NAM JUNE PAIK, CYBERNETICS AND MACHINES AT PLAY

Dr. Susan Ballard, Faculty of Law, Humanities and The Arts, University of Wollongong, Wollongong, NSW 2522, Australia
E-mail: sballard@uow.edu.au

Abstract
Nam June Paik's playful, imperfect and often ambiguous use of cybernetics has left an important legacy for contemporary media art. Paik's works demonstrate that it is essential to temper aesthetics with ethics in order to question the utopian dreams of the very materials electronic artists work with. Paik's works also suggest a new way to think about the machine in art. This paper focuses on the impacts of communication and control in the machine (and subsequently the network) in Paik's *Robot K-456* and suggests a reconceptualization of Paik's cybernetic machine as a machinic process enmeshed in communication systems.

Keywords: Nam June Paik, Cybernetics, Systems, Art, Machine, Machinic Assemblage, Deleuze and Guattari, Norbert Wiener, Jack Burnham

There are many recurring figures in the histories of electronic art. Two of these form the focus of this paper. The first is the figure of cybernetics: an idea of systems and relationships of communication and control pervasive through science since the Second World War, but never fully articulated as an independent discipline. The second figure is the maverick artist Nam June Paik, whose ongoing influence on contemporary electronic art and media is evidenced in numerous critical essays and exhibition catalogues [1]. Together the historical concepts of cybernetics, and art works by Nam June Paik, have influenced how electronic art is conceptualised today. This paper seeks to reveal why this is the case by tracing a third figure: the machine. The figure of the machine contains differing meanings in the way that it has been employed within cybernetics and by Paik.

Machines in cybernetics are operations and systems of relationships. Machines for Paik were expanded playful beings that were simultaneously constructed objects and temporary networks. The difference between the concept of the machine within cybernetics and Paik's machines suggest a call and response between the machine and the broad field of the machinic. The machinic is a concept attributed to the philosophers Deleuze and Guattari by which they counter what they understand to be the stability and striations of the machine with an emphasis on process and flow: machinic connectitivies. The machine as employed by both Paik and cybernetics shares much with Deleuze and Guattari's machinic. All three approaches suggest that the machine when it intersects with art is not fixed but dynamic, not isolated but networked. A close study of one work by Paik lays the ground for a definition of the art machine as a machinic process generated within an ensemble of technical and social machines.

Part One: Cybernetic Systems and Art

In 1965 at the New School in New York, in his first solo show in America, and amidst his electronic TV and colour TV experiments, Paik presented one of many performances by *Robot K-456*. Rearticulating his works performed only a few years earlier in Wuppertal, Germany, Paik combined an experimental music aesthetic with the technical and performative concerns of the new electronic media. He called the exhibition "Nam June Paik: Cybernetics Art and Music" [2]. Paik was certainly not the only artist to be concerned with the machines and systems of cybernetics in the 1960s and 1970s. In 1971 artist Hans Haacke named a caged mynah bird after the founder of cybernetics Norbert Wiener. 'Norbert' the bird was trained to speak the catch phrase, "All systems go!" Despite its failure to be realised, the work lives on as an evocative example of art's engagement with real-life and real-time systems. Paik and Haake were humanising systems and technology.

Jack Burnham was one of a number of curators who connected this kind of systems thinking directly with art practice. Burnham looked for ways to further open up the properties of the art object to relationships of time, control, biology and communication, writing:

> "While the system is a fundamental concept of cybernetics, its value as an artistic idea lies in its power to cope with kinetic situations, and particularly the connecting structures of evolving events."[3]

Burnham realised that Norbert Wiener's description of cybernetic systems as evolving relational events tempered by feedback, offered a challenging concept by which art could inhabit new environments, new machines and new materials. At this moment cybernetics and ecologies were considered interchangeable.

Jump forward several years and in his 1998 commemorative lecture for the Kyoto Prize "Norbert Wiener and Marshall McLuhan: Communication Revolution" Paik wrote that Wiener "construct[ed] the technical interior of the electronic age"[4]. In 1950 Wiener had famously defined cybernetics as the science of communication and control between humans and machines, and/ or machines and machines. The relationships he described were more than ones of simple stimulus and response; they were circular and occurred in a variety of environments through an assemblage of systems. Wiener identified systems as organic and artificial, human and non-human. Occupying the systems were machines. These machines used "sensory members" to respond to and monitor feedback [5]. The slippage here is crucial to the way that artists in the 1960s and 1970s developed concepts from cybernetics. If feedback was regulated through sensory members, this could potentially mean that machines had 'senses' or equally, that humans and other sensing beings *were* machines. The flux suggested between a human as a machine and a machine as a human presented fertile ground for imaginative couplings [6]. There was not a straightforward one-to-one relation between art and science, human and non-human, feedback and response. As systems themselves, art and cybernetics were infracted in each other. For example, in Paik's *TV Buddha* (1974) and its multiple variations, a seemingly closed and meditative cybernetic system is interlaced by a viewer captured in the process of observation. In this and other works Paik extended possibilities within which the relationship between human and machine became more than one of feedback; it became systemic and aesthetic.

