (1) and (2)];
(4) We cannot have knowledge of abstract entities;
(5) We cannot have mathematical knowledge [from (3) and (4)].

On Katz's view, Hilbert sought to resist (5) through a rejection of (1), by reinterpreting the claims of mathematics to be *'about* mathematical expressions' (p. 273). Katz then argues that Hilbert failed ultimately to grap-

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ple with the problem, for either these 'mathematical expressions' are physical or they are not. In the first case, there are too few of them to do the work of mathematics; and in the second, we are again falling foul of (4).

Katz's reconstruction saddles Hilbert with contemporary worries (on the part of some) about the possibility of knowledge about abstract entities. This seems a questionable interpretation. Hilbert's worry was not so much about the abstractness that talk of the infinite allegedly forces one to, as it was directly about infinitary claims: even if physics had assured Hilbert that there is an actual infinity of matter, he would still have been concerned to clarify the notion of the infinite.[1] This is important, for if correct then the second horn of the dilemma Katz presents Hilbert about how to understand 'expression' is not one he would have felt moved to avoid: anxiety about the apparent abstractness *per se* of the subject matter of mathematics is not what motivated Hilbert's Programme.[2]

Turning his attention to centre stage, Katz finds an analogous problem facing contemporary linguistics, especially that associated with Noam Chomsky. It can be spelled out this way:

(1′) Linguistics refers to infinite collections of objects (e.g. 'the denumerable infinity of English sentences' (p. 278);
(2′) The universe and its contents are all finite;
(3′) Linguistics is not about objects in the universe, but rather abstract objects [from (1′) and (2′)];
(4′) Linguistics is 'about something mental/neural' (p. 278);
(5′) Contradiction [from (3′) and (4′)].

Hilbert is said to have failed to notice that his programme required reference to expression types, just the kind of abstract entity he was allegedly seeking to avoid in the first place. In the same way, Katz finds Chomsky overlooking that on his conception of linguistics there 'cannot be enough mental/neural sentences for all the generated structural descriptions' (p. 278); he will, after all, have to concede that linguistics is about the abstract entities that he has reputedly sought to banish from its subject matter.

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[1] Hilbert wrote that 'the definitive clarification of the *nature of the infinite* has become necessary, not merely for the special interests of the individual sciences, but rather for the *honor of the human understanding* itself' (Hilbert, 1925, pp. 370–1, original emphases). Hilbert notes that as far as we know 'reality is finite' (1925, p. 372). (Hence, clarification of the infinite will presumably not benefit the 'individual sciences,' except insofar as they rely on infinistic mathematics.) He remarks on this finitude not because, as Katz's picture would have us believe, this fact seems to force the classical mathematician to have truck with 'epistemologically troublesome abstract objects' (Katz, p. 273), but rather to show that the infinite is dispensable for the natural sciences and hence clarification of the notion may safely consist in elimination (1925, p. 392).

[2] Indeed, in spite of Hilbert's use of the term 'concrete' to describe the expressions of mathematics (e.g. 1925, p. 376), he regularly takes these 'concrete signs' to be *numerals* (e.g. 1925, p. 377). For a discussion, see Daniel Isaacson's (1994, p. 120).

Now, just as Katz sees Hilbert trying to resist (5) by jettisoning (1), so he has Chomsky trying to avoid (5′) by modifying (1′). Thus Katz considers what he calls the 'Brouwerian option' (p. 280): the idea that there is not an actual infinity of sentences in any given natural language, but rather a potential infinity.[3] He thinks that Chomsky may be drawn to such an option because both he and Brouwer 'oppose a realist view on which knowledge in their discipline is a discovery about a mind-independent domain of abstract entities' (p. 280).[4]

Katz here misinterprets Chomsky, perhaps through a confusion about the expression 'mind-independent.' A domain can be *mind-independent*$_1$ in the sense that its elements are entities distinct from minds; the subject matter of astronomy, for example, is mind-independent$_1$. But a domain can also be said to be *mind-independent*$_2$ if there might be truths about its elements that we could not, even in principle, come to know. Mind-dependence$_1$ does not entail mind-dependence$_2$: there is no tension in holding that an inquiry concerns itself with mental entities, and hence that all its questions would be answered by a complete understanding of the mind, and simultaneously that such an understanding might be in principle inaccessible to us. It is the mind-dependence$_2$ of a domain that legitimates a non-realistic construal of its corresponding science. Brouwer, and constructivists generally, do affirm the mind-dependence$_2$ of mathematics.[5] It would be incorrect, however, to

