

美學 @ 媒體・藝術與文化

第 22 屆國際實徵美學雙年學術研討會議

22nd Biennial Congress of The International Association of Empirical Aesthetics (IAEA)

Aesthetics@Media, Arts & Culture

2012.8/22-8/25

ABSTRACT & FULL PAPER

Revised With Page Numbered

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MEET TAIWAN

VJK 287-297
AUTHOR INDEX

A

Taisuke Akimoto	484
Fuminori Akiba	558
Taisuke Akimoto	598

B

Bianca Bromberger	58
Janneke Blijlevens	239
Alain Berthoz	278
Nicolas J. Bullot	547
Paolo Bonaiuto	644
Valeria Biasi	649

C

Anjan Chatterjee	58
Biavatti, Camila	101
Ming-Wu Chou	230
Yir-Hueih Chung	253
CHEN Li-Jun	381
Ya-Ping Chang	420

D

Yulia Daraganova	35
Alexander Drikker	87
Aure-Elise Duret	278
Stéphanie Dubal	278
Scott Dexter	591
Melissa Dolese	591
E	
Yolaine Escande	278
Jun Endo	598

F

Joao Pedro Fróis	507
------------------	-----

G

Raquel E. Gur	58
Daria Grimaldi	458
Rolf J. Gaede	525

H

Yu-Ching Hsieh	492,663
Paul Hekkert	531
Diane Humphrey	562
Su-lien Hsieh	605,658
Jonah Humphrey	625

I

Bin I	468
-------	-----

J

Kyung-Won Jang	174
----------------	-----

K

Vidyulata Kamath	58
Reinhard König	185
Katja Knecht	185
Aaron Kozbelt	210
Ken Knoblauch	278
Vladimir J. Konečni	287
Archbell, Kristen	330

Stange, Ken	330
Bruce F. Katz	591
Aaron Kozbelt	615,654

L

Paul J. Locher	2,9
Zhihong, Li	23
Matthew Lehet	58
Chih-Ying, Lee	93
Pereira, Maria Lourdes	101
Lay, Maria Cristina	116
Hui-Hua Liu	253
Li-Yun Lin	393
Helmut Leder	458
Yen-Ching Lin	468
Yu-Chai Lai	570

M

Hitoshi Morita	29
Paul J. Moberg	58
Rodrigues, Mirian	116
Daniel Meredith	210,591

Ruth Mugge	239
Nebojsa Milicevic	308

N

Yoshihiko Nitta	218
Chinone Noliko	298

O

Takashi Ogata	484,598
---------------	---------

P

Biljana Pejic	148
Jérôme Pelletier	278
Biljana Pejic	308,316,351
Ana Pflug	316

R

Michael Ranta	66
Rolf Reber	547

S

Sven Schneider	139,185
Bojana Skorc	148,308,316,351
Lorenz Sichelschmidt	174
Jan P.L. Schoormans	239
Sun Qing-qing	381
Carolina Silva	507
Yasuhiro Suzuki	558
Angelika Seidel	591
Joanna Serafin	615
George K. Shortess	630
Patricia Search	632
Giovanna Siervo	668
Carolina Palma da Silva	672

T

Lonna Tooke	58
Reis, Antônio Tarcísio	101
Lin-Chiu Tsai	264
Yi-Yin Tsai	264
Marine Taffou	278
Saiau-yue Tsau	370

Rosella Tomassoni	438
Eugenia Treglia	438
Frieda Fayena-Tawil	591

U

Akira Utsumi	199
--------------	-----

V

Alexander Voloshinov	35
Maja Vukadinović	46,358

W

Ralf WEBER	139
Wei-Ming Wang	264
WANG Xue-mei	381
David Welleditsch	458
Ming-Ren Wang	674

Y

Fu-ju Yang	15
------------	----

Z

Višnja Žugić	46
Zhao Ling-li	160,381

CONSTRAINTS ON MANIPULATIONS OF EMOTIONS BY MUSIC: FAULTY ASSUMPTIONS ABOUT EMOTIONAL SYSTEM'S PLASTICITY

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Abstract

The validity of Tom Cochrane's assumptions regarding the processing and effects of music in his article "Expression and Extended Cognition" (2008) is questioned. One problem is the manner in which ideas from the philosophical, as well as the bio- and socio-psychological, theories of emotion are treated. Another concerns the somewhat arbitrary use of some philosophical theories of music expression. The third is Cochrane's excessive reliance on a highly speculative neuro-scientific application of the "mirror-neuron" system to humans and to music. Throughout, the method of application of extended cognition to music is questioned, rather than the general idea of extended mind or "active externalism." Finally, because the musician, the instrument, and the improvised/"composed" music is uniquely intertwined in jazz improvisation, this may be the only fertile ground for extended cognition in music, the cost being that any claims to generality are sharply curtailed.

