Whose (post)-Structuralism?

A Response to Pat McCrelles

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It would probably have come as a surprise to psychologists, anthropologists, and linguists of a half century ago that structuralism would, in the space of only a few years, become a moribund intellectual tradition. At this point, however, even the most committed structuralist would be hard pressed to claim otherwise. Many of the leading names of structuralism, Sapir, Bloomfield, Bloch, and Hockett are by now if not largely unrecognized at least far less influential than post-structuralist icons such as Foucault, Derrida, and Kristeva. Within musicology, as Pat McCrelles pointed out some years back (Mccreless, 2000), a renewed interest in structuralism may have been provoked by Hatten's (1994), Agawu's (1991) and Nattiez' (1990) investigations into musical semiotics, a field which McCrelles refers to as "the quintessential offspring of structuralism." But semiotics, I will argue, while certainly an influential offspring of structuralism, should not be seen as typical. For unlike semiotics which remains an active and prolific research paradigm, traditional structuralism is primarily known for its having failed. This is particularly the case within linguistics-the discipline which originated structuralism and provided the conceptual and taxonomic framework which would subsequently be imported to other humanistic disciplines. Structuralism's failure, it should be stressed, was entirely honorable. More importantly, its failure was productive in that it taught basic lessons which

would constitute the foundation for almost all subsequent work in the field of linguistics. It is now taken for granted that the lessons learned from the failure of structural linguistics have a great deal to teach those of us who are concerned with what goes on in our heads when we speak. And I will suggest that they have great deal to teach those of us who are trying to come to an understanding of what goes on in our heads when we experience music.

That it is primarily only linguistics that has been able to learn from the collapse of structuralism is the subject of Leonard Jackson's (1991) polemic *The Poverty of Structuralism*. Part of the reason this is the case, Jackson argues, results from the fact that the variant of post-structuralism which has become dominant in the humanities and social sciences (but not in linguistics) has manifested a particular myopia with respect to structuralism. That is, it tends to identify structuralism narrowly with the structural anthropology of Levi-Strauss and his continental followers on one side, and the work of Ferdinand de Saussure on the other. That structuralism had a continuous and active existence for the two intellectual generations between Saussure and Levi-Strauss tends to be ignored. [1] As a result there is comparatively little awareness of the rich-albeit somewhat technical work from the first half of the 20th century which Saussure's strictly linguistic analyses inspired.

Jackson refers to "the great misreading of Saussure" which has emerged from post-structuralism in which

"every theoretical distinction . . . is taken up, enlarged upon, analysed and transferred into other contexts in which it often

[1] For example, the names Leonard Bloomfield, Zellig Harris, Franz Boas, and Edward Sapir. account for fewer than ten citations in Dosse's monumental history of Structuralism (Dosse, 1991, 1997). Charles Hockett and Bernard Bloch, go unmentioned. MacDonnell, (1986) displays a similar distribution.

means something entirely different. But the linguistic

examples that pin down these theoretical distinctions are

usually ignored. The (text) is read; but the italic type. . .

indicat(ing) linguistic examples . . . is skipped over. (Jackson,

p. 104-105)

Terms which began as a precise technical vocabulary in Saussure and subsequent

variants of structuralism would be imported to a range of other disciplines. Most

notable among these would be Levi-Strauss's structural anthropology based on

terminology derived by Roman Jakobson such as the marked-unmarked

dichotomy, the distinctive feature, binary opposition etc. While these analytical

categories surely provided important insights into cultural and literary practice,

much precision and, more importantly, many rigorous, empirically grounded

conclusions having to do with one human activity, namely language, were lost as

the linguistic roots of structuralism became obscured. I will suggest that it is only

when structuralist concepts are returned to the initial context in which they were

advanced that the real lessons of structuralism's fall can be learned. In order to

do so we need to make a brief attempt to deal with the italic type which Jackson

refers to- the facts of language as they were understood by Saussure and other

scholars from the first half of the twentieth century. In so doing it will also

become apparent why the structuralist framework within linguistics was

ultimately found to be scientifically unsatisfactory: it simply could not account for

these facts.

