

The Aesthetics of interactive artefacts - thoughts on performative beauty

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Abstract

Aesthetics and the notion of beauty are playing an increasingly significant role in interactive art and design products, and consequently for the scientific research into these fields. This paper outlines a rudimentary theory of the notion of beauty in interactive artefacts. My argument takes Kant's definition of the sentiment of beauty as an act of judgement as its starting point. This judgment unfolds on two very different but interrelated levels. The first level is made up of the participants' physiological aesthetic judgment over the digital system's output. This judgment predetermines the participant's next (inter-)action and it is the basis for performative "flow". The second level renders beauty as an emergent phenomenon, which manifests itself as a reflective sentiment, meaning as the result of the interplay between already experienced "flow" and the idea of the interactive artefact's potentiality. The idea of potentiality is on the one hand an intrinsic part of the artificial interaction system (interactive artefact), but on the other hand experienced as a transcendental phenomenon that seems to overcome the rigid limits of algorithmic systems. The paper concretizes my theoretical findings by analysing two very different interactive artefacts: David Rokeby's *Very Nervous System* from the early days of digital interactive art and the online community 'Second Life' as an example of a virtual meeting place.

Keywords

Performative aesthetics; Affect; Beauty; Communication; Interactivity;

Introduction

In recent years many attempts have been made to include aesthetics in theories on interactive artefacts, focusing on features such as emotional design or experience design (e.g. Norman, Bertelsen, Wright, McCarthy, etc.). Notions like simplicity, elegance, and pleasing-interface design are widely used. However, a theory of performative beauty proper seems to be underdeveloped, despite the recent recognition that aesthetics plays an important part in interactive artefacts. This paper's objective is to outline a rudimentary theory of the notion of beauty in interactive artefacts¹. I am perfectly aware of that the notion of beauty is a hopeless, ephemeral endeavour that can be attacked from almost every side, but I have this feeling that interactive art can contribute to the understanding of beauty and vice versa.

Two examples of interactive artefacts

Newcomers to the digital world of the online community *Second Life* (SL), find themselves on a remote island, separated from the main virtual spaces that make up the world of SL. Their initial representation is a virtual figure wearing a white T-shirt and Blue Jeans that seem to be taken out of a machine producing average humanoid figures. The newcomer's first task consists of modelling their pre-produced standard representation in their own image. While standing on the top of a tropical palm-fringed island, surrounded by the deep blue ocean, the player is given the possibility of adjusting nearly every parameter of the avatar's visual appearance: the length and width of the nose, the ears, the breasts, the type and colour of the hair and clothes etc. This is done by means of sliders and buttons.

¹ I acknowledge that there are other vital aspects to the theoretical and practical understanding of interactive artefacts, such as the functional aspect, criticism, usability, etc. Hence I am not aiming at the construction of an all-encompassing theory on interactive artefacts, but to shed light on the aspect of beauty.



Figure 1: Creation of an Avatar in Second Life

The more advanced players can later on design their own virtual clothing and even sell it to other players. The result is evidently a very personalized avatar. Clearly the majority of players in SL want to create a beautiful avatar oscillating between a culturally defined norm of beautiful appearance and their very personal desire to express themselves. A beautiful SL avatar seems to promise to be many things: a personality more true to an imagined self than the player's experience of himself in everyday life; successful social relationships; or merely fun. The most obvious form of beauty involved is without doubt governed by the fashion industry. But isn't there another form of beauty at stake as well; a beauty related to virtual and interactive conditions of SL? And if that is right, how can we conceptualize this form of beauty?

In the 80'ties, the Canadian artist David Rokeby programmed an interactive system called *Very Nervous System* (VNS). His system creates an interactive art space, where the solitary participant's bodily movements are traced by a video camera and transformed into fluctuating digital data. The data is used to generate audible expressions. The participant's movements are actively 'dancing' the sound-scape. But the computational system works with a minimum of delay, resulting in the simultaneity of the participant's movements and the generated sound. In a feedback loop, the sound also seems to 'dance' the participant, triggering new movements. After the first minutes of testing the system, participants try to move in order to create interesting sound-scapes by constantly evaluating own movements and their acoustic effect. Beauty seems to become an evaluative method in the interactive process. But *VNS* establishes potentially another level of beauty; Rokeby's objective is to eliminate the control-based interface (Rokeby, 1998) by creating a seamless interaction space, which in turn establishes an almost holistic, beautiful unity between the participant and her acoustic surroundings. Beauty becomes now an experience of "flow" (Csikszentmihalyi, 1990), where the conscious mind is always a step behind.