In a chapter that compared the respective roles of emotion and reason in art-music composers' creative process (Konečni, 2012), I suggested that *emotivism* was the currently dominant position in the study of, and talk about, music. I defined it informally as a general proclivity for excessive insertion of emotion and feeling into both scientific and lay accounts of mental life, needs, and motivation in daily behavior – in matters artistic, especially musical – and non-artistic. I begin this brief article with a mention of emotivism, because it is an insufficiently recognized backdrop for a number of contemporary debates in the philosophy of music. Somewhat paradoxically, it seems to be a *cognitive* stance taken by many philosophers and experimental psychologists of music, one that reflects their – I would claim – unwarranted acceptance of a quasi-ideological cultural context that has been characterized by many as deeply anti-intellectual; Bottum (2000) has written a semi-popular, but closely reasoned, overview of (especially American)

anti-intellectualism in the socio-cultural status of music.

The preceding comments are offered as an oblique introduction to my critical analysis of an important recent article that can be regarded as the epitome of one aspect of emotivism – the near-arbitrary blurring of boundaries of the human emotional system in its interaction with the environment, and more specifically, the musical environment. Having been published with high visibility, in the lead position in an issue of a premier journal of philosophical aesthetics, undoubtedly contributed to the attention the article has received – as have its provocative assumptions about the nature of human emotions and their relationship to music expression, music listening, and music production. The character of the various assumptions and the manner in which they are combined – implying an almost completely unconstrained plasticity of the human emotional life with regard to its manipulation by music – turn my critique into a case study of a telling example of emotivism applied and in action.

In the following critical observations, I address a variety of theoretical issues in relation to the validity of assumptions made by Cochrane (2008) in his article entitled "Expression and extended cognition." My remarks are limited – in line with Cochrane's – to expression and experience of emotion and do not refer to other affective states, such as moods (Konečni, 2010). Furthermore, as is the case with Cochrane's discussion, mine is limited to music. The latter decision, on my part, was necessitated by the specific or idiosyncratic features that the philosophical ideas of "extended cognition" acquire when applied to the domain of music by Cochrane. In other words, in this article, I question the additional assumptions that Cochrane appears to have had to make in order to apply the notion of "extended mind" (Clark & Chalmers, 1998) to music, rather than the notions of extended cognition (or of "active externalism") themselves.

The critique is divided into nine brief sections, all addressing Cochrane's assumptions and, in several instances, generalizations. One problem with the assumptions is the manner in which ideas from the philosophical, as well as the bio- and socio-psychological, theories of emotion are treated. Another concerns Cochrane's interpretation and application of philosophical theories of music expression. And the third is his rather uncritical reliance on an unconventional, highly speculative neuroscientific account by Molnar-Szakacs and Overy (2006) of the

"mirror-neuron" system – applied by them to humans and to music – for the purpose of developing, with the additional aid from the concepts of empathy and "contagion," a view of human emotions as an improbable system of essentially unconstrained plasticity and permeability by music.

The article concludes on a note of moderate encouragement: Because the musician, the instrument, and the improvised/"composed" music are characteristically and interestingly intertwined in jazz improvisation, this may be the only fertile ground for extended cognition in music, the cost being, however, that any claims to generality are sharply curtailed. There is also a parting shot at the narrative means by which excessive emotivism oversimplifies and distorts the issues of expression in music.

