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Infectious Music:

Music-Listener Emotional Contagion

Stephen Davies

I have long been interested in the expression of emotion in music and in the response this calls forth from the listener. One such response is a mirroring or echoing one; sad music tends to make (some) listeners feel sad and happy music to make them happy. This mirroring reaction is brought about by what I have called emotional contagion. We tend to resonate with the emotional tenor of the music, much as we catch the emotional ambience emanating from other people.[1]

Reflecting on the musical case not only enhances understanding of the listener's response, it provides a novel objection to the cognitive theory of the emotions favored by many philosophers and invites critical consideration of the models for human-to-human emotional contagion proposed by psychologists. As I try to show, the most common accounts of emotional contagion should be developed and refined in light of analysis of emotional contagion in the musical case, which recommends, for example, that we distinguish attention from non-attentional modes of emotional transmission and, in general, avoid defining the phenomenon reductively in terms of the routes and mechanisms of communication.

In the 1960s and 70s, philosophers (Kenny (1963); Solomon (1976); Lyons (1980)) developed what became known as the cognitive account of the emotions. Emotions are object-directed states characterized in terms of the beliefs under which their intentional objects are subsumed. For example, if I am afraid for myself I am afraid *of* or *about* something—a rise in the mortgage rate, say—and I *believe* that a rise in the mortgage rate will injure me or otherwise affect me adversely. A rise in the interest rate is the *intentional object* (or *emotional object*) of my fear, and the belief that the intentional object of my response will injure me or otherwise affect me adversely, a description sometimes known as the *formal object* of fear, is what characterizes the response as fearful.

[1] I reject the arousal theory, according to which 'the music is sad' is true if and only if the music arouses sadness in the listener. (For detailed discussion, see Davies (1994a): ch. 4.) In other words, I regard the music's expressive quality as distinct from the response. For further comment, see footnote 9.

Similarly, for my emotion to be one of envy I must believe that another possesses something that I desire and do not have, and so on.

Though proponents of the theory occasionally suggest that the nature of the belief is sufficient to determine what emotion is involved, the more circumspect view is that the relevant belief is necessary and that no other condition is also sufficient. In other words, other conditions might be necessary for an emotion's being one of fear, but among the conditions that are jointly sufficient for an emotion's being fear is the condition that the relevant beliefs, ones about dangers posed by the emotion's object, are present.[2] It is the centrality that this theory accords to the role of belief that led to its being called a cognitive account of the emotions.

A number of fairly obvious putative counterexamples can be ranged against the cognitive theory of the emotions. Phobias either involve beliefs not appropriate to the emotion's object or are impervious to beliefs that should block the response. Reflexive affective responses of the kind sometimes called quick and dirty or fast and frugal by psychologists also seem to operate independently of, and be unaffected by, the responder's belief systems. As Darwin ((1998): 43–4) famously observed, he flinched in fear of a striking snake even as he knew it was separated from him by an unbreakable glass barrier. Meanwhile, emotional reactions to fictions recognized as such, as when I feel sad at Mimi's death in *La Bohème*, or to counterfactually entertained scenarios, as when I feel sad as a result of imagining a world without birds, also do not involve beliefs that should be crucial: that Mimi exists or existed and therefore suffered the fate depicted, or that the earth will be bereft of birds. As well as these cases, all of which question the claimed tie between the emotion's kind and the content of the beliefs of the person who experiences it, there are others denying that emotions necessarily take emotional objects. Apparently there are objectless moods and feelings, as when one is gloomy but not about anything in particular or where one experiences an undirected sense of dread or foreboding.

There are a number of replies the cognitivist can offer. Emotional reactions that are based on irrational or otherwise mistaken beliefs are inappropriate to the way the real world is but are not otherwise unintelligible. And reactions that do not engage the responder's beliefs perhaps should not be put together with full-blooded emotions. In this view, reflexive reactions either are not emotions at all or they form a minor, peripheral class within the wider group in which cognitively founded, object-directed emotions are central and paradigmatic.[3] As for moods and anxieties that appear to be objectless, it could be argued that they take relatively general objects rather than specific ones (Goldie (2000): 143)—one is depressed about the condition of the

[2] For instance, certain behavioral dispositions might also be necessary for some if not all emotions.

[3] If emotions serve adaptive functions, as is widely claimed ((Plutchik) 1980; Lazarus (1991); Le Doux (1996)), and if we share many emotions with less cognitively sophisticated species, as seems hard to deny, the cognitive theory does look to be parochial and narrow. On the other hand, Griffiths' conclusion (1997), that 'conceptual analysis' provides no coherent account of cognitively sophisticated emotions and that they are beyond the pale because psychologists' methodologies cannot deal with them, seems equally biased.

world at large, though not at a particular part of it (Solomon (1976): 172–3)—or that their objects are unconscious (Lyons (1980)).[4] Or again, perhaps the claims of objectless moods and dreads to unequivocal standing as emotions should be doubted.

