

Empirical approaches to music and emotion: a survey and methodological reflections

Resumo

Investigo algumas abordagens psicológicas empíricas recentes, e considero exatamente como elas podem ser relevantes para temas filosóficos sobre a natureza da música e da experiência musical. Argumento que não pode ser assumido que são relevantes, e que elas só o são dado certo princípio que liga dados psicológicos empíricos com os temas filosóficos.

Palavras-chave: música; emoção; psicologia; filosofia; ciência.

Abstract

I survey some recent empirical psychological approaches, and consider exactly how they might be relevant to philosophical issues about the nature of music and musical experience. I argue that it cannot be assumed that they are relevant, and that they are so only given a certain principle that links empirical psychological data with the philosophical issues.

Keywords: music; emotion; psychology; philosophy; science.

The nature of music and musical experience has been pondered by philosophers, musicologists, musicians, poets, sociologists $\frac{3}{4}$ among others. One particularly controversial issue over musical experience concerns the relationship between music and emotion. In this paper, I consider empirical psychological approaches. My primary goal is to reflect on methodological questions of how empirical data are relevant to more fundamental or philosophical issues about the nature of music and musical experience. I will

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make a positive proposal concerning how it may be so. However, in order for the discussion to have something to work with, I will also give an overview of some recent empirical work in psychology on the relation between music and emotion. I assess its impact both on scientific grounds and also with respect to its contribution to the more fundamental or philosophical issues.

The theories we are concerned with here connect music with ordinary emotions, such as anger, grief, pride and sadness, rather than special aesthetic or specifically musical emotions. Views invoking ordinary emotions may be ‘direct’ or ‘indirect’. Direct theories say that music arouses emotions, and the nature and point of music lies in producing such emotions. Indirect theories say that the experience of music is a matter of *imagining* emotions in music, and the nature and point of music lies in producing such imaginative acts. For an ‘indirect’ theory, the claim is not that music directly provokes emotions but that it provokes a certain kind of *thoughts about emotions*. Roger Scruton, Jerrold Levinson and Kendall Walton have pursued this kind of theory (Scruton 1997, 2009, Levinson 2006, Walton 1988). By contrast, direct theories appeal to emotions, not to imaginative thoughts about emotions.

§1. Empirical/Philosophical Reflections: the Methodological Bridge

What is the *status* of the issue? What kind of issue is the issue over the nature of music and its connection with emotion? Insofar as it is very general, there is no harm in classifying it as ‘philosophical’. Is the issue ‘a priori’? Or is the issue an empirical one? Does it concern necessary or essential truths, not just contingent actual truths? Are we interested in the concept of music? These are difficult ideological questions. I have a dogmatic view!: I think that we should not be dogmatic, and we should keep an open mind about them, and explore multiple approaches to the issue of music and emotion.

It is undeniably that the *actual* connection between music and emotion is an empirical question. The issue is whether these connections are relevant to philosophical issues about the *nature* of music. If they do so, we will need to specify how. Call that specification of *how* the ‘methodological bridge’. This is a crucial meta-theoretical matter. Those who declare themselves ‘naturalists’ in philosophy usually think that whether empirical data are philosophically relevant is unproblematic and needs no justification. But they are wrong: it is and it does. How, exactly, can empirical evidence be relevant

to philosophical issues over the nature of music and our experience of it? This has to be explained. One cannot just assume that empirical evidence is relevant to philosophical questions. It has to be shown that it is, and exactly how it is relevant. (Writers on music and the brain typically skip this obligation with panache.)

I propose the following principle as a methodological bridge: if music as a matter of fact (empirically ascertainable fact) usually does X, and things that are not music usually do not do X, then that supports the view that doing X is part of the nature of music in the sense that doing X is a distinctive *function* of music. And: if music does not in general do Y, and many things that are not music do Y, then that supports the view that doing Y is not the distinctive function of music. I assume that music is a functional thing $\frac{3}{4}$ it is a purposive human product. The controversial question is what the function of music is. The bridge principle is not uncontroversial. It says that a correlation is a loose and fallible indicator of function. It is a criterion, not as an account of what a function is. One problem is that something can have a function while having a low probability of discharging it (sperm for example). But we may assume not for the case of music. For whatever music is supposed to do, it usually does it. Concert halls are full, and people buy recorded music, because they get from music something that it was intended to do. Another problem is that the presence of a generality or a disposition does not always indicate a function. The heart has the function of pumping blood, which it generally does and is disposed to do. The heart also generally makes a beating noise and it is disposed to do so, but that is not the function of the heart. For our purposes, however, this does not matter. For even though a disposition or a generality may not indicate a function, lack of a disposition does indicate lack of the corresponding function. It is true that we have to take care in inferring functions from dispositions or generalities. But since the conclusions of this paper will be negative, all we need is the idea that we can infer the lack of a certain function from the lack of the corresponding disposition and generality.

