

## MUSICAL THOUGHT AND COMPOSITIONALITY

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Many philosophers and music theorists have claimed that music is a language, though whether this is meant metaphorically or literally is often unclear. If the claim is meant literally, then it faces serious difficulty—many find it compelling to think that music cannot be a language because it lacks any semantic value. On the other hand, if it is meant metaphorically, then it is not clear what is gained by the metaphor—it is not clear what the metaphor is meant to illuminate. Considering the claim as a metaphor, I take it that what a theorist who speaks in this way is trying to draw our attention to is that there are interesting and illuminating parallels between music and language that might be philosophically significant. If this is their point, then the question is: what interesting parallel is it that could be so philosophically significant?

In this essay, I will attempt to make explicit just what philosophical significance there might be to the claim that music is a language (or is language-like). Jumping straight in, I want to suggest that the connection between music and language that these theorists are trying to elucidate is that musical thought has a language-like structure. By “musical thought” I mean that species of thought that underwrites a musician’s creative activity. When a musician composes a piece of music, or improvises a performance, they go through a particular decision-making process—that is, they think musically. In saying this, I am making one assumption, which is controversial but I believe warranted. I am assuming that the decision-making process that a musician goes through when they compose or improvise a piece of music is not linguistic. Whatever a musician does when they create a piece of music, they do not do something involving language. This seems

warranted by the simple empirical observation that it is not required of us when thinking of music to translate what we think into some language.

So how is this related to the claim that music is a language? The thought I wish to examine is that, whatever mental process a musician goes through when creating a piece of music, that process follows a syntactic structure similar to that found in linguistic production. In this, I agree with Harold Fiske who says that the music-language question is interesting (partly) as a question about ‘whether music is processed cognitively either in a parallel or identical way to language.’<sup>1</sup> An examination of this thought would be of interest for two reasons. First, understanding the process of thought that a musician goes through when creating a piece of music would be informative to general issues of creativity. Second, it would be of interest to any theorists in the philosophy of mind who is concerned with the structure or contents of thought. For instance, the claim that musical thought has a linguistic structure would be of great interest to someone who sought to defend the Language of Thought Hypothesis. The Language of Thought Hypothesis states that thought has a language-like structure where mental representations are the semantically evaluable constituents of thought, and that the vehicle of thought is a syntactic ordering of these representations. If musical thought has a linguistic structure, then this might be another feature in the cap for theorists defending the language of thought. If true, then one could say that the mind’s “mental language” is evidenced in the language-like structure of music.<sup>2</sup>

What evidence would serve to prove that the musical thought has a linguistic structure? In this paper, I will focus on what I claim could serve as one piece of evidence, namely I will claim that musical thought exhibits compositionality to a sufficient degree to warrant the description of music as a language (though still metaphorically). Of course, I am not thinking of the sort of semantic compositionality that Fodor endorses, where ‘the semantic value of a thought is inherited from the semantic values of its constituents, together with their arrangement’.<sup>3</sup> I am not claiming that music, or musical thought, has any semantic value. Rather, what I mean by

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<sup>1</sup> Fiske (1990): 1.

<sup>2</sup> Admittedly, the Language of Thought Hypothesis is a hotly contested topic. I will not here undertake a defence of the LOTH, however if my claim here sounds plausible, then this might be a further reason to support that hypothesis.

<sup>3</sup> Fodor (2001): 6.

compositionality is that the constitutive elements of thought exhibit generality and recombability in such a way that a subject might be able to produce an unlimited number of larger complex phrases out of a limited number of elemental phrases.

Admittedly, I have no argument to *prove* the compositionality of musical thought, rather what I will present here are what I take to be compelling reasons from an examination of musical creativity that seem to demand consideration for my claim. But there are a few methodological concerns I will need to address. First, I will briefly examine an account offered by Diana Raffman of what it is about music that leads us to wonder whether it is a language in the first place. Relating this to my discussion, it seems to me that many people find the claim that music is a language to be intuitively compelling because they are able to respond to the compositional aspects of musical creativity. Next, I will try to show what is meant by “musical thought” and offer reasons for thinking that examining the structure of *music* would be an adequate vehicle for examining the structure of *musical thought*. Finally, I will then be in a position to consider my central claim, that musical thought is compositional in a language-like way.