Cybernetics grew out of a need to understand and map complexity and organisation, both social and biological. When moved into art, it did so in very narrow and specific ways. In 1968 and 1970 two exhibitions across two major centres of art production further tested the boundary regions between the science of cybernetics and the practices of art. Jasia Reichardt's *Cybernetic Serendipity* at the ICA in London and Burnham's *Software, Information Technology: Its New Meaning for Art* at the Jewish Museum in New York, were propositional, asking in what ways aesthetics and technology could be

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considered together. Relationships of communication and control pointed towards a shared place for humans, objects, and machines. Although they had quite different agendas, together these early exhibitions suggested a future for relationships between art and cybernetics, and prefigured an artworld that would become concerned with ethical and ecological relations between human and non-human entities. Humans, objects and machines were seen to enter into new kinds of relationships. Echoing the discourses of first order cybernetics Burnham writes:

> "the computer is part of a continual system and, as such, it processes information metabolically...[the computer] is a means by which information is directed incrementally toward the maintenance of a constant level of stability, a function similar to that of the human nervous system."[7]

Works by Nam June Paik were included in both Burnham's and Reichardt's exhibitions. Paik's art practices had already repeatedly engaged with and questioned ideas of communication and control in the machine. His works in *Cybernetic Serendipity* and *Software* bought together a commitment to indeterminism, a deep knowledge of information systems, and a playful attention to the materials of communication. To *Cybernetic Serendipity* Paik contributed two works: a series of manipulated television sets and the *Robot K-456*. Paik describes his works for *Cybernetic Serendipity*:

> "I wanted to make an electronically controlled robot and work with a color television set. I made a set with three cameras, feeding colors onto the same screen. I also made a spiral generator with Shuya Abe, the Japanese engineer, where you see a spiral on the screen. Since 1963, Mr. Abe has been my major collaborator in TV art. I cannot thank him enough" [8].

Physicist Norman Bauman writes in the catalogue "Mr. Paik has reworked the television sets to give the viewer a bit of control"[9]. Bauman describes the experience of holding a magnet to a television, and the thrill of seeing magnetic fields in motion. "When you learn to play a Paik TV, you are forced to see these patterns of technology in terms that are different from those you learned in physics"[10].

Key here is that despite his reflections on their work, Paik's machines are *not* the same as those described by McLuhan or Wiener. Nor do they offer a straightforward illustration of Reichardt's or Burnham's concerns. Bauman and the others who engaged with Paik's electronic and magnetic manipulations, suggest that they offer a very specific experience. For example, McLuhan's machines were about communication: media and message. Paik's on the other hand are machinic systems that behave like bodies, types of bodies that operate, organise and articulate with other bodies, mechanical and non-mechanical. Paik presented "art for cybernated life" rather than models of that life aka Wiener [11].

Part Two: Art Machines at Play.

> "Cybernated art is very important, but art for cybernated life is more important, and the latter need not be cybernated"[12].

Paik described the impact of cybernetics as "the exploration of boundary regions between and across various existing sciences" [13]. In the 1970s machines were recognised as combinations of things and objects that had actions that were their own, independent of their makers. This was the first moment where the definition of the machine becomes a new kind of figure: something that would later be called machinic. For Paik a machine was not defined by being part of a singular closed system, it was rather an "open circuit" [14].

In this definition, machines are always in action, generating inter-relations between form and un-form. Monitoring (observation) and further action mean that internal error, noise and external forces can very quickly also become integrated within the machinic system. This definition of a machine formed from its relations influenced Gilles Deleuze and Felix Guattari's notion of a 'machinic assemblage'[15]. The machinic assemblage is not only formed from relationships of control and communication; Deleuze and Guattari open up the potential set of relations to include actions and energies that transform the bodies and machines involved. Highlighting one of his key influences, Felix Guattari comments that Francisco Varela "characterise[s] a machine by 'the set of inter-relations of its components independent of the components themselves'"[16]. Following Deleuze and Guattari's emphasis on open reformation of assemblages, the cybernated artwork can thus be understood as a machinic assemblage formed through transforming sets of inter-related components (both human and machine). Paik's assertion that "we are all in open circuits" anticipates the continued place of cybernetics within art that exploits boundaries of feedback and noise. In short-hand, let us call this cybernated machinic assemblage of art the 'art machine.'

In this working definition the art machine is a particular assemblage of materials, audience and architecture located within the specific domain of art. In one sense the art machine is a different kind of machine to those considered by Varela and Wiener; formed from a group of abstract operations including not only the artist and the artwork, but also viewers and the art gallery within which the work is housed. In Paik's hands the art machine is not just process, it is formed from objects, and it is noisy, relational, and unpredictable. Paik's art machine suggests different ways to think aesthetics within the art gallery and, because of the way that it forms audiences, it has the potential to shock audiences out of measured pre-existent relationships with art objects.

