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David Temperley*

Review of Joseph Swain, *Musical Languages*

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ABSTRACT: Joseph Swain's *Musical Languages* is a systematic comparison of music and language, examining possible musical parallels to linguistic concepts such as phonology, syntax, meaning and metaphor, and also comparing music and language in terms of the role of context and the nature of historical change. *Musical Languages* is open-minded, cogent, and full of interesting ideas. Some of the parallels drawn between music and language seem overstated, while some differences are exaggerated; and some of Swain's positions, though quite reasonable, are not as well-defended as they could be.

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[1.1] On cursory inspection, the book that Joseph Swain's *Musical Languages* brings to mind most readily is Leonard Bernstein's *The Unanswered Question*. *The Unanswered Question*, based on six lectures Bernstein gave at Harvard in 1973, is an ambitious and all-embracing attempt to explain music in linguistic terms. Bernstein argues for profound musical parallels to the linguistic levels of phonology, syntax, and semantics (these being the topics of the first three lectures), and finds analogs to many other linguistic phenomena along the way: phonemes, morphemes, parts of speech (nouns, verbs, and adjectives), syntactic transformations (deletion, negation and interrogation),

rhetorical devices (alliteration and chiasmus), and metaphor, among others. Like Bernstein, Swain begins with three chapters on phonology, syntax and semantics; and the question Swain poses, in his first sentence, as the underlying concern of his book--"How is music like language, and so what if it is?"--might have served equally well for Bernstein's.

[1.2] This resemblance between Swain's book and Bernstein's is probably unfortunate. *The Unanswered Question* has not been well-received in scholarly musical circles; the relatively few references to it that can be found are mostly derisory. ^[1] And in truth, Bernstein's book is an extremely problematic one. It comes across as a prolonged brainstorm, in which Bernstein throws out a series of superficial parallels between music and language, but rarely stops to consider whether they really hold up. (His insistence on viewing motivic relationships as "Chomskian transformations" is one especially problematic example.) Bernstein seems interested only in how music is like language, not how it isn't; and this gives the book a very one-sided, agenda-driven feel. But prospective readers of *Musical Languages* should not be deterred by fears of *The Unanswered Question II*. Indeed, the great virtue of Swain's book is that it is *not* agenda-driven in this way. *Musical Languages*, as Swain's first sentence suggests, is indeed a systematic study of the parallels between music and language; Swain considers many of the same parallels that Bernstein does, and many others besides (and here he has the advantage of 25 years of research in both music and linguistics since Bernstein's book). But at every step he carefully considers whether the parallel can be sustained; and in many cases he concludes that it cannot, or at least not without serious qualification.

[1.3] If undertaken open-mindedly, as Swain's book is, a study of the parallels between music and language is an extremely worthwhile and timely endeavor. For, despite general (and justified) skepticism about glib claims that "music is a language", the fact is that analogies between music and language are a vital part of current musical thought and discourse, perhaps more so than they have ever been. Recent examples include Cooper and Meyer's theory of rhythm, based on prosody; the semiotic work of Nattiez and others; the "generative" theory of Lerdahl and Jackendoff, inspired in part by theoretical linguistics; and the work of Newcomb, Maus and others in the area of musical narrative. ^[2] Language has proven to be an immensely rich source of ideas for scholars of music, and there is every reason to continue to look to it for inspiration.

[1.4] Parallels between music and language are of particular interest from the point of view of music cognition. It is generally assumed that music takes advantage of capacities of the brain for certain kinds of perceptual and cognitive processing. The question then arises, where do these capacities come from? One possibility is that they evolved in the service of music itself; another possibility is that they originally arose for other purposes, and were borrowed by music at a later stage. Among the obvious candidates for these "other purposes" is language. For example, recent research has shown that intonation patterns in speech play a vital role in communication with infants (who of course have not yet mastered other aspects of language); ^[3] this raises the possibility that our great sensitivity to pitch later in life, which has little obvious practical value, may be a remnant of an important infant ability. In this way, finding parallels between music and language can shed light on the cognitive basis of music. Where parallels with language are not found, that is interesting too, because it means we have to look elsewhere in explaining music's cognitive origins.