First Generation Structuralism

The idea that "facts" of particular languages divorced from the historical continuum of language could be the object of study, while uncontroversial today, was by no means so when linguistic structuralism began to emerge in the nineteenth century. 19th century linguistics as practiced by the neogrammarian school of Herman Paul, Karl Bruggman and also the first American linguist of international reputation, Yale Professor William Dwight Whitney, had been focussed on an explanation of linguistic form in reference to the historical development of languages. According to Anderson (1985), the "historical study of language was the only genuinely scientific approach to the facts of language" and formed the basis of linguistic scholarship. In this respect, 19th century linguistics bears comparison with musical scholarship which would develop its own "synchronic" discipline, music theory, only after the diachronic field of musical scholarship, musicology, had been long established. Much discussion outside of linguistics has been devoted to Saussure's "diachronic" versus "synchronic" distinction, but it should be understood that at least one basic aspect of the distinction was directed internally. For a synchronic approach to linguistic analysis was to, in Anderson's words, "completely change the direction of the field". In so doing Saussure, invented the field of "descriptive" or "structural" linguistics.

Just as the field of music theory allowed for an exclusive focus on the formal richness of particular works, the synchronic study of language would reveal that particular languages were tremendously rich and varied. The picture

would be very different from the orderly transition of language to language revealed, as it were, from on high in the laws of historical sound change devised by Grimm and Verner, the cornerstones of the neogrammarian linguistics. Indeed, actual existing languages when looked at from a structuralist perspective were a veritable riot of sounds and physiological gymnastics. The recognition of the daunting complexity of all languages was advanced by results from the ambitious field research programs undertaken by structuralism. Many of these were studies of languages of indigenous peoples having only the most distant relationship to the indo-European languages which formed the basis of the neo-grammarian canon. Rather than relegating "exotic" languages to the periphery, structural linguistics drew scholarly attention to these languages as a validation of the inherent interest in synchronic inquiry. What emerged from structuralist fieldwork-precise descriptive grammars of African click languages, indigenous Australian languages without apparent word order, languages without syllable structure, languages in which parts of speech were interchangeable- would constitute much of the empirical domain which linguistics theories to this day are required to account for.

The Abstract Phoneme

Structuralist fieldwork was undertaken as part of a larger ethnographic program including in addition to linguistics, anthropology and sociology, what was then known as "folklore," later developing into what is now known as ethnomusicology. Whereas folklorists had at their disposal a notational system which could specify to a reasonable degree of precision the objective structure of music, it would not be until well into the 19th century that linguistics would

develop a notational system of roughly equal descriptive power. This was the phonetic alphabet receiving its exposition in A. M. Bell's *Visible Speech* of 1867. The phonetic alphabet derived from a theoretical advance in 19th century linguistics which posited that languages are defined by a limited repertoire of speech sounds known initially as phones and later as phonemes. These phones can in turn be seen as composites of what would be known as "features:" discrete physiological gestures effected by the "speech organs" including the lips, tongue, mouth and throat. The phonetic conception of language adopted by structuralism was fundamentally an atomistic one and as such was seen as a breakthrough equivalent to what molecular theory had been for the natural sciences a century earlier. Bell's alphabet, and later developments of it, would function as a kind of periodic table whose finite means allowed for the description of the practical infinity of the world's languages.

While the phoneme is relatively familiar, the linguistic issues surrounding its status as a verifiable element of actual language are not. For just as the physical atom would give rise to centuries of speculation as to its ultimate existence so would the notion of the phoneme as a "linguistic atom" raise as many questions as it answered. One such question became immediately apparent when in cataloguing the speech sounds of a language a clear choice between lumping and splitting confronted linguists attempting to catalogue the phonemes of languages. For example, English, like most languages, makes use of the unvoiced dental consonant "t" formed by the closing off of the air cavity by the tongue behind the teeth. In certain contexts-as the initial consonant in the word "tea," this consonant is accompanied by a burst of air known as aspiration. As the final consonant of "scat," however, it will be noticed that aspiration disappears (at least in the speech of native speakers). When "t" appears as the medial consonant of

"writing" no actual complete constriction of the airflow takes place, and the stop is replaced by the "tap" or "flap" in which the tip of the tongue briefly touches the roof of the mouth immediately behind the teeth.

