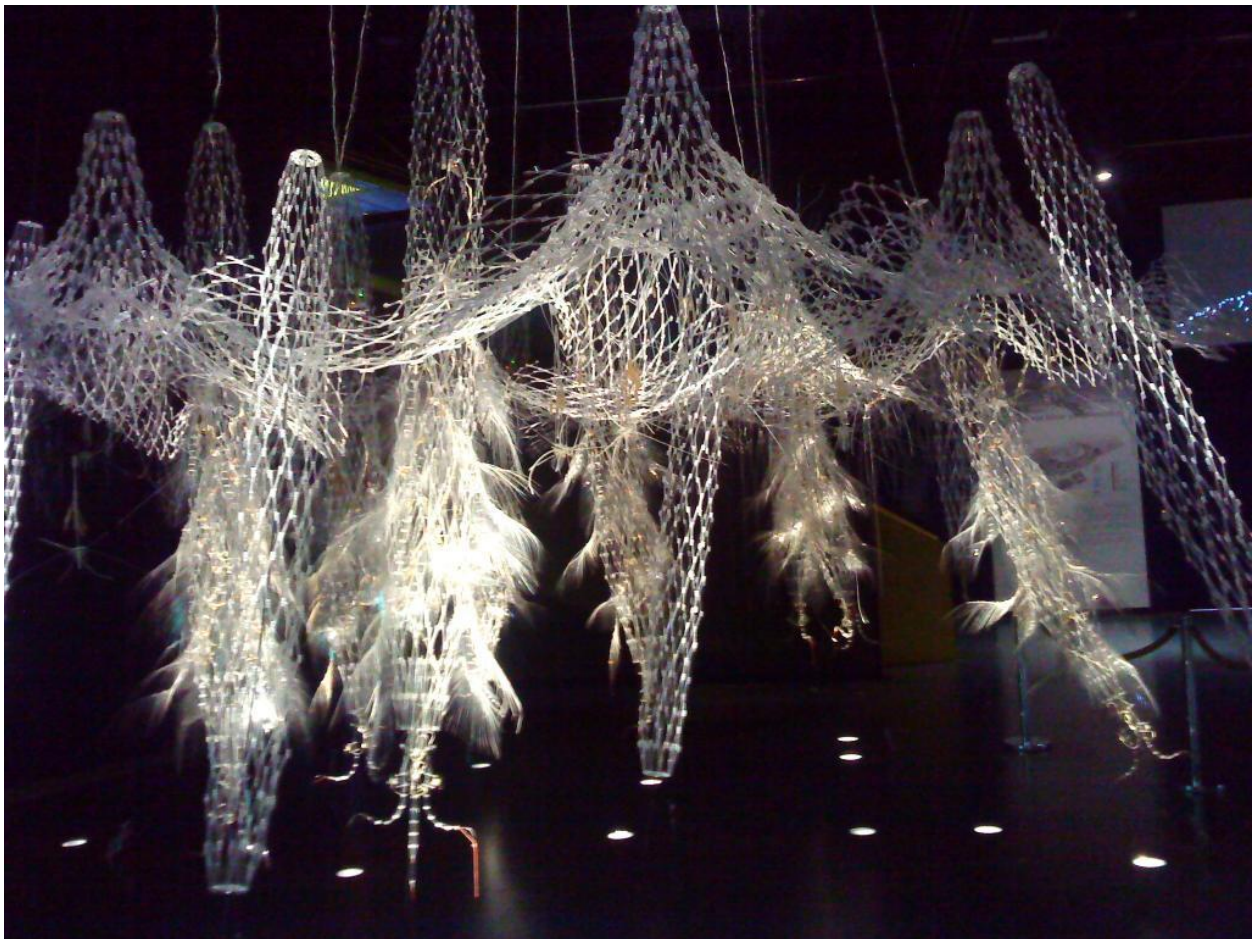


A CYBERSEMIOTIC APPROACH TO TECHNOETIC ARTS - NEW VOCABULARIES IN TRANSDISCIPLINARY RESEARCH

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In this paper I will introduce central terms from the Cybersemiotic paradigm (Søren Brier, 2008), and show how they can successfully be applied to interpretational readings of technoetic artworks. I wish to extend the idea that user experience in technoetic artworks is mainly immersive and non-intellectual, and to present new hermeneutical positions that explicitly take ontological and paradigmatic perspectives into account.



