



issue 6 / 7



SCALE

<http://scale.ucsd.edu>



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Greetings,

This double issue of SCALE finds you amidst the usual:
World catastrophes, Political conflictions, Ontological conundrums...

(Why not invite along those you love?)

+ + + + + +

There is a first for everything. First love. First kiss. First militant invasion.

This volume of SCALE is the first online-only double issue, hosting a slew of multimedia submissions from a wonderful group of researchers, programmers, artists, and musicians from around the world. It is also the first inanimate object you will find yourself truly beginning to feel affection towards.

Well, maybe.

This month's theme revolves around Networked Models of Collaboration, Open Source Strategies of Creativity, and Modular Versions of Artistic Practice. You will find some big words from time to time within the content of this issue of SCALE. If you are lucky, you may also come across some rawkus beats shaking the membrane of your respective internet browser. Ultimately though, you will find yourself sharing in an act of togetherness, community, appropriation, and challenge. This is what SCALE seeks to purport and defend. This is what our worlds should strive for.

Best of Luck,

Mike Podolak
Guest Editor , SCALE 6 / 7

.....
Mike Podolak is a gl0tch.

He thinks making paintings, reading about digital architecture, and engaging contemporary practices in computer audio is actually worth his time.

He is such a gl0tch.

Sometimes I wonder if he is ever interested in anything else...

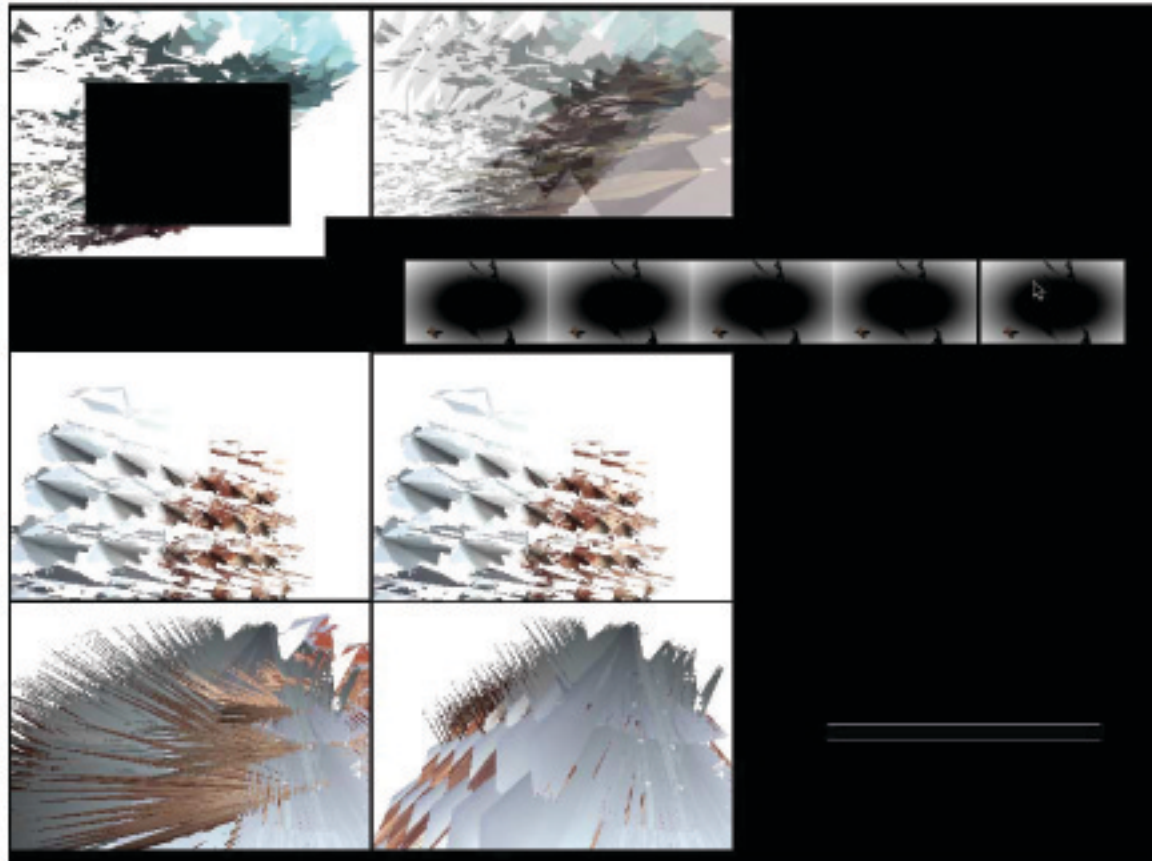
<http://www.gl0tch.com>



Struct_1 (2001-2)