Since three distinct physiological actions are implicated in the production of this sound, an objective "phonetic" description of the external structure of these utterances must register the appearances of at least three distinct composites of features. An "objective" description of the consonants of English will be seen to require not just the three variants (or allophones) of the English "t" mentioned above but also numerous other intermediate articulatory gestures, including partial flapping, degrees of aspiration, half-voicing, etc. Furthermore, a complete specification of the physiological or acoustical structure of actual speech would require English grammars to represent intonational contour, tongue clicks, and even hand gestures, phonetic characteristics which are highly salient or "distinctive" in the phonological structure of other languages but are not in English. A theory which claims to describe the objective reality of language cannot, by definition, arbitrarily choose to ignore that which the analyst or the speaker subjectively "knows" not to be significant. But to not allow for such intuitive judgments as to what constitutes the relevant facts of language was to invite chaos. What Anderson refers to as the "fully specified surface" was as much a practical impossibility as it was a theoretical dead end.

Not only would a complete specification of external speech be unwieldy, more crucially it would fail to capture a more fundamental fact about the perception of the sound structure of language also noted by Sapir. Namely, that "the actual rumble of speech" is perceived as "an ideal flow of phonetic units." Speakers of a language understand that the

significant structure of language is dependent upon the unconscious

selection of a fixed number of 'phonetic stations' or sound units.

These are essentially modifiable. . . but the essential point is that . . .

definite psychological barriers are erected between phonetic

stations so that speech ceases to be an expressive flow of sound and

becomes a symbolic composition with limited materials. (Sapir,

1933)

In other words, while the external reality of the units of speech is highly

continuous, the internal, psychological reality of speech is discrete.

The smallest units, the phonemes, will be "modified," sometimes quite radically in

actual speech to embody the range of allophones which are observed in external

language. But no matter how much they are distorted, all instances of the

phonetic realization will result in the speaker decoding and recovering the

underlying phoneme. While the compilers of structuralist grammars were

generally not entirely explicit on this point, they would reflect speakers'

"unconscious" understanding of the "psychological barrier erected between

phonetic stations" by representing subjectively similar but objectively highly

disparate phonetic units as belonging to the same phonemic categories.

Music and Language: A Structuralist Comparsion

Sapir, who studied composition under MacDowell at Columbia, would draw

a useful analogy directly relevant to musical scholarship. The status of phonetic

versus phonemic structure in language is, Sapir contends, comparable to the

listener's experience of music:

The analogy (of phonology) with musical theory seems quite fair.

Even the most resplendent and dynamic symphony is built up of

tangibly distinct musical entities or notes which, in the physical

world, flow into each other in an indefinite continuum but

which, in the world of aesthetic composition and appreciation,

are definitely bounded off against each other, so that they may

enter into an intricate mathematics of significant relationships.

(Sapir, 193_)

The phoneme is a kind of psychological phantom which a fluent speaker is able to

project onto a linguistic surface. The surface itself, however, provides very

limited and impoverished clues from which listeners construct a rich phonemic

interpretation. The "signficant relationships" of music, Sapir claims, whether

these are harmonic, melodic or rhythmic, are equally mental constructs: not

components of the piece per se but psychological categories projected by the

listener onto a surface structure of music which allows for a practically infinite

class of interpretations.

It is not unreasonable to assume that Sapir, who would argue for the

inherent "psychological reality of the phoneme" (the title of one of his best

known essays (Sapir, 1933)), would accept that ultimate reality of the work of

music was also similarly psychological. Unfortunately, Sapir's early death in 1939

prevented his developing the ideas suggested in the above passage further. (There

are, however, tantalizing hints in Sapir's 1921 essay "The Musical Foundations of

Verse.") It would be some time before this position could be articulated directly as

it would be by Ray Jackendoff (1992):

What is the 'objective reality' of the Eroica Symphony or Stardust? It

seems to me that these pieces are best considered to be abstractions

that can be realized in performances or scores of wildly varying

physical characteristics (it is possible, though appalling, to conceive

of the Eroica played by a quartet of marimbas; and of course a

popular song like "Stardust" can be subjected to endless arrangements). But the abstraction that unifies different performances of a piece of music is precisely captured in the mental representation of music—the mental structures that performances evoke. That is, the constancy and reality of a piece of music are purely mental. Jackendoff (1992)

Jackendoff's "internalist" perspective on music would and, indeed, could probably only have come after generative linguistics had established Sapir's belief in the ultimate "psychological reality" of the units of language as conventional wisdom-at least within linguistics. During his lifetime, Sapir's views would be derided by most structuralists who, highly influenced by empiricist and behaviorist tendencies afoot at the time regarded such "mentalist" explanations as unscientific or worse.