1. To begin with, Cochrane (2008, p. 329) states: "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." An important question needs to be raised here. How do "bodily changes" manage to occur (or, more precisely, to be instilled) *before* they are "registered in the brain"? To the extent that most human emotions with evolutionary significance arise in response to an external – often social – stimulus of some sort (or to a cognitive representation of such a stimulus), and that, moreover, the stimulus needs to be perceived and at least perfunctorily interpreted before any bodily changes can possibly occur (on both physiological and logical grounds), it is obvious that a major (even if extremely rapid) cognitive step of interpretation and appraisal is missing from Cochrane's account – without his acknowledging or commenting on the issue.

But this is, in fact, a problem of long standing for those non-cognitive theories of emotion in philosophy and psychology that contain the attribute of automaticity in the temporal sequence of components of emotion episodes. There is a kinship between some of these positions and the one originally endorsed by William James (1884). Arguments advanced here regarding the necessary sequence of events in the generation of emotion are analogous to those that are used to support the Prototypical Emotion-Episode Model (or PEEM; Konečni, 2008b: see Figure 1, p. 117).

It is worth noting that in the quoted statement Cochrane seems to acknowledge

both the importance of subjective experience in emotion and the role of cognition in generating it. I will show later that these acknowledgements contradict Cochrane's main thesis.

2. Cochrane continues: "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 emotion feels'." Most emotion theorists would probably agree that any "slogan" is likely to underestimate or misrepresent the complexities in the domain of the relationship between music and emotion. In fact, Cochrane (2008: his Note 2, p. 339, italics added) himself – by writing elsewhere in the article, "I also accept many of the claims of resemblance between music and *expressive behavior* made by Stephen Davies and Peter Kivy" – clearly testifies to the obvious limitations of the above-mentioned slogan. In effect, in what seems to have been an afterthought, another slogan, "the music sounds the way emotion looks", was added to the already long list of Cochrane's assumptions, without being carefully assimilated into the argument.

In any case, to someone paying heed to parsimony in theorizing, it is unclear how Cochrane's endorsement of the resemblance theory contributes anything valuable to his thesis – beyond what Carroll Pratt, Susanne Langer, and Peter Kivy had previously hypothesized about the role of "iconicity," "iconography," and "physiognomy" of musical expression with regard to the "feels" and "looks" slogans (Kivy, 1980, see chapters V and VI; Langer, 1942, pp. 244-245; Pratt, 1931, p. 203).

3. Cochrane (2008) proceeds in the following manner: "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" (p. 329). These statements are highly speculative. In fact, one finds them unwarranted after carefully examining the evidence and the argumentation for the alleged implications of the *human* "mirror-neuron system" in the relationship between music and emotion (implicating numerous processes, including simulation, empathy, and contagion) that is presented in the previously

mentioned article by Molnar-Szakacs and Overy (2006) in which Cochrane (2008, Note 3) seeks conceptual and neuroscientific support.

It is essential to keep in mind the main (itself controversial) claim made by Molnar-Szakacs and Overy (2006, p. 236): "According to the simulation mechanism implemented by the human mirror neuron system, a similar or equivalent motor network is engaged by someone listening to singing/drumming as the motor network engaged by the actual singer/drummer; from the large-scale movements of different notes to the tiny, subtle movements of different timbres." This seems unrealistic and implausible. Moreover, the contention is in and of itself logically insufficient to enable one to predict rationally that emotion would be induced by music in this situation *unless an improbably high degree of automaticity were also postulated* – automaticity, that is, of the effect of watching a drummer's activity on the observer's own motor system. Such automaticity would seem to imply the "virus" or "drug" notions of music's effects – medical metaphors that have been found unsatisfactory in the aesthetics literature. Cochrane must be aware of this and therefore embraces another highly speculative idea, "unconscious emotions" (to which I shall return in section 6.).

4. Cochrane (2008, p. 329, italics in the original) speculates further: "By resembling emotional activity... 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." There is actually very little reason for us to place trust in the use of "we" in the above quotation, because imposing the "we" on the reader is hardly a legitimate method of argumentation in an area as theoretically contentious as this one – unless some empirical support can be recruited for the claim of unanimity of the reference population. Far more importantly, proposing the idea that "music can hijack the mechanisms in the brain" again indicates Cochrane's insistence on (cognition-excluding) automaticity – implying a frequent absence of one's correct judgment about the true cause (another person's behavior *versus* the music as the source) of one's own physiological fluctuations, or about the nature of one's internal response (mere biologically insignificant physiological fluctuations *versus* genuine

emotions), or both.