§2. Direct Theories

One empirical approach to the question of music and emotion undertakes a general investigation of experiences of music, and attempts to record the presence or absence of emotion during those experiences. This evidence

would be relevant, given the bridge principle, to what I called ‘direct’ theories of music and emotion.

Is there a correlation? What is the data? The answer is absolutely clear: it is not clear! There is no consensus.

Some experimental researchers have claimed to find correlations. (Work of this genre is represented in Juslin and Sloboda 2011.) However, much of this research consists in presenting listeners with pre-prepared lists of exclusively emotion words and asking listeners to pick out the words characterizing the music or their experience of it. From convergence in responses, a direct theory is inferred. But this cannot be right! It is methodological and experimentally problematic because no attempt is made to provide alternative samples of terms. They are pre-selected by the experimenter. The trouble is that the experimenters are those within the emotion-and-music research program! Thus confirmation bias is committed on a grand scale. We need evidence that this method of providing evidence is reliable. The probe in a proper experiment must be independent of what is being investigated. It looks like a textbook case of what Ben Goldacre calls ‘bad science’ (Goldacre 2006). (It gets worse when the questionnaire results are correlated with areas of brain activity, which is somehow supposed to supply added support for the music-emotion connection. We then have a case of what has come to be called ‘neurobabble’, perhaps the contemporary form of phrenology.)

The use of questionnaires by emotion theorists to empirically investigate the connection between music and emotion is like ‘testing’ homeopathic medicine by getting ‘doctors’ who practice homeopathy to test whether homeopathy works by allowing them to give their patients questionnaires with their own carefully picked questions. Of course the patients, who have invested money in the ‘medicine’, and who therefore have non-epistemic reasons for belief, yield results that appear to vindicate homeopathy, from which the ‘doctors’ make their living! The fatal flaw is that the research is not double blind, and when proper double blind experiments are done, including placebos, complete scepticism about homeopathy is decisively vindicated (Goldacre 2006, chapter 3). Homeopathy is decisively debunked³even though it continues indirectly to cause the deaths of thousands of people every year by stopping people, or their unfortunate dependents, having the ‘traditional’ medicine they urgently need to save their lives. Unrigorous questionnaire-based research in medicine causes many deaths. Fortunately it does not do such damage in the psychology of music, where it merely produces false beliefs about music and emotion. But it might be argued that false views about music and emotion damage actual musical experience, since it foregrounds

a certain emotional way of experiencing music, which Eduard Hanslick decries as follow: "... all such pathological ways of being affected by a piece of music are opposed to the deliberate and pure contemplation of it. This contemplative hearing is the only artistic, true form; the raw emotion of savages and the gushings of the music enthusiast can be lumped together in a single category contrary to it." (Hanslick 1986, p. 63.) Wonderful!

Other experimental researchers come to the opposite conclusion. Vladimir Konecni and his associates have some important negative results (Konecni, Brown and Wanic 2008; and also Konecni 2008). Konecni found no correlation between emotion descriptions of music and recalled emotions in those listeners. Thus there was no connection between music or our experience of it, and emotions in the listener. Konecni and his associates are not in the majority among those who investigate music and emotion empirically. Nevertheless overall, it seems that the empirical case against direct emotion theories of music is just as strong as that in its favour. We may infer at least that we have no reason to think that there is an essential or functional direct connection between music and emotion.

I conjecture that there could also be an empirical argument from people's faces when listening to music, which, as seems likely, do not exhibit the standard Ekman expressions of emotion (Ekman and Rosenberg 1998). If photographs were taken of people listening to instrumental music on personal stereos or in many other music listening situations, I think there would be great difficulty and no consensus in attributing emotions to the listener's faces. Their faces instead appear to be concentrating, not emoting. This evidence would weigh against the idea that musical listening involves emotion, at least, if emotion is taken to be what is expressed in facial gestures in the Ekman tradition in the psychology of emotion. I know of no such research, but it seems a promising avenue.

§3. Indirect Theories

What about indirect theories, which claim that the point of music lies in the listener's imagining emotions in music?

One fruitful empirical approach to indirect theories is less general and instead targets particularly *diagnostically revealing* cases of musical experience. One route here is to examine the musical experiences of people with autism. We can ask: what is the actual connection between music and emotion in autistic listener? From these results we can make an inference to the

nature of musical experience in non-autistic listeners. Nancy Cartwright argues that science often generalizes on the basis of a revealing local result rather than proceeding inductively; see Cartwright 1992. The argument from autism would be an argument of that sort.

