

## Expression and Extended Cognition

It is typically granted that musical works can express emotions independently of the occurrent emotional states of their performers or composers. Yet while the performer or composer need not express his or her emotional state, it is still a value that may be effectively pursued, and for which music is highly suitable. Moreover, I will argue for the possibility of an extremely intimate connection between the emotional content of the music and the emotional state of the person who produces that music. Under certain specified conditions, the music may not just influence but also partially constitute the musician's emotional state.

In order to develop this idea I will need to make several significant assumptions concerning the relation between music and emotions. First of all, as is argued by several current theories of emotion, I will assume that emotions are essentially constituted by patterns of bodily changes. These patterns of bodily changes are registered in the brain, which then generates the felt experience of the emotion.<sup>1</sup>

Second, I will assume a version of the resemblance theory of musical expression similar to that offered by Malcolm Budd. This position is summarized by the slogan "the music sounds the way the emotion feels." Via a variety of resources (such as rhythm, timbre, melodic line), music is able to resemble the dynamic and visceral qualities of bodily feelings.<sup>2</sup>

A third assumption is that these resemblances are tracked by the same mechanism in the brain that registers bodily changes in emotions. In support of this claim, a connection has been made between the perception of musical expression and the empathic simulation of the emotions of others.<sup>3</sup> Yet these same empathic mechanisms are the ones that are responsible for monitoring our

own bodily states.<sup>4</sup> So the idea is that by resembling emotional activity (both in terms of behavioral movement and qualitative tension), music can hijack the mechanisms in the brain that are responsible for tracking both our own emotions and the emotions of others. As a result, when we listen to music we seem to perceive emotion *in* the music.<sup>5</sup>

Clearly, these are rather large assumptions, for which I provide proper justification elsewhere.<sup>6</sup> However, they will allow us to develop some very interesting possibilities. In particular they will allow us to argue that music can potentially play the same role as bodily changes in realizing the musician's emotional state.

The claim that music can partially constitute a musician's emotion also requires that the musician can control the content of the music in a very immediate and detailed way. Allowing for this level of control leads me to focus on jazz improvisation, which in many cases is dedicated to the goal of sincere emotional expression. I then explore the idea, common to the works of Benedetto Croce, R. G. Collingwood, and John Dewey, that the artist clarifies and develops his emotional state by expressing it. Here I emphasize the essential role of the artistic medium (in this case the musical instrument or the sounds produced) to that process. This then leads me to the theory of extended cognition, which argues that the physical constitution of some mental states extends beyond the brain of the subject. After showing how this theory applies to improvised performance, I then justify two claims: First, that playing the instrument cognitively extends the musician's creation of the music. Then second, and more significantly, that playing the music cognitively extends the musician's emotion.

The first claim is argued to be true of all cases of jazz improvisation. The second claim is only true of a subset of cases, yet seems to be an important goal of jazz performance. Given this, the second claim then breaks down into a stronger and a weaker version. The weaker version states that the music *elaborates* the emotional state of the musician, playing the same role as his or her bodily changes in generating and maintaining the pattern of bodily changes. The stronger version is that the music *replaces* the role of bodily changes as the central focus in generating emotional content.

Note that in neither case do I identify the emotion with the conscious experience of the emotion. Several theorists argue for the possibility of unconscious emotions.<sup>7</sup> So my claim here is only that the emotion is partially constituted by the music, not the experience of the emotion. However, we may say that in these situations, the musician's experience of the music can to a greater or lesser degree fulfill his or her experience of the emotion.

#### I. THE MUSICIAN'S EMOTION

One problem with the idea that works of music gain their emotional content from the emotions of their composers is explaining how it is that feeling a certain way while producing a work is supposed to convey these characteristics to the work itself. Even in the more direct case of performance, it is not the case that the emotion of the musician is necessarily transmitted to the work. In order to explicate this, it is worth distinguishing several levels at which the emotional state of the musician may affect the character of the music.

First of all, the musician may be in an emotional state prior to performance. Performing while in that state then affects the character of the music. For instance, being anxious causes the musician to make mistakes. A second possibility is that the emotional state of the musician affects the music in such a way that the character of the emotion is reflected in the character of the music. For instance, the musician feels anxious, and playing the music in an anxious way causes the music to have an anxious character (perhaps a tremor in the hands leads to a tremor in the sound). A third possibility is that the musician is in a relatively neutral state prior to performance but is fully aroused by the character of the music he is playing. It may

then follow that being infected by the character of the music affects the way the musician plays that music. Finally, a fourth possibility further allows that this changed performance style transmits the quality of the musician's emotion back to the music. Hence a feedback loop could be generated whereby the music arouses the state of the musician, affecting the way he performs, which then affects the character of the music, potentially further arousing the musician and so on.

In all cases, we should note that the emotion of the musician need not enhance the expressive value of the music. There is a difference between a musician's aroused state affecting the performance and the musician using that arousal in a deliberate and controlled way to enhance the performance. Different styles of music permit different ways in which this can happen. In particular, jazz emphasizes spontaneity and communication over technical accuracy. As such, this genre should permit greater levels of emotional arousal in the players and a more immediate connection between the state of the musician and the nature of the work. There are still limits of course. Jazz improvisation is not the pure spontaneous production of music that it is sometimes taken to be. In most cases there is some kind of preplanned reference material such as a written chord structure, melodic theme, or background tonality that the musician uses to guide his performance.