With the mind off limits, it was necessary for structuralists to posit the phoneme as existing "out there" in the acoustical surface of language.[2] While Bloomfield and others recognized that they were making a significant leap beyond the empirical data in positing a verifiable acoustic basis for the relationship between the phoneme and its allophones they were hopeful that it would emerge. Unfortunately, rather than confirming structuralist expectations, as acoustics developed it failed to provide the objective basis for these or other seemingly subjectively obvious linguistic relationships. The central phonemic reality of linguistic structure would be, like that of the atom itself, not verifiable through

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[2] Bloomfield (1933) is explicit on this point: the phonemes, according to him, are specific "*features of sounds* which speakers have been trained to produce and recognize in the current of actual speech sound. (my italics)" Alternatively, in Bloch's (1941) formulation of Bloomfield's position, the phoneme defines the "constant feature of the soundwave" or "the central member of a class" of sound waves around which the allophones form a statistical 'cluster.'" (Bloch, 1941)

direct observation. Rather both entities, the atom and the phoneme, were theoretically required in order to account for the range of phenomena which are empirically observed. The phoneme was a psychological phantom but a necessary one for any reasonable account of linguistic structure to be advanced.

The Collapse of Structuralism

It is generally agreed that the demise of structuralism can be dated to the rise of generative grammar initiated by Noam Chomsky's work of the early 1950s. While not all of the core theoretical assumptions of generative linguistics would be made explicit in early work in the field, linguists would more or less tacitly assume a strong version of Sapir's argument for the "psychological reality" not just of the phoneme but of all significant linguistic structure. As the field matured, it would come to accept Chomsky's formulation that i-language, the internal, intensional, intuitive aspects of language would form "the object of inquiry" for linguistic science (Chomsky, 1986). The "facts" of e-language, the external artifacts of language which defined structuralist inquiry would be relevant to linguistics only insofar as they were relevant (either positively or negatively) to theories of the mental representation of language. Linguists would shift their orientation from studying the structure of language as it is acoustically or physically embodied in the real world to the psychological mechanisms which underlie linguistic competence.[3] Or, as put somewhat differently by Mark Baker

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[3] Chomsky (2000) describes the shift from structuralism to generativist (or cognitivist) model in the following:

> "There was an important change of perspective: from the study of behavior and its products (such as texts), to the inner mechanisms that enter into thought and action. The cognitive perspective regards behavior and its products not as the object

(2001), since Chomsky linguists study not language as such but rather mental recipes which speakers appeal to when they produce or consume language.

A more complete overview of contemporary linguistics is beyond the scope of what is necessary for our purposes here. For those interested, I would recommend, in addition to Baker's brilliant *The Atoms of Language* , Anderson and Lightfoot's *The Language Organ*, (Anderson and Lightfoot, 2002) and, somewhat more provisionally, Steven Pinker's *The Language Instinct*. (Pinker, 1994). These texts go some way towards correcting the dearth in non-technical introductions to linguistics, making accessible to those outside the field what lies behind the formal discourse of contemporary work.

An unfortunate consequence of the absence of readable non-technical introductions to the field is that there is little awareness outside the field of what linguists work on and why. It is may be understood by non-specialists that, in a general sense, linguists attempt to derive rules which describe grammatical constructions. Beyond this, little is understood about how these rules work[4] and still less is known of the remarkable success which linguists have had in discovering general principles-or, more specifically, parameters- which determine the underlying structure of a wide variety of superficially disparate languages. More importantly still less is known of real, if only partial, answers, grounded not in speculation, but in "hard" scientific theory, which are now emerging on a range of questions which, until now, could barely be formulated coherently let

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of inquiry, but as data that may provide evidence about the inner mechanisms of mind and the ways these mechanisms operate in executing actions and interpreting experience. The properties and patterns that were the focus of attention in structural linguistics find their place, but as phenomena to be explained along with innumerable others, in terms of the inner mechanisms that generate expressions."

alone answered. Among these are how is language constructed so that we can understand it? How does language relate to thought and to what extent does it exist independently of thought? What aspects of language are learned, and which are innate?

