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Psychological Research and Philosophical Debates on Musical Meaning

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Abstract

The question of meaning in music has been discussed by numerous philosophers of music. On one end of the philosophical spectrum, the meaning in music is understood as "specifically musical" meaning, i.e. the meaning exhausted by the musical ideas. The other end of the spectrum is occupied by the view that the meaning in music is emotional, consisting of the expression or representation of emotions by music, i.e. that the meaning in music is emotional meaning. The paper will demonstrate that the results of psychological research support a more complex view, which acknowledges different types of meaning. The main aim of the paper is to examine the contribution of experimental psychological research for the philosophical debates on musical meaning. Certain studies of behavioral and neurological reactions to musical stimuli have revealed interesting relationships between the processing of syntax, semantics, and emotion in music. After presenting three main philosophical views on musical meaning, the paper discusses the results and implications of three experimental psychological studies, and their relevance for the philosophical views.

It is argued in the paper that the experimental results enrich the classical philosophical debate on meaning in music. The original contribution of the paper consists in suggesting a way to connect the philosophical debates on musical meaning with the experimental psychological research. The implications of the paper will reveal higher complexity of the issue of musical meaning than is implicitly supposed in the theoretical debates. The second important implication is the suggestion of a way in which philosophical questions concerning music can be approached with the help of experimental psychology in future research.

Introduction

The motivation for this paper is mostly methodological. I am interested in interdisciplinarity, especially in the benefits of combining methods of different disciplines, in this case, the methods of philosophical analysis and experiments in psychology.

The majority of discussions in philosophy rely mostly on arguments based on non-empirical reasons, and these are commonly *a priori* or at least highly speculative reasons. On the other hand, the experimental literature in psychology is growing exponentially, presenting an abundance of behavioral studies, neuroimaging studies, and studies on other physiological responses to music.

This paper thus aims to readdress the same old philosophical problems with the help of new information gathered from psychological research. I will argue that philosophers and humanities scholars, in general, should implement both the results and the methods of the sciences, along with their own methods. This defines two main aims of my research. The first aim is to interpret the experimental results in the philosophical context, and the second aim is to analyze whether such experimental work can provide valuable insights for philosophical discussions or not.

In philosophical discussions on musical meaning, the question most commonly asked by the philosophers can be formulated as "What does music communicate?" or "What kind of meaning arises from music?" Philosophers of music were mostly interested in learning whether the meaning in music is specifically musical, emotional, or some other type of meaning. The answers to this question can be very roughly summarized into three broadly defined views, where the first two emphasize one specific type of meaning: emotional meaning, and specifically musical meaning. The third, pluralistic view

acknowledges different types of musical meaning and offers a more sophisticated and complex account of the aspects of meaning in music.

Philosophical Views on Meaning

Meaning in Music is Emotional

Since Antiquity, most philosophers have believed that the value of music is connected to human emotions. Consequently, the meaning and proper understanding of music were tied to the emotions as well, be it emotions expressed in the music, or evoked in the listeners. I will call this broad approach to musical value and meaning "the expressionist view".

These authors relied on the observation that music has the power to evoke various emotions in its listeners, and that, in turn, these emotions are able to shape human morality and character (Aristotle, trans. 1905, 1340a–b; Plato, trans. 1943, 398d–99b).

The value of music is thus defined primarily by its moral effect on the listeners by means of evoking emotions. Without such a beneficial moral effect, the beauty or pleasure found in music is considered insignificant (Tatarkiewicz, 1980: 23-25). This is connected to the long-enduring belief that there are correspondences between the domain of emotions and the domain of music, in the sense that particular musical elements, such as scales, chords, intervals, etc., correspond to particular emotions and moods (Koch, 1787; Sulzer, 1771–74).

This long tradition of thinking about music within the context of human emotional experiences reflected on the views on musical meaning. These views do not, however, constitute proper theories of meaning in music. They are, instead, a compound of beliefs about the emotional and moral effects of music, connected to the assumed correspondences between musical elements and particular emotions. These views do not attempt to present a detailed analysis of the meaning of music.

Another type of expressionist view on musical value and meaning treats music as the vehicle of expression of genuine subjective emotions, regardless of the moral effect. This originally Romanticist view is echoed in many contemporary philosophical works on music, most distinctively formulated as claiming that many musical works should be interpreted as psychological dramas – as an expression of the emotional processes attributed either to the composer or to the "persona" – the implied author of the musical work, not necessarily coinciding with the composer (Levinson, 1990; Robinson, 2005). Robinson (2005) claims that the expressive structure of some musical compositions invites psychological interpretations, in the sense of understanding the composition as a development of psychological events in time, and in order for this sequence of events to form an organic whole, she postulates the persona, a quasi-person to whom we attribute all these psychological events.