Three caveats: discussions of similarities between music and language are usually discussed by theorists who are engaged with the question of what it is to “understand the meaning” of a musical work. Such theories are mainly interested in explaining what it is to *understand* what we hear, or what it is to grasp the *meaning* of a musical work. In this paper, I am not concerned with questions of “musical meaning” or “understanding”.<sup>4</sup> My only concern with the music-language question here is to examine whether there might be any sense in which describing music as a language might be philosophically interesting. Second, most theorists who examine “musical understanding” are mainly interested in its reception, not in its production. Their question is, what does it mean for a *listener* to understand music. I am mainly concerned with what is involved in the performer’s creativity, specifically, I am concerned with the cognitive process that enables a musician to manipulate musical phrases or motives in a seemingly language-like way. Finally, I will take jazz improvisation as the paradigm of such activity. In jazz improvisation, musicians find themselves in the difficult position of having to improvise an interesting

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<sup>4</sup> For more on theories of musical understanding, see DeBellis (1995) and (1999); Fiske (1990); Raffman (1993); and Zbikowski (2002).

and entertaining performance with no more guidance than their knowledge of the harmonic structure of a piece and its melody, and with no more preparation than the musical skills that they must perfect in advance in the practice room. My question is, what cognitive skills must a musician possess in order to have the ability to seemingly compose on the spot. The answer to this question will reveal much about the compositionality of musical thought.<sup>5</sup>

## I.

What is it about music that leads us to question its relation to language in the first place? Raffman's (1993) argues that we often expect to find meaning in music even though there really is none because music seems to have a syntactic structure. Let me briefly review her argument. For Raffman, to "understand" a piece of music is (partly) to gain some knowledge or understanding of the emotional qualities that some piece of music might express. Musical works make use of certain musical structures (such as cadences, dynamic devices, rhythmic patterns, etc.) that contribute in their way to the music's sounding resolved, or relaxed, or tense, or whatever. Certain musical structures almost always contribute in a specific and predictable way to the emotional content of a musical piece. For instance, a melodic line that descends in a downward step-wise motion from the mediant to the tonic typically sounds like a relaxation—the melodic sequence E-D-C sounds resolved when it appears in the key of C-major. That these musical structures seem to make predictable contributions to one's emotional understanding of a musical work makes it *seem* as though there are certain specifiable rules for the expression of emotion through music, and it is these rules that composers exploit in their compositions.

This seems to lead to an error theory about musical meaning. A listener expects to be able to recover the emotional content of a musical passage by their application of certain "musical rules", and this seems to require that the subject possess some '(domain-specific) psychological rules for apprehending that structure' very much like one would

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<sup>5</sup> Kraut (2004) takes a different though related view of the value of jazz. Kraut argues that jazz music serves as a paradigmatic test case for examining the music-language question. On his view, jazz improvisation has a distinct value in aesthetic theory from all other musical styles in that it is the most compelling case by which one could consider the music-language question. To this extent, he and I are in agreement.

expect from a Chomskian model of generative grammar.<sup>6</sup> If there are such psychological rules for the apprehension of the emotional content of a musical work, then it looks as though music has some grammar-like structure. Of course, most listeners would be unable to say just what these psychological rules are. And yet, as Raffman says, ‘a plausible thought, then, is that the presence of grammatical structure in music, likewise recovered by rule-governed operations from acoustic stimuli, (mis)leads us to expect something similarly effable’,<sup>7</sup> that is, similar to the effable rules of linguistic grammar. The knowledge one seems to possess about the emotional significance of some music is ineffable. This ineffable knowledge, which Raffman calls “feeling ineffability”, results in a feeling of something’s-being-said, and this is part of what it is about music that misleads us into expecting that it possesses some meaning.<sup>8</sup>