For now I take as my paradigm a relatively unconstrained solo improvisation style that, while sticking to the stylistic forms of the jazz genre, imposes no time constraints or adherence to a particular chord structure. This should be of ample sufficiency to let the performer's emotion significantly affect the character of the music (in details both large and small) such that it corresponds to the character of his feeling. It is thus closer to modal or free jazz than bebop. I am not reliant on this specific kind of improvisational style or even on the jazz genre generally in order to justify my claims. It is likely that other forms of improvisational music may equally permit the kinds of expressive potential I argue for here. Yet I restrict my attention to jazz improvisation, partly due to my familiarity with this genre as a performer and listener, and partly because historically it has emphasized the personal expression of the musician.<sup>8</sup>

This is not to say that musicians simply regurgitate whatever they happen to be feeling at that

exact moment in musical form. If this was all there was to it, they could just as easily shout or groan with the same expressive success. Rather it is also possible for musicians to use the music to self-reflectively *construct* their feelings, to control and transform their felt states into something more artistically profound. The expression theories of Croce and Collingwood are well known for developing ideas like this. We often see the claim that art is geared toward revealing the emotional state of the artist. In certain passages we even see the stronger claim that the artist does not simply discover her emotional state by expressing it, but also that expression is crucial to *forming* that state.

[The painting] is produced by an activity which is somehow or other bound up with the development of that [aesthetic] experience itself. The two activities are not identical; he distinguishes them by the names "painting" and "seeing" respectively; but they are connected in such a way that, he assures us, each is conditional upon the other. . . . There is no question of "externalizing" an inward experience which is complete in itself and by itself. There are two experiences, an inward or imaginative one called seeing and an outward or bodily one called painting, which in the painter's life are inseparable, and form one single indivisible experience, an experience which may be described as painting imaginatively.<sup>9</sup>

Here Collingwood emphasizes that the act of painting and the aesthetic experience are *not* identical, but are so closely related that they are experienced *as if* they were indivisible. The two processes are interdependent, at least in certain cases. This suggests then that the act of expression enables the formation of the emotional state. We also see this view in Dewey, who explicitly rejects the idea that what is expressed is just an externalization of a preexisting emotional state. Rather it is physical interaction with a resistant medium that allows the emotion to be formed:

The thing expressed is wrung from the producer by the pressure exercised by objective things upon the natural impulses and tendencies—so far is expression from being the direct and immaculate issue of the latter. The third point follows. The act of expression that constitutes a work of art is a construction in time, not an instantaneous emission. . . . It means that the expression of the self in and through a medium, constituting the work of art is itself a prolonged interaction of something issuing from the self with objective conditions, *a process in which*

*both of them acquire a form and order they did not at first possess.* (emphasis added)<sup>10</sup>

I will largely leave aside here the debate about whether Croce or Collingwood were idealists about artistic expression.<sup>11</sup> I would simply like to note the vital connection between the sort of expression that is suggested by the above passages and the actual physical production of the artwork. In general we should endorse the view that emotional expression in art is bound with its physical means of production. As Richard Wollheim argues, the difficulties (and unpredictability) that accompany the handling of the physical medium are often a vital part of what makes the work expressive.<sup>12</sup> Moreover, any ideas that the artist has prior to producing the object are ideas about how the medium may be manipulated. They are ideas *of* the medium and presuppose its actual physical characteristics. So, for instance, when a jazz musician expresses her emotional state in performance, she must think of that emotion in distinctly musical terms. It is the qualities and relations obtained by the actual physical sounds (sometimes accidentally) that constitute her emotional language. Similarly, Aaron Ridley claims that "the peculiar fluidity and grace and power of Bernini's *Ecstasy of St. Theresa* are inseparable from the fact that it has been almost caressed out of a piece of stone."<sup>13</sup> Comparable arguments could be generated for musical performances where the stretching of a particular musical instrument's capacities is part of what it is for that music to express an emotion such as boundless joy.

Moreover, artworks like improvised jazz performances are much more tied to their actual singular occurrence than notational art forms like poetry or scored music. The improviser does not get a second chance to replace what she has already played with something more appropriate. Rather, the whole performance may be viewed as the struggle of the musician to articulate her state, forming and reacting against the unalterable characteristics of that very event. This is what makes the performance *her expression* in a way that the rest of us can only appreciate rather than replicate. And ultimately it is the deep individuality of this kind of expression that really undermines any claim to idealism, at least so far as these kinds of artworks are concerned. This is because what guarantees that a work captures an individual emotional state is the unique physicality of its

expression, the fact that it is embodied in a particular physical event by a particular person in a particular set of circumstances.

The main reason I think Croce and Collingwood come across as idealists is because their concern is to say the real work of art is a kind of mental state or process. Under most interpretations of mind this would automatically imply that the public object could not be the real work of art, and so conflict with our basic intuitions about what artworks are. Yet I think we can rescue as well as strengthen *some* (though not all) of the insights of their position when we appeal to the theory of extended cognition. As we shall see, it is possible for the physical production of an artwork to be integrated with a cognitive process such that it is part of the artist's mental state. As a result, we can hold on to our intuitions that physical objects and their actual history of production are what constitute artworks while still embracing the possibility that artists are focused on articulating mental states.