Hylozoic Grove. Ars Electronica Museum, 2008. © Kathrine Anker

Consciousness as "Extended Sentience"

Before moving into the actual subject, I need to define "human consciousness" as it is presented in this article. Human consciousness is understood not only as "the self-", as awareness, as something psychological, or as an emergent property of the brain. I understand the full range of dynamic, interactive processes that allow the organism to be sentient across a range of endo- and exo communications as

overall expressions of how consciousness manifests in humans. Consciousness in humans is viewed as a sign of an external natural force to which the organism has become increasingly adapted throughout evolution.

One way consciousness expresses itself is through the potential of the body structure to generate synthesis between dynamic processes that involve sensation, brain and heart based neuron activity, the autopoiesis of overall organisational systems (such as the nervous system or the reticular system), general molecular and cellular transactions (biosemiosis), and extremely low frequency electromagnetic excitation at the level of superposed quantum connectivity. [1] The connection between all these levels of communication, and the responsiveness that it results in, is what I call Extended Sentience (ES). As viewed from this perspective, it becomes vital to model a complexity of hierarchically divided and qualitatively different processes of communication, if one wants to understand more of how consciousness works within us. To do so is a semiotic and semantic task. This task demands new vocabularies, and a strife towards new levels of meaning in presented narratives.

Technoetic Arts

Technoetics is a term originated by artist and professor Roy Ascott. Technoetic art is art that experiments with the relationship between technology and consciousness, and raises questions of how new technologies affect human consciousness. [2]

It is my view that technoetic art installations address a broader range of processes involved in ES than many kinds of cultural communication to which we have been accustomed before digital media (such as pictures and print literature, which are static and fixed forms that do not inhere functions of physical mobility or behaviour as part of their material foundation) have done. Therefore, forming narrative-hermeneutical interpretations of the experience of technoetic art installations through a constructed "Ideal User" could provoke common assumptions into new thinking. This is because narratives that articulate the way such installations must connect existing technological and scientific paradigms in an open exploration of spiritual insight, expressed in a multisemiotic and multimodal signification, typically force the interpreter towards the "yet unformulated" (which, however, lie as symbolic sign potentials in the installation). This endeavour demands new semantic syntax at the level of general, socio-cultural language games. It forces the meaningful linguistic, narrative to transgress the fragmentation of thought that I experience as widely embedded in disciplinary practices and common socio-cultural language games of today. To accomplish possible formulations of such transgressive narratives, I must operate with several observational positions: that of an Ideal User, and a position outside of the Ideal User.

The Ideal User is a semiotic being

A central idea of cybersemiotics with which I agree, is that humans are by nature semiotic beings. Signification processes and meaning making are characteristic of our presence and navigation in the world. We understand through the processes by which we interpret signs in our surroundings, whether they are the cultural signs of print, image and object, or signs in nature. Therefore, I would claim, the ideal User would always already have a semiotic relationship with the art installation.

As humans we generate signification spheres on behalf of internal and external semiotic processes, which develop into complex socio-cultural language games over evolutionary time. [3]

“Language”, in this context, must be understood to include all sign systems that are developed and mediated in all cultural mediation forms. The art installation would be directly related to current socio-cultural “language” and “text forms”. It is my claim that Technoetic Arts relate particularly well to central themes and communication forms significant of our current (Western) signification spheres.

But naturally there is more than cultural languages involved in semiosis. This is Brier's point when he suggests the term “phenosemiosis” as a central part of his framework. It is only as the immediate, non-linguistic experience (which Brier names “phenosemiosis”) is interpreted in thought processes (which Brier names “thought semiosis”) and is represented by signs and concepts from intersubjective socio-cultural language games (Brier's synthesis of Luhmann and Wittgenstein), that cultural semiotics based on triad semiosis is formed. This involves both collective and individual levels.

Thus, there would be a range of semiotic processes of which we are individually or collectively unaware. They belong to the realms of endo- and phenosemiosis. They do rely on the operations of consciousness within us. But they are governed by rules outside of our day conscious awareness. So to equal human consciousness with a “rational intellectual Self” as the “master”, would be to focus on only the “tip of the iceberg”. For greater clarity, I call rational conscious awareness “day consciousness;” and regard it as a partial subset to overall Extended Sentience. Becoming aware of internal self-generative communications (processes of “intrasemiosis” according to Brier's terminology) of which we have typically been unaware, would imply to signify and identify inner “states” by the use of focussed thought semiosis. I will place the claim that there is a potential for expanding our (self) knowledge from this very position. This demands an inwards perspective.

The four semiotic terms, “phenosemiosis-”, “thought semiosis-”, “endosemiosis-” (internal molecular and cellular signification processes) and “intrasemiosis-”, plus “signification sphere”, and the concept of “socio-cultural language games”, are all part of Brier's framework; they are the new conceptual terms that he suggests.