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[2.1] *Musical Languages* is organized as a series of essays examining different aspects of the music-language analogy; the essays are largely self-contained, and are best considered one by one. It should be noted that the book is chiefly concerned with Western art music of the "common-practice" period, although passing references are made to other kinds of music.

[2.2] Swain begins by exploring the parallels between music and language at the phonological level. Both linguistic and musical systems are built from a small inventory of discrete, categorically perceived units: phonemes in language, pitches in music. In both cases, these units are perceived instantly and automatically, though they are by no means cleanly distinguished in the acoustical signal. However, the parallel is not as straightforward as it first seems: are notes of the same

pitch-class in different octaves the same "phoneme," or different? What about two notes of the same pitch but different timbre (violin versus clarinet)--are these phonemically the same, despite the great musical importance that timbre may have? Swain tentatively proposes that pitch and rhythm are the essential phonemic properties of notes, while timbre is analogous to intonation and stress in language. Another issue Swain raises is "arbitrariness." Phonemes in language are generally held to be "logical primitives," possessing no meaning on their own. In the case of notes, however, Swain finds this doubtful; surely the timbre of a note is a meaningful aspect. (Using timbre as an example is a bit confusing here, since Swain had earlier suggested that timbre was not a phonemic property of notes.) But even the arbitrariness of phonemes in language is open to question, he argues; for example, most words beginning with /sl/ are pejorative, suggesting that phonemes themselves may carry subtle meanings.

[2.3] There is much insight and good sense in Swain's discussion of phonological parallels between music and language. However, there is more to be said about this issue, particularly the question of arbitrariness.

[2.4] In the most general sense, arbitrariness has to do with the relation between the form of something and its functional properties (by this I simply mean the properties of the thing that relate to its function in the larger system). The functional properties of a word in a language are semantic (it has a meaning) and syntactic (it is a member of some syntactic category: noun, verb, etc.). Words are comprised of phonemes; however, you cannot predict, or figure out from general principles, the semantic or syntactic properties of a word from the phonemes that make it up. (Strictly speaking, we should speak about morphemes here, not words, a morpheme being an indivisible unit of meaning; for example, the word "speaking" has two morphemes, "speak" and "ing." However, words often correspond to morphemes; thus speaking of words instead of morphemes, as Swain himself does, seems to be a reasonable oversimplification.) One could imagine a language where phonemes themselves had meanings--/s/ meant "animate object", /p/ meant "large", etc.--and the meaning of a word arose from the meanings of its phonemes; but that is clearly not the case, at least in English. It is true, as Swain points out, that there are a few cases where phonemes appear to be correlated with semantic properties, such as /sl/; but these are exceptional curiosities. From a computational point of view--that is, from the point of view of the workings of a system (human or artificial) that uses language--what this means is that the properties of words cannot be figured out as they are heard, but must simply be stored in some kind of giant "mental lexicon." This is the essence of arbitrariness. While the meaning of a word is arbitrary, the meaning of a sentence is not; it arises in a principled way from the words that comprise it. Hence we can generally figure out the meaning of a sentence we have not heard before, but not, generally, new words (without the benefit of context). (Another useful concept from linguistics here is "productivity": phonemes are not generally used productively, in that they cannot normally be combined to form novel words, whereas words can be used productively to form novel sentences.)

[2.5] Now consider the relation of notes to phonemes. Let us assume, for the moment, that pitch is the sole phonemic property of notes; every note is an instance of a pitch, just as every occurrence of a phoneme is an instance of that phoneme. Just as phonemes combine to make words, notes can be combined--to make a motive, for example. Motives then have properties of certain kinds, just as words do. (Let us ignore, for now, whether these properties are best considered syntactic or semantic.) For example, a motive has a certain contour and certain harmonic and tonal implications, among other things. These properties of a motive are not arbitrary, however; they follow in a rule-governed way from the pitches it contains. The proof of this is that we are generally able to understand new motives--to recognize their tonal (and other) properties--that we have not heard before. This, then, is a crucial difference between pitches and phonemes that Swain does not mention.