## II. EXTENDED COGNITION

In order to explain how extended cognition applies to jazz improvisation it is necessary to provide some background on the theory. Its *locus classicus* is Andy Clark and David Chalmers's influential paper "The Extended Mind" (though they are indebted to externalist theories of mind generally).<sup>14</sup> Their basic idea is that we often incorporate external objects into our cognitive processes, the active manipulation of which enables the completion of various cognitive tasks. So, for example, if I do some long division step-by-step on a piece of paper or if I rearrange Scrabble tiles in order to find a word to play, I am exploiting these information-rich features of the environment to support and supplement my cognitive processes. Hence they argue that these kinds of action are "epistemically active" in that they alter the world for the purpose of completing some cognitive task rather than simply to enact some preconceived change that the subject intends.

It seems that many of our behaviors can be interpreted in this light where the environmental resource is reliable and easily available and the subject automatically endorses the information it provides. A key part of arguments for extended cognition (and externalist views of mind generally) then involves a supervenience claim: If

two identical cognitive processes or states internal to the body can nevertheless have different content due to differences external to the body, then the constitution of the mental state must partially supervene on those relevant aspects of the environment.

So, for instance, if the Scrabble tiles happened to have been arranged differently, I would have come up with a different word despite being in the same internal "search" state. Obviously, this difference would then have impacted upon my brain state when I recognized the word to play. The point is, however, that within a certain range, I would endorse *whatever* word the external process resulted in. My internal state, though an important source of control in *choosing* the word, is not doing all the relevant work in *finding* that word. Work is being done by objects outside my body, which in combination with my actions and brain state physically realize an extended cognitive system. As a final test we may ask whether if the same process were done purely in the head (say imaginatively moving Scrabble tiles around), we would be happy to grant it cognitive status. If we would, then it seems to exclude the object as part of the cognitive process simply because it is located outside the body is nothing more than a conceptual prejudice.

Clark and Chalmers go on to argue that not only can processes like recognition be cognitively extended but also more definitive mental states such as beliefs. Here they use the example of Otto, who has Alzheimer's disease and who uses a notebook to tell him the location of the museum. The notebook then functions as a part of Otto's long-term memory, which coupled with Otto's disposition to consult the notebook when considering the location of the museum, forms his belief that the museum is on 53rd Street.<sup>15</sup>

We might worry that because Otto has to perceive visually the notebook in order to consciously hold his belief, it is quite unlike the direct and subpersonal activity of accessing such information from our biological memories, especially since the visual image has a distinctive phenomenology. However Clark and Chalmers argue that because the flow of information from notebook to brain is all part of the same cognitive system, it is not perceptual at all in the sense of "registering the impact of something outside the system."<sup>16</sup> Furthermore, the phenomenology of retrieving the information is not particularly relevant to its status as

a belief. We could equally suppose that if a sound accompanied the introspective access of our biological memories, those memories would no less form a part of our beliefs. Moreover, Otto's belief is not constituted by an internal mental representation of the page in his notebook or the disposition to form such a representation. Rather it is the active exploitation of the information the notebook provides (that happens to be visually received) with additional internal processes (such as the subject's endorsement) that together complete a *system* realizing the cognitive function.

So there is a general sense of representation that is distinct from the acquisition of internal representational states.<sup>17</sup> Otto's extended system functions as a whole to represent where the museum is. Note that if we were to secretly change what is written in Otto's notebook, he would effectively gain a new belief state (because he always endorses what it says in the notebook). Since this external feature alone determines a different mental state, in accordance with supervenience we must identify that feature as partially realizing his mental state. Moreover, these differences would not necessarily have to impact on Otto's internal brain state to do all the work that beliefs do. For instance, someone could ask Otto where the museum is, and he could simply show her the relevant page in his notebook, without having to look at it himself and say, "*That* is where I think it is."

### III. JAZZ IMPROVISATION AS EXTENDED COGNITION

Having briefly explained the theory of extended cognition, we may now begin to see how it applies to the case of jazz improvisation. My overall strategy here is to show how the improvising jazz musician can go through a process of emotional expression much as Croce, Collingwood, and Dewey described, while emphasizing that this act of expression is realized by the physical interaction between the musician, his instrument, and the music. So forming the emotion by expressing it in music is a cognitively extended process. Before we deal with emotional expression, however, it is necessary to first show how the musician can develop such a close relationship with the music. This is my first claim, that playing the instrument cognitively extends the musician's creation of the music. Hence I begin with a universal claim that simply

improvising, apart from any concerns about having a real emotion, is a form of extended cognition. It is this view that music psychologist Eric Clarke seems to be endorsing when he says that "playing music is a concrete form of musical thinking, and the body is as much a part of finding out about music as it is a means for its actualization."<sup>18</sup>

If we consider the simple task of generating notes, it is clear that the musician's interaction with his instrument allows him to do this, not just in the uninteresting sense that the musician needs the instrument to produce notes at all, but also that the particular way in which the notes are formed is a matter of sensitively responding to the capacities and affordances of the physical object. It is not the case that the musician always has some music in mind (either as sound or in symbolic form) that he just enacts on the instrument. Moreover, even if the performer does have a rough idea of what sound he wants to produce, there are many features of that sound that go beyond his concept of it, yet which he would still endorse as the sound he wanted to play.

