Recombinant Poetics[1] - Media-Element Field Explorations

The sensual body finds itself living amidst an expansive set of technologies. In this ever-evolving computational world we encounter texts of varying forms and functionalities — visual, sonic and code related. Text may also take physical and/or environmental form. The continuum that bridges distributed bodies with the recombinant communicative and associative functionality of technology is charged with the potential of extending humankind's ability to experience, generate, operate on, store, edit and disseminate meaningful patterns of experience.[2]

Interwoven with the richness of the workings of our bodies' sensuality, text can not be easily singled out from other media-elements or neighboring evocative environmental qualities — nor should it be. Our understanding of text has evolved through a life long experience of a cumulative set of environmental patterns. The contemporary media-scape made accessible through the computer takes on an increasing importance in terms of experiencing and coming to know the world. The technologies of the past gave us the power to collect and disseminate specific patterns of usage through letters, words, recordings and bound volumes. Now, the potential is to address the continuum between the body, the environment and an extended set of language-vehicles which become operative within the highly variable volumes of authored and inter-authored physical/computational spaces. Such technological space can also be highly evocative. Charles Sanders Peirce articulates:

A sign [or representation] stands *for* something *to* the idea which it produces,

or modifies. Or, it is a vehicle conveying into the mind something from

without. That for which it stands is called its object; that which it conveys, its

meaning; and the idea to which it gives rise, its interpretant. [3]

Virtual Worlds and other computer-related media environments have the potential of being authored in such a manner that they can exhibit emergent meaning. These environments can be navigated, provide evocative forms of experience as well as potentially be modified and/or radically reconfigured. As Peirce suggests, meaning is that which the sign conveys. The volume of virtual space is quantitatively different from that of the bound volume. In terms of text, it has become un-hinged —

Bartheian[4] anchorage severed (media-elements operatively made relative)— flows[5] heightened — potential media-vocabularies enlarged.

In generative virtual environments, meaning is that which the sign conveys in terms of particular media-configurations as well as through the potentials of physical output. Basically this extends the notion that the sign takes on meaning in a particular context — in a generative computer-based environment one can now physically fabricate a new context.

One can witness the advanced potentials of haptics explored by such people as Margaret Minsky[6] as well as the fictional accounts addressed by Stephenson in *The Diamond Age*[7] exploring the generative potentials of Nano technology – where given the appropriate solution environment (with a big nod to Eric Drexler), one can order up furniture, etc. Yet one should take a serious interest in the evocative potentials of both Nano-virtual space and that of virtual environments explored through quantum computing. *In Of Grammatology*[8] Derrida describes an extended definition of "writing".

It is also in this sense that the contemporary biologist speaks of writing and *pro-gram* in relation to the most elementary processes of information within the living cell. And, finally, whether it has essential limits or not, the entire field covered by the cybernetic *program* will be the field of writing.

We are teetering at the brink of the development of a physical set of code potentials brought about through nano-technology[9], advanced forms of bio-technology[10] and quantum computing[11], the ramifications of which one can barely fathom. These new developments explode notions of context. Here, I am particularly interested in the potentials of generative virtual environments functioning in tandem with physical space. [12]

The potentials of text and of code that is currently built of text, is expanding in this era of the physical and the biological where nature itself is being re-thought and re-defined. In terms of physical interface, in my textual/musical work "The Poly Field"[13], I describe a exercise interface that could enable one to move in physical space and do word processing. Currently Ted Krueger is working on an exercise bike[14] to enable astronauts to work and move physically in mixed virtual and physical space (see also Jeffrey Shaw's "Legible City"[15]). One can also begin to address the poetic spatial relation of text to different positionings of the body, both practical and dance related. The potential

of physical spatial relations to the textual is pivotal - where bodies, entities, objects, sensor data and encoded spatial relations become inter-operative in the continuum bridging media-environments with physical environments through sensual interfaces.

Turing's description of the *ACE (Automatic Computing Engine*)[16], the first digital computer, saw the potential for a machine with programmed responsive, "operative" input and output "organs." Yet almost a century before Turing, in her *Notes by The Translator* written to clarify the textual work entitled *Sketch Of the Analytical Engine Invented by Charles Babbage*[17,] Lovelace made some very enlightened remarks:

The Analytical Engine is an embodying of the science of operations, constructed with particular reference to abstract number as the subject of those operations... Again, it [The Analytical Engine, emphasis Seaman] might act upon other things beside *number* were objects found whose mutual fundamental relations could be expressed by those of the abstract science of operations and which should be also susceptible of adaptions to the action of the operating notation and mechanism of the engine. Supposing for instance, that the fundamental relations of pitched sounds in the science of harmony and of musical composition were susceptible of such expressions and adaptions, the engine might compose elaborate and scientific pieces of music of any degree of complexity or extent... It may be desirable to explain, that by the word operation, we mean any process which alters the relation of two or more things, be this relation of what kind it may. This is the most general definition and would include all subjects in the universe [this includes text, emphasis Seaman].