In other words, Cochrane seems to assume – in normally functioning human adults (that is, in people unaffected by drugs or misleading instructions from psychologists-experimenters) – an implausible absence of appraisal, introspection, and self-awareness, as well as of the ability to make simple correct causal attributions (Kivy, 2006; Konečni, Brown, & Wanic, 2008). In contrast to Cochrane's assumption, I am conscious of my bodily sensations and their source(s), and of the temporal and causal relations between them and what is happening in my environment. On a large proportion of occasions, if I am so inclined, I can report my emotions accurately (and there are objective laboratory means to measure my accuracy). I am also aware, for example, that a couple of minutes ago it was the sudden loud percussion in the piece to which I was listening that temporarily raised my heart and respiration rates via the brain-stem reflex. And I did not need the interoceptive and proprioceptive information from my body and face to label the emotion of which the music I heard was expressive – I could readily do that by careful listening and analysis alone.

In addition, I would not, on the occasion when the percussion raised my heart rate, label my internal state as one of, say, anger just because it happened to me, in the past, that my heart rate went up when I was rudely treated on the telephone by a person at some "customer service" – in part because, on the latter occasion, other differentiating manifestations had occurred concurrently. In sum, it is patently clear that I can – most of the time – easily distinguish among cause-effect sequences and correctly link causes to consequences. Intuitively, music seems to be a very unlikely stimulus to produce drastic causal misattributions.

5. But Cochrane (2008, p. 329) continues: "[My] large assumptions... allow us to argue that music can potentially play the same role as bodily changes in realizing the musician's emotional state" and that the "physical constitution of some mental states extends beyond the brain of the subject" – the latter being, according to Cochrane, the main argument that follows from the theory of extended cognition. As I mentioned in the introduction, a critique of extended cognition deserves a separate article, which would include a detailed analysis of the implications of the two

just-quoted statements. However, all I have space for here is to request that the reader apply the criticisms that have been presented so far in this article to the above two statements of Cochrane's – the controversial gist of which I take to be the following: (a) The music itself, with its expressive features, becomes the performer's emotional state, bypassing his or her bodily changes – provided that the performer fully controls all details of the music; and (b) The performer's emotion can find its way “beyond the brain” (and presumably consciousness) of that person, and “leak” into his or her performance on a musical instrument, notably during jazz improvisation. Cochrane (2008, p. 329) states the latter contention thus: “Playing the music cognitively extends the musician’s emotion.”

In brief, Cochrane's various claims taken together would involve multiple improbable misattributions (or a misattribution feedback loop) via the empathic or contagion-prone capability of the mirror-neuron system, all of which is so speculative that Cochrane must find refuge in a relatively tiny harbor of music – jazz improvisation. Moreover, it is important to note that the early, rather fanciful, assertions regarding human empathy and contagion in the mirror-neuron literature – on which Cochrane's claims are largely based – have in the meantime been forced by empirical work into a more realistic and circumscribed account. Household-object metaphors of “mirror” and “sponge” have been gradually disposed of and the view that has emerged recognizes that people cognitively evaluate the status (in all the ramifications of this term) of the “stimulus person” and engage in a complex causal (attributional) analysis in the process of experiencing or not experiencing empathy with that person (see Jaffe, 2007, for an overview). A more reserved attitude toward the possibility of contagious influence of music's expressive features has also begun to emerge (Konečni, 2008a).

6. Cochrane (2008, p. 330) states: “Note that... I [do not] identify the emotion with the conscious experience of the emotion.” In contradiction to the view that he explicitly expressed in the quotation in Section 1. above, Cochrane here ignores the process of appraisal and the key significance of emotional *experience* – which includes conscious access to numerous distinguishing features of the felt emotion; instead, he seems yet again to endorse automaticity, which is a necessary component

of the Molnar-Szakacs and Overy hypothesis. For these reasons, Cochrane is essentially forced to subscribe to the (small-) minority view of the possibility of “unconscious emotions” (citing Jesse Prinz and Peter Goldie as his sources), which excludes appraisal and “emotion-labeling” – the latter being a process that relies on the cognitive operations of monitoring one’s internal physiological symptoms, integrating them, and interpreting them (Konečni, 2008b; Konečni, et al., 2008).