At every level of creative decisions the musician and his instrument form a single tightly coupled system. For example, certain qualitative features of the sound may just be a product of the way the instrument is set up. It might have a harsh or smooth tone, for instance. So the instrument itself helps to decide the character of each note that the musician then endorses. The way the instrument is physically set up also constrains and encourages ways that notes can be strung together. Some musical figures will fall more naturally under the musician's fingers, particularly when he is playing very fast. In addition, building up a vocabulary of musical figures is something done on the instrument by exploring its physical capacities. This development then allows the expansion of the musician's imaginative capacities in terms of what is possible to play.

In addition, within the immediate context of performance there is the sense in which the musician may only have a rough idea of what he wants to play, for instance a fast upwards sequence of notes, but it is the interaction of his fingers with the keys that ultimately determines what exact notes are played. Thus when completing the cognitive task of choosing what exact notes to play, the instrument is part of an extended loop between the musician's brain, the muscles in his hands or lips, and the keys of the instrument. As in the Scrabble

example, within a certain range, the musician automatically endorses *whatever* the external physical processes result in.

There is then a further level at which the musician's conscious interaction with the *music* determines what he will play next. Similar to the instrument, the music itself will present certain limitations and affordances to the musician in terms of what sounds could follow in a musically coherent or meaningful way. I call this a sense of the music's potential. It is an experience of the music's temporal development, which to the experienced listener suggests constraints at every moment concerning how the music can progress given what has already happened. Thus music can gain potential in terms of building harmonic tension that can be resolved by returning to the home key, or in terms of developing a theme before eventual recapitulation, as well as in terms of maintaining tempo, rhythmic pulse, and note durations, as well as developing general dynamic shapes like building to a climax or fading away. We should note that the musician must *perceive* these qualities in order to react to them, and their perception relies on certain standards he has acquired concerning harmonic or rhythmic development. Yet at the same time the musician may not have planned any of these qualities. They may simply be the unexpected consequences of other musical decisions he has made.

Many features of the *expressive* character of the music can equally be unplanned and can generate their own form of potential, in terms of maintaining an emotional character or developing it to completion or exhaustion. The resemblance theory of musical expression allows that the expressive character of the music be conveyed by features at every level of detail, from the intensity with which individual notes are attacked to the smoothness of the timbre, the rhythmic pulse, and harmonic tension as well as the large-scale formal structure. It is thus highly unlikely that the musician can anticipate and control all of these potential sources of expressive effect. In many cases he can only react to the precise expressive character the music suggests. Yet he can still intelligibly take responsibility for the exact expressive qualities of the sound. Though the music possesses a wide variety of subtle expressive qualities that the musician did not plan or predict, he can, like Otto and his notebook, still point to the music and endorse the expression of *that*.

So overall, these features of the music form an information-rich environment that the musician relies on when deciding what will happen next. In this way the music and musician form a cognitively extended system where the music presents certain information about what sounds are available, which combines with the musician's endorsement of these possibilities to enable and enhance the cognitive task of generating musical sounds. The musician's endorsement of these possibilities relies on his musical *intentions*. So a dialogue is set up between his intentions and his sense of musical potential. The key difference between the two is that a musical intention is an idea that the musician has about how the music *should* sound in the future. The musical potential, in contrast, is an idea about how the music *will* sound in the future so long as it is not disrupted either by mistakes or contrary intentions. Also, where musical potential is something actually heard and anticipated, musical intentions are imaginative and creative. So a central component in the experience of performing music concerns the relative alignment of musical intentions with musical potential. In the usual case the performer experiences a tension between his idea of what the music should sound like (perhaps determined by some mood he is trying to capture, or some structural concept he has) and what possibilities the sound itself seems to suggest or allow. A musician can also choose to violate what he regards as the musical potential for expressive effect. He could, for instance, suddenly play louder in a melody that is fading into silence, breaking an intuitive constraint.<sup>19</sup>

Altogether then my claim that playing the instrument cognitively extends the musician's creation of the music works at three levels, some or all of which are present in *all* improvised performances: The physical interaction between the musician and the instrument achieves the task of generating the detailed notes. The interaction between the musician's intentions and the perceived potential of the music determines the larger scale shape and style of the music. Finally, the interaction between the musician's intentions and perceived *emotional* potential determines the expressive character of the music, affecting the sound at all levels of detail. All of this is analogous to performing long division step-by-step on a piece of paper or rearranging Scrabble tiles in order to find a word to play.

## IV. EMOTION GENERATION AS EXTENDED COGNITION

Having justified my claim that creating the music is cognitively extended, we can now turn to my second claim: that the musician may use the music to cognitively extend the formation of his or her emotions. My explanation of how this is done can be derived from the case of ordinary emotional expression.