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[3] At one point, Katz describes the 'option' as the view that 'natural languages contain no more than the small finite number of sentences that have mental or neural existence' (p. 280). But this bears less resemblance to constructivism than it does to strict finitism. Brouwer believed, as do constructivists generally, that there are infinitely many natural numbers; they differ from the platonist in how they understand that existence claim. (In note 7, Katz again says that 'the Brouwerian option requires linguists to take length as an aspect of syntactic structure which determines the sentences of a language'; he rephrases this as the requirement 'that there is an upper limit on the length of sentences.' Katz might here be discussing the 'Brouwerian option' once '[s]tripped of its notion of potential infinity' (p. 281). But if so, his discussion is extremely misleading, since the 'option' is then Brouwerian only in name.)

[4] Katz here seems again to read the ontological anxieties of some contemporary empiricists into past figures. Thus, he suggests that Brouwer sought 'to avoid the problem of abstractness of mathematics' (p. 280), as if Brouwer were particularly troubled by abstract entities, perhaps on account of their inability to affect our experiences. But this is an odd picture, given that Brouwer did *not* believe that mathematical knowledge is given to us in experience: for him, such knowledge is made possible rather by an activity of abstraction that operates on an a priori judgment that is independent of experience (e.g. 1913, pp. 78, 80).

[5] Whether Brouwer also affirms its mind-dependence$_1$ is more difficult to determine. He uses the metaphor of mental creation to describe mathematical activity. But this leaves it open whether he thinks the objects so created are themselves mental: if these hands of flesh and blood create a chair, the chair is not thereby also of flesh and blood. And there is some indication that Brouwer did not think that the product of mental construction was itself mental. Thus, while he notoriously held that each person's mental life is inaccessible to, and unshareable with, others, he also believed that 'different individuals [can] build up the same set' (1913, p. 81).

Of course, there are other senses of mind-dependence. For example, a domain of entities can be said to be *mind-dependent*$_3$ if its elements would not have existed had

claim that Chomsky believes in the mind-dependence$_2$ of the subject matter of linguistics. While Chomsky does affirm the mind-dependence$_1$ of the objects studied in linguistics, he has repeatedly emphasized the possibility that 'the human mind is inherently incapable of developing scientific understanding of the processes by which it itself functions in certain domains,' including perhaps those involving language (1975, p. 156). This would not be a possibility for someone who affirmed the mind-dependence$_2$ of linguistics.[6,7]

Contrary to what Katz claims, then, Chomsky does not 'oppose a realist view' of linguistic theory and so a constructive interpretation of it would not be acceptable to him. What Chomsky calls I-languages, the subject matter of linguistics according to him, are 'real-world objects' and their study issues in 'true or false statements about something real and definite' (1986, p. 26). Katz's 'Brouwerian option' may yet be relevant, however, for Chomsky

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there been no minds. In this sense, both Brouwer and Chomsky believe in the mind-dependence$_3$ of the subject matter of mathematics and linguistics, respectively. Perhaps it is worth noting that mind-dependence$_1$ entails mind-dependence$_3$, but not vice versa; and mind-dependence$_3$ does not entail mind-dependence$_2$.

[6] Richard Dedekind is an example of someone who holds with respect to mathematics the analogue of Chomsky's position about linguistics: in 'The Nature and Meaning of Numbers,' Dedekind takes the domain of natural numbers to be both mind-dependent$_1$ (1963, pp. 31–32) and mind-independent$_2$ (1963, p. 45).