Meanwhile, our responsiveness to what we know to be fictional characters and situations has attracted a spread of theories. There is the option of denial. Kendall Walton (1990, 1997) stands by cognitivism. He holds that *fictional emotions*—by which he means not that the states are merely imagined but that they occur in the context of games of make-belief prescribed for the consumption and appreciation of fictional works—are not kosher, despite their emotion-like phenomenological and physiological profile. An implausible alternative is Coleridge's suggestion that one suspends—or in contemporary jargon, puts off-line—one's awareness of the fictionality of the events shown or described. There is the proposal that the response is non-rational, either because beliefs in the existence of their objects are absent or, for other reasons, because one does not believe one's responses can affect or engage with the object of the response. Colin Radford (1975), who endorses this proposal, apparently thinks irrational reactions can be tolerated by the cognitivist as exceptions that prove the rule. Alex Neill (1993) argues that cognitivism does not require the belief that the fictional target of one's emotional response exists in the actual world. According to Neill, one can pity a fictional character provided one believes that the character exists in a pitiable situation in the world of the fiction. Another attractive suggestion (offered in Carroll (1990), Feagin (1996), Lamarque (1996)) recommends modifying the cognitive theory to allow that the relevant cognitive role can be played sometimes by make-belief, not only by belief. The emotional evocativeness of fictions entertained as such then no longer calls the cognitive theory into doubt.

In Davies (1980) (also in 1983, 1994a, 2001), I drew attention to a different kind of counterexample to the cognitive theory. People respond emotionally to music. Some of these reactions fit the model proposed by the cognitivist. I might be happy that the work is entertaining or irritated by the performance's dreary tempo. Others, however, do not. It is widely accepted that even purely instrumental music can express or present the appearance of emotions such as happiness and sadness. It is also generally acknowledged that happy music sometimes makes people feel happy and sad music sometimes make them feel sad. Music can give rise to an affective reaction that mirrors or echoes its own expressive character. But, and here is the point, those who are saddened by sad music are not sad *about* or *for* the music. The music is the perceptual object and cause of the sad reaction. Indeed, the music is the attentional focus of the response, which tracks the expressiveness as it unfolds in the music's progress.[5] However, the music is not the

[4] For discussion, see Lamb (1987).

[5] The disposition to echo the music's expressiveness might be overridden, though, in light of a broader view of its expressive character. I might not be cheered by the occasional happy moments because I recognize them in the work's overall pattern as best thought of as smiling through tears, not as expressions of unalloyed joy.

emotional object of the listener's response—the response is *to* the music without being *about* it—because moved listeners do not believe of the music that it satisfies the formal object of sadness.[6] In other words, they do not believe it suffers or is otherwise unfortunate or regrettable. They might regard the slow movement of Mahler's Fifth Symphony, say, as expressing a profound sadness, and on that account, as a magnificent human achievement that should be celebrated, not mourned, yet hearing it inclines them to share in its sadness.

I claim that responses of this kind are familiar more generally. We often catch the emotional ambience of our environment or of those around us. I referred to the phenomenon, including the musical case, as involving emotional contagion, transmission, infection, or osmosis.

It may be useful to distinguish two types of emotional contagion in which music could take part. Music is played as background sound in stores and elevators where it serves to calm those who encounter it.[7] To produce its effect it must be heard. (I assume the feelings of deaf people are not influenced by ambient music.) Typically, though, it is not listened to. It is the perceptual object of the response, but the person calmed by it may be oblivious of this fact and may remain unaware throughout of the musical wallpaper. The sense of well-being experienced as a result of this barely aware or subconscious perception is not appreciated as a response to its cause and is not directed to the background music. In other words, the music generates an objectless mood that reflects its own, calm expressive character.

The second kind of music-based emotional contagion is the one I described earlier. The music is the object of attention and is inevitably recognized as the source (or one of the sources) of the response it calls forth. The listener responds *to* the music, though the response is not *about* the music. The response is experienced as occasioned by and linked to the music, not as some undirected mood (Davies (1994a)).[8]

To say the response is attentional is, of course, not to maintain that the person subject to emotional contagion attends to or is even aware of the causal mechanisms responsible for the transmission of affect. Typically she is not. She attends to the source of contagion, the music's expressive character, without following the process by which this affect becomes one she shares. In many cases, however, the attention she pays to

[6] Philosophers interested in analyzing the emotions sometimes discuss the musical case without noticing how peculiar it is in this respect; see Wilson (1972): 82–5 for an example.

[7] For discussion of the use of music in marketing, see Milliman (1982) and (1986), Bruner (1990), and North & Hargreaves (1997). Shatin (1970) discusses the use of music to control and change the listener's mood; see also Bunt & Pavlicevic (2001) and the practical guide to music selections associated with desired emotional responses edited by Capurso et al. (1952).