If we assume that bodily changes are what constitute emotional states, we must equally include behavioral expressions such as posture, bodily gestures, and facial and vocal expressions.<sup>20</sup> All of these behaviors will contribute to the overall pattern of bodily changes and thus to the felt experience of the emotion. As a result, the subject can to some extent take direct control of her emotional state by deliberately manipulating her expressive behaviors. Psychologist James Laird has reviewed over a hundred empirical studies that have verified a causal link between such manipulation and both self-reported and measured levels of emotional arousal.<sup>21</sup> For example, most relevant to my claims, subjects instructed to speak in loud, harsh tones report consequent feelings of anger whereas those instructed to speak in low, soft tones report more sadness.<sup>22</sup>

In many cases, experimenters disguise the goals of the study in order to ensure that the induced feelings are not the result of the desire of the participant to comply with the experimenter. So because the participants are not aware that their expressions are manipulating their emotions, these expressions constitute in Collingwood's terms a mere betrayal of emotion rather than emotional expression properly so called. However, Laird claims that the robustness of the effect makes deception on the part of the experimenter unnecessary. Accordingly, in another experiment participants were instructed simply to "please smile in the way you usually do," resulting in changes in emotional arousal despite the participants' disbelief in the effectiveness of such behavior.<sup>23</sup> This kind of deliberate expressive behavior would better fit Collingwood's account.

The point that Croce, Collingwood, and Dewey make is that we reveal or even generate the emotion by artistic expression. When we emphasize that expressive behaviors count as bodily changes and are thus partly constitutive of the emotion, we can see how the deliberate manipulation of

expressive behaviors can similarly serve to both reveal and generate the emotion in a direct way. It is, in fact, quite commonplace to adjust one's emotional behavior, and in doing so attempt to adjust one's emotional state. For example, when one is nervous, perhaps when walking to the lecture hall to deliver a paper, one may deliberately adjust one's posture and walking speed to be more upright and sure-footed. One could alternatively "embrace" the nerves by bounding up to the podium as energetically as possible. Such activities may be more or less effective but are certainly plausible given the classic Jamesian notion that "we feel sorry because we cry, angry because we strike."<sup>24</sup>

So instead of allowing oneself to be overcome with rage, deliberate expressive behavior can channel or focus that feeling with a highly controlled activity, which generates a sense of power or regularity. Alternatively, one may try to relax one's muscles, move around gently, or speak more slowly and quietly, generating a sense of calm. We should also note that not all appropriate emotional responses involve some kind of immediate modification of one's situation. Many involve contemplation of the emotional state and the struggle to accommodate it within one's life projects. We may ask ourselves, is this emotion rational or beneficial to my goals? Should I therefore try to sublimate it or allow it to blossom? Expressive behavior is a way in which we can ask ourselves these questions. By directly modifying the bodily pattern and monitoring the results, we can experiment with the emotional state, adjusting one's feeling as seems appropriate. Thus, expression can allow a more sensitive response to one's situation. In this way, the subject can effectively use her behavioral expression to directly "think through" her emotional state.

Now by suggesting that expressive behavior allows one to "think through" one's emotion, the sense of cognition that I appeal to here is that it is a process in which one *actively* manipulates mental states, rather than anything that essentially involves concepts.<sup>25</sup> This sense of cognition is compatible with an entirely somatic theory of emotions, since, although we are generally the passive recipients of our emotional states, it is possible for us to actively manipulate our pattern of bodily changes, or more directly the neural model of such changes. This is what I suggest can occur in the case of improvisation.

When it comes to music then, the basic argument is that an improvised performance can partially constitute an emotional state because the music can fulfill the same role for the musician as the behavioral expression of emotion. The way it feels to cry or shout or jump for joy is a distinctive part of what it feels like to be sad, angry, or joyful. In the same way, it feels like something to produce sounds on an instrument. To strike or blow the notes gently or aggressively directly arouses the corresponding bodily feeling. More importantly though, the resemblance between music and emotion potentially allows the musician to identify the sounds she produces as part of her emotional feeling. This is because the resemblance theory I have adopted states that the patterns in the music are mapped by the musician's brain as if they were patterns of emotional feeling, causing her to hear emotion *in* the music. The brain of the musician treats the patterns in the music equivalently to patterns of bodily changes. So if the bodily changes are part of the emotion, might not the musical changes be functionally equivalent and thus equally part of the emotion?

One objection may be that if the map of bodily changes in the brain is not supported by actual bodily changes, the resulting state is not a real emotional state. But here the relation between the neural maps involved in emotions and the bodily changes that they map should be clarified. Antonio Damasio describes how the neural map may serve in everyday emotional episodes to anticipate actual bodily changes.<sup>26</sup> This allows a more immediate emotional experience and behavioral response to be organized. Hence the mere fact that the brain is not mapping actual bodily changes need not be a barrier to the authenticity of the emotion.

Yet while the neural map of changes is sufficient for feeling, we still include the various bodily changes as part of the emotional state when they do occur. This is because the kind of emotional experience that the neural map generates is likely to be highly attenuated where it is not supported by constant bodily changes. In general, the various bodily changes are what generate and maintain the content of the emotion, where the neural map merely registers that content. The neural map is like the manager of a company, where the work done by the company as a whole is what constitutes the mental state. Certainly the neural map is a very important stage in the system where vari-

ous content converges. This is an important step before going on to interpret that content, direct the attention of the subject, stimulate behaviors, and connect to other mental states. Yet the bodily changes are doing a lot of the work for that emotional state.

