

On performativity as a perspective on audiovisual systems as aesthetic artifacts.

Luísa Ribas¹

¹ID+/Faculdade de Belas-Artes, Universidade de Lisboa, Lisbon, Portugal

Abstract. This paper explores three different views on the notion of performativity in order to provide a particular reading on the live production and manipulation of sound and images. It begins by addressing a performative analogy between the visual and auditory as developed through technological means. It then discusses the concept of interactive performativity, as tied to the creative engagement of the audience (as user) in exploring the operative and productive possibilities of a system. Finally, and emancipating from the notion of human-based operations toward machinic autonomy, performativity is seen as a aesthetic quality of the experience of digital computational systems as aesthetic artifacts.

Keywords: Performance, performativity, audiovisuality, interactivity

Introduction

The notion of performativity can unfold in different understandings pertaining to distinct disciplinary approaches, artistic fields and cultural contexts. It is this apparent lack of conceptual clarity that also presents the potential for exploring a particular reading on the live production and manipulation of sounds and images as a theme of creative exploration. Rather than aiming at providing a stable definition of the notion, this paper explores its different conceptions, as related to distinct audiovisual systems, while promoting an understanding of the roles of author, audience and system as agents defining their audiovisual outcomes.

We begin by addressing the notion of performativity according to an operative analogy concerning the live production of visual and auditory events, as structured in time and extending into space. We discuss its expansion through technological means, which points towards the process-based and interactive nature of digital computational audiovisuality. We then approach the concept of interactive performativity that shifts the view from the creator of the system towards the creative engagement of the audience (as user), in exploring the operative and productive possibilities of a system. The notion of performativity is therefore gradually emancipated from the idea of human authorial control, according to a gradual transfer of creative agency to the audience and, ultimately, to the systems itself, without the need of human action. According to this, performativity becomes an aesthetic quality of digital computational systems as aesthetic artifacts, of their live (unique) performances as moments of experience.

2 Performative Analogy

The idea of a performative analogy is tied to an operative strategy for the live production and presentations of sounds and images. This idea can be traced back to a specific strand of the history of audiovisuality that concerns the creation of experimental devices, such as color-organs and related apparatuses, for correlating the visual and auditory. This tradition owes reference to French Jesuit priest and mathematician Louis-Bertrand Castel, who around 1725 designed a *Clavecin Oculaire* that would perform color as a *musique muette*, through a substitution of sounds by colors. Castel projected the implementation (aimed at validation) of a model of correspondences emancipated from holistic models of a global harmony, addressing specifically the visual and auditory realms (Daniels

2011, 11). These color-tone analogies were essentially subjective, as conceived in theory and put into practice with a visual music performance device. This fact did not prevent the subsequent exploration of sound-image correspondences as a form of technological invention and aesthetic experimentation. Numerous artists and inventors created devices that either produced light in correspondence to music simultaneously or explored the aesthetic qualities of color and light in a purely visual manner, as both a “musicalization of the visual” (Naumann 2011) and its emancipation from music as a free play of color and form.¹ Within these developments, there is a gradual shift from strict correspondence towards free forms of association and, ultimately, emancipation from the musical, as proclaimed by Thomas Wilfred with the art of *Lumia*.

Almost each artist or inventor developed his own model of correspondences that, in their lack of compatibility, cancelled each other. Similarly, these devices remained tied to their creators failing to be widely adopted as performance instruments. They can nevertheless be seen as the “real forerunners of performative visuals” (Naumann 2011, 87), which emphasize a performative analogy between the musical and the visual through their live production and manipulation.

Structuring Time, Filling Space

We can see this history as a gradual expansion of the visual arts towards time, as well as an extension into space through projection, as something immaterial, existing in time, moving, and filling space. As artists embraced the medium of film conquering new possibilities for aesthetic creation, music provided the model for structuring time. Walter Ruttmann proclaimed, in 1919, that a new form of “painting with time” emerges as a rhythm of optical events, as explored in his *LightPlay Opus 1* (1921). This absolute film was followed by a long tradition of abstract animations devised in analogy to musical concepts, as developed by Viking Eggeling, Hans Richter and later Oskar Fischinger or Mary Ellen Bute.