[8] Maddell (2002) objects to accounts of music's expressiveness like mine (Davies (1980, (1994a)) and Kivy's (1989) that they leave the listener's response only loosely tied to the music. He cites Radford (1991), and the objection does seem relevant to Radford's view, in which music is a cause of objectless moods that are about 'everything and nothing'. The objection does not have much force against the position I defend, however, which stresses the attentional dependence of the response on the music's expressive development.

expressions of the source emotion plays a crucial role in opening her up to the relevant triggers of emotional communication.

Film music may turn out sometimes to involve the one kind of contagion, at others the other, or to involve the one kind more often with one group of viewers than with the rest. Many movie-goers are not aware of the film's accompanying music as they hear it, while others are aware of but not focused on the music, yet both kinds of viewers are liable to be emotionally primed by the music they hear. At other times, the music draws attention to itself and clearly establishes an emotional tone for (or tension against) the movie action that is to follow. If there is emotional contagion in either case, it is non-attentional in the first and attentional in the second. As well, some members of the audience may be inclined to listen more often and more carefully to the movie's music, in which case if they are infected by the music they are likely to be conscious more often of its working on their emotions.

What characterizes emotional contagion? Intuitively, the hallmarks are these: one emotional state, appearance, or condition is transmitted to a person (or creature) who comes to feel the same way; the display of the first emotional state plays a causal role in the process of transmission and the first emotional state must be perceived, either attentionally or non-attentionally, by the emotion's recipient; the first emotional state is not the emotional object of the response, however, because the responder does not hold about the first emotional state beliefs that make it an appropriate intentional object for the response in question.

Emotional contagion should be distinguished from some conditions that are outwardly similar in that *A* and *B* experience the same emotion. The following do not fit the characterization of emotional contagion that was just offered: we both feel the same emotion because our emotions have a common intentional object about which we both hold the same emotion-relevant beliefs. (We both react with fear to the nearby charging lion, or we both laugh at the same joke.) I react to your emotion by feeling the same, because I believe the basis of your reaction will also provide me with a reason to react similarly. (Seeing you flee in terror, I do the same without waiting to discover what you are terrified of, or I begin to share your humor at a joke you are about to tell.) Your emotion is the emotional object of my response and our emotions are the same. (You are angry that we are delayed, and I am angry that you are angry because you promised you would keep your cool.) I try to work out what you are feeling by imaginatively simulating your situation, or I use knowledge of your character and circumstances, and thereby empathically share your state. And finally, our recognizing that we share some reaction modifies that reaction, for instance, by augmenting it—people laugh thirty times more often when they are with strangers who also display their amusement than when they are alone (Provine (1996))—or by coloring it—as when we feel a sense of community, or alternatively become self-conscious and embarrassed, to react as the other does.

Emotional contagion does not always occur when two people share the same emotion, or even when this sharing is caused by one person's emotional state

impinging on the other. What is crucial, as I have noted, is that the mirroring response does not take the initial emotional state, appearance, or condition as its emotional object and does not involve the kinds of beliefs about that state, appearance, or condition that are distinctive to emotions of the kind elicited. Nor does one adopt the response in the process of trying to understand what affective state another is undergoing. Even if it arises via contagion, however, that other people are similarly affected may trigger the effects of sharing, such as an amplification of the response.

Not all philosophers of music agree that the mirroring response to music's expressiveness involves contagion. Kivy, who is a dedicated cognitivist, at first (1987, 1989) denied that anyone (apart from the pathological) is ever saddened by sad music.[9] This view dismisses the testimony of many music lovers as well as the experimental results of psychologists' studies.[10] Later (1993, 1994), Kivy ameliorates his position, accepting that music weakly tends to move some listeners. Radford (1989, 1991) allows that music can produce a generalized, objectless reaction, but seems to take as his model the case of non-attentional emotional infection, and thereby mischaracterizes the important musical case. Jerrold Levinson (1996, 2006; see also Robinson (2005)) argues that music is expressive because we experience it imaginatively as a narrative about an indefinite persona we hear as inhabiting it. He suggests that sometimes our responses are to the fate of this persona. Or finally, instead of proposing a rival account, one can file it in the 'too hard' basket: 'And only music, with its capacity not only to go beyond words but to exist only beyond words, can provide an explanation of why we respond the way we do to it. We are confusing the issue further by attempting to package this emotive understanding in terms of language, or in terms of objects and beliefs. Perhaps this is where both music as well as emotion should, as Wittgenstein suggests, be passed over in silence' (Worth 2000: 106).