[Struct_1.sit](#)

André Sier

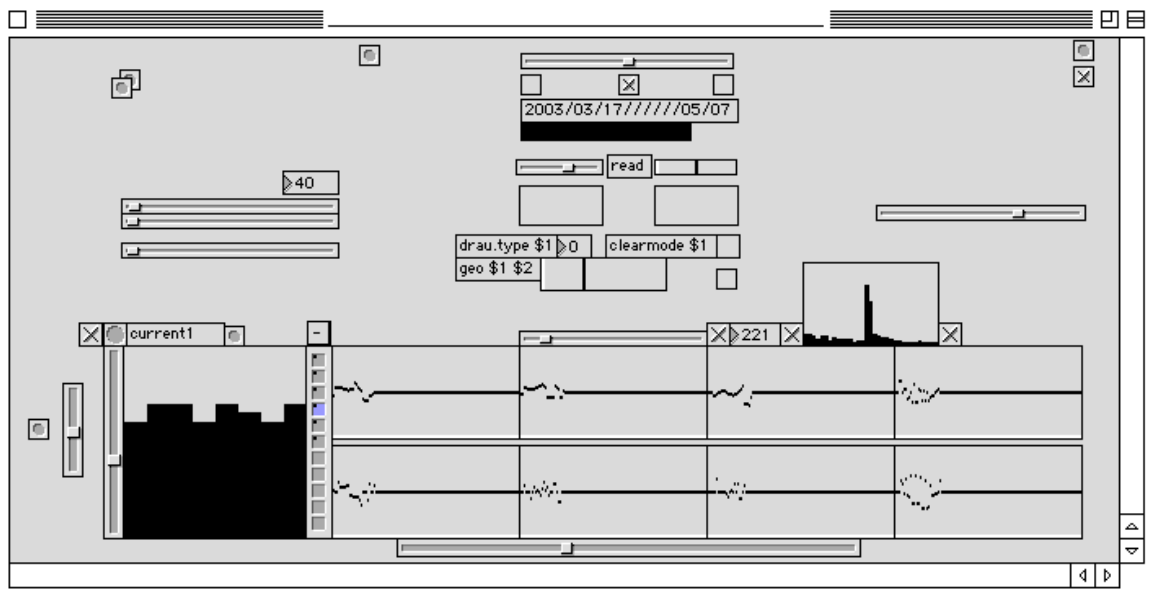


0. Introduction

Struct_1 is an audiovisual app that explores the concepts of time and space-, time in the 3 possible tenses (what was, what is, what will be) and a spatial metaphor of the consciousness as a segmented rectfield capable of being tinted with quicktime movies, stills. Visually, and audially it is a sort of a polyphonic time sampler that percolates the audio input stream into 8 buffered voices, colliding all of them into the present at shifting speeds. The final audio energy values tint structure modifications. The image engine seldomly captures frames from the user visual navigation feeding the data into the past module image buffer. Something like life...

1. Purpose

It is built with a complex but intuitive interface that remains unexplained because I feel it triggers more interesting responses from the user.



The top section of the *Gui* (Graphic User Interface) controls image parameters, the bottom one controls the audio parameters. The horizontal slider on top of the clock selects which image section is / are active and which one(s) are inactive. Below the clock are the present modules control parameters. To its right the future one and to the left the past ones. The buttons on top of the past control module store quicktime movies in the Application's directory and also store the contents of the buffers.

The application should be shown as an installation wired to a video projector and with the computer accessible to the users / visitors for them to control any parameter they wish with the mouse and to play around with the microphone and the generated sounds. It also works great in the studio or at home to build percolating sounds of a stream and optionally gaze at your life tinted with something new.