Progress on these and other deep and complex questions has been made possible by linguists having correctly identified the essential object of study of their field as the underlying mental representation of language not the external artifacts of language, or language "out there." In other words, the progress of linguistic science is directly related to its having overthrown the basic assumptions of structuralism. Whether a post-structuralist[5] music scholarship promises to obtain equally substantial results is, I recognize, a controversial position, a point I will return to. For now, I will argue that developing a post-structuralist or, to use Chomsky's terminology, cognitive perspective should be a higher priority within musical scholarship than it is at present.

I say this for two reasons. First, as just noted, linguistics has demonstrated that the potential upside is considerable-real answers to questions which have been obscure emerged once the essential mental character of language was recognized as the "object of inquiry." Among the questions which might emerge from obscurity from within a post-structuralist perspective on music are-what is large scale musical form, to what extent is it an objective characteristic imposed by composers on compositional materials, and to what extent is it a psychological primitive required of all coherent musical structure in the same way that, for

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[4] For a dramatic example of failure to understand the most basic technical aspects of contemporary linguistics, see Searle (2002).

[5] I recognize, of course, that the term, has come to denote various post-modernist approaches in literary criticism, anthropology and cultural studies. I do not believe that this appropriation is legitimate, for reasons which should be clear. In any case, I trust that by this point, my use of the term will not cause confusion.

example, all coherent linguistic utterances are constructed from linguistic primitives such as phonemes, lexical categories and phrase structures. A second question, one which has been at the root of much heated debate in new music circles, is to what extent are certain compositional systems, to use Lerdahl's useful terminology "cognitively opaque" (Lerdahl, 1992)? To what extent is it required for listeners to "assign works of music a detailed representation" and what particular compositional structures allow for this psychological process to be enacted. And what sorts of structures are resistant to processing, even given practically unlimited training. This is not to say that all, or even many, of the questions we would most like to have answered would be addressed within a cognitive framework. However, some, I believe, such as those posed above might be. And this prospect should be sufficiently attractive for some room to be cleared within musical scholarship for the "cognitive perspective."

Second, a cognitive approach to musical scholarship would seem to hold out the hope for similar successes to those achieved in linguistics because, while there are clearly enormous differences, both are at root essentially cognitive activities. Both music and language can be manifested externally in our lips, tongues, fingers, on recordings and on the printed page. But underlying these behavioral artifacts is the existence of music in our minds, specifically as a mental representation. If this is so, there is good reason to study it as such. The study of I-language was found to be a practical necessity for linguistic science, and it is likely that the analogous conceptual and methodological category of I-music should become at least relatively familiar to those in musical scholarship.

Given the both potential upside and the fundamental common ground, it is reasonable to expect music scholarship to have a better grasp of the underlying issues surrounding linguistic structuralism-what it is, and what it is not- than it

generally has displayed. Indications of lapses on this score are, unfortunately, relatively easy to discover. Among these are Ian Bent's New Grove's entry on structuralism (Bent, 1980) in which Chomsky is identified as "a chief exponent of structuralism." A more recent instance is found in an online contretemps between Joe Dubiel and Allen Forte where Forte refers to "the structuralist linguistics of the seventies." (One assumes that Forte is referring to various attempts to shoehorn then fashionable ideas of Chomsky into music theory). [6] I hope that at minimum, the above discussion makes clear that this view is incorrect: to reiterate, not only is Chomskyan generative grammar a direct repudiation of structuralism, the successes of contemporary linguistics were directly linked to its explicit rejection of the fundamental premises of structuralism.