I find all these alternatives unconvincing and have argued against most of them elsewhere (Davies 1994a, 1994b, 1997, 2006). I will not recapitulate those discussions. Instead, I consider criticisms of my position recently proposed by Robinson. She thinks that music is a source of emotional contagion, but she regards my story about this as flawed. She writes: 'Davies's account cannot be quite right for two reasons. For one thing, emotional contagion normally occurs automatically without our being aware of what's happening: the expression is acquired automatically by some form of motor

[9] Kivy (1987, 1989) conflates the arousal account of music's expressiveness—music expresses an emotion *E* if and only if it arouses (or tends to arouse) *E* in a suitably qualified listener—with the claim that music sometimes arouses echoing responses in the listener. He writes as if he can demonstrate that music never arouses a mirroring response if he can show that the arousal theory is false. These views should be kept apart, however. There is no inconsistency in maintaining (as I do) both that music's expressiveness does not depend on its arousing any emotion (and hence that the arousal theory is false) and also that music regularly does arouse the emotion it expresses.

[10] Carol Krumhansl (1997) sets out specifically to test Kivy's position and concludes he is wrong to claim that listeners do not experience the emotions they recognize in music. For a review of the literature and empirical evidence of contagion from music to listener, see Gabrielsson (2002). For Kivy's critique of Krumhansl's experiment, see Kivy (2006).

mimicry. *Recognition* of the expression is not necessary as Davies stipulates, and may even prevent or moderate the effect of contagion' (2005: 385; here, as in subsequent quotations, italics are as in the original).

This first objection insists that emotional contagion normally does not depend on one's recognizing the expressive character of that to which one responds. By this, I take it that Robinson holds the emotional contagion is commonly non-attentional, so the attentional response I characterize cannot be 'quite right'. But this has to be wrong. Robinson cites with approval the work of psychologists Elaine Hatfield, John T. Cacioppo, and Richard L. Rapson and indicates them as her primary source on emotional contagion. Apparently, Robinson overlooks this: 'People should be more likely to catch others' emotions if their attention is riveted on the others than if they are oblivious to others' emotions' (Hatfield et al. 1994: 148). Hatfield et al. (1994: 148–52) provide compelling evidence for the truth of this hypothesis. And common sense and experience suggest that one is more likely to catch another's mood by recognizing his emotions and signals of affect than by being unaware of them. Film-makers know this and focus spectators' attention on characters' expressive facial features in order to elicit emotional contagion or empathy (Plantinga (1999); Coplan (2006)).

In fact, Robinson regularly cites psychologists' experiments in which the subjects were asked to listen to—that is, attend to and recognize—the music's expressive character. The experimenters measured the subjects' physiological or behavioral responses or obtained self-reports afterwards. One of Robinson's favorite cases is an experiment by Krumhansl (1997) of exactly this kind: the physiology of half the subjects was monitored as they attended closely to the music, while the other half recorded their emotional responses as they listened. Robinson (2005: 395) also mentions Dale Bartlett's review (1996) of 130 studies showing how listening to music produces physiological effects in listeners. As she should be aware, the vast majority of the studies listed by Bartlett are recognitional. In only a tiny minority is the music played as background while the subject focuses on something else, such as a puzzle task, for instance. Robinson offers these recognitional experiments as evidence of a kind of emotional contagion she labels the 'jazzercise effect'. So, she cannot consistently maintain against my view that emotional contagion in the musical case is normally non-attentional.

It is true, as I noted earlier, that the listener subject to emotional contagion is usually oblivious to the way the affect is transmitted. Nevertheless, her recognition of and attention to the music's expressiveness primes her to catch the music's mood. Her focus on the music's expressive character encourages and invigorates the transmission of affect, as is indicated by experimental evidence both for emotional transfer from person to person and from music to person. So, there is nothing amiss in my suggestion that music is involved in attentional emotional contagion. Indeed, one would expect this to be usually more powerful and reliable than non-attentional contagion from musical sources.

Robinson's second objection is as follows:

On Davies's account music is *like* an expression of emotion—just as is the configuration of the basset hound's face—but it isn't one really. We are programmed to respond with sadness to an expression of sadness in another human being. The fact that we are probably programmed to respond to other human faces (on the grounds that sad *human* expression usually indicate sad humans) probably has no implications for our responses to doggy faces. (After all, if living with a basset hound were like living with a depressed person, would normal folk choose a basset hound as their life's companion?) And by parity of reasoning we are probably not programmed to respond to musical sounds by virtue of the fact that they are *like* expressions of emotion in some way. (2005: 388).[11]

It seems to me that these are empirical claims and that the evidence favors my view rather than counting against it. To take a non-musical case, I surmise that when we are cheered by a warm and jolly décor, this is most easily explained as involving contagion. Presumably the original source of the cheerfulness of yellow and the gloominess of grey is the weather, and it is not difficult to understand why we might be programmed to react positively to sunny weather and to be depressed by rain and fog. (Such responses are neither inevitable nor uncontrollable, however. Any number of local factors might block what is initially a weak tendency to respond via contagion.) Though the interior décor of a house is never likely to be mistaken for the local weather, nevertheless, it inherits the positive and negative values of the weather and we respond via contagion to this.