[7] A word about the quotation from Chomsky that Katz offers on p. 287. Chomsky is there claiming that mathematics is plausibly considered to be both mind-independent$_1$ (knowing all truths about the mind, we still might not have resolved all mathematical questions) and mind-independent$_2$ (we discover that mathematical truths hold rather than make them hold through some kind of activity on our part). By contrast, because Chomsky takes language to be a part of the human psychological landscape, he says linguistics is mind-dependent$_1$: if one knew all truths about my mind, then one would know all truths about my language. Chomsky does not there say that linguistics is mind-dependent$_2$; indeed, as noted above, he denies this. Katz, commenting on this quotation (fn. 11), says that Chomsky 'makes what on the face of it is the Millian claim that the truths of arithmetic, presumably mathematical truth generally, are empirical discoveries.' This misinterprets what Chomsky means when he says that according to the platonist 'we seem to discover [truths of arithmetic] in the way we discover facts about the physical world.' Clearly, Chomsky is not saying here that the methods of justification or discovery are the same in mathematics and, say, physics. Rather, he is claiming (correctly) that mathematical truths, for the platonist, are there to be discovered rather than made, just as they are for the physicist.

In an interview, Chomsky once suggested that 'One could perhaps take the intuitionist view of mathematics as being not unlike the linguistic view of grammar' (1982, p. 16). Read in context, though, it seems that what Chomsky had in mind was that linguistics treats grammar as mind-dependent$_3$ (perhaps even mind-dependent$_1$), just as some intuitionists do mathematical objects. As the example of Dedekind illustrates, *this* feature of traditional intuitionism is separable from the question of how the logical vocabulary of one's theory is to be understood. Chomsky does, however, appear there to make the additional claim that should mathematical entities be mind-dependent$_3$ then they would be mind-dependent$_2$ as well. If he were to claim this, then Katz's suggestion that Chomsky rejects a realistic construal of linguistic theory would be correct. But, as already indicated, not only is the claim questionable but there are good reasons for thinking that it does not represent Chomsky's considered opinion.

adopts a different stance toward the collection of entities generated by an I-language.[8] He says that these 'are not real-world objects but are artificial, somewhat arbitrary, and perhaps not very interesting constructs' (ibid.). The collection of objects generated by an I-language does not exist independently as a 'real and definite' totality. These objects are 'constructs' and so cannot be reasoned about as if they were all already constructed. For this reason, quantification over these generated objects is plausibly construed as constructive rather than classical.

Let us assume this, and ask what conclusion Katz aims to draw. It is not completely clear. Sometimes, it seems as if Katz takes himself to be offering a general refutation of the constructivistic idea of potential infinity, for example when he claims that it is 'an illusion that there is something to the notion of potential infinity' (p. 281). At other times, his claim seems to be that the notion of potential infinity rests ultimately on that of abstract object ('non-actual possibilia' (p. 281)), the very kinds of objects Chomsky allegedly says linguistics is not about.

I am not certain whether I fully understand Katz's argument. Here, however, is a reconstruction of it that at least has the virtues of both being faithful to what he says (on pp. 280–1) and of providing a bridge between the above two claims. The proponent of potential infinity denies that all (let us say) natural numbers actually exist. That is, only finitely many numbers are actual: the remainder are such that it is possible to actualize them. The remainder, the argument continues, is a collection of possibly actual numbers (*). Furthermore, this collection of possibly actual numbers is a completed infinite totality, for if one removes a finite subset from a completed infinite totality, one is still left with an infinite totality (**). But a possibly actual number is an existing abstract entity.[9] Therefore, in the first place, the proponent of potential infinity must commit herself to the existence of abstract entities and, in the second, potential infinity is an 'illusion' because ultimately it assumes the existence of a completed infinity of entities (namely, the collection of existing 'non-actual possibilia' that make up the difference between the infinity of natural numbers and the finite collection of those that are actual).

Katz's argument to (*), which underpins his contention that the proponent of the potential infinite is forced to have truck with abstract entities, appears to involve moving from treating 'possible' as a sentential operator to taking it to be a property of objects (from 'it is possible to actualize x' to 'x is a non-actual possible'). This seems questionable and, at the very least, in need of far greater discussion. Katz's argument to (**), on the other hand, simply begs the question against a proponent of the potential infinite, who will

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[8] If to generate on the basis of rules is indeed what an I-language does. For the sake of this discussion, I will assume so, though the matter is ultimately an empirical one.

