The Performativity of a Cursor: Embodied Creativity in Performing with Music Software

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Introduction

Creativity, the process of developing ideas or artefacts that are new, surprising and valuable (Boden 2004), is more than a mere mental activity. Embodied cognition research – see for instance Leung et al. (2012) and McNeill (2005) – has shown that creativity depends on what is happening in the body as a whole, and how that body is situated in its environment. Creativity is a whole-body phenomenon that cannot be reduced to mental processes exclusively.

More specifically, creativity emerges because of a body's relations to other things, bodies, and ideas, and how these relations affect the body. Creativity cannot exist in isolation, but is provoked by interaction: interaction between human subjects, human subjects and objects, human subjects and ideas, etc. It is the embodied interaction between human subjects and their environment that stimulates creativity.

Put more generally, the environment determines the ability of human subjects to act. What can someone do in a certain environment? The constraints an environment imposes on us force us to be creative, to try to find solutions to the problems and challenges created by the environment we inhabit. In this way we created tools out of sticks and stones, learned how to use animals to cover large distances, and developed ways to express ourselves within the constraints set by the society and culture we live in.

This also holds for musical creativity. Playing with other musicians stimulates the creative impulse, as does the interaction with a musical score, the presence of an audience, and the sound and feel of a musical instrument. All embodied musical interaction, codetermined by the kind of musical environment the musician operates in, has a significant influence on musical creativity.

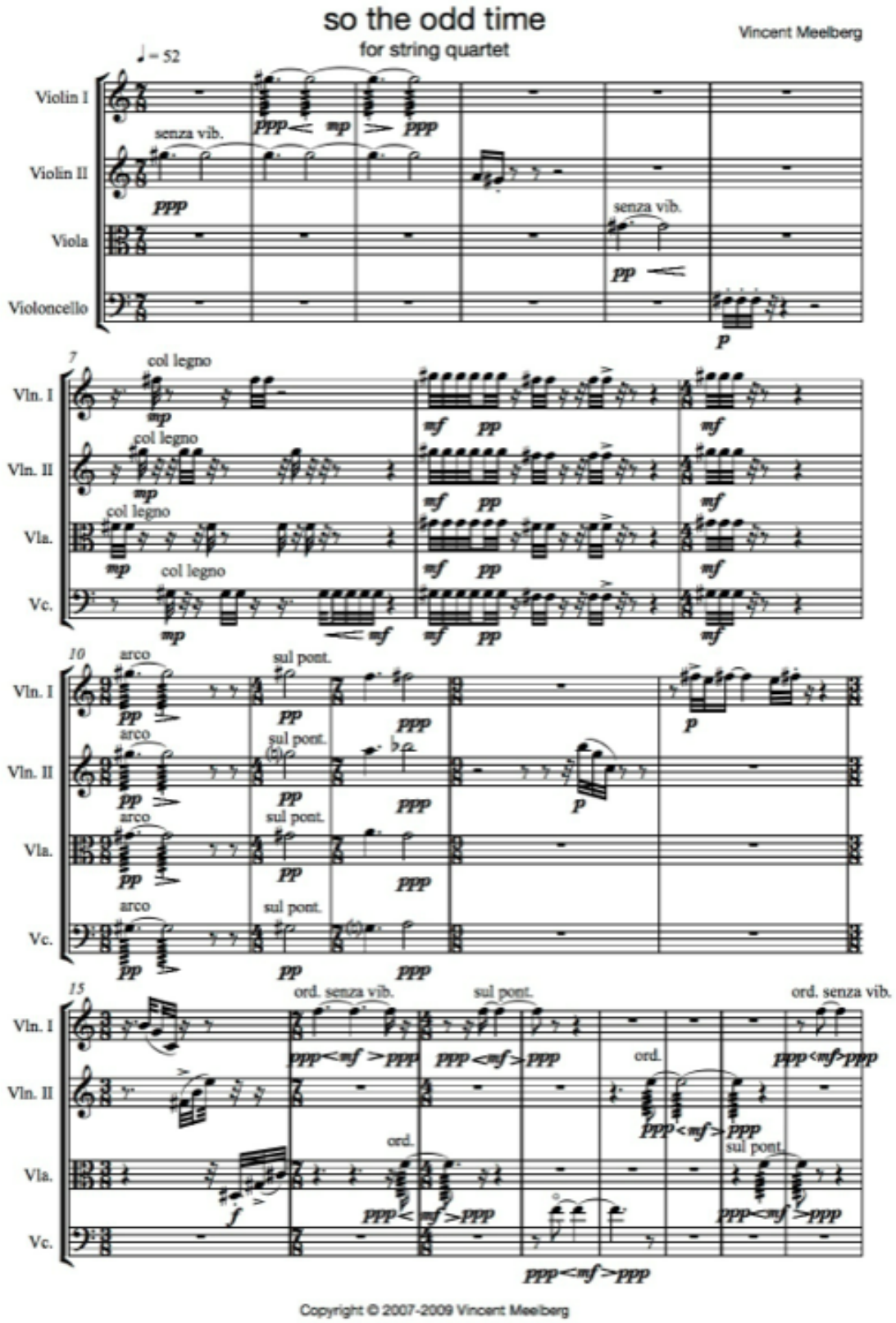
Musical instruments, in particular, constitute environments that impose strict constraints. Musical instruments are inherently unuseable, in the sense that one first has to learn how to play an instrument before one is able to “properly” interact with it. Musical instruments imply an inability. The notion of virtuosity is based on this principle, for musical virtuosity is the ability to overcome the constraints inherent in musical instruments.