To move away from the generalities, let's look more closely at a portrait of a particular art machine. Originally built in 1964 in Tokyo, *Robot K-456* was a collaboration between Paik and Shuya Abe and named after Mozart's relatively unknown piano concertos, the Köchel versions. In some senses it was itself a musical variation [17]. Like any Frankenstein-ian creature the robot stripped bare had many manifestations. For *Cybernetic Serendipity*, *Robot K-456* inhabited the interior of the gallery alongside other similar creations by engineers and scientists. Although the other roboticists in *Cybernetic Serendipity* seemed to strive for verisimilitude, Paik was more interested

in *Robot K-456*'s uncanny ability to stop traffic. Having already premiered in 1964 in his solo exhibition at the New School, and there walked the streets of New York, now in London *Robot K-456* was given a starring role on the poster, and roamed the gallery spouting pre-recorded political rhetoric and defecating beans. Later, in 1982, when she/he returned to America, *Robot K-456* was removed from her pedestal at the Whitney and guided by the artist down Madison Avenue where she walked out into the street and was 'accidentally' hit by a car (*Robot K- 456* was initially gendered female, by 1982 her provocative rotating breasts had been removed at which point she becomes gender-neutral). The staged accident was shocking but not a death. When interviewed at the scene by a television reporter Paik said that *Robot K-456* represented "the catastrophe of technology in the twenty-first century. And we are learning how to cope with it"[18].

The behaviour of the machine robot is both within and outside the network. It is both technology and the catastrophe of technology. In an age where it is essential to temper aesthetics with ethics, and when visual data are quickly distributed via multitudes of networks, *Robot K-456* asked many questions of the systems and behaviours of the materials artists work with. As Paik said: "the real issue implied in 'Art and Technology' is not to make another scientific toy, but how to humanize the technology and the electronic medium"[19]. Paik's *Robot K-456* is an art machine that is the result of an equation between cybernetics and the machine. It corrupts and celebrates the connectivity of the network where technology is an enabling rather than determining factor.

The impact of describing *Robot K-456* as an art machine is two-fold. This first is the problem of the cybernetic machine. What might characterize an art object as "cybernetic" as opposed to just being an art object in relation to other art objects? Wiener's original concept of cybernetics focused on processes rather than objects. This raises the problem of the particularity of objects. Relationships transform because of the objects/materiality through which they occur. *Robot K-456* enacted a process that continues today. Cloned and roaming the halls of galleries in Korea and America, *Robot K-456* is more than just a relational object. *Robot K-456* is cybernetic because it is an object enmeshed in the material processes and open circuits of the machine.

The second articulation of the art machine is found in Levi Bryant's reading of Deleuze and Guattari's machines. Deleuze and Guattari's definition of the machinic highlights a focus on process rather than object. Bryant draws on their definition to offer a counter to his usual object-orientated fellows. Bryant writes:

> "What we need is not a conception of being composed of objects, but rather of machines. Nor is it a pan-psychism, organicism, or vitalism that we need, but rather a pan-*mechanism*. To be is to be a machine. Rocks are machines, stars are machines, trees are machines, people are machines, corporations are machines … And if a generalized machinism is so necessary, then this is because it brings *precision* to what we're doing when we analyze substances, entities, and how things interact."[20]

Bryant calls for a precision that arrives when art machines such as *Robot K-456* are let out to play. There is clearly a connection here between the practice of thinking cybernetics and ecology together, as it was in the 1960s and 1970s, and an approach to art machines that highlights the contribution and role of both the environment and viewer to the emergent processes of systems. As Burnham said in 1970 "it has been the very nature of the machine that it could always be connected with other machines to perform a complex array of work motions"[21]. Constructed from human and non-human parts, these human-machine systems also suggest that systems, technology and the human mediate each other. They connect. The connect not only with one another in the same exhibition spaces, but with viewers across time. In describing *Robot K-456* Burnham writes that Paik showed us:

> "if the names of Rauschenberg, Wiener, John Cage and Marshall McLuhan are repeated with enough fervency and juxtaposed with random mathematical symbols then the age of the electronic humanoid plugged in for instant global communication will be upon us"[22].

It might seem as if Burnham is parodying or belittling Paik's ability to grasp at multiple sources. However, his fervency was central to the way that Paik identified the way that Wiener's "sensory members" contributed to art machines that could inhabit the forces of entropy and the realm of the more-than human. Formed from a combination of aesthetic flux and cybernetics Paik's playful and more-than human art machine known as *Robot K-456* suggests productive affinities that continue to be developed by artists questioning straightforward aesthetic relationships with objects. Paik's art objects have endured and entered the space of pan-mechanism where they are rewritten daily through viewing.

Paik thought outside of the divisions between systems and aesthetics and materials and information. The information systems that Wiener developed led to the increased power of the American military industrial complex and simultaneously influenced global developments in biology, sociology and art. It was Paik and the other artists included in *Software* and *Cybernetic Serendipity* who explicitly addressed this bifurcation. Without a direct engagement between art and technology, the violence of the cold war and its antecedents goes unaddressed. In Paik's *Robot K-456* and other works that embraced the relational concerns of cybernetics there is a careful critical embrace of the technologies of systems aesthetics, which anticipates again and again the more-than human art machines of the twenty-first century formed from the ongoing ecology of cybernetics.

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