As this case testifies, our valuations and responses to our natural environments, as well as to our human cohorts, can become generalized and applied over a range of contexts. Synaesthetic generalizations are common in the musical case, in particular. We conceive of music in terms of human, spatial, and other categories. Timbres are warm, metallic, dark, and brittle, rhythms are jagged or square, notes are high or low. Melody and music in general contain movement, conflict, statements, questions, dialogue, wit, and humor. The progress of music makes sense much as human behavior does: we do not regard it as mechanically determined, yet we expect to be able to understand each event in terms of what went before. We anticipate that the music will present a coherent pattern much as we anticipate that a person will act in character, though both can also be bafflingly unpredictable on occasion. Above all, we hear in music humanly created emotional expression. The *image* of human expressiveness is often as evocative as the real thing. There are good biological reasons for this fact. Our first reaction as social creatures that rely on our mindreading abilities is to respond to the outward show as a window on the human soul. That is how (and why) we react to expressiveness in music: it is no less a human form of expression, though it is a far more sophisticated one, than weeping is.

[11] Robinson is correct that I regard music as expressive by virtue of its presenting appearances of emotion. I do allow that real emotions of the composer can be expressed in his or her work, but I also hold this to be a sophisticated act of expression achieved via the composer's appropriation of the expressive character of the music he or she writes (see Davies (1986), (1994a)).

Few deny that music often powerfully calls from them an emotional echo of its own expressiveness. I think we respond directly to that expressiveness—and not that we respond to a persona we imagine to inhabit the music, for example—so I do not find it at all implausible to regard that response as suggesting we find music evocative of contagious responses. Because there is money to be made, marketers and the psychologists they employ have taken the trouble to establish that music can affect us subliminally through contagion. Why think it would not do so more directly when we focus on its expressive power?

Why do people choose basset hounds as pets? No doubt there can be many reasons, but I guess that many a basset pup has elicited a sympathetic 'oooh, poor baby' from its owner-to-be. Why do basset hounds not drive their owners to suicide via contagion? We can soon become inured to the surface mood of our environment. When we know that basset hounds are as fun loving as other breeds through living with them on a daily basis, the subliminal tendency we have to be affected negatively by the humanly sad-looking character of their faces is easily held in abeyance. If your partner had the misfortune to suffer a stroke that left him or her with a permanently down-turned mouth, you would probably learn not to let this outward appearance of sadness affect you. So it is, I assume, for the owners of basset hounds.[12]

As we have seen, Robinson's second objection to my account of music's contagious powers fares no better than the misconceived first. How well does her own theory of musical expressive transmission by infection stand up? I find it confusing. What she offers as the primary example of musical contagion either looks like something else or supports a view like mine, as I now demonstrate.

Robinson's jazzercise effect, which illustrates her model of emotional contagion, works like this: music arouses physiological changes; the subject aware of these changes looks for and latches on to cues in the environment and responds emotionally to them. Robinson's model here is a notorious experiment performed by Stanley Schachter and Jerome Singer (1962).[13] The experimenters used a drug to induce arousal in their subjects. These subjects, who were unaware of how or why their bodies were stimulated, matched their emotions to a stooge who behaved angrily with his situation in some cases and who cheerfully horsed around in others.

[12] Peter Kivy, in a commentary on a draft of this chapter, has described this concession as 'utterly devastating' for my view, because we have resided with sad music our entire lives and therefore should never respond to it via contagion. I do not agree. My claim is that there is a disposition toward contagious responses that is realized in some cases. One way it can be dulled or deadened is by over-exposure to a given piece. As for the ubiquity of sad music, it is important to recall that we react to the expressive detail of particular works (Davies (1999)), so it is not surprising if our emotions are gripped when we return to those works, despite having been exposed to other, similarly expressive pieces in the meantime.

[13] I call the experiment notorious because the methodology is suspect, the results have proved difficult or impossible to replicate, and the interpretation of the outcome is contested. For a review of psychologists' criticisms, see Carlson & Hatfield (1992). Philosophers have often discussed the experiment; for recent critical comments, see Griffiths (1997) and Prinz (2004).

> My proposal is that at least sometimes music plays a role similar to that which the epinephrine played in Schachter's famous experiment. It *arouses* listeners and puts them in a bodily mood or state. But, as in the experiment, listeners have no good explanation for their state of arousal. Why, after all, should music make me feel anxious or fearful? . . . So what they do is what the subjects in the Schachter experiment did: they look around for an appropriate label for their vaguely felt affective state, and they *label* their state of arousal depending on the context they bring to the experience. (Robinson (2005): 401)

Here is the process Robinson describes: the music causes me to feel tense, say. Perhaps matters end there; I feel an objectless irritability. Alternatively, I find myself thinking of tomorrow's dental appointment and thereby come to identify my reaction as one of apprehension. Or again, perhaps I pick up on the affective tone of those around me, so that I come to share their all-too-apparent irritation.