While I am not here concerned with Raffman’s issues of musical meaning or understanding, nor am I concerned with the issue of how music might express emotion, I find Raffman’s suggestion to be quite a compelling nudge in the direction my claim, that musical thought does have a linguistic structure. On Raffman’s account, one is misled into believing that there are grammar-like rules for the understanding of musical works because certain recurring musical devices seem to be responsible for the emotional quality of the music. And our belief in the music’s having a grammatical structure leads us to expect that the music has some meaning. No wonder, then, that many jump to the conclusion that music is a language. This paper is meant to backup Raffman’s suggestion that music only *appears* to be a language. Music appears this way, she says, because it seems to have a syntactic structure. This point would be made stronger by showing that it is musical thought, rather than music itself, that has some similarity to language.

## II.

Many music theorists and aestheticians find comparisons between music and language to be quite helpful in enlightening something about the nature of music. I am suggesting that this claim should be understood as a claim about the structure of music, in which

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<sup>6</sup> Raffman (1993): 41.

<sup>7</sup> Ibid.

<sup>8</sup> Her book is a very interesting and rewarding read. For more on ineffable musical knowledge, I can only refer the reader to Raffman’s (1993).

case the comparison becomes something of philosophical significance. What would be gained by entertaining this comparison? There is one very easy way of misunderstanding the intent of these theorists, therefore some care needs to be shown. The comparison these theorists address, I claim, should primarily be concerned with understanding the nature of musical thought. Or at least I take it that the question of whether music is a language has less to do with *music itself* than it has to do with the structure of *musical thought*. It is meaningless to ask whether music, in abstraction, could be a language; or, if not meaningless, then at least trivially true that music itself is not. Musical works themselves, independent of their performances, composers, and socio-historical contexts, are just particular sequences of sounds. And one would be right to argue against any theorists that took the comparison too literally. On the other hand, the claim that *musical thought* has a linguistic structure has quite a different focus from the claim that *music* is a language. The question then is whether thought of this nature is similar in any salient way to linguistic thought.

First, we should notice that, when musicians think of music, they do so *in* music, not in language. Clearly people are able to think about music—some musicians claim to be able to compose musical works ‘in their head’—and what is equally clear is that there exists no way to translate music into any natural language,<sup>9</sup> so musical thought must be its own species of thought, independent of linguistic thought. If musical thoughts have content, then its content is nothing more than sounds and their organisation into particular sequences.

How are we to examine the structure of musical thought? I would suggest that by examining scores and performances and the organisation of musical events, we might come to understand something about the structure of musical thought. We could think of a musical work (whatever that is) as the record of a very complex thought, specifically a thought about sound. If one can make discoveries about the structure of linguistic thought by examining the structure of language—as the Language of Thought Hypothesis

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<sup>9</sup> One reason to think that music cannot be translated into any natural language is simply that music has no content—it has no semantic value. Thus music is untranslatable because it does not refer to anything beyond itself. Some theorists take the view that this lack of semantic value is fatal to the thought that music is a language, in both its literal and metaphorical form. While I think that that position is questionable in that it overstates the point, I cannot discuss this point further here.

suggests—then similarly to understand the structure of musical thought we should examine the structure of music.<sup>10</sup>

### III.

So, what would it be for musical thought to be compositional? To say that some symbolic system is compositional is just to say that the atomic elements of that system can be recombined in numerous different settings where it would be significant to think that something salient to the character of an atomic element is retained in each new setting. To apply this to the case of music, the use of musical quotes would be one such example. Ella Fitzgerald would often use quotes such as the melody to ‘A-Tisket A-Tasket’ during her improvised vocal solos; Charles Mingus uses a small quote from ‘God Bless America’ in measures 104-105 of his bass solo on ‘Haitian Fight Song’.<sup>11</sup> While the use of musical quotes forms one kind of example, another more interesting kind where composers use a theme from one song in a new setting. Such an example occurs when Charles Mingus uses the central theme of ‘Haitian Fight Song’ in ‘Hog Callin’ Blues’.<sup>12</sup>