[2.6] This point has a further implication. Although words are comprised of phonemes, there is little reason to attribute syntactic or semantic properties directly to phonemes; we could only do so by listing all the words to which each phoneme contributed. But since the properties of a motive arise in a principled way from its pitches, there is more justification in that case for attributing properties to pitches themselves. Every motive that begins with D4 has an (at least potential) implication of a D harmony, and so on. Thus we might well say that D4 itself carries this

implication. For this reason, one might argue that the proper counterpart to pitches is words, not phonemes. However, there is a difference here as well. The properties of pitches--for example, the harmonic implications of D4--are not arbitrary, but arise in a principled way from the acoustic form of pitches, specifically their heights. (One could imagine a musical language where the properties of pitches were arbitrary and had to be learned for each pitch, but this is clearly not the case.) In short, pitches are like words (and unlike phonemes) in having properties that give rise in a rule-governed way to the properties of larger units that contain them; but while the properties of words are themselves arbitrary, the properties of pitches are not.

[2.7] None of this conflicts in any fundamental way with Swain's view of musical phonology. Swain is in fact inconclusive about whether notes are a satisfactory analog to phonemes, and if so, what properties of notes are phonemic. As noted earlier, Swain himself argues that a note may have "meaning" (the term "meaning" is problematic here; I would rather say that a note has properties which give rise in rule-governed ways to the properties of larger units that contain it). While Swain uses the example of timbre, my point is that even pitch is a "meaning"-ful property in this way (and rhythm as well, incidentally). In short, Swain does not seem to fully appreciate the non-arbitrariness of the relation between a motive's properties and the pitches that comprise it; at the same time, he understates the arbitrariness of this relation in the case of words and phonemes, by focusing on exceptional cases like /sl/. In this sense the pitch-phoneme analogy is somewhat more problematic than he acknowledges.

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[3.1] Turning to syntax, Swain observes that the term is used quite widely among music theorists, though with little agreement or specificity as to its meaning; and the situation is not helped by the fact that linguists, too, often give rather vague definitions of syntax. (One recent survey defines syntax as the study of "the ways words can be combined to form phrases and sentences"^[4].) Swain begins by presenting the idea of a syntactic system as one that generates all the well-formed utterances of a language; as he notes, this is not an idea with obvious applicability to music. He goes on to a penetrating discussion of the role syntax actually plays in language, and what musical analogs might be found for it. First, syntax "controls the flow of information." In languages, syntactic rules provide cues as to what word is coming next, allowing us to absorb the incoming stream of information more easily. In music, Swain suggests, syntactic rules (such as rules of harmony) serve a similar function, providing a hierarchical system for grouping notes together. (Here, the linguistic counterpart to notes seems to have shifted from phonemes to words. Swain probably should have drawn attention to this; as I argued above, however, words are in some ways a better parallel to notes than are phonemes.) This argument, though interesting, is not entirely convincing. It suggests that syntax is merely a way of increasing the comprehensibility of the information that is there; surely it is more than that. Swain's second argument, by contrast, is compelling. As he notes, syntactic structure in languages conveys vital information about the relations between words. "If the semantic aspects of content words express things, actions, and states in the world, the syntactic relations among those words convey the relations among those things, actions, and states" (p. 24). It is syntax that tells us, for example, that "the ball hit the boy" means something different from "the boy hit the ball." In this case, Swain argues, there is no real parallel in music. In music, the role of syntax is rather different: to regulate relations of tension and resolution. In discussions of a Josquin motet and a movement from Bach's Goldberg Variations, Swain shows how various kinds of tension--melodic, harmonic, textural, and metrical--contribute to the music's overall effect.