I here summarize an argument of this sort, which is given in greater detail elsewhere. (Zangwill 2013; see also Allen, Walsh and Zangwill 2013.) This argument draws on experimental work done by Rory Allen and his colleagues on musical experience and autism. Those with autism ('autism spectrum disorder') are less good than typically developing people at understanding emotions in other people and they are less good at imagining emotions that they do not feel (Baron-Cohen 1995, Frith 2003). Autistic listeners are also less competent than average listeners at giving linguistic descriptions of music in terms of emotion. Nevertheless, empirical evidence points to the fact that autistic experiences of listening to music are statistically normal (Allen, Davis and Hill 2013). Allen and associates measured the physiological galvanic skin responses ('GSR') of autistic and non-autistic groups (with noise as a control) and found no significant difference between the groups. GSR may be taken to indicate musical experience whatever it is. Whatever it is, the GSR data make it highly likely that musical experience does not differ between autistic and non-autistic musical listeners. That yields an anti-indirect emotion argument. For we have no reason to believe that autistic music experience differs from non-autistic musical experience, whatever its nature. And the GSR negative results give some positive reason to believe that it is similar, whatever its nature. It follows that both autistic and non-autistic musical experiences are not a matter of imagining or understanding emotions. For if they were, autistic and non-autistic musical listening would differ. But the physiological responses strongly suggest that they do not. Hence the empirical evidence tells against indirect theories of all musical experience.

§4. Back Over the Bridge

My main purpose here, however, is not to establish an anti-emotion view $\frac{3}{4}$ direct or indirect $\frac{3}{4}$ but rather to see what kinds of empirical arguments are available, and on what assumptions and in what way these empirical arguments might establish such a view. How exactly can we draw philosophical/essentialist conclusions from empirical matters? We need to go back over the theoretical bridge. Empirical evidence may yield philosophical/essentialist

conclusions about music given the methodological bridge principle linking its functional essence with its usual manifestation. Empirical evidence is relevant to philosophical conclusions about the nature and function of music on the assumption that music generally does what it is its function to do, and it does not generally do what is not its function to do.

Given this, and also given the survey of empirical evidence that I summarized very briefly above, we may conclude as follow:

Firstly, direct emotion theories of music are implausible. As we saw in section 2, the questionnaire method of empirical research has produced some pro-emotion data, but the methodology is flawed enough to cancel its evidential weight. Moreover, as Konecni has argued, there seems to be positive evidence against a direct connection between music and emotion.

Secondly, there is an argument against indirect theories, which is that physiological responses show that the music experiences of people with autism are normal in comparison with the musical experiences of people without autism. But their emotion understanding, imagination and description is not. So *both* autistic and non-autistic musical experience is independent of their emotion understanding, imagination and description. Therefore music and emotion are not essentially connected *indirectly*, which means that those like Scruton, Levinson and Walton are wrong to think that musical experience is a matter of imagining emotions.

Konecni presented empirical evidence for a lack of correlation between musical experience and emotion, and Allen gave us empirical evidence for a lack of correlation between musical experience and thoughts about emotion. The bridge principle means that a lack of correlation fallibly indicates a lack of essential function. It is in this way that empirical evidence functions in an argument for a conclusion about the nature of music and musical experience.

I have here focused on empirical arguments. But I should mention that there are also non-empirical arguments against emotion theories of both kinds. In particular, both direct and indirect theories are problematic on more philosophical grounds because of the problem of negative emotion. (The problem is generated by the assumption that the emotions in question are not specifically *musical* feelings, but ordinary emotions such as anger, or grief.) For example, why would we desire and value being made to feel tragic grief or to imagine it? This raises in acute form the worry about the *value* of music on emotion theories of music. It seems that such accounts drain music of recognizable value. But then: why are we so preoccupied with it? There are replies to this objection, but they tend to make the value of the experiencing the negative emotion implausibly extrinsic. And they make the

value implausibly contingent on the desirability of various supposed causes or effects of experiencing negative emotions. (See further Zangwill 2012.)

These philosophical difficulties only add to the empirical evidence considered here, which indicate that both direct and indirect emotion theories of music are flawed: no emotion theories of music are any good. As Hanslick rightly insisted, emotion is a huge distraction when thinking about the nature and value of music, if by ‘emotion’ we mean ordinary non-musical emotions. Such emotion theories of music should be buried once and for all.

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