Keys:

- 1,2 - black, white
- 4,5,6 - mouse modes
- 3 -
- qwertyui - present modes
- o - read
- z - read script.coll again
- arrow keys - move in space
- (esc), ' '(space) - gui

2. Introduction

ideas

coming from a visual arts background i've always marveled at the complexity of decision making, flow determination, anticipation, what might have been but is not, and many other things that pop into the mind while admiring, building something or just doing nothing at all - gazing into the (un)known. most of the works i engaged wound up being more interesting as a process than its final output, ie, i found the process of actually doing something more rewarding than 'ready-made' content/form duality. reminds me of the way diogenes replied to the zeno movement problems: getting up, taking two or three steps and sitting down again (perhaps returning the actual movement problem, which is no problem at all). in this work i tried to completely nullify any and all content and keep only the form (and as i write this text, it's been some time since i did this code - only to find that content does not survive without form, nor form without content. or(e)...)

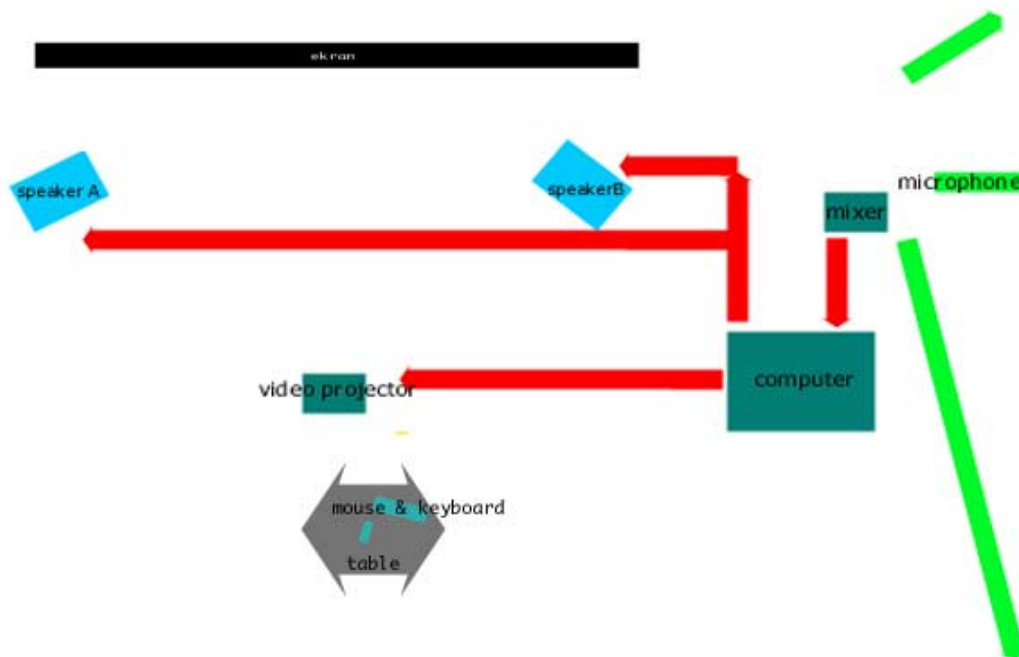
this is a completely non-musical approach even though it handles sound (*sound*, not music) and also a non-artistic approach because it tends to mimic the behavior of consciousness/thoughts upon flowing with the time (whatever that is).

done with nnato, maxmsp, c and various other max objects
requires a mac ppc, qt, gl and is seen best with two displays
(1024.768 , ____.) see apple.com

traps your 2way audio environment (if you select) and reassembles bits from the past into the present at scriptable speed variations tinting structure modifications. initial audio feedback sets a pleasant mood. shift the top slider to change between time modes.