[9] Katz writes later that 'If a string type is [. . .] a possibility, it exists as a string type. In the case of abstract objects, there is no extensional difference between the possible and the actual' (p. 288).

emphatically deny that the collection of to-be-generated natural numbers forms a completed infinite totality. She might indeed say that the procedure of generation must be such that *every* natural number can be constructed. Clearly though, this universal quantifier must not be understood classically, as ranging over a completed infinite totality, but constructively.[10] Thus Katz's argument, as I understand it, is wanting and the 'Brouwerian option,' properly understood, remains a tenable response for Chomsky.

Katz then discusses and rejects a different position, one that I offered in (1989). I claimed there, on different grounds from those of Katz, that linguistic theory is concerned to identify particular mathematical entities, namely, the grammars known by competent speakers.[11] We seem to agree about this, as we do in our emphasis that there is a distinction to be heeded between, on the one hand, what we know and, on the other, that by virtue of which we have this knowledge. Where we differ is in the conclusions we draw. Katz insists that he and I are committed to the view that linguistics is not a natural science. I disagree, because I believe that the identification of a mathematical entity can be part of an empirical inquiry. For example, if I am trying to discover the diameter of Jupiter in miles, I am engaged in an empirical inquiry whose goal is to identify a particular number. If I want to know the trajectory of a particle, I am engaged in an empirical inquiry whose goal is to identify a particular function. The point is that mathematical entities can be contingently denoted by expressions, and when this happens identification of the expression's referent can require an empirical inquiry. In particular, my grammar, what I know, is a mathematical entity, but nevertheless its identification is an empirical matter. As I say in the passage that Katz (mis)quotes: 'Just as an inquiry into the identity of Z's favorite planet is not plausibly considered part of planetary astronomy, so an inquiry into the identity of Z's grammar is not plausibly considered part of mathematics. It is a contingent fact that a speaker knows the grammar he or she does; consequently, identification of that grammar, an abstract object, is a fully empirical inquiry' (1989, p. 98).

Katz suggests that there is a 'fallacy' (p. 282) in this view: 'Since the case of "Z's favourite number" is completely parallel to the case of "Z's favourite [*sic*] grammar"', Katz argues, 'it follows, by parity of argument, that arithmetic is "a fully empirical inquiry".' Katz's reasoning is obviously incorrect: what follows 'by parity of argument' is rather that an inquiry into the identity of Z's favourite number is a fully empirical inquiry. As indeed it is.

Of course, there is such a thing as a mathematical investigation of grammars and languages, for example as pursued in automata theory (just as there are mathematical inquiries into numbers and functions). If the empirical work of linguists should bear fruit and yield a precise description of my

[10] For an extended discussion of these competing views about the natural numbers, see Alexander George and Daniel J. Velleman's (forthcoming).

[11] There is also the matter of Universal Grammar, but for the present purposes I will put this aside.

grammar, then no doubt this entity would be amenable to mathematical inquiry. Katz seems to think that it is this latter inquiry that deserves to be considered linguistics. But surely there are no substantive issues here. If we cede the name 'linguistics' to this formal inquiry, there is still an empirical inquiry (perhaps to be denoted by 'the inquiry formerly known as "linguistics"') whose task it is to identify particular mathematical entities.[12]

I shall conclude by presenting another response to (1')–(5'), one which might plausibly be attributed to Chomsky, but which Katz does not consider. Chomsky holds that linguistics is about I-language: according to him, a finite, 'real and definite' object in, or feature of, the mind/brain of a speaker. Let us simply assume, for the same of the argument, that I-language is composed of rules; that these rules generate infinitely many structural descriptions; that we wish to interpret quantification over these structural descriptions classically; and that each structural description is some distinct 'mental/neural object' (p. 278). Katz argues that, because of 'the finiteness and discontinuity of physical matter' (p. 278), this last assertion must be abandoned: all but finitely many structural descriptions will turn out to be abstract entities, not 'mental/neural objects.'