Two loose ends

I will close by making two qualifications to claims I have made in the preceding. The first is to note that the paths of generative linguistics and music theory have, of course, crossed in the past. Bernstein's 1975 Norton Lectures published as "The Unanswered Question" was an early, albeit problematic, attempt to graft what was then called transformational grammar onto musical analysis. Lerdahl and Jackendoff (1983) and to a lesser extent Narmour (1990) have offered theories of musical representation in some ways consistent with the assumptions of what might be called Chomskyan post-Structuralism[7]. I want to suggest here (and I will argue elsewhere) that it is not always entirely clear that the implication-realization model or the generative theory is consistent with the

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[6] The confusion of Forte and Bent is understandable. (See note 5). Furthermore, most post-structuralists, do, in fact, categorize Chomsky not as a post-structuralist but as adherent of structuralism (see Dosse 2001)..

[7] Chomsky would, of course, vehemently object to the term. See Chomsky (1968).

larger picture of the mind which Chomsky's work strongly argues for. Indeed, as what has been called "cognitive music theory" has developed, it has tended increasingly to embrace assumptions more consistent with structuralism than with generative linguistics. Most notable among these is the expanding field of music perception which is largely concerned with empirical studies of musical behavior. These tend to narrowly focus on the "objective" external facts of musical behavior (as opposed to the psychological mechanisms *underlying the behavior*). Thus, much work in music cognition is highly reminiscent of the more rigid variants of structuralism-even behaviorism. Structuralist assumptions have also, surprisingly, found their way back into that which was initially inspired by generative grammar. Lerdahl's pitch space "journeys" (Lerdahl, 2001) can, with some difficulty, be construed as they are evidently intended, that is, as psychological representations. However, as can be seen in, for example, Gollin (2001) they are just as easily understood as traditional structural analyses concerned with highlighting the composed-in characteristics of the tonal structure of the particular work under analysis and only secondarily with modeling a plausible mental representation of harmonic relationships.

The second qualification is to note that a Chomskyan view of music as a purely mental "natural object" is inherently problematic in certain important respects. Clearly, the objective structure of musical works, as opposed to its psychological representation, can, and in the case of notated music, certainly does exist as an autonomous entity, independent of, and on occasion impervious to, the perceptions of any listener, experienced or otherwise. Since the middle ages, composers have created complex and elegant relationships within pieces or, more precisely, secret codes at least some of which are not "heard" in any meaningful sense, but are only observable by those who have been able to decipher the

underlying generative system. Then there is a significant gray area of works in which certain composed-in features of music can become perceptually accessible, either through practice or familiarity with the compositional practice which gave rise to them. In short, what we hear (or perceive) can be influenced by what we know about the underlying organization of the perceptual stimulus and, as argued by Fodor (1988) and Churchland (1984) "perceptual plasticity" needs to be incorporated into any reasonable theory of mental structure.

Given this essential fact of musical experience, it is entirely reasonable for music theory to attempt to discover and categorize the underlying structure of works whether this structure is immediately and unproblematically perceptually salient, provisionally perceptually salient or completely impervious to our perceptual faculties. Furthermore, as a pedagogical matter, it may be eminently appropriate to view our perceptual faculties as highly contingent and trainable indeed, close to "infinitely malleable" in a sense that Chomsky would find uncongenial, if not outright abhorrent.[8] Art music, as an aesthetic discipline as opposed to a communicative system requires setting the bar high for those who want to fully experience it. This does not mean, of course, that we should engage in the futile task of attempting to internalize musical structure which is, to appeal again to Fred Lerdahl's useful term, "cognitively opaque". It does mean that we should not be willing to give ourselves, or our students, the easy way out in assuming, as we do with language, that everything which is there to be perceived is designed so as to be readily accessible.

But to have a range of options for theoretical inquiry available to us also means that certain directions are likely to be more fruitful and productive than others. The lessons of the collapse of structuralism for linguistics demonstrated

precisely that. Namely, an investigation into the external structure of language, while producing much important empirical data and many interesting observations, was ultimately sterile in that it was incapable of supporting an empirical theory of language. Based on this history, a reasonable approach to the long standing question "what is a theory of music a theory of?" needs to involve a full awareness of the essential psychological character of music and recognize that the external artifacts of music-music as heard in performance or as notated in scores-are the shadows cast by the underlying psychological reality. The legacy of structural linguistics and its honorable failure provides us a clear precedent for how a successful inquiry along these lines can proceed.

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8 See, for example, Chomsky (1968).

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