3. Spatial Setup

Struct_1 - 7up



4. Mind Setup

I
Inferno

CANTO I

*Nel mezzo del cammin di nostra vita
mi ritrovai per una selva oscura,
ché la diritta via era smarrita.
Ahi quanto a dir qual era è cosa dura
esta selva selvaggia e aspra e forte
che nel pensier rinnova la paura!
Tant' è amara che poco é piú morte;
ma per trattar del ben ch'í' vi trovai,
dirò de l'altre cose ch'í' v'ho scorte.
Io non so ben ridir com'í' v'intrai,
tant' era pien di sonno a quel punto
che la verace via abbandonnai.*

*Now summer is gone
And might never have been.
In the sunshine it's warm.
But there has to be more.*

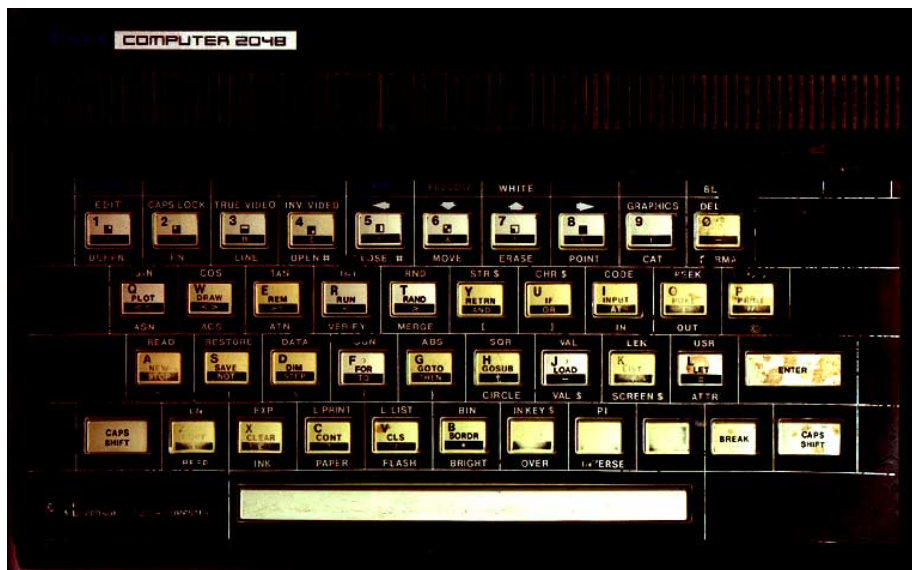
*It all came to pass,
All fell into my hands
Like a five-petaled leaf,
But there has to be more.*

*Nothing evil was lost,
Nothing good was in vain,
All ablaze with clear light
But there has to be more.*

*Life gathered me up
Safe under its wing,
My luck always held,
But there has to be more.*

*Not a leaf was burnt up
Not a twig ever snapped . . .
Clean as glass is the day,
But there has to be more.*

Arseniy, *BUT THERE HAS TO BE MORE*, *translated by Kitty



SCENESTERISM AND THE DEATH OF SUBCULTURE by Matt Tuozzo

The kingdom of Bhutan was founded in 1616 by a Tibetan monk, who sought to create a sanctuary from the bustle of the waking world. For centuries the Land of the Thunder Dragon remained an idyllic nation, its officials incorruptable, its heritage steeped in Buddhist tradition. In June of 1999, Bhutan became the last nation on the planet Earth to adopt television. Now constantly bombarded with alien messages, the once deeply metaphysical Bhutanese were immediately drawn to the promise of a better life through merchandising -- and not surprisingly, they have in the years following suffered an unprecedented crime wave.

"Scensterism" is the parasitic infiltration and debasement of subcultures by supercultural influences (by "superculture" I mean the dominant socio-economic paradigm as it applies to the humanities -- music, writing, visual arts, etc). The imminent danger of this tendency for the superculture macrocosm to assimilate all types of microculture is that it inevitably creates a competitive model for non-competitive ideologies.

On a social level it happens like this: as a subculture grows, its increasing gravity well attracts hangers-on who care nothing for the founding ideals of the subculture, but wish to use it for their own ends (power, prestige, sex, money, whatever). As more of these charlatans infiltrate, they easily move to the top of the ranks because they have only tenacity to support them. In other words, their own determination to "lead" immediately grants them leadership status -- because no-one else wanted it in the first place.

For example, consider the genre of hip hop. Up until the mid-90s, rap music was experiencing a renaissance of styles and ideas. Bands such as Brand Nubian, X-Clan and Public Enemy fluidly melded relevant political commentary with this strange new form of sample-based composition. Even Jay-Z was a Nubianist back then, as evidenced on his breakout track "The Originators."

Then, in 1994, one album changed the face of rap forever, and not for the better. That album was Ready To Die by the Notorious B.I.G.