In contrast with the immutable nature of film as a fixed artwork, the live manipulation of optical events was explored through film and light projections. The concept of *Raumlichtmusik* (space light music) and the multiple film projections devised by Fischinger in the 1920s, optimized as a “Form-Play” accompanied by live music as an “endless space without perspective”, can be seen as a predecessor to the light-shows of the 1950s, such as Jordan Belson's *Vortex Concerts*. Sound, light, color were brought together in a space where “there is no separation of audience and stage or screen; the entire domed area becomes a living theater of sound and light” (qtd. in Keefer 2009, 3). These endeavors involved not only the live (real-time) performance of both sound and image as well as their *spatialization*, as principles that would find continuity in expanded cinema and multimedia performances of the 1960s and 1970s (see James 2010).

Interaction as Performance

Media-technological operations become the basis for devising sound-image relations in the middle of the twentieth century, when the creative exploration of the film medium contrasts with the exploration of analogue electronic technologies, emphasizing transformation and paving the way towards interaction (Lista 2004). In contrast to the discrete material nature of film, the “constant flux of electronic signals”, in its “processual immediacy”, allows for a real-time manipulation of the audiovisual (Spielmann 2010).

¹ The former can be exemplified by Bainbridge Bishop's *Color Organ*, patented in 1893, Mary Hallock-Greenewalt's *Sarabet* (1919), Alexander László's *Sonchromatoscope* (1925) or even Lloyd G. Cross's *Sonovision* (1968). Artists such as Alexander Wallace Rimington, with his *Colour-Organ* (1893), or Bainbridge Bishop, with the concept of *painting music* (1877), explored free forms of association, while others explored a free play of color and light, as seen from Thomas Wilfred and his *Clavilux* (started in 1919), Vladimir Baranoff-Rossin's *Piano Optophonique* (1920), Zdeněk Pešánek's *Spectrophone* (1926) to Charles Dockum's *MobilColor Projectors* (started in 1936) or Oskar Fischinger's *Lumigraph* performances (of the 1950s).

This is reflected in the way that Nam June Paik transfers the principles of John Cage's experimental music to electronic television, arguing that "INDETERMINISM and VARIABILITY is the very UNDERDEVELOPED parameter in the optical art [...] a new decade of electronic television should follow the past decade of electronic music" (qtd. in Daniels 2005).² Paik inaugurates "the road to manipulable images" through sound (Kwastek 2010, 165), and while music provided a model for structuring time in abstract film, electronic sound would provide the operative model for video through interference and interaction.

A new stage in the machine-supported creation of sounds and images emerges where the direct manipulation of real-time processes is paramount. As Peter Weibel stresses, "...the signal itself is no longer a carrier for depicting the object world but rather the image itself; autonomous worlds of sound and image that can be manipulated by both the observer and the machine. An artificial world of sound and images is emerging, one which can be generated by machines alone" (1992, 17).

Artists soon engaged in an exploration of these aspects through the development of video synthesizers and image processing techniques,³ assuming them as instruments for real-time audiovisual manipulation (as a means to perform a work) and occasionally live performance. Even if video synthesizers were then unpractical as widely adoptable performance instruments, Stephen Beck used his *Direct video synthesizer* for *Illuminated Music* (1972-73), in order to create a visual flow with a compositional structure that allowed for variations in performance.

As Woody Vasulka stated, that "there is an unprecedented affinity between electronic sound and image-making ... this time the material, i.e. the frequencies, voltages and instruments which organized the material were identical" (1992, 12).⁴ It is this technical continuity between sound and image, or the "unicity" of its raw material as "an unformed electronic signal" (Spielmann 2010, 318) that allows a conception of video as "interaction device" (Lista 2004, 74). However, in contrast to the forms of audience interaction promoted by Paik, in the work of Steina Vasulka, namely *Violin Power* (1970-78), interaction is applied to the creative process, while playing the video as an instrument, as a performative act.

As Spielmann argues, by exploring the "transformative characteristics" of electronics, its "process-oriented, multidimensional" and "open-ended audiovisuality", the Vasulkas emphasize a contrast between video and previous audiovisual media, while also bridging the way to algorithmic audiovisuality (2004, 8). Their creative strategies find continuity, and are further expanded, with digital technologies. Taking on this idea, we can identify two conceptually distinct uses of the computer as an artistic medium, which seen under the perspective of audiovisuality, concern the

² This is achieved in the exhibition *Exposition of Music – Electronic Television*, in 1963, through a repurposing of the broadcasting functions of TV, reproductive functions of record players and tape recorders. Due to the lack of recording technology these first experiments were with modified TV sets, directly manipulated by the audience through a number of acoustic-oriented interferences in the image process.