As music is increasingly created and performed by using music software, the question arises what consequences this use of software in musical practices has for musical creativity, both during the composing and the performance of music. What kinds of embodied musical interaction does music software afford, which constraints does it impose, how useable, or unuseable, is it, and what is the impact of interacting with music software on creativity in musical performance?

In this essay I will address some of these questions. By taking a piece I wrote for double bass and electronics, called *In the Cracks of My Narrative*, as a case study, I will first explore how embodied interaction with music software can be established. Next, I will discuss the relation between embodied interaction and creativity. Finally, by incorporating Gilles Deleuze’s theories on the relation between ethics and affect, I will very tentatively outline some of the characteristics a software interface needs to have in order to stimulate musical creativity.

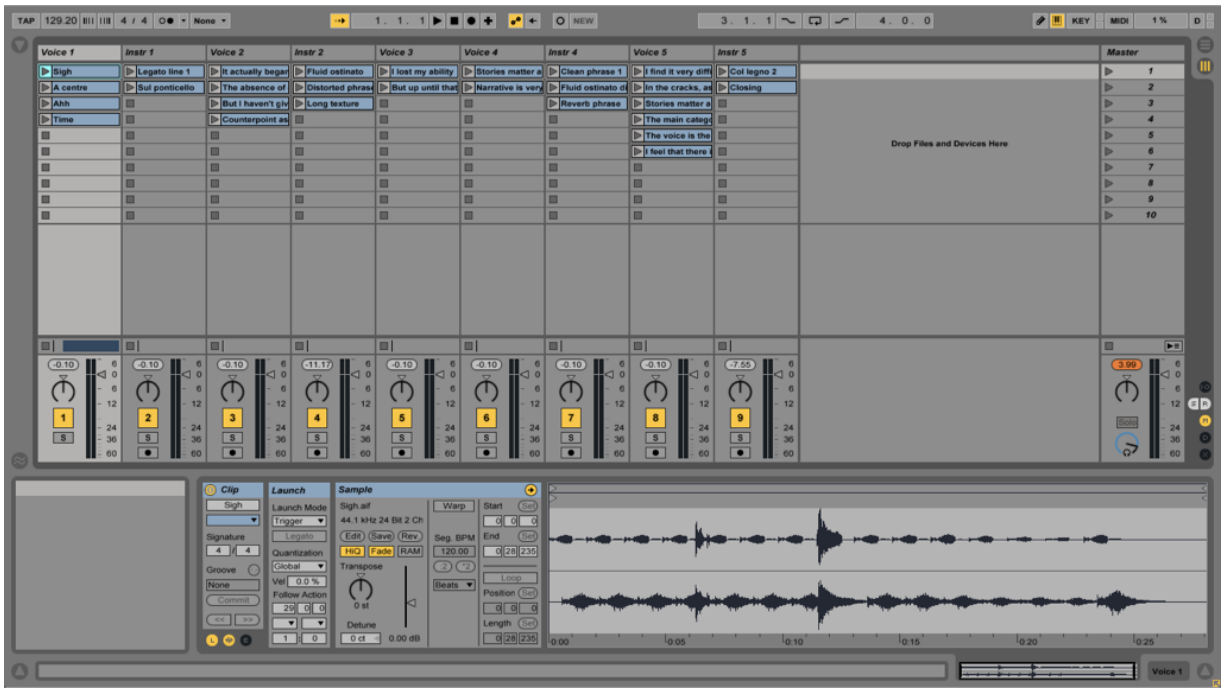
Interactive Cracks

In *In the Cracks of My Narrative* I explored the unuseability of a particular musical instrument, the double bass, as well as the unuseability of music software. The piece consists of a double bass improvisation over an electronic part, consisting of samples of an interview with Edward Said, and processed fragments from a string quartet that I composed in 2009, called *so the odd time*.



https://soundcloud.com/vincent-meelberg/so-the-odd-time

I arranged these samples and fragments into small soundclips, which I subsequently imported into Ableton Live.



I divided the clips into five parts, or movements; each part, with the exception of part 3, consisting of a column of clips containing the voice of Edward Said, and a column consisting of musical phrases and effects.

With the aid of a foot controller I was able to trigger these clips. I used the “follow action" function in Ableton Live in order to make sure that the clips in each column are played in a more or less random fashion. Also, the clips won’t play immediately after they are triggered. Instead, pauses of different lengths are inserted between the playing of each clip. In this way, a certain degree of unpredictability is introduced, since I am not sure which clip will play, or when it will start, once I push a button on the foot controller.

https://soundcloud.com/vincent-meelberg/cmpcp-in-the-cracks-of-my-narrative