7. In the opening paragraph of his article and in the first sentence under the heading “The Musician’s Emotion,” Cochrane (2008, pp. 329-330) implicates music composers in the narrative. In light of the present discussion, it might appear that this represents additional overreaching, because Cochrane’s hypotheses, laconic and opaquely worded as they sometimes are, nevertheless generally seem restricted to situations removed from the composing process. After all, the problem of the role of emotions in music composition is highly complex and multifaceted (e.g., Konečni, 2012, Sections 9.3 - 9.5). On the other hand, it is indeed the case that Cochrane is concerned with jazz improvisation and that to classify improvisation as a form of composition is generally considered justifiable. Therefore, since the relationship among the musician, his or her instrument, and the music that is improvised (or “composed”) is rather unique in jazz, this may be a reasonable, or indeed the only, place for the development of “extended mind” ideas in music.

8. However, Cochrane’s thesis would not be applicable to most music performers, because, even if one were to accept as correct the claim by Molnar-Szakacs and Overy (Section 3. above), performers – while indeed also being in the role of listeners to other performers in chamber, orchestral, and jazz settings – are usually required to execute either something quite different than their co-performers are (for example, as members of a string quartet) or to do for a time the same thing that the others are doing, but (usually) *without a temporal lag* – whereas a lag is required by Cochrane’s hypothesis on perceptual and physiological grounds.

9. Concluding Remarks. Perhaps Cochrane’s view does fit to a certain extent the

special case of jazz improvisation, but even in this case it would be applicable only if one were to accept the (small-minority) view of unconscious emotions; this would, however, invite other conceptual problems. Moreover, Cochrane's is only one of several possible accounts of how emotion may be involved in improvisation – which is, apart from the reservations presented here, an undoubtedly fascinating musical activity well worth research and theoretical attention.

Cochrane's position involves a near-arbitrary blurring of boundaries of the human emotional system in its interaction with the musical environment. In this view, there are virtually no constraints on the manipulations of emotions by music (at least in some musical activities), suggesting a view of human emotions as an improbably plastic and permeable system. These conjectures borrow neuroscientific claims of dubious reliability, generally deny the role of cognition in human emotional life (instead invoking emotion-processing automaticity and unconscious emotions), and exploit to an excessive degree the concepts of empathy and contagion. However, the numerous assumptions necessary to develop Cochrane's implausible position do not bear close scrutiny well. This is not surprising because, to put it bluntly, human emotions are a serious evolutionary business, not a plaything. There are constraints on the extent to which these metabolically costly states, with enormous mental-health and behavioral consequences, can be manipulated by listening to music or by producing it.

In its assumption of an improbable degree of emotional system's plasticity, Cochrane's approach bears a resemblance (by him unacknowledged) to an extreme aspect of Stanley Schachter's socio-psychological inheritance in the area of self-perception and misattribution of emotion (e.g., Laird, 1974; Storms & Nisbett, 1970; Valins, 1966; Valins & Ray, 1967). All these overreaching studies have serious methodological problems, with the findings dependent in large part on outlandish instructions to research participants, dubious dependent measures, and sometimes on questionable statistical analyses.

For a concluding example of a conceptualization influenced by emotivism, I quote Cochrane (2008, p. 329) once more: “The artist clarifies and develops his emotional state by expressing it.” To this position that treats the creative process as an exercise in emoting – while, significantly, neglecting to specify how the emotional

state arose in the musician or visual artist in the first place, and to discuss the possible emergence of a feedback loop between the fluctuations of the artist's emotional states and the developing artwork – one can contrast the view that great music, like all great art, exists at a *necessary distance* from its creator and that a calm, contemplative, analytical mastery is crucial.

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Notes

1. E-mail: vkonecni@ucsd.edu
2. This listener, for one, does not perceive emotion as being located *in* the music and believes that he has not done so since about the age of seven when he conducted imaginary orchestras in front of a large mirror and *faux*-emoted in tandem with "emotional" music. However, although he has ever since been fully cognizant of music's status as a non-sentient being, he is aware that many pieces of music (including absolute music) are *expressive of* various emotions – cf. Kivy (2006) and Konečni (2008a).