[3.2] One problem here is that Swain is not very clear about what constitutes syntax in music. He tells us what it does--it allows the hierarchical grouping of events, and "mediates the relation of tension and resolution"--but not what it is. It appears that syntax is the structures that give rise to the kinds of hierarchical grouping and tension-resolution patterns that Swain discusses: harmonic structure, metrical structure, phrase structure, and contrapuntal structure (the grouping of events into lines), perhaps among others. (One might also consider motivic structure--the network of motivically related segments in a piece--to be an aspect of syntax, but Swain appears not to do so (p. 32); I will remain non-committal on this issue here.) I think Swain is right in locating musical

syntax in these kinds of structures. A better account could be given, however, of why these structures are analogous to syntax in language.

[3.3] As Swain notes, the essential role of syntax in language is in expressing the relations between words. In this way, syntactic processing can be seen as an intermediate stage between phonological processing (identifying phonemes and words) and semantic processing (comprehending meaning). Consider the parallel of harmonic structure with linguistic syntax. A harmonic structure is formed from the notes of a piece; it then contributes in important ways to the piece's higher-level effects and implications (whether we call these "meanings" is beside the point for now). For example, a harmonic structure indicates patterns of tension and resolution, a sense of a journey through some kind of harmonic (and tonal) space, emotional connotations connected with major and minor and the like, and large-scale structural cues such as cadences; harmonic progressions may also have extramusical associations, for example, a Flamenco progression suggesting something Spanish. A similar argument could be made for other structures such as a meter. In both language and music, then, we begin with small, discrete units; from them, we generate intermediate structures; and from these, we form some kind of higher-level understanding. The basis for calling harmony and meter "syntax," by this view, is simply that they are intermediate structures between a lower phonological representation and a higher level of understanding. Now, there are a number of important differences between linguistic syntax and musical syntax, as I have defined it here. Harmony and meter would seem to be qualitatively quite different from linguistic syntax (at least as the latter is commonly understood in linguistics); one might argue also that while syntactic structures in language are simply a means to an end, those in music (whether "meaningful" or not) are really an end in themselves, contributing directly to the value and interest of a piece. The point is that the parallel does provide some basis, and I think a reasonable basis, for describing certain kinds of musical structure as "syntactic."

[3.4] Swain's view of what the syntactic structures of music are--though not as clearly stated or well-defended as it could be--seems basically reasonable. Swain is right, also, that the main role of syntax in language--expressing the relationships between words--has no real counterpart in music. However, I am not persuaded by Swain's argument that the main role of musical syntax is to mediate patterns of tension and resolution. In my view, tension-resolution is only one among a number of higher-level effects arising from musical syntactic structures; I see no reason why it should be privileged over others.

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[4.1] Swain's discussion of semantics begins with a conundrum. Music certainly seems to mean something. To deny this would be to claim that the way music is matched with text or dramatic action is unimportant--any music should be equally appropriate for any situation; and this is clearly not the case. On the other hand, there is such wide disagreement on exactly what pieces mean--for example, on the emotional connotations of a piece--that any meaning music might have seems quite different from the precise meaning of language. (I would take issue with Swain here. Is there really so much disagreement over musical meaning--emotional connotations, for example? If two listeners disagree over whether a passage expresses "sublime confidence," is it because they disagree about the meaning of the music, or the meaning of "sublime confidence"?) Swain proposes a way out of this dilemma in the concept of "semantic range." He notes that most words--even seemingly straightforward words like "floor"--have a wide range of possible meanings; the exact meaning intended is made clear by the context. In the same way, he argues, a musical gesture or idea has a range of possible meanings; when combined with a particular text or dramatic situation, its meaning becomes much more specific. Given its text, the music of "For Unto Us A Child Is Born" from Handel's *Messiah* connotes angels and triumph; given a different text, it could connote something else, but it could never connote grief and misery, because this is outside its semantic range. (Notice that the counterpart of words is back to motives again--although Swain makes the excellent point that motives are not discrete in the way that words are; whether something is an instance of a motive is a matter of more-or-less, not all-or-nothing. He might have pointed out also, that, whereas a linguistic message is usually clearly and exhaustively divided up into words, a musical message is often *not* clearly segmented into motives; is it not always clear what constitutes a motive, and much music arguably does not involve motives at all. This is another way that words are more like notes than motives.)