Hylozoic Ground

Hylozoic Ground is a kinetic sculpture by Canadian architect Phillip Beesley and a collaborative group. It has been developed as a work-in-progress (2007-2010) with increasing complexity in sculptural components as the work progresses. *Hylozoic Ground* is based on the creative use of lightweight fabric, and the construction of a geometrically patterned “mesh” and skeleton enhanced with micro controller-, actuator and sensor technologies that allow the sculpture to present a range of different responsive behaviours. The first versions of the sculpture were based on “dry”, mechanical technologies, whereas later versions involve synthetic biology in the form of artificial cells, placed within the fabric of the sculpture. The different synthetic cells are sensitive to carbon and humidity in their surroundings. *Hylozoic Ground* is centrally inspired by properties of living organisms. To play with the generation of features that are thought to bring matter into “life” involves deep, ontological questions of what life is per se. [4]

Hylozoic Ground can be seen as an experimental research process that questions the overall relationship between laws of physics, geometry, biology and cybernetic mechanisms, all necessary elements in understanding the central characteristics of life. To form a material entity that distributes scientific and philosophical ideas of sentience, proprioception, metabolism, homeostasis, and communication in a concrete, functional sense allows a forward directed, creative approach to knowledge. The generation and distribution of art research alters the experience of knowledge, because the artist is, rather than

seeking exact answers in a reductive manner, making creative suggestions and posing new questions. Electronic and computational technologies, together with the development of new fabrics and various kinds of adaptive chemistries, allow for a degree of complex aesthetic ambiguity for the interpretational seeker of symbols and meaning. Rather than looking for fixed signs, whole mechanisms and processes would be representative of functions in the living organism, which are in *Hylozoic Ground* imitated and related to each other creatively, in a material, aesthetic and dynamic whole.

So, when contemplating *Hylozoic Ground* hermeneutically it is not enough to form narratives based on the language and concepts of science. As Rachel Armstrong points out (Beesley, 2010, p.136), there are aesthetic and poetic layers that cannot be articulated within the semantics of a scientific vocabulary. Thus, the narrative endeavour of our Ideal User would have to be based on transdisciplinarity, and to be unrestricted by current, institutional divisions.

Hermeneutical Positioning through the Ideal User

To understand the position of my Ideal User further, it is necessary to become acquainted with the way I use Brier's concept "signification sphere."

The Ideal User would, further than being semiotic, exemplify the way scientific and philosophical epistemologies have infiltrated the general signification sphere of the user – which is equal to modern, Western (knowledge) societies at large. So the Ideal User has integrated particular scientific positions of both the human and the natural sciences as a prerequisite for her interpretations by her natural use of existing, socio-cultural information sources and sharing, as she takes part in general socio-cultural language games. Certain common scientific assumptions would, seemingly, be part of the "Ideal User's" cultural memory and immediate prejudice. They have become internalized through the socio-cultural language games of her signification sphere (education and media). This might seem simple. But it is my claim that behind the diversification of many individual opinions, there are basic ontologies and general assumptions that dominate a given signification sphere (as in Foucault's "epistemes"). And mainstream science plays a solid role in this. We must remember that many basic assumptions, which dominate the language games to which we are accustomed, are automatized so that we do not notice them, even if we make interpretations that are centrally based upon them. Thus, it is my claim that the signification sphere of the user inheres common assumptions of the nervous system, sensation, skin, breath and a particular way of understanding living processes and consciousness, which are all expressed in *Hylozoic Ground*. However, the creative blend and experiment of the installation presents a natural opening towards combinations of common assumptions and existing knowledge that in themselves transgress existing cultural and semantic borders. The attempt to articulate hermeneutic positions of an Ideal User, thus, is forward directed and creative. And it will demand the formation of concepts of the human subject that transgress existing, common assumptions.

Artificial texts and biotexts: Is *Hylozoic Ground* alive?