Figure 2: Participants in Very Nervous System

Thesis and method

Based on these incipient observations, I would tentatively propose that beauty in interactive artefacts can be understood as firstly a code and secondly an emergent ‘transcending’ sentiment. The first level is made up of the participants’ instantaneous aesthetic judgment over the digital system’s output. This judgment already predetermines the participant’s next (inter-)action and is the very basis for performativity. The second level renders beauty as an emergent phenomenon, which manifests itself as a reflective sentiment and therefore as the result of the interplay between already experienced “flow” and the idea of the interactive artefact’s potentiality.

My paper elaborates on these two levels of performative beauty by asking the following questions: how do the particular artefacts construct these aspects of beauty; and can these aspects be conceptualized by means of the philosophical heritage of beauty? Analogue to the fact that interactive artefacts are results of interdisciplinary processes my approach brings findings from very different research areas and discourse (aesthetic theory, social sciences, neural aesthetics) into a hopefully fertile interplay.

Interactive artefacts as communication systems

My investigation starts with the assumption that every interactive artefact consists of the relationship between the participant's actions and the algorithmic system's sensuous output. An interactive artefact is no longer an artist's (or designer's) unique, detached expression, but a communicational system, that comprises the individual participant's (re-)action and the digital systems output. An interactive artefact is simultaneously based upon and creates an artificial and unique communication system. Each communication system constitutes a kind of social reality, a necessary framing that determines who interacts, how and what about. Artificial interaction systems are on the one hand clearly delineated from everyday inter-subjectivity, but on the other hand are often mimicking self-generating, autopoietic communication systems (Heinrich 2005).

The newcomers in *SL* see and know they are participating in a constructed virtual space that only exists as data on a huge server. In *SL*, the interaction with the system (usage of the keyboard and the mouse in order to modify his/her avatar or navigate the virtual space, etc.) enables the player to communicate inter-subjectively with other players in a virtual encounter; here the computer and the network is a medium in the classical sense of being a transmitter of data. The virtual community *SL*

clearly wants to simulate and improve as many aspects of social relationship as possible, but the virtuality (or un-physicality) of the avatars and the community clearly shapes the relationships between the players². Likewise, the participants in David Rokeby's VNS are at no time in doubt of the artificiality of the installation space. They know that the audible response of the machine is programmed, and that the computer system only is measuring their movements (and nothing else) within a clearly defined space.

Performative beauty as sensuous code: analysis of beauty

Consequently an investigation into performative beauty must take the evolving relationship between the participants' proprioception of own actions and their sensuous perception of the computational system's output as its starting point. Beauty has since antiquity been seen as sensuously pleasing. Alexander Baumgarten - founder of aesthetics in modernity - defines the sensuous perception as lower recognition, implying that there is a direct relation between perception of beautiful objects and recognition (Baumgarten, 19, § 1; 14). In the wake of phenomenology, Baumgarten's focus on sense perception recently has received renewed attention from philosopher like e.g. R. Shustermann and his writings on soma-aesthetics. (He explicitly draws on Baumgarten's basic thoughts underpinning the importance of sense perception for a notion of aesthetics as a theory and praxis of "creative self fashioning" (Shustermann 1999)).

The phenomenological approach seems to correlate with the research of neuroaesthetics, which are investigating the sentiment of beauty as a result of neural activities. Even though much neuroaesthetic research is done in the field of visual art (that is based on the divide between artefact and beholder and not in performing or interactive arts), neuroaesthetic findings are useful for my argument. As described in their article *Neural Correlates of Beauty*, S. Zeki and H. Kawabata conducted an experiment where they wanted to find the neural areas, which are activated by the feeling of respectively beauty and ugliness. They did not find separate neural areas; on the contrary, they found that the judgment of paintings as beautiful or ugly involved the same areas. The distinction between beauty and ugliness can be seen as a kind of on/off button depending on the change in relative activity in these areas. Furthermore, these neural centres are "engaged during the perception of rewarding stimuli" (Zeki, Kawabata 2004). Their findings seem to support the assumption that the difference between beauty and ugliness is a structural code enabling judgments of surrounding as positive or negative for the living being. This is in line with Donald Norman's assumption that the visceral level of design artefacts deals with very basic distinctions like light and dark, hard and soft, sweet and acid, etc. that are (were) necessary for survival (Norman 2004). Zeki's and Kawabata's most surprising finding, however, was the involvement of the motor cortex: "Much the same pattern, though in reverse order, is characteristic of the motor cortex, where stimuli judged to be ugly produced the greatest activity and the beautiful the least" (Zeki, Kawabata 2004). These findings give rise to the assumption that processes of interactive artefacts are directly connected with the distinction beautiful/ugly. The judgment is an incitement for the participant's further actions, being either a revision or an enforcement of past decisions.