[4.2] The semantic range of a word or motive, then, is a permanent attribute which is used to narrow down its possible meanings in a given situation. The question is, how do people know what the semantic range of a word or motive is? Here again, the notion of arbitrariness is essential; and this time Swain is clearer about it, although still not as clear as he could be. The meanings (semantic ranges) of words are arbitrary, he notes, and this means that they must be learned, one by one, by demonstration or in some other way. The semantic ranges of musical motives are generally not arbitrary; this is why we are able to figure out the semantic range of a new motive that we haven't heard before. Presumably we do this with the aid of some general principles which govern the semantic ranges of musical motives. (These principles may themselves be conventional and arbitrary--for example that major is happy and minor is sad; but they are general principles nonetheless.) Swain seems to be aware of all this, but never quite says it. Interestingly, Swain points to one case--the leitmotif of Siegmund questioning Bruennhilde in Wagner's *Die Walküre*--where the music does not seem to be particularly appropriate for the situation in any way; in this case, he suggests, the meaning of the motive is essentially arbitrary, since it does not follow the usual general principles.

[4.3] Swain's "semantic range" idea is interesting and suggestive. However, he is somewhat unclear on the fundamental question of what musical meaning actually is. At times, he tends towards the view I expressed earlier: that meaning in music--or at least, the best analogy to meaning in music--is simply the higher-level effects of structures such as harmony. "The meaning of a syntactic event . . . is what the syntax creates, what effect on the understanding community of listeners it has, among other things" (p. 66); "how a composition creates effects in listeners is the beginning of meaning" (p. 69). As noted earlier, Swain sees tension and resolution as centrally important among these syntactic effects. Elsewhere, however, "meaning" seems to refer specifically to refer to extramusical references: leitmotifs, word painting, and the "topics" characteristic of classical-period music (fanfares and the like). "The meaning of a passage or a piece, while an important aspect of its character and identity, is hardly ever the single overwhelming factor in its success" (p. 68); here Swain is referring to extramusical meanings, as opposed to things like tension and resolution. Either definition could be defended, but there seems to be some inconsistency here.

[4.4] One possible objection to attributing meaning to musical effects and implications is that they are not propositional. Swain seems concerned about this, arguing that while linguistic meaning is normally propositional, musical meaning (even the "extramusical" kind) hardly ever is. But is this really true? If we hear storm music in an opera, this surely expresses a proposition--"there is a storm coming"--just as surely as if a character came onstage and expressed the proposition in words; and doesn't the music of "For Unto Us A Child Is Born" express at least the proposition "Something joyful is happening"? As Swain points out, linguistic meaning is often not propositional either. He might have observed, further, that even when it is, it is often extremely vague and indeterminate. When Lennon and McCartney write,

I give her all my love
That's all I do
And if you saw my love
You'd love her too
And I love her {5}

the propositional content could hardly be fuzzier: who is speaking, who is being spoken about, what is the situation? Almost all that is being conveyed is "somebody loves somebody else"; and this much is arguably conveyed by the music itself. Any difference in propositional concreteness between music and language is surely only a matter of degree.

[4.5] Another issue in musical semantics concerns emotion: assuming that music relates to emotion in some way (and Swain clearly believes it does), what is the nature of this relation, and is it a kind of meaning? Swain treats this issue only in passing, though it has received much attention in music theory and aesthetics. {6} Despite these various caveats, I do not wish to seem overly negative about

Swain's discussion of meaning. It is not necessary to give a precise definition of musical meaning to discuss it usefully and insightfully, as he shows. We should bear in mind, also, that there is nothing like an adequate, widely-accepted definition of "meaning" in language, covering all kinds of linguistic meaning from everyday conversation to poetry. In view of this, it is perhaps unfair to expect a conclusive answer as to whether music has meaning. For the most part, Swain's discussion of musical semantics is sensible, original, and convincing.