Now, the first two cases—unfocussed irritability and apprehension at tomorrow's dental appointment—are not ones of emotional contagion. I experience an objectless mood in the first and an object-directed response of the ordinary, cognitively founded kind in the second. And if the third example—I pick up on the irritation of others—is one of contagion, the communication of affect is not to me from the music, but to me from people in my environment. In all these cases, the music is relevant because it heightens my physiological condition and in that way disposes me more than might otherwise be the case to adopt an affective stance, so that I come to experience a mood or to resonate emotionally with some aspect of my environment. But the music is always remote from the response. It plays a role in making me receptive to emotional experience, but this role might have been played instead by three cups of espresso or a shot of adrenaline. Certainly, the response is not made *to* the music.

I do not deny that people sometimes react affectively in the way just described or that music sometimes initiates the process by which this occurs. I agree, that is, that music can affect the listener's physiological state in ways of which she is not directly aware, and that this can lead her to interrogate her wider environment for cues as to the character of her affective state. For the examples previously described, however, I deny that the response involves catching the music's expressive character. If contagion occurs, it does not directly involve the music. So, when developed this way, Robinson's would not be an account of *musical* contagion.

How could the music play a more prominent role? Schachter's experiment has been taken as an instance of emotional contagion (as in Hatfield et al. (1994): 111–13) because the subjects tended to catch the confederate's emotion. If the music not only initiated the change in the listener but also participated in her reaction, much as the confederate did in the experiment, the result would involve musical contagion, the transmission of affect from the music to the listener. Moreover, the suggestion is plausible. It would not be surprising if the listener latched on to the music, to which she is attending already, and in particular, to the emotional character she recognizes in the sounds it presents. Her attention to the music then closes a causal circle: the music affects her physiology, which makes her attend more closely to what it expresses and

disposes her to account for her own reaction in similar terms. This description is consistent with a very familiar case—we are physiologically affected by events in our neighborhood, which makes them perceptually and cognitively salient, which leads to our taking them as the intentional objects of our emotion—except that, for music, where we are aware that its sadness, say, is not an appropriate object for our sympathy, it is the echoing response, not sympathy, that is elicited.

Is this how Robinson's account should be understood? As I say, this story is one of emotional contagion via music and is plausible.[14] Nevertheless, it cannot be the interpretation Robinson wants for her view, because it describes the emotional contagion produced by music as normally of the attentional kind. Moreover, this story matches my own theory of the echoing response, which Robinson would rather reject.

Despite Robinson's doubts, I remain convinced that the idea of attentional emotional contagion provides the most convincing characterization of the emotional reaction of the listener who attends closely to an instrumental work and, as a result, finds herself inclined to be moved to mirror the music's overall expressive character.

I now turn from philosophers to psychologists. Many psychologists are not interested in the intentionality and cognitive subtlety of emotions. They prefer to focus on physiological changes (e.g. in the autonomic nervous system, body chemistry, neurological activity, or sub-muscular movements) or on behavioral displays (e.g. facial expressions) that can be accurately measured without relying on self-reports. Much work has been done to show that there are basic affects—fear, anger, happiness, sadness, surprise, and disgust—that have universally recognizable facial displays and that are modular in the sense that they are triggered and operate independently of conscious reflection (Ekman (1972, 1980, 1992)).[15] These are called 'affect programs', though it is not uncommon for psychologists to proceed as if this technical term designates all that is covered by the word 'emotion' in its ordinary, day-to-day use.

As well, psychologists and others have long been interested in empathy, sympathy, mob psychology, social conformity, and emotional communication, but emotional contagion was not usually distinguished from other versions of these modes of emotional engagement.[16] It was in the 1990s that the topic of emotional contagion attracted the attention of psychologists in its own right. A key work, mentioned earlier,

[14] I am not convinced, however, that physiological change *always* precedes perceptual inspection and cognitive evaluation, as this account implies.

[15] Note that non-cognitive reactions of these kinds were discussed above as possible counterexamples to the cognitive theory of the emotions.

[16] Wheeler (1966) was among the first psychologists to attempt to distinguish contagion from other types of social and emotional influence. An appropriate subtlety is apparent in some recent empirical studies of empathy, for instance, which portray empathy as more sophisticated than, and as involving a different degree of self- and other-awareness from, emotional contagion—see Decety & Jackson (2004) and Decety & Hodges (2006). For a philosophical account of some of the relevant distinctions, see Goldie (2000): ch. 7, and for discussion of the difference when the response is occasioned by films, see Coplan (2004).

is by Hatfield et al. (1994).[17] Their definition of primitive emotional contagion occurs in this passage: 'The focus in this text is on rudimentary or *primitive* emotional contagion—that which is relatively automatic, unintentional, uncontrollable, and largely inaccessible to conversant awareness. This is defined as the tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person and, consequently, to converge emotionally' (1994: 5). They emphasize mimicry and feedback in explaining emotional contagion.

> Proposition 1. In conversation, people tend automatically and continuously to mimic and synchronize their movement with the facial expressions, voices, postures, movements, and instrumental behaviors of others.
> Proposition 2. Subjective emotional experiences are affected, moment to moment, by the activation and/or feedback from such mimicry.
> Proposition 3. Given Propositions 1 and 2, people tend to 'catch' others' emotions, moment to moment (1994: 10–11).