Chomsky might well respond, however, that Katz has erected a false dichotomy here. For on Chomsky's view, all these 'mental/neural objects' *are* abstract entities. Though Katz claims that Chomsky's conception suffers a 'fundamental problem' because of the 'concreteness of mental/neural states' (p. 277), Chomsky in fact insists that the entities studied in linguistics are abstract. Indeed, Katz's consideration of infinitude is an irrelevant digression, for an I-language itself, though finite, is likewise an abstract entity according to Chomsky.[13]

But is this not in effect an admission that Katz is basically right, that linguistics is not an empirical science? Perhaps not, for the following reason. Let us say that an entity is *abstract* if it cannot enter into the causal order. Within the category of abstract entities, we can distinguish between those

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[12] Katz (p. 283) draws a distinction between two senses of the assertion that 'Linguistics is an inquiry into the grammar that a speaker knows.' 'On its referential sense,' Katz writes, 'it expresses the claim that linguistics is an inquiry into an abstract object [. . .]. On its non-referential sense, it expresses the claim that linguistics is a psychological inquiry [. . .] to discover which grammar they know.' He contends that my view conflates these two claims. I would agree that I combine them: linguistics, I suggest, is an empirical inquiry that seeks to describe a mathematical entity. But Katz goes on to add that they must be 'separated'. And this, however, seems questionable: there is nothing confused in the claim that astronomy, say, is an empirical inquiry that seeks to identify (among other things) a particular number, namely, the diameter of Jupiter in miles. Contrary to what Katz suggests, this does not threaten to make mathematics empirical. By the same token, astronomy is not made a part of mathematics by the fact that the diameter of Jupiter in miles, once identified, can be studied using the concepts and canons of mathematical inquiry; *mutatis mutandis*, the same holds for linguistics and grammar.

[13] See (1987, p. 182), where Chomsky compares I-languages to neural nets and insists that 'Such entities are abstract.'

that exist contingently and those that do not. For example, the Equator falls into the first group of abstract entities, for though it cannot be causally interacted with, its existence is dependent on that of our planet. The existence of the square root function, on the other hand, is not so dependent, and hence it falls into the second group, in which we find mathematical entities generally.[14] On Chomsky's view, the subject matter of linguistics—and indeed, of any natural science—consists of entities of the first kind, since I-languages are both abstract and mind-dependent$_1$. The enterprise is fully empirical, for, unlike the objects of mathematics, these entities exist only contingently.

Of course, more needs to be said to clarify and defend this response. But if it can be made out, then it would provide another way (in case one were wanted) in which Katz's conclusion, that because linguistics is about abstract entities it takes its place among 'mathematical theories such as number theory and set theory' (p. 270), can be resisted.[15]

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Appendix on the Cardinality of Natural Language

In section 6 of his paper, Katz presents a discussion of this and related issues.[16] He considers (p. 286) a set

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[14] For some discussion of a related distinction, especially as it arises in the context of Frege's work, see Michael Dummett's (1991).

Although Katz does not here consider Chomsky's insistence that I-languages are abstract entities, he does elsewhere. The discussion there makes it plain, however, that Katz believes that abstract entities 'have no temporal limits, have no causal properties and exist necessarily' (Katz and Postal, 1991, p. 546). The thrust of the present response (whether or not it is ultimately tenable) is therefore missed.

[15] The present response is different from the one I advanced in (1989) and sketched above. According to the latter, the linguist is seeking to describe mathematical entities, that is, abstract entities which existed before there were any humans and which will continue to exist after they disappear; such an enterprise can nevertheless be empirical because mathematical entities can be contingently denoted, as explained above. On the present view, however, my I-language and the structural descriptions that it generates are all abstract entities whose existence depends on that of my mind/brain, and hence none of these entities preceded me or will survive me; on this view, it is rather because of the contingent existence of these entities that an account of them is empirical.

On this last view, incidentally, we can see how Chomsky could hold that the infinite collection of structural descriptions generated by an I-language is a completed one without having to grant that linguistics is 'about' mathematical, or necessarily existing, objects; for such a collection might be akin to, for example, the totality of great circles of the Earth, a completed infinite collection of abstract entities that exist only contingently. (Still, in the light of Chomsky's remarks about the constructed nature of this collection, he might nevertheless prefer not to treat it as a completed infinite totality.)

[16] I shall not here directly assess the argument in (Langendoen and Postal, 1984), which forms the basis of Katz's discussion.