Damasio also identifies the same neural map at work in the recognition of *other* people's emotional states. As such, what distinguishes whether the neural map helps to realize a real emotion or an empathic state is not whether it tracks real or simulated bodily changes, but whether the system as a whole is triggered by a situation bearing on the well-being of the subject or the expressed state of another (or even a fictional expression of emotion). In the case of the improvising musician, there is no reason that the feelings expressed by the music cannot track the real situation of the musician. The musician can produce those sounds as a direct result of confronting some situation. The music could even be both the object of an emotional state (for instance, how well one is playing) and self-reflectively the emotional response to that object. Yet there is no reason why the musician cannot also be responding to some other aspect of the environment, such as the audience reaction, or any thought or imaginative idea she might have at the same time.

A second reason we can identify the musical patterns as part of the musician's emotion concerns the *control* that the subject has over the emotion-generating process, which determines whether the state is partly cognitive or a purely passive reaction. Since the musician is responsible for producing and endorsing the emotional content of the music, this entails that the musician is cognitively deliberating her emotional reaction, in the same way as deliberately engaging in expressive actions allows the cognition of emotions. The sense of control or agency over the emotional content of the music encourages a conscious identification with its content, unlike the case of simply listening to expressive music, where the listener must submit to its flow.

#### V. THE RELATION BETWEEN MUSICAL AND BODILY CHANGES

So what of the actual bodily changes of the musician in this case? In the first place, the bodily changes of the musician help to generate the intentions of the musician to appropriately match the



way he feels in the music. The musician's sensitivity to the expressive qualities of the music can also arouse his bodily changes in turn, as I described earlier. Thus a dialogue can be set up between the musical potential in emotional terms and the inner bodily changes of the musician.

Consider then how the musician starts his improvisation: He could just wait beside his instrument and contemplate his emotional feelings before launching into a solo that he feels reflects these feelings, or as seems more likely, he will just start playing in a very impulsive way and then allow his sensitivity to the music to develop into a sense of emotion. Either way, there is a constant feedback between the musician's inner changes and the expressive character he perceives in the music.

However, if this was all there was to it, we might complain that the inner bodily changes of the musician already constitute his emotional state. The music merely *influences* that state, or is influenced by the state in turn. So while we could admit a close relation between the two, we need not say that the music partially *constitutes* the musician's emotion.<sup>27</sup> Yet this criticism can be met on two levels: First of all, by tracking the music with his aroused bodily changes and then reacting to maintain or develop the *unplanned* emotional character of the sound, the musician is endorsing *whatever* emotional content the music suggests. The music has direct control over what the content of the emotional state is. This is analogous to endorsing whatever it says in the notebook. So where we conceive of the emotion as a cognitive process of deciding what to feel, the music itself plays a vital role in enabling and enhancing this process.

Note that in the case I describe the musician cannot manipulate his emotional state directly. He can only send a signal from the brain, to his hands, to the instrument, to the music, which he then hears and interprets as feelings. So he simply cannot cognize his emotion without actually manipulating the music. Suppose the musician had an identical twin whose brain is in a vat, so with exactly the same brain state, sending out exactly the same signals, and receiving exactly the same felt feedback. Yet in this case the music is absent or changes in the music are independent of his instructions. This twin would be undergoing a different mental state. The twin subject would not be cognizing his emotion. He would be having a passive emotional reaction, since he would not be in

control of manipulating his emotional representations at all. His feelings would be occurring quite independently of his attempt to control them. So given that changes in the music alone entail a different sort of mental state, the music must be a physical part of the cognition of feeling.

However, we may draw a distinction between *deciding* what emotion to have and the emotion itself, just as we may draw a distinction between deciding to perform an action and the bodily changes that this action generates. So second, it is important to note that the music is also immediately incorporated into the musician's emotion via his neural map. That is, the musician enjoys the feelings expressed by the music *alongside* his internal bodily changes as the total combined emotional state. The patterns in the music effectively play the same role as his inner bodily changes in relating to the overall bodily pattern. I argued above that bodily changes should be included as a constitutive part of the emotional system. This was partly because they do vital work in generating and maintaining the emotional content. The musical patterns equally do significant work in generating and maintaining the emotional content where the musician's brain simply endorses that content. So equally we should include the music as a constitutive part of the emotion. The music constitutes part of the *content* that is registered in forming the overall representational state.

In this case the music constitutes a physical *elaboration* of the musician's felt state. Phenomenally the musician partially experiences his emotional state in musical form. Of course, the qualities of the music are then registered by the musician's brain. Yet actual bodily changes are equally registered by the musician's brain. In either case the emotion is physically constituted by the system that incorporates both the neural map and the bodily or musical changes that sustain it. Then in the case I have been describing, there is interaction between all these parts. So we may say that the emotion is constituted by the entire system of bodily map in the brain, bodily changes, bodily actions, the activity of the instrument, and the patterns in the music. The vehicle of brain, body, instrument, and music then supports this system for generating the content of the emotion.

In general, one of the main motivations for including an external object as part of a cognitive process is that it should *enhance* that cognitive process, and not merely enact the results

of some internal process. In this case, when the music is used to extend emotional cognition, it enhances the complexity of the emotion the musician undergoes. Expressive actions can generate patterns more fine grained than inner bodily changes. Equally musical expressions can generate patterns far more fine grained than expressive actions. The musical expression of emotion can have increased complexity, temporal range, subtlety, and force. It can also have long-term structural content as a result of the repetition and development of motifs. As such, the music enhances the emotional response of the musician. His emotional response to the world can be that much more structured, subtle, or intense.