The idea, then, is that, when dealing face-to-face with another, I tend to mimic his behavior and facial expressions without being aware of doing so; I 'read' my feelings off from my facial expressions and behaviors; so, I come to feel the way my interlocutor does.

Hatfield et al. defend the premises of this argument. Some psychologists regard facial feedback as singularly important in this process, while others see other factors sometimes as equally relevant. When they review the psychological literature, Hatfield et al. find strong experimental evidence in favor of the facial feedback hypothesis (1994: 53–63). Evidence for vocal and postural feedback is positive, but the tie is not so close as that with facial expression (1994: 63–76).[18] They conclude: 'subjective emotional experience is affected by feedback from facial, vocal, and postural muscular movements, as well as by feedback from instrumental emotional activity. We also expect subjective emotional experience to be influenced by feedback from the facial, vocal, and postural movements that are mimicked' (1994: 52–3).

Teresa Brennan identifies a quite different mechanism of transmission as crucial: 'If contagion exists (and the study of crowds says it does), how is it effected? Images and mimesis explain some of it . . . but olfactory and auditory entrainment offer more comprehensive explanations . . . Research on chemical communication and entrainment suggests answers centered on the analysis of pheromones, substances that are not

[17] Even their treatment sometimes lacks care. The cover of their book shows a wonderful picture from the 1937 All-Ireland Road Bowls Championship. The bowler and scores of onlookers are shown attempting to use body English to control the course of the (out-of-shot) bowl's movement. The authors identify this as 'an example of postural mimicry' when clearly it is no such thing. Everyone's eyes are fixed on the bowl, not the bowler, and each, independently of the rest, is attempting to guide its course. There is behavioral coincidence with, not mimicry of, the bowler.

[18] Later in the book, however, they allow: 'people vary greatly in the extent to which they rely on facial, vocal, and postural feedback in determining what they feel' (1994: 159). For a review of work on facial feedback in mood contagion, see Adelman & Zajonc (1989).

released into the blood but are emitted externally' (2004: 68–9). Pheromones play a role not only in sexual behavior but also in communication, she argues.[19]

Now, if there is emotional contagion between music and humans, or between house décors and humans, it cannot be facial mimicry that underpins it because music and house décors do not present a human physiognomy, and it cannot be the detection of pheromones that cause it because music and house décors do not emit pheromones. Rather than abandoning talk of emotional contagion for such cases, where it seems perfectly apt, it is the psychologists' accounts that should be questioned. It is my impression that psychologists are sometimes inclined to define experiential processes or phenomena reductively, in terms of the causal mechanisms by which they are frequently brought about.[20] And because they naturally focus on the human-to-human case, the relevant causes are identified with neurological, physiological, or behavioral patterns that are distinctively human (or animal).

There is a lesson philosophers have learned from functionalist theories of the mind. A given state or process might be realized in different ways by different systems. That process or state should be identified in terms of its functional role in the system's operation or ecology rather than in terms of factors that are contingently dependent on the form in which the system exists or on the materials of which it is built. This lesson is appropriate to the case in hand. Emotional contagion should be characterized in terms of what is distinctive to the affective relation, not solely in terms of its underlying etiology (or etiologies). Here is the relevant account: *emotional contagion involves the arousal in B by A of an affect that corresponds either to an affect felt and displayed by A or, where A is non-sentient, as for the case of music and house décors, to the expressive character experienced by B as displayed in A's appearance, and while B's arousal must derive from A's displaying the relevant affect, so that A's affect is the perceptual object of B's reaction, A's affect is not the emotional object of B's response, because B does not believe (or imagine) of A's affect what is required to make it an appropriate emotional object of the response B experiences.* We can be agnostic about the mechanism of transmission. Between humans, there are many possibilities, from subtle facial mimicry to the detection of emitted pheromones. Between music and humans, or home décors and humans, different causal routes might produce the relevant outcome.

[19] The experiments cited by Brennan concern the regulation of human ovulation and show how exposure both to men's and women's perspiration affect the cycle. As well, there is interesting work she does not cite indicating that females detect male MHC (major histocompatibility complex) alleles (and vice versa). A male with MHC alleles differing from a given female's alleles thereby signals his capacity to father children with stronger immune systems. Women prefer such men at the peak of monthly fertility, but otherwise take as partners men with MHC alleles nearer their own. For discussion, see Milinski (2003) and Thornhill & Gangestad (2003).

[20] Hatfield et al. (2004) take care to identify their topic as *primitive* emotional contagion and they allow that attentional, cognitively more complex forms of contagion are possible. Nothing in their account commits them to analyze non-primitive emotional transmission in terms of the causal mechanisms they highlight for primitive emotional contagion.