Already, nearly 30 years ago, the psychologist Daniel Berlyne combined aesthetic pleasure with an increase and decrease of arousal (Berlyne 1971). Increase of arousal correlates with ugliness and the urge to change the situation, and decrease after an extreme increase seems to trigger the feeling of beauty. It is a reasonable assumption that oscillation between increase and decrease of arousal forms the basic means for the dramaturgy of interactive artefacts. At this level, the participant's actions seem to be defined as automatic physiological reactions to shifting situations towards a final (secure) situation. Participants' actions are perceived to be coherent if they pave the way towards

² See e.g. Sherry Turkles famous book on MUDs dealing with different forms of virtual self-representation.

this imagined state. Both Zeki/Kawabata and Berlyne's findings resembles in a way the dialectics of T. Adorno, who writes that beauty only can be perceived via its opposite ugliness (Adorno 1973). This supports the assumption that the feeling of beauty and ugliness is a functional basic code for decision making in interactive artefacts (and, of course, elsewhere).

The participants in *VNS* are reacting immediately to the sound, as does the digital system. But the difference between the human participant and the digital machine is that the latter is controlled by mathematical rules whereas the participant's decision is based upon the immediate sentiment of the code beautiful/ugly. Rokeby's system provides an exemplary demonstration of this. By combining physical movement with instantaneously generated sound, Rokeby wants to trick the slower consciousness and create a trancelike, seamless space of soma-audible experience that dissolves the border between the participant's notion of self and the space. The decision-making process must be very fast and therefore based on a reliable stable aesthetic binary code. At this visceral level the participant's experimentation with sound triggering positions and postures seems to follow Berlyne's oscillating dramaturgy. At this state, the conscious mind can only observe the interaction between the participants' and the digital system's outputs retrospectively as the experience of "flow". Breaks in the flow experience are not caused by the sensation of ugliness, but rather by the unexpected incongruence between the participants' actions and the systems output, e.g. missing feedback from the digital system.

In the same way, the process of creating an avatar in *SL* is an ongoing selection process. The interface reminds of a basic photo editing application with a few functions. Every imaginable parameter can be manipulated. In contrast to *VNS*, the player has plenty of time to get all the features right. I experimented for quite some time with the length of my nose, the positions of my ears, and the length of my whiskers, moving the slider back and forth until the perfect, meaning beautiful, proportion was found. Beauty and ugliness becomes a differential play that defines and refines a particular and subjective notion of beauty as a "promesse du bonheur"³ (Stendahl), a kind of imagined 'safe and still place'.

Performative beauty as reflective judgement: synthesis of beauty

Immanuel Kant's point of departure is also sense perception; but he is not satisfied with the reduction of beauty to mere sensation that he defines as agreeable but not beautiful. Beauty, he writes, aims at free a play of recognition capabilities (Kant 1979, §9) and is a matter of the conscious mind. Kant's notion of beauty is bound up with his overall philosophical trajectory that aims to describe the transcendental conditions of recognition. Consequently, he defines pure beauty as the playful conjunction of the mind's categories of intuition and free imagination. Beauty is a formal play ('purposivness') that cannot be linked to any specific purpose. Beauty is a play with potentiality without the demand of either moral or sensible trajectories. The feeling of beauty is a consequence of unbound free reflection and imagination. That is why the sentiment of pleasure is a result of the aesthetic judgment of beauty, whereas the feeling of individual sensuous pleasure always comes prior to the aesthetic judgment that something is agreeable. Hence pure aesthetic pleasure is based on general communicability (Kant 1979, §9) of the sentiment, or with Schaeffers words: on the "autonomy of universalizable feeling" (Schaeffer 2000, 29).