In humans, the levels of socio-communicative language games and thought semiosis demand the ability to generate meaning as part of the internal processes of the organism in relation to being part of a specific, eco-cultural niche. Now, an conceptual integration of simultaneous processes relating linguistic, cybernetic, autopoietic, sensorial and motor properties is generally difficult to simulate or materialize in

Robots, Artificial Life and Artificial Intelligence scenarios – no matter how advanced research and engineering practices might have become. In our example, *Hylozoic Ground* cannot be understood to generate its own internal semiotic relations that are meaningful to itself, neither at the level of socio-cultural language games nor at biosemiotic levels. The many distributed micro controllers, along with circuits and the central Arduino board, do allow for local and global information processing in the sculpture. But *Hylozoic Ground* cannot be understood to have properties of true self-maintenance, self-organization or semiosis, even if both the chemical and electronic parts are capable of generating some degree of emergent behaviour and sensibility to external input. And if we extend usual ways of understanding memory with James Oschman, who suggests that stored information can be layered in wet organs and tissues all over the body, [1] it becomes even more obvious that there is a complexity of micro and macro levels of communication that are characteristic of conscious, living beings like ourselves, and the understanding of which becomes severely reduced when using metaphors related to mechanical processes based on signal exchange or pattern fitting (Brier) alone.

So the sculpture has no internal interpretational processes that rest upon triad semiosis (object-representamen-interpretant). It cannot connect all parts into an overall, fine tuned, self-generative communication system that integrates information, mechanics and triad semiosis simultaneously. And this integration is the core of the cybersemiotic model, and Brier's demand for an organism to be conscious and alive.

The mechanisms necessary to generate movement and sentient reaction in the sculpture, however, do demand a system of distributed information and intelligent computation. Otherwise input could not be translated into output, and reaction to users could not occur. This invites us to contemplate the installation from different points of view. We could consider the necessity of computational distributed intelligence and creative human intelligence as central parts of the construction process - but simultaneously, we sense the simplicity of the functions of the sculpture as it is compared to wet, organic living entities as ourselves.

Generally, mainstream academia, particularly the field of biology, presents the idea that molecular, cellular and autopoietic processes of the living organism cannot inhere goal directed properties. This places a dissonance between our understandings of how nature works, and processes where humans play with constructing life like scenarios. We can curiously ask: if organic life came about through random non-semiotic mechanisms of competition and selection without goal direction or intelligence, how is it that we expect our own goal direction, intelligence to be the source of artificial intelligence, synthetic life and the creation of new “life forms”.

User interpretation as Internal Semiosis

Hylozoic Ground cannot generate meaning internal to the system and base its further processes upon it. But in our interaction with it as users, these processes do take place within ourselves. If we are taken by the installation and choose to contemplate the different layers of our immediate experience, we can ask ourselves how the phenosemiotic and biosemiotic processes would become linguistically signified and turn into intellectualized experience within our own day conscious minds – as opposed to what happens in the non-semiotic sculpture.

In the Oschman perspective, the experience of being moved and activated in the installation space would be presented as inner excitation and information distribution and storage within our wet organs.

The living sentience of our body and brain in immediate perception automatically generates inner quantum excitations, [1] [5] qualia, and images, thoughts and memories as one kind of signification that has laws, regulations and pathways independent of our intellect.

Simultaneously, there is a potential to intellectually grasp significations related to some of these processes through thought semiosis. My goal here is to have the reader sense the dynamics of the relationship between pheno-, thought and biosemiosis. It is to demonstrate that processes related strictly to the day conscious intellect can never stand alone in interpreting sensation and cognitive mechanisms. They are rather one part of ES along with other equally important parts. And it seems important in processes of (self)observation to add an inwardly directed focus of attention to the external focus that dominates recent scientific and philosophical practices. Brier's distinction between different cybernetic and semiotic processes can help us articulate and understand this potential.

Conclusion

The process of exploring technoetic installations with a focus on their particular creative blends of paradigms into new knowledge compositions, together with the cybersemiotic terms, allows me to formulate transgressive narratives regarding the human subject. As Armstrong expresses, a sculpture like *Hylozoic Ground* cannot be understood by referring to scientific narratives alone.

Hermeneutical narratives related to technoetic arts must incorporate the ambiguity of aesthetic components and seek to reach definitions of Extended Sentience in ways that would be useful to the general development of human knowledge. Classical, philosophical definitions of aesthetics have typically focussed on qualia and sentience. Yet a sculpture like *Hylozoic Ground* demands a narrative that integrates intellectual approaches with aesthetic synthesis, presenting stories at higher-order levels of observation. Trying to locate an Ideal User at this level, forces us to discover a higher-order, narratively structured intellect that cannot be equalled to usual understandings of "a Self" or an "ego".

It is my claim that the cybersemiotic paradigm can aid in fulfilling this wish, and bring otherwise abstract observations down to earth in a comprehensible, linguistic signification. It is my further claim that narratives that present a hermeneutical, pre-paradigmatic, and transdisciplinary perspective on technoetic arts, can add useful dimensions to the new experiences that art installations already offer in Western societies today.

References and Notes:

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