#### VI. MUSIC AS THE CORE OF EMOTION

So far, I have justified a weaker version of my claim that the music partially constitutes the emotional state of the performer. The core of the emotional state is still the internal bodily changes of the musician, which the music then elaborates. However, there are some cases in which the music appears to *replace* the bodily changes of the subject as the main focus of the emotional state. These are cases of radical absorption within the emotional progression of the music.

Earlier I described a dialogue between the intentions of the musician and the potential perceived in the music. In most cases, the intentions of the musician are not perfectly realized. So where the intentions and potential are experienced in emotional terms, the musician may feel a tension between her bodily feeling and the music's expressive content (this would amount to a mixed feeling). Yet it is possible for the musician's intentions to align with the emotional potential of the music in such a way that the intentions of the musician effectively disappear. Alignment may occur either because the musician finds that her emotional intentions are immediately realized in music or because she gives up trying to control the music and simply affirms the progression of the music as it happens. This kind of alignment is rare, though claims that musicians themselves make provide some evidence that this does take place. Note that the following descriptions are clearly impressionistic and suggestive rather than conclusive demonstrations of my claims. Yet they seem best explained by the theoretical apparatus I have suggested:

I feel that I'm at my best when I can free myself completely from the effort of trying to put something out and feel more like I am the instrument being played.<sup>28</sup>

Similarly:

If a solo is going well, developing, I let it go on its own. Then I've reached that place where I've gotten out of my own way, and it's as if I'm standing back and watching the solo play itself.<sup>29</sup>

Again:

I dance with it. That's my emotional state when I play. That's my feeling of expressing my total self in the music.<sup>30</sup>

In many ways, these experiences seem to represent one of the peaks of musical achievement. This is because while it is not so hard to play the note one intends to play a fraction of a second earlier, especially if one has modest ambitions, it is extremely difficult to temporally align one's intentions with the moment of actually producing them, or to suspend one's critical judgment of what one is playing. When this does happen we may say that the perception of the music fully absorbs the attention of the musician. So the music takes the lead, or becomes the locus of control for how the emotion of the musician will progress (though, of course, in performing that music, the musician overall is still in control).

Yet if the musician "loses" herself in the music, such that she is no longer aware of her internal feelings, what allows us to say that the musician is feeling any emotion at all? Is the experience of "watching the solo play itself" a form of self-alienation? Ciarán Benson, finding precedence in Dewey's descriptions of "a rhythm of surrender and reflection" in aesthetic activity, describes these states of absorption as a "re-centering" of experience.<sup>31</sup> She diagnoses the phenomenon as the absence of self-predicated thoughts. When self-analysis disappears and the musician is more absorbed in the music, she does not feel embodied in the same way. My theory justifies the idea that the normal boundary of body-world has actually changed. But the musician has not "lost" herself; she has literally extended herself. It is not unreasonable then that this should result in a different sense of agency and embodiment.

Yet is it still an *emotional* state? It would seem so, since the case of musical absorption need be no different from any case of normal emotional absorption where one is so caught up in the feeling that one forgets oneself in the process. Moreover, there is no reason to suppose that if the progress of the music has up to this point been dictated by the goal of emotional expression, then the music suddenly loses its expressive status just because the attention of the musician is now more fully focused on the music.

Hence, overall, it seems that the music just more fully constitutes and dominates the development of the musician's emotion. And although the attention of the subject is not a necessary part of the emotional state, we may say that the musician's *experience* of the music more fully constitutes his or her *experience* of the emotion. At the same time, we should recognize that being absorbed to such an extent is a fairly exceptional state of being. So emotionally it is likely to be a state of great euphoria, where the dynamic relation with the world that it tracks is a sense of one's life flowing like music, of living musically.<sup>32</sup>

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1. See Antonio Damasio, *The Feeling of What Happens: Body, Emotion and the Making of Consciousness* (London: Vintage, 2000); Jesse Prinz, *Gut Reactions: A Perceptual Theory of Emotion* (Oxford University Press, 2004); Jenefer Robinson, *Deeper Than Reason: Emotion and Its Role in Literature, Music, and Art* (Oxford University Press, 2006).

2. Malcolm Budd, *Values of Art: Pictures, Poetry and Music* (London: Penguin, 1995). I also accept many of the claims of resemblance between music and expressive behavior made by Stephen Davies and Peter Kivy. For a recent statement, see Stephen Davies, "Artistic Expression and the Hard Case of Pure Music," in *Contemporary Debates in Aesthetics and the Philosophy of Art*, ed. Matthew Kieran (Oxford: Blackwell, 2005).

3. Based on a review of a number of studies into the relation between music and emotion, neuroscientists Istvan Molnar-Szakacs and Katie Overy argue that recognizing emotions in music is grounded by the mirror neuron system (which underlies our empathic activities), whereby the same neurons that are active when engaging in some activity are also active when observing others engaging in the same activity. Here they focus on mirroring the intentional actions required to produce the movements we perceive in music rather than the more generalized mirroring of bodily

patterns (some of which could be generated by deliberate actions). Istvan Molnar-Szakacs and Katie Overy, "Music and Mirror Neurons: From Motion to 'E'motion,'" *Social, Cognitive and Affective Neuroscience* 1 (2006): 235–241.