During the performance of this piece, the contraints imposed by the double bass stimulated creativity. I was constantly looking for ways to deal with the unuseability of the instrument, as any bass player is forced to.

At the beginning of the piece, for instance, my bowing was not perfect, which resulted in a ringing overtone. I decided not to try and correct this, but instead make this overtone the main musical material of the bass part, by playing sul ponticello.

https://soundcloud.com/vincent-meelberg/cmpcp-bass-1

In the following fragment, the rhythm of my bowing was uneven, sometimes clashing with the sample that was sounding at that moment. In this case I initially tried to correct the rhythm, but eventually decided to end this figure with a repeating note, which happened to coincide with a sample of Said sighing. It almost sounded as if Said commented on the musical quality, or lack thereof, of the phrase I was trying to play.

https://soundcloud.com/vincent-meelberg/cmpcp-bass-2

A final example of the way I tried to deal with the unuseability of the double bass is the moment I tried to imitate and play along with the soundclips that were triggered. Initially, this seemed to work, but I noticed that I did play at a slower tempo than the soundclip. I knew that I would not be able to play consistently at that tempo, so I decided to play accellerando. This enabled me to end the phrase in a musically satisfactory manner, without me being forced to try to play at the tempo the sample dictated for the duration of that soundclip.

https://soundcloud.com/vincent-meelberg/cmpcp-bass-3

These examples show how the unuseability of the double bass – or, rather, my inability to fully master this instrument – forced me to be creative. Yet, other aspects in this performance influenced my creativity as well, most notably the sonic environment created by the software. This environment imposed constraints that also stimulated my creativity, for I needed to react to, or consciously ignore, the sounds that were produced by the software. In both cases this stirred my creativity and profoundly influenced my musical choices.

Put differently, performing this piece means engaging in an embodied musical interaction, one that has a significant impact on musical creativity. Embodied interaction here is understood as the creation, manipulation, and sharing of meaning through physical relations with artefacts (Bordo 1993; Dourish 2001; Lakoff and Johnson 1999).