³ Video can be simply signal processing rather than recording, as Spielmann (2010) explains, it can be defined by its manipulation of electronic signals. Artists began building analog video synthesizers, as video equivalents of audio synthesizers that allowed one signal to be used to control another signal in real time. Examples include the *Paik/Abe Synthesizer* (1969) that could edit different sources simultaneously, in real time. Video synthesizers were used to alter live camera sources, as well as to generate abstract imagery. With Stephen Beck's *Direct video synthesizer* (1970) waveforms could be produced by oscillators and allowed the creation and influence on elements like color, form, movement, and even the illusion of depth. Similarly, video processors, such as the *Rutt/Etra Scan Processor* (1973) made the control and modulation of electronic signals possible through the analysis of the smallest units in video, its waveforms (Spielmann 2010, 316).

⁴ The author completes stating "the advent and use of the oscillator became the natural link. As in our case, many of our colleagues and friends used audio oscillators of audio synthesizers to generate their first video images. The first video instruments were inspired by the architecture of audio instruments, and the first organization of images was negotiated in similar ways. With feedback, which all these instruments possess generically, the preliminary nomenclature of generated images was established" (Vasulka 1992, 12-13).

creation of audio-visual forms through computational means, and the creation of interactive experiences that are articulated through images and sounds. These ideas ultimately converge within the broad spectrum of digital computational audiovisuality and interactivity.

Audiovisuality and Interactivity

Following an interest in the creation of a multidimensional art for eye and ear, John Whitney was one of the pioneers of the use of the computer as means to define precise compositional relations, initially, as mathematically structured animations devised in relation to pre-existing music.⁵ As computer technology evolved, Whitney was able to fully develop his idea of a “digital harmony” linking visual and musical design in order to achieve “powerful appeal ... within the natural interlace and active coordination of eye to ear” (Whitney 1991, 598), as explored in *Spirals* (1987) or *MoonDrum* (1989).

Other artists used computers to produce abstract films in relation to musical concepts, often mixing computer generated imagery with animation, namely Lillian Schwartz,⁶ who soon transferred these experiments to a live performance context in *On-line* (1976), where computer-generated visual effects accompanied musical improvisations. By the same time, Laurie Spiegel develops the *VAMPIRE* (1974-1976). This *Video And Music Program for Interactive Realtime Exploration/Experimentation* included a number of controls to modulate image and sound parameters in real-time.⁷ Even if it remained confined to the laboratory, Spiegel defines it as an “unrecordable room-sized live-performance visual instrument” (1998, 190). This live performance is dissociated from the idea of the live production and presentation of sounds and images to an audience, but rather stresses the act of creation of the work while interacting with a system, leading us to a distinct conception of performativity.

1. Performativity As Audience Interaction

We now discuss performativity invoking both the notion of a live action connecting the visual and auditory, as well as the transfer from passive reception to an active participation or performance the work. These are ideas that, according to Shaw-Miller (2010), can be traced back to aspects explored by Fluxus and Intermedia art, namely through the concepts (derived from music) of notation and performative actions or events that could ultimately be executed by the audience. This shift towards an active role of the audience is also invoked by Paik’s work, in its openness to interference and indeterminacy through audience interaction, in contrast with vicarious forms of interaction. Therefore, rather than mere instruments for performance (controlled by their creators), we are addressing systems that offer an open field of operative and productive possibilities for the audience to explore as their user.

⁵ Examples are *Permutations* (1966-1968) assisted by Jack Citron at IBM Labs, or *Arabesque* (1975), assisted by Larry Cuba. In the 1960s the processing capability of computers did not yet allow for the generation of complex imagery in real-time. Whitney had to use the computer to create frames that were animated on film. Only in the 1980s, with the advent of personal computing and real-time graphics was he able to directly map these animations to music, devising an instrument to compose images and sounds simultaneously in real-time, where “musical design intertwined with color design tone-for-tone, played against action-for-action” (qtd. in Levin 2010, 279).

⁶ Assisted by Ken Knowlton at Bell Laboratories, Schwartz produced several animations in collaboration with computer musicians, namely F. Richard Moore, in *Pixillation, Enigma, Apotheosis, Affinities, Galaxies* and *Mathoms* (1970-77) or Max V. Mathews in *Mis-Takes* (1972).

⁷ The *VAMPIRE* was one of the first computer systems (then a room-sized computer) for synthesizing both animation and sound in real-time. It allowed for real-time algorithmically generated images, including animation routines by Ken Knowlton, and was built on the basis of the *GROOVE* computer music system, created by Max Mathews, Dick Moore and colleagues (Spiegel 1998).