$E = \{(I\ know\ that)^k\ I\ like\ cheese \mid k > 0\}$,

which clearly contains denumerably many sentences of English, and the string

> *S = I know that I like cheese and I know that I know that I like cheese and I know that I know that I know that I like cheese . . ..*

Katz then attributes to Langendoen and Postal, and apparently affirms himself, the view

> that the set of strings which results from forming all possible conjunctions from the sentences in the set (E), the set (E'), has the cardinality of the power set of (E) and that every string in (E') is an English sentence because well-formedness is preserved under coordinate compounding. Since (S) is in (E'), (S) is a sentence of English [(†)], but since there can be no derivation of (S) in a generative grammar [(††)], (S) is a counter-example to generativism (p. 286).

Katz's central claim is (†), that *S* is grammatical in English. The claim's content is uncertain on account of Katz's unclarity regarding precisely which string *S* is. The above elliptical characterization of *S*, offered by Katz, leads one to believe that *S* is intended to be of denumerable length. Yet Katz claims that '(S) is more than denumerably infinite' (p. 286). Perhaps Katz is here confusing the claim that (a) there are uncountably many sentences in English (a claim he attributes to Langendoen and Postal (p. 285)) with the thesis that (b) there is a sentence in English of uncountable length. At any rate, let us simply assume that *S* is of denumerable length. What, then, might be his argument for (†)?

Katz says that 'Since each of the denumerably many sentences in (E) is grammatical, grammaticality is preserved under coordinate compounding, and (S) belongs to (E') which results from coordinate compounding applied to (E), it follows that (S) is grammatical' (p. 286). But what reason is there to think that such infinite compounding does preserve grammaticality? Katz provides his answer in note 10. As I understand it, it amounts to this: if *S* were ungrammatical, then *its ungrammaticality must surface at some finite stage of its construction*; but, by induction, at each finite stage in the construction of *S* there is no ungrammaticality; therefore, *S* is grammatical. But the italicized claim simply restates what was to be established, and it will be denied precisely by someone who thinks that infinite compounding fails to preserve grammaticality.

Katz, then, presents no persuasive reason for (†), for thinking that *S* is a grammatical sentence of English. But even if he had, would (††) hold, that is, would we then have to reject the use of generative grammars in characterizing grammaticality in English? It is quite true that if a derivation is restricted to a *finite* application of the rules of the grammar, then no sentence

of infinite length can be derived. However, if we relax this constraint on derivations and allow them to be not merely finite but countable, then *S* is indeed derivable.

Katz simply asserts without argument that 'Generative grammars construct the strings they generate on the basis of finite derivations' (p. 285). Why should this be? It would seem that either there is something conceptually problematic about a derivation of infinite length, or it is simply being stipulated that derivations in generative grammars must be finite. If the first, then it is incumbent upon Katz to articulate what the conceptual problem is, which he fails to do. Furthermore, it is difficult to see what the problem might be, and even more difficult to understand how Katz in particular could find anything problematic in the notion of a correct derivation of infinite length. For if grammatical strings of infinite length exist, as he believes, then the infinite trees corresponding to them are representations of derivations of infinite length that result from applying the generation rules correctly. (For example, if *S* is indeed a grammatical sentence, then the tree corresponding to it—a tree with infinitely many finite branches and one infinite one—encodes an infinitely long derivation that involves only correct applications of generation rules.) The linguist who holds that there are no correct derivations of infinite length in the grammar of English does not do so on account of conceptual reservations regarding the notion of an infinite derivation, but rather because he or she believes that, as a matter of fact, there are no infinitely long grammatical sentences in English.

If, on the other hand, Katz is simply stipulating that a correct derivation in a generative grammar must be finite, then his claim that *S* could not be derived in such a grammar is trivially true. To see how uninteresting this claim would be, define a *super-generative grammar* to be just like a generative grammar (in Katz's sense), except that derivations may be of infinite length. Then there is a super-generative grammar that can generate *S*. (The linguist who holds that there are no infinite grammatical sentences in English will add that the grammar of English is not of the super-generative variety.) Now, if *S* were grammatical, would 'generativism' still stand refuted? There is nothing at issue here beyond a choice of labels. In sum, Katz's (††) is either untenable or trivial.

Finally, Katz must either withdraw his claim that 'if English consists of non-denumerably many sentences [. . .], generative grammars falsely describe the cardinality of its sentences' (p. 285) or, again, render it true by fiat. For the proof that a grammar generates countably many sentences depends crucially on the assumption that its derivations are of finite length.

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