Meaning is now evoked in an environment that potentially implicates multiple senses. We will broaden our potentials of knowledge production and exchange by extending our exploration of the biological metaphor of bodily relations, learning to parse and become one with multiple streams of machinic sense data. Extended computational environments will also enable us to augment the body in an appurtenant landscape of

technological augmentation, enlarging our capacity to produce and experience patterns over time — to come to know. Yet, the complexity and delicacy of the workings of the body will not easily be discarded through the brain scanning of the mechanisms proposed in a visionary manner by Kurtsweil and others[18]. The dangers of such bodily extensions must be continuously re-evaluated and articulated in relation to technological change through an ethics of the sensual. An extended discussion of this topic falls outside of the scope of this paper.

Virtual or computational space enables us to explore very new forms of authorship. An expansive distributed set of evocative language-vehicles and computer-based processes become actuated through specified potential interaction or through emergent potentials that arise through use [see my thesis where I contrast this notion to Witgenstein's notion of "the meaning is the use"][19]. Increasingly, one can intentionally reinterpret the potentials of a functionality and thus move outside of the specified programmed probable outcomes of a system and move into the realm of emergent experience through the recombinance of object based functionalities. This is a technological heightening of the "illimitable" nature of Derrida's combinatorics of "Différance", where he states "Every sign, linguistic or non-linguistic...can...break with every given context, engendering [and inscribing itself in] an infinity of new contexts in a manner which is absolutely illimitable.[20] From a different perspective we encounter the rhizomatic "flows"[21] and "lines of flight"[22] of Deleuze and Guattari. They articulate a space of electric flows that function in an amorphous continuum, where the flow "enters into a relationship with another flow, such that the first defines a content and the second, an expression. The deterritorialized flows of content and expression are in a state of conjunction or reciprocal precondition that constitutes figures as the ultimate units of both content and expression".[23]

In terms of virtual space, these flows enable the exploration of an advanced recombinance of the word within a mutable context of neighboring media-elements, media-processes, physical environments and operative code functionalities. It now makes sense to consider each media-element as a field of potential.[24] Each field carries an evocative meaning force. Our embodied history of experiences of past contexts represent another expansive field that is brought into this delicate equation. As we encounter virtual or computational spaces we experience an ongoing, time-based summing of meaning forces. Thus

text presents one field of meaning force that can only be understood contextually in relation to other "neighboring" meaning forces — other media-elements and living processes. The 'word' is not valued in a hierarchy over other media-elements or processes in such a space. The time-based contextual "figure" or configuration of media-elements is in each case weighed in an ongoing process. The participant takes a fluid role in the construction of meaning through different levels and qualities of interaction.

The punning potentials of the text as code provide a hidden plane of operative potential that we as a communicative world are just beginning to come to understand and employ. At this point in time, text should be observed as one media-element within a network of other forms of media-elements and processes. The evocative life of words becomes palpable in the quixotic neighborhood of generative virtual environments. As virtual spaces become networked and very different potentialities of use collide or become intentionally conjoined, hybrid functionalities will be both intentionally and un-intentionally spawned. To say this in simple language - As computer functionality becomes increasingly object based, the potential for the generation of emergent functionality by drawing together distributed media-elements and processes, is heightened. My work in progress "The Hybrid Invention Generator" funded by Intel, explores this metaphor. The participant can, in real time examine a database of past inventions and by choosing two different inventions, engender a hybrid. Yet an underlying textual "conjunction code" suggests the potential of how these hybrid inventions could be built. This metaphor is pointing at the potential of bringing together computer-based functionalities to form hybrid computer-based inventions. Certainly this will become a central metaphor for the open source community.

Our use of recombinant media resources and computer-based functionalities enables the exploration of operational neighboring or interpenetrated configurations of time-based language-vehicles and processes. We can even go so far as to say that the concept of the "Universal Machine," as developed by Turing, is one of the central principles enabling this potential for media-based construction. Hodges, Turing’s biographer, describes certain aspects of the "universal machine":

...underneath here lay the same powerful idea that Gödel had used, that there

was no essential distinction between "numbers" and operations on numbers. From a modern mathematical point of view, they were all alike symbols. With this done, it followed that one particular machine could simulate the work done by *any* machine. He [Turing] called it the *universal* machine… It would be a machine to do everything, which was enough to give anyone pause for thought. It was, furthermore, a machine of perfectly definite form.[25]

The varying symbolic properties of computer code become compressed, and function in a pun-like manner, inwardly enabling the functionality of a code driven conceptual machine within specific hardware environments, while outwardly presenting media and physical process variables. The body becomes emeshed experiencially. A participant exploring such media-spaces becomes structurally coupled with the authored artifacts of computational media-elements and processes. Maturana describes this as a linguistic domain. Yet we are just beginning to experience the fruits of how someone uses this potential functionality of computer-based authorship, when they draw upon a cogent field of conveyance potential in the service of expression. Maturana provides this definition of the linguistic domain:

The linguistic domain as a domain of orienting behaviour requires at least two interacting organisms with comparable domains of interactions, so that a cooperative system of consensual interactions may be developed in which the emerging conduct of the two organisms is relevant for both... The central feature of human existence is its occurrence in a linguistic cognitive domain. The domain is constitutively social.[26]

Maturana goes on to say:

... I maintain that learned orienting interactions, coupled with some mode of behaviour that allowed for an independent recursive expansion of the domain of interactions of the organism, such as social life [Cf. Gardner and Gardner, 1969] and/or tool making and use, must have offered a selective basis for the evolution of the orienting behaviour that in hominids led to our present-day language.

Computer-based tools enable new forms of authorship and inter-authorship. The generative virtual environment entitled The World

Generator / The Engine of Desire, by Bill Seaman with Gideon May programmer[27], seeks to become a discourse mechanism enabling one to observe operational media-elements and processes through interactive exploration of a generative virtual environment. The consensual domain is generated both in networked virtual space, where *vusers (viewer/users — pronounced view-ser)* can co-author a virtual environment, or when an individual interacts alone within this artistic environment, functioning as an authored, self-organising organism-like entity, operating through technological agency. Enter the age of the recombinant poetic. The machine functions, in part, as an appurtenant extension of the linguistic intentions of the author (or authors) of the system. All media-elements encountered in this generative virtual environment, function as operational language-vehicles and can potentially be considered "linguistic" in relation to Maturana's definition. Again, text takes on meaning in an expansive environment of neighboring spatial and temporal relations — generative patterns of use explored over time.

In *Semiotics of Visual Languag*e, Saint-Martin speaks about the relevance of "neighboring," which is central to the production of meaning in a virtual environment:

> The relationship of neighboring is the most important topological notion by which the function of continuity is constructed in any spatial field, whether physical or perceptual. Its importance to physical sciences was underlined by Bachelard when he stated that any force in the continuity of the field "presents itself as determined by the condition of neighboring. The term, vague in everyday language, acquires all of the desirable conciseness in mathematical expressions.[28]

Thus we enter the nature of the real that enables the virtual — where the evocative nature of media configurations is brought about as a result of recombinant structuring. Instead of printed matter, we have recombinant energy processes or flows. The techno-poetic environment can either be seen in the metaphorical light of waves (an intermingling of fields) or particles (modular-media elements comprised of pixel configurations), depending on how one is observing it.

Interactive Text is one media-element culled from a set of media-elements that we encounter environmentally. The sensuality of our body becomes engaged. At the core of the research agenda of Recombinant Poetics is the holistic transdisciplinary exploration of the evocative potentials of such generative combinatoric environments. Central is the exploration of a continuum that bridges body, environment and technology.

1. See my dissertation entitled *Recombinant Poetics: Emergent Meaning as Examined and Explored Within a Specific Generative Virtual* Environment available as a PDF at http://www.cda.ucla.edu/faculty/seaman/texts.html

2. See N. Katherine Hayles *How We Became Posthuman: Virtual Bodies in cyberspace, Literature and Infomatics* (Chicago, 1999) for an in depth discussion of human/computer relations.
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10. Advanced forms of bio-technology - http://www.ornl.gov/hgmis/publicat/publications.html
11. Quantum computing - http://www.qubit.org/ See also David Deutsch - *Machines, Logic and Quantum Physics* http://xxx.lanl.gov/abs/math.HO/9911150
12. See my website for a listing of works and related papers– http://www.cda.ucla.edu/faculty/seaman
13. *The Poly Field* by Bill Seaman produced at ABC Radio in Sydney in 1995 for *The Listening Room*.
14. See Ted Krueger http://www.futureframe.de/science/000515-spaceliving.htm, http://comp.uark.edu/~tkrueger/
15. See ABEL, M. 1997. *Jeffrey Shaw — A User's Manual: from Expanded Cinema to Virtual Reality.* Ostfildern-Ruit: Cantz Verlag.
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18. See Kurtzweil, R. The Age of Spiritual Machines. Penguin paperback | 0-14-028202-5 http://www.penguinputnam.com/static/packages/us/kurzweil/excerpts/exmain.htm

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21. See 5 above
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24. Same as 1, See the chapter entitled *Fields of Meaning – An Emergent Approach to the Perception of Context*
25. See HODGES, A. 1983. *Alan Turing: The Enigma*. New York: Simon and Shuster. P.104
26. See MATURANA, H. 1978. Biology of Language: The Epistomology of Reality. *In:* G.A. MILLER and E. LENNEBERG, eds. *Psychology and Biology of Language and Thought: Essays in Honour of Eric Lenneberg*. New York: Academic Press, pp.27-64.
27. See note 1
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