The notion *performativity* is used by Levin (2010) as one of the main “principles” or “aesthetic possibilities” of digital computational art forms that are particularly prospective in exploring the creative possibilities of software, namely interactivity (Levin 2003). This notion encompasses a diversity of artworks that explore how a “feedback loop can be established between the system and its user(s) — allowing a user or visitor to collaborate with the system’s author in exploring the possibility-space of an open work, and thereby to discover their own potential as actors” (Levin 2010, 271). These works are “only experienced properly when used interactively to produce sound and/or imagery” (2010, 275). However, their creators are not primarily concerned with the production of sounds and images, but with their role as responses to interaction. They use the computer as an artistic medium for the creation of “process oriented and participatory forms that involve the manipulation of acoustic and visual information by the audience” (Kwastek 2010, 163).

An example is David Rokeby’s interactive installation *Very Nervous System* (1986-1990), motivated by the aim of developing intuitive physical forms of interaction with computers. Sound becomes both “an extension of the body”, and a “physical reality which one encounters with the body” (Rokeby 1990). This kind of interactive audience-activated environment is reminiscent of Myron Krueger’s “responsive environments”, explored as a “new art medium based on a commitment to real-time interaction between men and machines” (Krueger 2003, 387). His *VideoPlace* installation was gradually perfected as a continuous experimentation in interactive art, giving form to the idea that “response is the medium”. But while Rokeby aimed to intrigue the audience with the immediacy of sound responses to their movements, Krueger sought to define a precise cause-effect relationship: “It is the composition of these relationships between action and response that is important. ... The beauty of the visual and aural response is secondary” (2003, 385). Interactivity becomes the subject matter and the core of the aesthetic experience, rather than a mere possibility or an attribute, of the work.

Performative Systems as Aesthetic Artifacts

In order to understand this idea, we can review the notion of interactive performativity from the viewpoint of the systems and of its experience. These systems are *performative* in that they depend “participatory human action” or “human performances” as a “primary input stream for controlling or generating audiovisual experiences” (Levin 2010, 275). But rather than mere instruments for the production of audio and visual artifacts, these systems are aesthetic artifacts in themselves, performed by their audiences.

Seen from the perspective of the system, *interactive performativity* addresses digital computational systems that map human input to images and sounds, being that the work varies its behavior, particularly, with human input.⁸ The system’s surface audio-visual modes are the means through which the user interacts and the products of interaction, as the results of operations performed by the work with the participation of the user. But ultimately, each system devises a specific way of governing the behavior or of generating visual and auditory elements, and in this process, include (or even depend) on the user (Ribas 2013, 24).

Accordingly, from the perspective of their experience, these systems can be comparable but are inherently different from instruments since, as Kwastek argues (2011), their “operative possibilities” and “functionality” as “production devices” are potentially “unique, unknown and novel” to the user.⁹ This originality creates a form of operative and productive “resistance” that incites exploration of the

⁸ These are “computationally variable works in which “computation is required “during the time of reception by the audience”. They vary their behavior either without input from “outside the work’s material”, with input from “external data or processes”, or with human input as audience interactive work (Wardrip-Fruin 2006, 389-99).

⁹ This aspect “renders their creative exploration an aesthetic experience during interaction” since the image-sound relationships are defined by the system’s creator, as conventions and not natural or physical “causal reactions” (Kwastek 2011, 158).

system's workings through interaction. This exploration becomes "an activity in its own right, ... as an aesthetic experience on the boundary between the aesthetics of production and the aesthetics of reception", whose focus lies "in the process of interaction itself, not its outcomes" (Kwastek 2011, 157). The creative dimension of this exploration, rather than residing in audiovisual results, is tied to the engagement of the audience in "participating in the work itself", as a "creative pursuit", as a way of "constructing a meaning through this interaction" (Bilda, *et al.* 2008, 525).

The audience assumes an active and constructive role in the creation of their own experience. This view of performativity then implies a transfer of agency (from the creator of the system) towards both the audience and the system itself, in its ability to act and change its state, while adapting to its environment.¹⁰ We can think of the transfer of some degree of agency to the system as its ability to act, by incorporation information (namely user input) and perform accordingly; hence, to interact, as a reciprocal ability to act and influence each other. Therefore, agency can be seen both as a "machinic reactive agency" tied to its modes of liveness and immediacy (Kwastek 2009) and, on the part of the audience as user, as an "aesthetic pleasure" that arises from interaction when it enables "meaningful action" leading to "observable results" (Murray 1997, 153).