Levinson (1990) makes an additional claim that music can even express cognitively complex emotions, even though it cannot convey the conceptual content of emotions (or conceptual content in general). This is possible through conveying other aspects of emotions, such as dynamics, through which music can lead an experienced listener to regularly associate a particular emotion as a response to the particular composition or passage.

Within the group of views that fall under the expressionist view, there are differences in details of explanation and motivation. However, what they have in common is that they view musical meaning in terms of the emotions the music represents, expresses, or evokes in its listeners. In other words, they answer the question "what music means" by referring to the emotions associated with the music.

Meaning in Music is Specifically Musical

A different approach to musical meaning disregards the emotions expressed or represented by the music, as well as the emotions felt by the listeners in response to music. The proponents of this approach define both the value and meaning of music independently of the emotions, by placing them in the music itself and its structural properties. This constitutes the formalistic approach to music (Hanslick, 1854: 3–7, 31–35). The formalists claim that it is not even within the power of music to represent

emotions. Since emotions can be differentiated from one another by their conceptual content, constituted by the conceptions and judgments associated with the particular emotion, and since pure instrumental music cannot represent concepts, for they are "not within the scope of music," the formalists conclude that music is not able to represent emotions (Hanslick, 1854: 9; Srećković, 2014: 117–118).

Instead of searching for musical meaning in the emotions associated with the music, the formalists focus on the musical form, in tonal structures and tonal relationships, and believe that proper understanding of musical meaning requires focusing on musical form rather than external associations. Hanslick (1854) writes about the sense and logic in music, which being uniquely musical sense and logic. The trained listener, well acquainted with musical logic quickly distinguishes between genuine musical thoughts and 'empty phrases' (Hanslick, 1854: 30). The ideas expressed by musical works are, according to Hanslick (1854), uniquely musical, or tonal ideas, and not ideas concerning some non-musical content which are then translated into tones (p. 32). Additionally, musical ideas are "an end in itself", rather than a vehicle to represent extra-musical ideas (Hanslick, 1854: 28). Hanslick (1854) seems to believe that these ideas consist of constructing tonal structures, skillfully manipulating the relationships between tones, chords, smaller and larger structures, referring to other musical ideas – through repetitions, variations, elaboration, and other techniques (p. 33).

The main formalistic claim is that the content of music is the form of music itself: "Music consists of tonal sequences, tonal forms; these have no other content than themselves" (Hanslick, 1854: 78). The content does not concern extra-musical ideas translated into musical form. Content and form are not related by the relationship of translation or representation of one by the other. Instead, they have a relationship of elaboration. The content, consisting of tonal ideas is elaborated and refined until it reaches the final form (Hanslick, 1854: 35). The content, i.e. the meaning of music is thus inseparable from musical form. This is best illustrated in Hanslick's (1854) claim that "music speaks not merely by means of tones, it speaks only tones" (p. 78). In short, the musical structure is both what expresses the meaning in music, and what the music means. Finally, musical meaning is, according to the formalists, exhausted by the musical ideas.

Pluralistic View: Different Kinds of Meaning in Music

Instead of advocating the primacy or existence of just one kind of meaning, Meyer (1956) claimed that there can be different kinds of meaning arising from the same musical compositions or sequences simultaneously (p. 76). Meyer introduces several distinctions between different aspects of meaning in music. First, musical meaning can be designative in the cases when music designates or refers to the extra-musical world (Meyer, 1956: 33), or it can be "absolute" or non-designative in that the meaning of music remains entirely within the context of the musical work – in the musical processes themselves. Meyer (1956) accepts both types of meaning and calls the former, designative "extra-musical" meaning, and the latter "intramusical" meaning (pp. 2–3, 32–35).

The second distinction Meyer (1956) establishes is within the intramusical meaning, namely, that it can be both "intellectual" and "emotional" meaning. He also acknowledges both sides of the second distinction and accepts the existence of both intellectual meaning such as the specifically musical meaning postulated by the formalists, and emotional meaning, such as the one postulated in the expressionistic view.

Music listeners acquire the implicit knowledge of regularities in music through frequent exposure to a particular musical style. This shapes their expectations of the course of musical events. Musical expectations can be based on intellectualizing the formal musical relationships, giving rise to intellectual intramusical meaning, or it can be based on feeling the tension and relaxation, giving rise to emotional intramusical meaning (Meyer, 1956: 35). Both intramusical and extra-musical meanings are dependent upon learning as well.