4. Damasio makes the crucial connection between the mirror system and the neural map of one's own bodily changes, which he calls the "as-if body loop." Antonio Damasio, *Looking for Spinoza* (London: Vintage, 2004).

5. Phenomenologically, it is comparable to visually perceiving the solidity of an object. Compare Derek Matravers, "The Experience of Emotion in Music," *The Journal of Aesthetics and Art Criticism* 61 (2003): 353–363.

6. Tom Cochrane, *Shared Emotions in Music* [PhD Thesis] (University of Nottingham, U.K., 2007), accessible at <http://theses.nottingham.ac.uk/archive/00000286/>.

7. For example, Prinz, *Gut Reactions*. Also Peter Goldie, *The Emotions: A Philosophical Exploration* (Oxford: Clarendon Press, 2000).

8. Such as Ajay Heble, *Landing on the Wrong Note: Jazz, Dissonance, and Critical Practice* (London: Routledge, 2000), p. 93. Compare Paul Berliner, *Thinking in Jazz: The Infinite Art of Improvisation* (University of Chicago Press, 1994), pp. 256, 261, 274.

9. R. G. Collingwood, *The Principles of Art* (Oxford University Press, 1958), p. 304.

10. John Dewey, "The Act of Expression," in *Artistic Expression*, ed. John Hospers (New York: Meredith, 1971), pp. 72–94, quote from pp. 78–79.

11. See rather Aaron Ridley, "Not Ideal: Collingwood's Expression Theory," *The Journal of Aesthetics and Art Criticism* 55 (1997): 263–272.

12. Richard Wollheim, *Art and Its Objects* (Cambridge University Press, 1980), p. 42.

13. Ridley, "Not Ideal," p. 264.

14. Andy Clark and David Chalmers, "The Extended Mind," *Analysis* 58 (1998): 10–23.

15. Clark and Chalmers, "The Extended Mind," sec. 4.

16. Clark and Chalmers, "The Extended Mind," p. 20.

17. Compare Robert Anton Wilson, *Boundaries of the Mind: The Individual in the Fragile Sciences* (Cambridge University Press, 2004), p. 183.

18. Eric Clarke, "Listening to Performance," in *Musical Performance: A Guide to Understanding*, ed. J. Rink (Cambridge University Press, 2002), chap. 13, see p. 68.

19. These claims are equally applicable to the relation between a singer and his or her voice.

20. Compare William James, "What Is an Emotion?" *Mind* 9 (1884): 188–205; Prinz, *Gut Reactions*, p. 134; Robinson, *Deeper Than Reason*, pp. 32–37.

21. James Laird, *Feelings: The Perception of Self* (Oxford University Press, 2007). For an example of changes in physiological arousal (rather than self-reports) resulting from facial expression, see R. W. Levenson, P. Ekman, and W. V. Friesen, "Voluntary Facial Action Generates Emotion-Specific Nervous System Activity," *Psychophysiology* 27 (1990): 363–384. Laird notes that some people are more prone to such manipulations than others. He explains that when experiencing emotions, some focus more on the personal cues of their bodies or actions whereas others focus more on situational cues. Such differences are even preserved when measuring physiological arousal. This suggests that the ways we attend to our emotions can manipulate

arousal in a manner compatible with my account, though perhaps the personal cue group is better suited to the kinds of possibilities I suggest here.

22. See E. Hatfield, C. K. Hsee, J. Costello, M. S. Weisman, and C. Denney, "The Impact of Vocal Feedback on Emotional Experience and Expression," *Journal of Social Behavior and Personality* 10 (1995): 293–312. Also see A. W. Siegman and S. Boyle, "Voices of Fear and Anxiety and Sadness and Depression: The Effects of Speech Rate and Loudness on Fear and Anxiety and Sadness and Depression," *Journal of Abnormal Psychology* 102 (1993): 430–437.

23. Sandy Duclos and James Laird, "The Deliberate Control of Emotional Experience through Control of Expressions," *Cognition and Emotions* 15 (2001): 27–56.

24. James, "What Is an Emotion?" p. 45.

25. I take this from Prinz, *Gut Reactions*, p. 45. He cites, for example, that one may engage in thinking (such as navigating a crowded room, intuitively calculating speeds and trajectories) where the representations involved are visual and behavioral rather than conceptual.

26. Damasio, *Looking for Spinoza*.

27. Compare Ned Block, "Review of Alva Noë, *Action in Perception*," *The Journal of Philosophy* 5 (2005): 259–272.

28. Ira Sullivan (trumpet and saxophone) quoted in D. D. Spitzer, "Ira Sullivan: Living Legend," *Down Beat* 39 (17 February 1972): 14.

29. Jim Hall (guitar) quoted in Berliner, *Thinking in Jazz*, p. 798, note 38.

30. Curtis Fuller (trombone) quoted in Berliner, *Thinking in Jazz*, p. 217.

31. Dewey, "The Act of Expression," p. 144. Ciarán Benson, *The Cultural Psychology of Self: Place, Morality and Art in Human Worlds* (London: Routledge, 2001), p. 187.

32. I acknowledge the help I received from Greg Currie, who supervised the Ph.D. from which this article was derived. I also thank the organizers and participants of the conference "Situated Cognition: Perspectives from Phenomenology and Science," Durham University, August 2006, where I presented an earlier version of this article, as well as the two anonymous referees of this journal for their helpful criticisms.