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[5.1] Having presented the three levels of phonology, syntax, and semantics, Swain turns his attention in the fourth chapter to the way they interact. Here he also adds a fourth level--the "pragmatic" level, which in linguistics refers to knowledge about the situation and the speaker's intentions. In language, Swain observes, the four levels are inextricably intertwined. Our higher-level knowledge about the world and the situation exerts constant "top-down" influence on lower levels: whether we hear a word as a noun or verb, or even whether we hear one phoneme or another ("nature" or "Nietzsche"). We try to interpret things in the most reasonable way, making as much sense out of the situation as possible. In a discussion of Beethoven's Violin Concerto, Swain applies these principles to music perception. The same pitch can be either D# or Eb, depending on the situation; the perceptual decision between the two requires consideration of the entire context, and may shift from one interpretation to another in light of subsequent events. Our expectations about what we will hear influence our perceptions as well; in many cases, the genre of a piece (and by this Swain means chiefly its instrumentation) is a major factor in these expectations. In Beethoven's violin concerto, Swain argues, it is sublimely appropriate that the conflict between Eb and D#, so central to the piece, is ultimately resolved by the solo violin.

[5.2] Swain turns next to the issue of metaphor. There is a consensus among students of metaphor that it must involve two things: first, "some concept . . . is transferred or grafted on to another concept"; second, "the graft suggests some similarity between the concepts that is 'discovered' or 'constructed' by the perceiver at the same time that it suggests something semantically strange about the graft, a 'patent falsehood or even absurdity in taking the conjunction literally'" (p. 99). Swain then presents a definition of musical metaphor: "a passage whose 'absurdity' or incongruity is syntactic; a passage that performs strangely in its context, controlling tension and creating articulations in ways unaccustomed and yet comprehensible" (p. 100). Swain goes on to discuss several examples of musical metaphors. In the dialogue between Orfeo and the messenger bringing news of Euridice's death in Monteverdi's *L'Orfeo*, the sudden harmonic shifts to G minor convey Orfeo's emotional distress. In the B minor fugue from Book I of Bach's *Well-Tempered Clavier*, a very slow underlying harmonic rhythm (a rhythm of half-notes, in a Largo tempo) turns out to be appropriate for the unusually large scale of the composition.

[5.3] In the move from the consensual definition of metaphor to Swain's own definition of the musical case, something seems to get lost. Swain's musical metaphor retains the sense of something strange or absurd; but where is the sense of grafting one concept onto another? This concern arises also in the examples Swain gives. The very slow harmonic rhythm of Bach's fugue may well be strange. But for what is it a metaphor? The moves to G minor in *L'Orfeo* are strange as well, yet right for the situation, as they express Orfeo's emotional state; but is this metaphorical, and if so, is any kind of musical expression metaphorical? By Swain's definition, it seems that a musical metaphor is simply something that is in a way strange, but in another way makes sense and seems appropriate. This is surely an important phenomenon in music--perhaps it is much of what makes music interesting; but it seems too broad to be equated with metaphor.

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[6.1] In the final three chapters, Swain broadens his view of the music-language comparison, considering how music is like language in terms of its interaction with its larger cultural context and the way it changes over time. Swain begins with a chapter on "artificial languages," languages deliberately created by a single individual: these include Esperanto, computer languages, and--in the musical domain--serialism. (The *Ars nova* is also discussed in this context, but Swain seems less certain about its status as an artificial language.) Swain's main point here seems to be that

composers who use artificial languages run the risk that audiences will not understand their music-- a somewhat obvious point, although Swain largely avoids heaping blame on one side or the other, which is a commendable achievement in itself.