Creative Interfaces

When working with music software, embodied interaction with sonic material is only possible through an interface. An interface is the boundary between two areas or systems (Chatzichristodoulou and Zerihan 2009). All software has an interface, a boundary between

the algorithms the software consists of and the user of the software program.

This interface enables a physical interaction, through gestures, between the musical sounds and the users' bodies (Dourish 2001; Johnson 1997). At the same time, however, all interfaces put constraints on the kinds of choices their users can make (Fuller 2003).

Within the interaction with interfaces of music software it is through gestures – physical actions through which human subjects structure their environment (Gritten and King 2006; Godøy and Leman 2010; Jensenius et al. 2010) – that musical creators interact with the software, and through affection – the inducement of autonomous bodily reactions – that musical sounds, created through the embodied interaction with music software establish a physical relation with musical creators.

Affection is paramount for a proper understanding of how embodied interaction works. As Brian Massumi (2002) explains, affect is an intensity. More precisely, affect is a prepersonal intensity corresponding to the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act. It is an autonomous reaction of the body when confronted with another entity. This entity can consist of sound, but it can also be the way a user interface looks and feels. Consequently, the user interfaces of music software themselves, too, may elicit affective responses.

Affect and gesture are thus both necessary concepts that enable the articulation of the embodied interaction between music software and musical creators. Moreover, since it is the embodied interaction between human subjects and their environment that stimulates creativity, affect and gesture are also crucial in theorizing musical creativity.

In *In the Cracks of My Narrative* embodied interaction is established through the manipulation of sound samples, both during composing and performance. Also, embodied interaction is provoked by the sounds played by the music software, to which I again reacted.

While composing the electronic part Of *In the Cracks of My Narrative* I used the user interface of Ableton live, the keyboard of my laptop, and a Wacom tablet as an input device. During the

performance the foot controller, with which I triggered the soundclips, was the most important interface. I wasn't looking at the screen, at least not consciously. Consequently, Ableton Live's user interface was only relevant during the compositional process of the piece.

Since I was controlling the clips with my foot, part of my attention was drawn to this limb and its movements. When working with music software the relation between physical movements and sounds is complicated because of the software's interface. This may blur the relation that can be felt between making a gesture and hearing the sonic result. This was also the case with my foot controller, as actions performed via this controller did not always immediately lead to sonic responses. This is in sharp contrast with most acoustic instruments, as these do respond more or less directly to human actions.

Sonic Affection

The sonic responses of the music software also lead to another kind of movement with the performer: one that is the result of the affection of the performer by the musical sounds. This affection may for instance lead to chills running up and down the performer's spines, which are movements as well, just as all affects are (Huron 2006). After all, affect is an autonomous, involuntary bodily reaction, a movement, to stimuli such as musical sounds.

Consequently, musicians' bodies simultaneously create, and are affected by, the production of sounds. This means that two kinds of movement are at play: the conscious movements of musicians in order to create sounds, and involuntary movements, the affective responses, induced by experiencing the sounds that are created (Leman 2007; Meelberg 2011; O'Dea 2000). This was definitely the case during my performance of *In the Cracks of My Narrative*.

Because the audio clips in this piece where played in a random fashion, they could surprise me. Often, they elicited an affective response from me: an autonomous bodily reaction that was involuntary and inescapable. These affections did inspire me, however. The way the clips affected me provoked responses from me, responses that I would not have performed otherwise.

These affections, caused by the sonic gestures the clips consist of, as well as the overwhelming and dominant nature of the audio clips,

incited physical responses from my part that resulted in the specific physical gestures that constituted my improvisation.

At the same time, these affective moments often also were the most creative. During these moments I was confronted with new, unknown musical situations that I needed to deal with musically, in one way or another. As a result, I came up with musical ideas and solutions that were new, surprising and valuable, at least to me.