These examples are interesting only insofar as they show that musicians will often appropriate small, recognisable melodic themes presumably so that their listeners will appreciate the musical reference. But this doesn’t tell us much about the structure of musical thought. All it shows is that sometimes musicians like to use recognisable phrases from other works in their own. The claim I want to make is more significant: that the structure of musical thought actually takes the form of these small, abstracted melodic themes as the atomic elements of thought, and that it is through the musician’s mental manipulation of these atomic melodic elements that thought exhibits compositionality. Musical thought has content, which can be specified by something like a graph of musical

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<sup>10</sup> Levinson (2003) makes a similar claim. In fact, much of the present essay has been strongly influenced by Levinson’s essay, though Levinson does not explore the possibility that musical thought might be compositional.

<sup>11</sup> For a complete transcription of Mingus’ solo, see Priestly (1982): Appendix IV.

<sup>12</sup> ‘Haitian Fight Song’ appears on the album *The Clown* (1957), while ‘Hog Callin’ Blues’ appears on *Oh, Yeah* (1962).

analysis.<sup>13</sup> At least part of what specifies the content of this graph will be musical phrases—repeatable single units of musical notes that are the basic building blocks of larger musical events. These are the claims that I will now argue for.

What are the atomic elements of musical thought? An answer is suggested by Schoenberg's writings on music theory: they are *motives* (or *motifs*). Schoenberg describes motives as the smallest grouping of notes that a listener could recognise and reidentify: '*Motive* is at any one time the smallest part of a piece or section of a piece that, despite changes and variation, is recognizable as present throughout.'<sup>14</sup> The composer's use of these small, recognisable musical units is required for a listener to make sense of the music. Without these, he claims, listeners would have little else to grasp hold of.

For an example of what a motive would be, take Thelonious Monk's tune 'Straight, No Chaser'. The central melodic motive is a five-note ascending line that is repeated eleven times within the central theme of the tune:



**Figure 1**

My claim—that musical thought exhibits compositionality—will be elucidated alongside this second claim—that the atomic elements of musical thoughts are motives like the one in Figure 1. Jazz performance students are taught to develop their improvisatory skills by starting with simple repeated phrases (as in Figure 1) that can be altered slightly to allow for harmonic variation. Often these fragments are found in the melodies of existing tunes, or are stock phrases of the student's invention, or consist of quotes lifted out of well-known recordings of other musicians. These phrases are treated as single units that can be recombined in a variety of ways. The student's task is to discover which

<sup>13</sup> This is an idea that is central to Mark DeBellis' work on the contents of musical perception. It is an idea that I am strongly in agreement with. His idea, briefly, is that musical perception involves a mental state with content; this content represents music as being a certain way in perceptual experience; and that the content of these mental states can be captured by graph of musical analysis, like a Schenkerian graph or a graph of the Generative Theory of Tonal Music. For more on this, see DeBellis (1995), (1999) and (2005).

<sup>14</sup> Schoenberg (1995): 169. See also Zbikowski (2002), Ch. 1.



combinations will work and in which harmonic settings. Over time, the student is meant to build up a larger “vocabulary” of these phrases, which will allow them to achieve greater complexity and variety. Whole solos are then constructed out of these stock-in-trade phrases that the student will have learned to incorporate into a wide variety of harmonic settings.<sup>15</sup>

What is interesting and important for jazz improvisation is that phrases like Figure 1 can be recombined with other phrases. I said above that to say that some symbolic system is compositional is just to say that the atomic elements of that system can be recombined in numerous different settings where something salient to the character of an atomic element is retained in each new setting. I have claimed that the atomic elements of musical thought are motives, but what is salient to the character of Figure 1 that can be retained in new settings? The phrase in Figure 1 could be repeated just as it is, but this would quickly become boring. Very often musicians use variations on these basic phrases. Two ways of varying the phrase would be changing the pitch relation or the rhythmic structure. Consider Figures 2 and 3:



Figure 2



Figure 3

Figure 2 retains the same pitch relations as Figure 1—that is, the distance between the notes is the same in each figure. The pitch relations between the notes of Figure 1 are Perfect Fourth - Major Second - Minor Second - Minor Second. This series of pitch relations is retained in Figure 2, though the rhythm is not. Figure 3, on the other hand, retains the rhythmic organisation of Figure 1 but not the pitch relations. The possibility

<sup>15</sup> At Berklee College of Music, first-year performance students are literally given a book of such phrases that they are expected to work through to help them begin building up their “vocabulary”.

of varying the phrases aids the performing musician in that it enables her to recombine phrases in novel ways without requiring her to employ a new motive each time. Improvisation would simply be too difficult if one needed to memorise a unique motive for every possible variation. Armed with a relatively small number of motives, and knowledge of the rules for such variation, an improvising musician can begin to generate a large variety of novel lines.<sup>16</sup>

Finally, one might question whether this implies that there might be rules for “musical grammar”. As previously mentioned, Raffman suggests that there might be psychological rules for the understanding of the emotional content of a piece of music. The question here is different from her concern: does musical compositionality allow us to judge whether a musical phrase is well-formed. In language, the rules of grammar allow a language-user to judge whether a sentence is well-formed. So, how do we judge whether a performer’s attempts are successful? I cannot address this fully here, but I can make a short attempt.

As I mentioned above, the sort of compositionality I am describing is concerned with the production of music, not its reception. While we might look at some piece of musical analysis in order to judge why a particular melody does not work, I do not imagine that dissecting a melody into its atomic phrases could tell us much about why a particular melody does work. I would suggest the basis of such judgment must be aesthetic—we know when a particular melody works simply when it is pleasing. The rules of recombination and variation for these phrases—their “grammar”—is given simply by the demands of harmony. Phrases must be recombined, and if necessary altered, in ways that do not threaten the harmonic setting or musical style. Of course, the task of such compositionality is not to generate strings of well-formed sentences, rather it is to enable the performer to generate an unlimited number of extended melodic lines out of a limited number of musical phrases that can be applied over a wide variety of harmonic settings. When some melody does not work, we might find by examining it closely that the melody clashes with the harmony, so we can discover why some melody fails, but what

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<sup>16</sup> A note on terminology: we could think of a “line” as being roughly the musical equivalent to a “string” of language.

we cannot do is decide in advance that some particular melody will be pleasing.<sup>17</sup> This is simply because there is more to the appreciation of music than whether it is harmonically constructed or not. A melody might be harmonically correct, but we might find it boring, or repetitive, or predictable, or derivative. Jazz musicians have a quite daunting task: to construct interesting, exciting and memorable melodies out of a limited musical vocabulary.

#### IV.

In section one, I add to Raffman's thought that we are lead to erroneously believe that music expresses some meaning or behaves like a language because it seems to possess some syntactic structure by suggesting that the production of musical performance seems to exhibit compositionality in a language-like way. The difference between Raffman's project and mine is that she is concerned with what the listener hears and I am concerned with what the performer does—hers is a concern with receptivity, mine is a concern with productivity. In section two, I argue that the music-is-a-language issue is more than an interesting analogy in that it suggests something significant about the nature of musical thought, namely that it might have a language-like structure, and in section three I defend this view by illustrating my claims about the seeming compositionality of improvisational musical performance. While there are many problems circling around this topic that I have not been able to address, the thought that this paper recommends is that there is some sense in comparing music to language in that the comparison may reveal something interesting about the nature of musical thought. It would be of great philosophical interest not only to aestheticians and music theorists but also to the areas of philosophy of mind and language to discover that there might be a species of thought that behaves in a language like way and yet is composed entirely of mental representations of musically structured sound-event types. When a musician thinks of a particular musical phrase, they mentally represent a particular type of sound-event and also represent it as standing in certain relations (namely, harmonic or melodic relations) to other sound-event types. A theory of mental representation of musical phrases must underwrite a musician's

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<sup>17</sup> I am here appealing to Sibley's notion that aesthetic judgments are negative-condition governed. See Sibley (2001).

ability to improvise. These improvisational abilities would be wholly mysterious unless musical thought is compositional in the way described.

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