As argued by Boden and Edmonds, the notion of performance replaces that of artwork, since each of its occurrences "can vary considerably from one occasion to another" and "even if the form of each particular human-computer interaction can be completely determined by the artist ... the sequence of such events cannot" (2009, 41).¹¹ This statement addresses the double status of these works as artifacts and as processes or activities developing in time; thus not objects, but instances or occasions for experience. It also puts to the fore what Broeckmann (2005) or Jaschko (2010) define as the "processual" and "performative" aesthetic qualities of the experience of machinic creations.

2. Performativity As Aesthetic Quality

As suggested by Broeckmann (2005) the concept of the *machinic* is understood as "any kind of productive assemblages of forces, be they technical, biological, ... or other", which evoke "something like 'working' or functioning" as a "quality of such formations". The author then proposes aesthetic categories for considering the experience "effected by such machinic structures" as aesthetic artifacts, whose experience depends on "non-visual aspects" such as "generativity, interactivity, processuality, performativity", manifested as movements, processes, dynamics and change (Broeckmann 2005).

This understanding of process refers to a "time-based evolution" of "sequences of events", as results of ongoing computations, as non-visual (or non-sensorial) processes that give form to images and sounds as the results of an execution. The notion of *performance*, designates both the "quality of a technological artifact in operation" and its *live* dimension — "making present (and perceivable) the results of an execution", as the momentum of aesthetic experience (Broeckmann 2005).

Process and performance are then two essential qualities of the machinic, as Jaschko asserts, in both generative and interactive artworks since "live processes take place that generate unique configurations and dynamics" performed either by the system or by system and user (Jaschko 2010,

¹⁰ Agency can be seen as the ability "to act in or upon the world [...] having made a decision, to carry out (or execute) that decision"; and while "interaction implies reciprocal actions or influences of two (or more) entities upon each other, where an entity is some kind of organized object of multiple components that has some degree of autonomy and agency", autonomy implies that "an entity can stand alone in some sense, making decisions based on its own knowledge of its situation" (Jones 2011).

¹¹ Similarly the authors assume that we may "speak not of the 'artwork' but of the 'art system' — where this comprises the artist, the program, the technological installation (and its observable results) and the behaviour of the human audience" (Boden and Edmonds 2009, 41).

130). This view goes beyond the notion of interactive performativity of user and system, considering the processual and performative qualities of generative and interactive systems. It also implies a shift from human-based operations (and control) towards those of machinic creations as aesthetic artifacts.

In order to understand this, we can return to the “principles” of digital computational artifacts proposed by Levin, namely “processuality”, as “the character of algorithmic processes” (2003), later addressed as “generativity” or the potential autonomy of a system to “produce animations and/or sound from its own intrinsic rule-sets” (2010, 277).¹² The term generative is often used to refer to the system’s ability to produce variable outcomes regardless of the direct intervention of its creator, who “chooses to cede some degree of control to an external system” (Galanter 2006). In this sense, it is linked to the creative act of “making something make something ... by setting a procedural system in motion and observing its outcomes”, as a form of metacreation (Whitelaw 2005, 158).

Generative autonomy puts to the fore what rule-based processes may generate as forms and behaviors, drawing attention to the “rules of creation” of the work as “artistic constraints” (Bootz 2005); as “recipes for autonomous processes” that develop in time, in a self-organizing manner (Galanter 2006) potentially leading to unforeseeable results, which are not completely predictable neither by the creator nor by the audience as user (Boden and Edmonds 2009, 24).¹³

Creative Possibilities and Aesthetic Qualities

These views emphasize processes or operations as observable activities performed by the work, defining its surface and supporting interaction. In this sense, what they stress is not only a “unique aspect of software as a medium”, the fact that “it enables response”, but also other “fundamental expressions of software” that may include “dynamic form, gesture, behavior, simulation, self-organization, and adaptation” (Reas 2003, 175).

Processuality and performativity are seen *aesthetic qualities* of the experience of these artifacts, however, the principles mentioned earlier address *creative possibilities*. They emphasize the possibility to devise dynamic audiovisual behaviors, whether autonomous or interactive. As Wardrip-Fruin (2006) states, “authoring processes” is an important element of media creation and a significant means of expression for authors, as the creative opportunity of defining new computational behaviors.