Kant's notion of beauty is insolubly allied with the divide between the perceived object (be it nature or art) and the onlooker. Direct interaction would definitely soil contemplative beauty with either mean sensuous pleasure or, even worth, purpose; both would endanger the finality of pure beauty. Thus Kant's concept of beauty seems at first glance to be far too idealistic to be fruitfully applicable

³ Promise of happiness

to interactive artefacts. Beauty as the enjoyment of free imaginative play for its own sake seems no more than an analytical idea which ignores that every experience and every artefact is woven into an individual and social reality⁴. Contrary to Kant, I would stress that precisely the artefact and the perceiver's entanglement with the world's 'here and now' is the precondition for any autonomous play of imagination. The finality of a beautiful artefact, meaning its capability to render apparently endless imaginations and interpretations⁵, is based upon the paradox of the simultaneity of the concreteness of the artefact and the beholder's reality on the one hand and on the other hand the artificial framing of the very same concreteness. In the case of interactive artefacts, the participants most certainly perceive their actions as real. But at the same they are always reminded of that their experiences are framed and in a way constructed. That holds true for Rokeby's *VNS* and most definitely for *Second Life* both being artificial interaction systems. Interferences between bodily presence and the conscious perception of the situation's constructedness constitute the platform for a second order observation, meaning a self-reflexive observation of one's own interactions with the algorithmic system. But since we deal with interactive art that necessitates further actions, the second order observation can be nothing else than an observation of potentiality. Interactive beauty can therefore be described as the experience of potentiality that emerges from the interplay and the coherence between external stimuli (the digital system's output) and own actions. Or said with other words: The sentiment of beauty is brought about by the coherence between an understanding of the artificial interaction system's functionality and the sensuous experience of flow of ongoing interactions. Beauty being pure potentiality is, though, re-inscribed (via re-entry) into the visceral aesthetic process (as described in the last section) as more or less concrete expectations on possible⁶ interactions.

Due to the very tight feedback loop of *VNS*, initially external sound is deceptively felt as the internal content of the participant's physical movements. As already said, consciousness is tricked and seems to be superfluous for the interactive process. My own experiences with Rokeby's *VNS* and similar systems however, is that the extreme short delay time constitutes an emergent perspective of observation. At moments it feels like being outside of the bodily interaction process, the result seems to be a split consciousness. A part of me is sensing the sound and my own movements in space and time, another part is observing from the outside, creating inside a 'feeling' (hunch) of the art installation's intrinsic potentiality. Yes, the idea of potentiality is on the one hand constructed by the artificial interaction system *VNS*, but on the other hand experienced as a transcendental phenomenon which seems to overcome the rigid limits of the system's functionality and underpins a feeling of pure time and space trespassing potentiality.

The process of creating an avatar in *SL* (and of course later on in the course of their 'being there') must evolve a mental space of potentiality and possibilities. Surely questions are asked however vague and unconscious: what do I want to obtain here in this virtual community - friends, escaping loneliness, experimentation with my 'self', money, etc.? The sentiment of beauty is still a contemplative judgment; its purposiveness is scrutinizing potentialities, which create the platform for concrete interaction possibilities. Performative beauty, contrary to Kantian beauty, is not free from constraints. The artificial communication system *SL* (like *VNS* or any other interactive artefact) comprises the necessary framing for the emergent phenomenon of beauty. In interactive artefacts, free play of imagination feeds back into the concrete interaction at hand.

⁴ And he is painfully aware of this. In order to raise art into the realm of pure beauty he needs the ingenious artist, who is able to distance the art work from any personal or social intentionality.

⁵ Cassirer wrote, that aesthetic experience is "pregnant with infinite possibilities which remain unrealized in ordinary sense experience" (Cassirer 1992)

⁶ For the difference between potentiality and possibility see Gille Deleuze *Difference and Repetition*, 1994 or Brian Massumi *Parables for the Virtual*.

Conclusion

In the course of this paper I have tried to outline a tentative theory on performative beauty by describing two different aspects of beauty. The first aspect is bound to the participants' immediate, physiological but nevertheless social judgments of the digital systems aesthetic output. At this level, beauty and ugliness is a binary code where aesthetic judgment is directly connected to physiological actions. The second aspect of the sentiment of beauty is a judgement on the potentiality of the singular artefact's interaction space. The coherence between the systems output and the participant's proprioception brings about a play of imaginative operations that constitutes a potential background for possible (and actual) interactions.

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Biographical Notes

Falk Heinrich is Assistant Professor, PhD, at Aalborg University Copenhagen. Heinrich offers courses in Aesthetics & Design as well as Interactive Systems. His dissertation is a theoretical and practical investigation into interactive installation art. His theoretical foundation is system theory, discussing its explanatory possibilities and weaknesses in the domain of digital and interactive aesthetics. His current research interest is 'performative aesthetics' and his work -- focusing on notions of beauty, affect, presence, and communication -- attempts to form bridges among certain discourses in the human sciences, sociology, engineering, and neuro-science. Falk Heinrich has worked as an actor and theatre director. His theoretical investigation continues to develop in close relation to practical, artistic work.