What are these causal routes in the musical case? That would be for scientists to discover, but it is possible to offer some speculative suggestions. I favor the view that music is expressive because we experience it as presenting the kind of carriage, gait, or demeanor that can be symptomatic of states such as happiness, sadness, anger, sassy sexuality, and so on.[21] If contagion operates through mimicry, we might then expect the listener to adopt bodily postures and attitudes (or posturally relevant muscular proprioceptions) like those apparent in the music's progress.[22] This would be more likely, I guess, than facial mimicry, since music is not experienced as presenting a facial aspect. Vocal mimicry, in the form of subtle tensing or flexing of vocal muscles, would also be a predictable response to vocal music or to acts of subvocal singing along with instrumental music.[23] And to return to features highlighted by Robinson and others, where the flux of music is felt as an articulated pattern of tensing and relaxing, this is likely to be imaged and mimed within the body, perhaps in ways that are neither subpostural nor subvocal. Finally, there is the possibility that music works on the brain, not only by eliciting physical-cum-physiological changes that nudge the subject as she becomes aware of them toward affective appraisals and responses, but also more immediately, by directly stimulating cortical regions linked with emotional recognitions and responses. Many and diverse routes of emotional transmission might be involved, perhaps simultaneously.

That music sometimes leads the attentive listener to share the emotions she hears it as expressing calls into question the cognitive theory of the emotions, because the listener does not believe of the music's expressiveness what would make it an apt emotional object of the response and she does not pick up on some other aspect of the environment as the response's emotional object. This phenomenon is best understood as involving emotional infection or osmosis. Emotional infection requires perception of the music's character but may be non-attentional or attentional. The mirroring response of the music-focused listener is of this second variety. She is very likely to identify the music's expressiveness as the cause of her response because her reaction tracks her following of the music and recognition of its expressive character, but she is unlikely to be aware of details of the causal mechanisms that forge the connection. The evocative power of purely instrumental music to call forth such a reaction does not depend on the listener's taking the music as expressing someone's felt emotion. As social beings, we are primed to detect and react to mere appearances or presentations of emotions (provided we judge that cheating is not an issue). Psychologists' attempts to

[21] For empirical work on the human capacity to identify a person's emotion by observing only the abstract form of human motion (that is, motion as displayed only as light points on an otherwise invisible body), see Grammer et al. (2003).

[22] For relevant empirical data, see Janata & Grafton (2003).

[23] For relevant empirical data, see Koelsch et al. (2006). Juslin & Laukka (2003) and Juslin & Västfjäll (2008), who postulate that the response to music can be explained as involving emotional contagion, make the comparison not with facial mimicry but with the communication of affect through vocal cues. See also Neumann & Strack (2000).

characterize the nature of emotional contagion do not readily accommodate the musical case, however. This is because they are inclined to describe the phenomenon primarily in terms of the causal mechanisms of transmission from human to human. An account of emotional contagion referring to what distinguishes it from other emotional states and relations is preferable to one attempting to reduce it to an underlying causal process or route of communication. Meanwhile, empirical study of the many possible paths and mechanisms of transmission is far from complete, and the musical case presents intriguing prospects and challenges for work in the area.

10

Empathizing as Simulating

Susan L. Feagin

The main objective of this paper is to explain a simulation account of what it is to empathize with characters in literary works of art. I ascribe to the view that simulating a mental process of the characters with whom one empathizes is a necessary condition of empathizing with them, and that for one process to simulate another it is necessary for it to be structurally similar, in relevant respects, to the process simulated. Further, I propose that it is in virtue of the similarity of the structure of the process that simulating provides an understanding of a character, part of what it is like to be that character, in a literary work of art.

I take such an understanding to be one aspect of appreciating the literary arts, including both narrative fiction and non-fiction. Much of the recent interest in emotional and other affective responses to literature has been generated by the paradox of fiction, in which the primary philosophical problem is to explain how emotional responses to what readers know to be untrue are both possible and rational (Radford (1975); Weston (1975)). Differences of belief and the reasonableness of belief with respect to the truth or falsehood of what one is reading may of course be relevant to one's affective responses and to the appreciation of literature. Yet, the philosophical debate has moved beyond the paradox itself, and for good reason. One reason is that the account of emotions as involving beliefs has been seriously undermined.[1] Another reason is that, even if a subset of emotions, 'emotions proper' or 'emotions' narrowly defined, are taken to require beliefs, appropriate responses to literature include other affectively-laden mental states and processes, such as moods and feelings, which are not typically thought to involve beliefs, and their appropriateness needs to be explained as well. Third, in appreciating fiction, one typically has many reasonable beliefs about how a fictional work relates to the world that may well be implicated in the generation of one's emotional responses. Finally, in part because of this third reason, the distinction between fiction and non-fiction is itself significantly problematic, and is not

[1] Though there were some defenders early on of the view that emotions do not require certain types of beliefs (e.g. Greenspan (1988)), it has become more common (Robinson (2005); Prinz (2004)).