Take for instance the vocal soundclips in which Said utters the words “Time” and “A centre.” The way these words are pronounced suggested to me a sense of tranquility, which influenced the pizzicato phrase that I played over these clips. These clips were followed by a soundclip containing an arco musical passage, to which I responded by playing arco as well. The phrasing, however, remained similar to the pizzicato passage. Because I knew how and when this soundclip would end, I ended with a faster arco motif.

https://soundcloud.com/vincent-meelberg/cmpcp-electr-1

In the following example the bass vamp that I played was clearly inspired by the musical soundclip that was sounding.

https://soundcloud.com/vincent-meelberg/cmpcp-electr-2

Some moments also encouraged me to do things that I normally do not tend, or dare, to do, such as in the following fragment. Here, I play an arco passage, and felt confident to play long notes for an extended period of time. I was not afraid that this would sound boring, as the beauty of passage encouraged me to continue.

https://soundcloud.com/vincent-meelberg/cmpcp-electr-3

During the performance of the piece I was surprised by the final soundclip, of which I knew that it indeed was the final one (for that was the way I programmed it in Ableton). Because I did not expect Ableton to play the final soundclip at that particular moment, I needed to come up with a line that could function as a musically satisfactory ending of the piece.

https://soundcloud.com/vincent-meelberg/cmpcp-electr-4

In all these examples, the sonic movements created by the music software had a profound influence on the kinds of physical gestures

that my performance consisted of. The affects invoked by the soundclips affected my musical creativity.

The Creative Potentiality of Affect

So, affective encounters can stimulate creativity. This means that a proper understanding of such encounters may lead to new insights into the manners in which creativity manifests itself in performance. Gilles Deleuze suggests that affective encounters between bodies and sensations (such as the ones between me and the audio clips) can be conceptualised in ethical terms. Here, ethics is not considered in terms of morality, but conceived as ethology instead. It is "[…] the study of the relations of speed and slowness, of the capacities for affecting and being affected that characterises each thing" (Deleuze 1988: 125).

These things can be anything, Deleuze explains: an animal, a body of sounds, a mind or an idea. Bodies and thoughts can be defined as capacities for affecting and being affected. Referring to Baruch de Spinoza, Deleuze asserts that everything that increases or enhances the subject's power to act is good, whereas everything that diminishes it is bad.

According to Deleuze, the power to act is a positive expansion of affective capacity. Therefore, a "good" thing is one that enables the body to be affected in a greater number of ways. A bad thing, on the other hand, results in a decrease of the power of acting, and is therefore a negative stagnation of feeling.

Anything that inhibits a body's ability to be affected is bad. Consequently, Deleuze's ethics suggest that we should always strive for a maximisation both of the capacities for being affected and of the possibilities for establishing any kind of connection between the affecting and affected bodies.

The maximisation of these capacities may also result in the stimulation of creativity. Being affected, as well as finding new ways to affect others, during performance may lead to new ideas, new creative inputs that could not have arisen otherwise. Creativity can be stimulated by the affective nature of embodied interaction.

This also holds when performing with music software. The manners in which software can affect the performer, either through its visual or physical interface, or by producing sounds, can also lead to a

stimulation of creativity. New modes of useability, or unuseability, of music software result in new forms of embodied interaction, which in turn may increase the creative potentiality of performing with music software.

In the case of *In the Cracks of My Narrative* the interface was relatively simple. But even here the fact that my foot was suddenly important during performance already altered the way I played. This proved to me that the design of an interface is of paramount importance for the creative potentialities of software. The extent to which an interface is able to elicit affective embodied interaction codetermines its creative potentiality.

Consequently, a crappy interface may stimulate creativity more than an excellent, ergonomic one, since it will probably affect the performer more intensely. The question remains, however, if this affection results in a diminishing or augmentation of the user's capacity to act. A badly designed interface may very well lead to a user being unable to properly interact, despite the affective responses it provokes.

The lesson to be learned from this is that an interface constitutes the possibilities for embodied interaction with music software, or with sound in general for that matter, since a musical instrument is an interface as well, one that involves movements form the part of the user, physical and sonic gestures, as well as affective responses. It is this embodied interaction that stimulates creativity. Thus, any music software that is to enhance creativity needs to have an interface that optimizes affective embodied interaction by the way it looks, feels, and the kinds of sonic and physical gestures it affords. And sometimes, even a simple foot controller will do.

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