Unlike the formalists and the expressionists, who emphasize only one kind and source of meaning, Meyer (1956) allows a multitude of aspects of meaning to arise out of the same musical structures.

Experimental Research on Meaning in Music

Finding of Specifically Musical Meaning

Steinbeis and Koelsch (2008) conducted an experiment in which they explored the electrophysiological reactions of the brain, measured by the EEG, to musical and linguistic stimuli. Their experiment focused on the reactions characteristic for neurological processing violations of syntax and semantics in language, and violations of harmonic expectations in musical sequences.

Procedure. The aim of the experiment was to explore whether the neurological reactions characteristic for processing the violations of harmonic expectations are related to the processing of meaning in music. Musical stimuli used in the experiment consisted of short, five-chord cadence-like sequences. It was not associated with titles, texts, or other extra-musical signs which would prompt the listeners to engage in extra-musical interpretation of the sequences. The listeners were thus implicitly directed to focus solely on the musical structure, especially on the tension-resolution patterns in the sequences (Steinbeis & Koelsch, 2008: 1169–70).

Musical sequences were composed so that they contain the common Western music harmonic progressions, starting with the tonic chord, and proceeding in a way which creates a high expectation of hearing the tonic chord again at the end of the sequence. The sequences were composed in two variations, either ending with the tonic chord (the expected condition), or with a Neapolitan chord (the unexpected condition) (Steinbeis & Koelsch, 2008: 1170).

The listeners were simultaneously presented with a linguistic sentence and a sequence of musical chords. Steinbeis and Koelsch (2008) explored the interference between the processing of linguistic violations and of musical expectancy violations (p. 1170).

Results. The results of the EEG showed significant interferences between the neurological reactions to the linguistic and musical violations. More specifically, the pattern of the interference gives evidence of an interaction between the processing of the harmonic structure and the processing of the *semantic* violation of linguistic sentences. In short, this suggests that paying attention to the structure in music leads to semantic processing. This points out the existence of a relationship between the structural aspect of music and the semantic aspect of language. In other words, the listeners seem to perceive meaning in music through the features of its structure.

Implications. These results suggest that even the structural properties of music can be processed as meaningful by the listening subjects. Additionally, they suggest that musical form is able to convey meaning to the listeners, even without referring to, or associating the listeners with extra-musical events.

Thus meaning and understanding of music are significantly connected to the structural properties of music, and the listeners make sense of the musical input by paying attention to the structure of music.

Steinbeis and Koelsch (2008) gathered results which are relevant for the formalistic claim that meaning can be found in musical structure alone, and for the corresponding claim about intramusical intellectual meaning in Meyer's (1956) pluralistic account.

Since the violations were designed to break the expectations common for the Western music style, the results of this experiment support Meyer's (1956) claim that meaning in music can arise out of the familiarity of the listeners with the regularities in music, implicitly acquired through frequent exposure to the music of a particular style.

By showing that musical structures themselves are perceived as meaningful by the listeners, these results also support the possibility of specifically musical meaning postulated by the formalists.

Emotional Meaning in Music

Another experiment provided evidence in support of another possibility in the discussions about musical meaning. Steinbeis, Koelsch and Sloboda (2006) explored the role of the structural features of music and musical expectations in evoking emotional responses in the listeners. They hypothesized that, since expectations, in general, are important in the emergence of emotional processes, leading the subjects to feelings of satisfaction, disappointment, surprise, etc., the changes in the degree of (un)expectedness in the harmonic sequence should have an impact on the emotional responses of the listeners (Steinbeis et al., 2006: 1380).

Procedure. The aim of the experiment was to test whether there is a direct link between musical unexpectedness and emotional responses (Steinbeis et al., 2006: 1380). The participants were presented with musical excerpts divided into three groups. Each excerpt had three variations, ranging from the expected version (ending with the tonic chord) to the very unexpected version (ending with a Neapolitan chord instead of tonic). The participants listened to the excerpts and rated the strength of their emotional response to the music. Simultaneously, their physiological reactions (associated with emotional experience in general) were measured (Steinbeis et al., 2006: 1383).

Results. The results of the participants' ratings showed a correlation between the strength of the emotional response (rated at the end of each excerpt) and the degree of harmonic unexpectedness. The correlation was gradual, in the sense that there were gradual differences in ratings for all three groups of variations (expected, unexpected, very unexpected) (Steinbeis et al., 2006: 1390).