[6.2] Much more stimulating is the following chapter, in which Swain discusses the evolution of musical languages. While change in verbal languages comes from many sources, one very important phenomenon is "trading relationships." When change occurs in some aspect of a language, this may result in a loss of information which must be counteracted by change in some other aspect. For example, it used to be that case information in English (whether a noun is subject or object) was communicated by inflectional endings. As the inflections began to drop out, case information had to be conveyed in some other way; this resulted in the development of fixed rules of word order (subject-verb-object), which previously had varied rather freely. As another example, Chinese used to distinguish between voiced and unvoiced consonants (for example, /b/ versus /p/ and /d/ versus /t/). This distinction gradually disappeared; but the syllables that had been distinguished in this way came to be distinguished in another way, namely in the tones of the following vowels (a distinction that was latent anyway, since vowels after unvoiced consonants naturally tend to be pitched slightly higher than those after voiced consonants). Are there analogs in music? Swain argues that there are. In Renaissance music, he suggests, stylized cadences--7-6 suspension cadences, with the penultimate soprano note raised a half-step, where necessary, to create a "leading-tone"--served to provide an easily recognizable cue to phrase endings. From this developed the V7-I cadence, a gesture whose pitch content was so distinctive that the strict rhythmic conventions of the Renaissance cadence were no longer necessary. Likewise, he argues, it is no accident that the rise of genres such as the string quartet and the symphony--lacking the solo-ripieno contrast of the Baroque concerto--coincided with a new interest in the possibilities of large-scale tonal contrast; with one kind of contrast no longer available, something new had to be found to take its place. As Swain notes, it is sometimes difficult to be certain about the causal relationship in such cases (did the rise of the string quartet cause greater interest in large-scale tonal contrast, vice versa, or both?); but that some kind of trading relationship is involved seems fairly clear.

[6.3] While I am not qualified to comment on Swain's linguistic examples, the "trading-relationship" idea is a fascinating one which does indeed seem applicable to music. Let me suggest a third example. In jazz, one finds a much broader vocabulary of chords than in "common-practice" tonal music: triads are elaborated not only with sevenths (major or minor), but with added sixths, ninths, and elevenths, with various alterations and in various combinations. Yet there is much less variety of inversion than in classical music; the chords of jazz tunes (as represented in lead sheets, for example) are overwhelmingly in root position. Here again, there is a trade-off. The notes C-E-Bb-D-Ab, in that order from low to high, clearly form a C7 9 b13; but arranged in a different order they could undoubtedly form other things (such as Bb7 9 #11), and if such inversions were permitted, a great deal of harmonic ambiguity could result. The greater freedom in chord extensions has to be counteracted by a loss in freedom of inversion if the essential information--the root of the chord--is to be conveyed. Of course, in some varieties of jazz--especially more modern jazz--the bass plays with considerable freedom; a variety of inversions are in fact used; and the result is, indeed, a great deal of harmonic confusion! In a way, this supports my argument: combining extensional and inversional freedom leads to harmonic ambiguity. But it shows that we must be careful in assuming that harmonic information must always be clearly conveyed; in some circumstances, apparently, this requirement is relaxed.

[6.4] Exploring musical change leads us to the question of style, and Swain's final chapter examines the relationship between musical style and musical language. Swain begins with a critique of Leonard Meyer's theory of style as "a replication of patterning." Swain rejects Meyer's approach on the grounds that it seems to be interested only in what is common among pieces, neglecting what is unique. I am quite unable to understand this objection. Surely the term "style" does refer to what is common among a number of pieces; surely it does not in any way deny the importance of what is unique; surely we must understand the commonalities of a style in order to appreciate how certain pieces deviate from these commonalities. As an alternative to Meyer's theory, Swain advocates a view based on a remark of Charles Rosen: "A style may be described figuratively as a way of exploiting and focusing a language." "Focusing a language," in Swain's view, seems to mean simply coordinating

its elements in an effective way: in other words, using it well. Though Swain's analyses are, as always, interesting and insightful, this is not one of the more persuasive chapters of the book.