Echoing the idea that “one unique possibility” of the use of the computer as an artistic medium “is the ability to create behavior”, Levin goes further to affirm “the aesthetic possibility of ... building feedback systems around participant action” and “not transforming sound into image (or vice versa)” (Levin 2009). This is reflected in work such as *AVES: Audiovisual Environment Suite* (2000) or the *Manual Input Workstation* (Levin & Liebermann, 2004). In contrast, Antoine Schmitt explores the creation of autonomous behaviors. In his ensembles, namely *The World Ensemble* (2006), sound and image are intentionally reduced to the tangible expressions of programmed entities; they only acquire meaning through action (Schmitt 2008).

The subject matter of these works is not necessarily tied to their audiovisual modes of expression; these are an expression and consequence of the processes or activities performed by the work, with or without the participation of the user. In this sense, these works also entail different forms of user engagement through interaction — as a means of exploring the system’s variable behavior or as a

¹² Generativity emphasizes that processes are internally defined in a manner that varies the work’s behavior randomly or otherwise; the work does not depend on external data or processes (but may include them) in order to produce variable outcomes.

¹³ The work occurs while running, and we can think of each occurrence as a “unique performance” whose rules of creation can only be grasped through careful observation (Bootz 2005).

means of exploring its productive possibilities — or as a form of influencing or of defining its audiovisual outcomes.

By extension, and in contrast to interactive performativity, the notion of generativity implies the transfer of some degree of creative autonomy to the system, as detached from the direct control of its creator (or even other external factors). An alternative way of putting this is considering that agency, rather than pertaining to the user, is attributed to the system, when understood as the “property of an autonomous entity that is its capacity to act in or upon the world” (Jones 2011). And just as a human being has the capacity to sense its environment, making decisions and operate on it, a system can be imbued with these properties; again, in the very sense that Murray ascribes to it — taking action leading to meaningful results, while “exerting power over enticing and plastic materials” (1997, 153).

A distinctive feature of these systems is therefore the dynamics of their behavior, in its variable nature, of which sound and image are a consequence and expression (Ribas 2013, 22). The implied idea is that beyond the “retinal beauty” of sensory results, the “iconographic level” (Broeckmann 2005) or beyond the “rhetoric of the surface” (Boetz 2005), these works entail a conceptual level of appreciation that is tied to the cognitive recognition of the processes they carry out; an aesthetic level tied to their “procedural rhetoric” or “the practice of using processes expressively” (Bogost 2008, 125).

Sound and image become a surface expression of “expressive processes”; those that more evidently contribute to (or define) the works’ meaning and expression (Wardrip-Fruin 2006). As aesthetic materials, they subsume to the performative quality of works that occur as “live processes” or activities taking place in the “here and now”, as “unique moments and situations in progress”, resulting for the user “in a strong sensation of immediacy an presence” (Jaschko 2010, 130). In other words, the expression and experience of these artifacts is shaped by their modes of *liveness* as temporal simultaneity, and *presence* as spatial co-attendance, together with their visual and auditory realization (Kwastek 2009, 93).

3. Conclusion

These different conceptions of performativity, tied to distinct audiovisual systems, highlight the roles of user and systems as agents defining their audiovisual outcomes. While the notion of a performative analogy emphasizes human authorial control in the live production of sounds and images, the focus shifts towards user and system agency, as expressed through the notion performativity applied to audience interactive systems. Their interactive exploration, through the manipulation of sounds and images, becomes paramount as aesthetic event and as a form of creative engagement. Ultimately, agency is transferred to the system itself, as an aesthetic artifact and as a (autonomous) machinic performance.

In this context, what is highlighted as *aesthetic quality* of these systems is the performative nature of their behavior, pertaining to their generative and interactive potential. So what is underlined as an authorial and *creative possibility* is the opportunity of devising dynamic behaviors, whether autonomous or interactive. In other words, the subject matter (or content) of these works is not merely tied to their audio-visual modes of expression, but rather their behavior, as audiovisually expressed. In Simon Penny’s words, we are experiencing artifacts “that exhibit dynamic real time behavior, or responsiveness to their environment” for which “a wholly new branch of aesthetics is demanded: the aesthetics of behavior” (Penny 2008).

Consequently, from the idea of an audiovisual aesthetics we move toward an aesthetics of process and performance, and from systems for performance towards performativity as a distinctive quality of these systems, in their different degrees of autonomy and interactivity. The focus shifts from their

audiovisual modes of expression towards the procedurally enacted dynamic (and often indeterminable) behavior that defines their meaning and experience.

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