The results of the physiological measurements showed a gradual correlation between the physiological measures associated with the *intensity* of emotional responses and the degree of harmonic unexpectedness. This means that the levels of the physiological indicators of the intensity of the emotional response were higher for the unexpected variations than for the expected ones, and the highest for the very unexpected variations (p. 1386).

Implications. The results provide evidence in support of the role of the musical structure and musical expectations in the emotional experience of the listeners. These results, thus, establish the relationship the authors hoped for, namely, the relationship between harmonic expectancies and emotional responses, which was missing in the empirical literature on music and the emotions.

These results can be taken to support Meyer's (1956) claim that it is possible for the properties of the musical structure itself to have emotional meaning for the listeners, even without referencing emotions with extra-musical signs (such as titles, etc.), or the (also extra-musical) correspondences between particular musical elements and particular emotions. In other words, this study supports Meyer's notion of intramusical emotional meaning, since it is shown that music can have an emotional impact solely through the fulfillment or suspension of specifically musical expectations.

Conceptual Meaning in Music

The third experiment relevant to the discussions on meaning in music was conducted by Koelsch and colleagues (2004). This experiment leads to novel insights regarding the scope of musical meaning. Unlike the first two experiments I presented, the results of this experiment did not support the existence of either musical or emotional meaning in music but instead introduced a new possibility of musical meaning, namely that musical structure can convey conceptual meaning, independently of extra-musical signals such as titles, texts or a program.

It was believed by the proponents of both formalism and the expressionism that music cannot convey conceptual meaning. Furthermore, this kind of meaning was not mentioned in the more permissive pluralistic account as well. Thus the following experiment is more interesting than the previously presented ones, in providing evidence for the meaningful relationship between musical structures and concepts denied by the philosophers.

Procedure. The experiment relied on a technique commonly used in experimental psychol-

ogy called "priming", which consists of exposing of the subject to a stimulus (the "prime") which affects the speed of the subject's processing of the subsequent stimulus (the "target"). Positive priming is priming that speeds up the processing of the target stimulus. This effect on the processing speed is called the "priming effect" (Reisberg, 2007).

The priming effect can be based on different kinds of relationship between the prime and the target stimulus. In some cases, there can be a *semantic* relationship between the stimuli. In that case, the processing of the target input is facilitated by the preceding input if the two inputs are semantically related. This effect can be observed in the behavioral reactions, by measuring the speed of the reactions of the subjects, e.g. how fast they perform tasks related to the target stimuli. The same effect can also be observed in their physiological reactions. If the EEG measurements are conducted during the priming experiments, they show a specific change in the electrophysiological activity of the brain.

This experiment attempted to establish the existence of a semantic relationship between musical sequences and words, by testing the occurrence of the semantic priming effect between them (Koelsch et al., 2004: 302). The participants were asked to judge the semantic relatedness between the musical and the linguistic stimuli, and simultaneously their neurological reactions were being recorded.

Results. The results showed that the semantic priming effect occurred for both linguistic and musical conditions. The participants judged semantic relatedness very similarly in the sentence-word priming pairs as in the musical excerpt-word priming pairs, in both conditions as predicted by the researchers. The physiological measurements complemented the subjective judgment of the participants. Changes in brain activity were congruent with the perception of semantic relations and did not differ between the linguistic and musical conditions. This gives evidence of the classical semantic priming effect that is already known to exist for the linguistic case but was never tested for the relationship between instrumental music and words. These findings suggest that music can convey considerably more semantic information than assumed so far.

Implications. The results imply that musically untrained subjects who are presented with unfamiliar musical passages form similar associations between the passages and particular words. This suggests that the subjects found similar semantic content in the musical excerpts and that at least some degree of conceptual meaning can be found in music, embedded within the musical form itself.

The implications of this experiment undermine both formalistic and expressionistic belief that music is unable to convey conceptual meaning. Meyer's (1956) pluralistic view leaves more room for such a possibility, but it is unclear whether Meyer himself would allow it.

Conclusion

At first sight, the philosophical views on meaning in music do not seem relatable to the neurological or behavioral experiments in general. It was not clear how any such experiments might prove relevant for the discussions on musical meaning. However, I have shown that the results of the presented experiments do provide valuable insights into the philosophical discussions. Taken together, they show that musical meaning can be of various kinds, even of the kind not considered by the philosophers. Different kinds of meanings do not necessarily exclude each other: music may be able to convey several levels of meaning solely by its structure, and the different meanings may also interact and interfere with each other.

In addition, this paper shows that interdisciplinary research is relevant for the philosophical debates on musical meaning, by introducing facts and arguments otherwise not available from the armchair philosophical approach.

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