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[7.1] Surveying Swain's various answers to his underlying question--"How is music like language?"--and my responses to them, I find many areas where I agree and a few where I do not. In some cases the parallels with language are overstated; the phoneme-pitch analogy is more problematic than he makes it out to be, and the role of metaphor in music is, at least, not convincingly demonstrated. In other cases, Swain seems to understate the parallel; for example, he seems overly pessimistic about music's capacity for propositional meaning. At the broadest level, though, his conclusions as to the similarities and differences between music and language seem largely correct. And whether or not one agrees with him on a particular issue, one always feels--to return to my opening point about *Musical Languages*--that he is approaching it with an open mind.

[7.2] Though I mostly agree with Swain as to the basic parallels between music and language, I often wish he had been clearer about his positions and the reasons for them. In particular, he seems ambivalent about the parallels between pitches and phonemes, words and phonemes, and words and motives, switching back and forth between them at different times. As I have argued in this review, there are merits and problems with each of these analogies. Pitches are like phonemes in that they are small, categorically perceived units, and each musical "language" seems to involve only a small number of them. However, pitches are like words, and not like phonemes, in that they have properties which give rise in rule-governed ways to the properties of larger units. In terms of meaning, the word-motive parallel seems more plausible than the word-phoneme parallel; the properties of a pitch seem too atomic and abstract to really be considered "meaning," whereas the properties of a motive (a leitmotif, for example) sometimes are not. However, motives are not discrete the way words are, and music is not completely made up of motives the way that language is completely made up of words. Given that each of these analogies has points in its favor, Swain's ambivalence between them is fully justified. But he might have been more explicit about his reasoning. Perhaps he avoided such rigorous discussions, in part, in the interest of making the book entertaining and accessible--a goal that he certainly achieved.

[7.3] The book is greatly enhanced by its many and varied references to linguistic and musical research--not to mention psychology, philosophy, literary criticism, and other things. I should note, also, that Swain's analyses are invariably musical, perceptive, and full of contagious enthusiasm for the music.

[7.4] Whether one is more struck by the differences or the similarities between music and language is perhaps largely a matter of perspective; whether one considers music to be a kind of language (a question on which Swain wisely remains non-committal), even more so. In any case, this book serves as an excellent introduction to the many sides of the music-language analogy. The question of "how is music like language" is a hugely important one, and Swain--like Bernstein before him--is to be credited for tackling it head-on. It is a question that eminently deserves to be asked, and asked repeatedly, *at least* every 25 years.

David Temperley
Ohio State University
School of Music
Weigel Hall
Columbus, OH 43210
temperley.1@osu.edu

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2. Grosvenor Cooper and Leonard Meyer, *The Rhythmic Structure of Music* (Chicago: University of Chicago Press, 1960); Nattiez, *Music and Discourse*, cited above; Lerdahl and Jackendoff, *A Generative Theory of Tonal Music*, cited above; Anthony Newcomb, "Schumann and Late Eighteenth-Century Narrative Strategies," *19th-Century Music* 11.2 (1987): 164-74; and Fred Maus, "Music as Narrative," *Indiana Theory Review* 12.1 (1991): 1-34.

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3. Sandra Trehub, Laurel Trainor, and Anna Unyk, "Music and Speech Processing in the First Year of Life" in *Advances in Child Development and Behavior*, vol. 24, ed. Hayne W. Reese, (San Diego: Academic Press, 1993), 1-35.

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4. Andrew Radford, *Syntactic Theory and the Structure of English* (Cambridge: Cambridge University Press, 1997), 1.

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5. From the Beatles song, "And I Love Her."

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6. Authors who have explored this issue include Suzanne Langer, Leonard Meyer, and Peter Kivy. An excellent survey of work in this area is found in Malcolm Budd, *Music and the Emotions* (London: Routledge & Kegan Paul, 1985).

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