It was produced by the equally notorious Sean Combs, who was and is very much a charlatan. His first foray into hip hop was as an executive for A&R. The official history of Bad Boy says that he was fired from A&R in 1993 and then dropped his first artist on Bad Boy -- Craig Mack, with the seminal hit "Flava In Ya Ear."

That is a lie. Craig Mack's video for that single was on Yo! MTV Raps as early as Spring of 1992. I know, because I saw it then, in Milton Hershey. I was a very big rap fan then -- ever since Public Enemy dropped It Takes A Nation Of Millions To Hold Us Back in 1988, I was well entrenched in burgeoning hip hop culture and paid very close attention to it.

When A&R fired Combs in 1993, he had already made money off Mack -- the one real rapper he ever had, whom was then mysteriously backburnered for all time -- and had found Biggie, his hitmaker.

In this way, hip hop was ruined. Biggie became the idol for everyone else to emulate. When Tupac started his career, he was in Digital Underground with Humpty Hump, but after Biggie, he adopted the dominant thug lifestyle. Nas is another example -- he was originally part of the Pete Rock family: Main Source, Heavy D, et al. Then Biggie hit, and all of a sudden he's a Brooklyn thug kid.

This same tendency applies to other subcultures. For example, consider the relatively new genre of Intelligent Dance music or "IDM" (itself a term highly regarded with scorn by the majority of its actual proponents -- the acronym was coined not by an electronic music producer, but on an internet listserv by Baltimore socialite / DJ / poser Alan Perry). This sort of appropriation is evident in such recent developments as the so-called "laptop battles," themselves an appropriation of the rap subculture DJ battles by non-rap charlatans.

The first Philadelphia laptop battle, which I was supposed to participate in but did not due to mitigating circumstances beyond anyone's control, was won by my good friend Nintariman. After that competition's outcome, I was skeptical to enter the second one, because I had a gut feeling that the contests were judged more on connection to the Philly scene than actual talent. Of course I do believe that in a fairly judged contest Nintari would have won anyway -- I just didn't think this was the particular case, and at any rate, I was aware of my own personal bias in favor of my friend.

Instead of entering the second battle, I waited. In the second battle were Bill Fields, Ill Cosby, Vytear, and Fidget, among others. Any of the first three contestants I named would have slaughtered Fidget in a fairly judged contest -- but she had the closest connection to the Philly scene (she was involved with Sean Flowchart, a local label head who was a judge in the first battle, both artistically and romantically for many years; also, Fidget is the only real female artist in the area, and as such receives special treatment due to the natural tendencies of biological animals).

Sure enough, Fidget won. I therefore have decided to boycott any further 'laptop battles'. This is only one example of how the once-pure genre of bedroom production has been tarnished by appropriation, by scenesterism. Because the charlatan influences within the subculture have lateral intentions, the genre is summarily soiled by unnessecary associations.

For example, we will take a look at Kid606 and the Tigerbeat6 label -- Cex, Gold Chains, et al. Most of the artists on that label have the barest understanding of DSP manipulation, but make up for their lackings with abject sarcasm. This

appeals to the masses (not the subculture itself) as it mocks the mainstream -- but this was never the original intention of IDM. A difference from the mainstream is not necessarily a mocking of it, but due to the frequency and intensity of that interpretation, the two are now seen as integral partners.

Tigerbeat6 became a mainstay for this new, bowdlerized IDM. Even the real labels pick up -- Beans on Warp would be one good example of this. The "pure" artform is now soiled by unnecessary associations -- just as hip hop was soiled by association with "thug life", IDM has been soiled by this abject sarcasm. Bit Meddler's catalogue is proof of this; in fact, nearly all of Planet Mu has been infected by that virus, as evidenced in their various Criminal releases.

Infections will stimulate the production of antibodies, and microcosms are not without their subtle defenses. To return to the example of hip hop: only ten years ago rap music was filed to a very specific subcategory, and ten years before that it was shelved in the realm of novelty. Instead of Yo! MTV Raps the mainstay of all MTV is now rap-based, and it is now by turns extremely difficult for a guitar-based act to get airplay.

This hyperexposure makes it easier for any rap-based production to receive attention over non-rap music. However, the laws of lowest common denominators still hold true. Though it is more likely that any rap act will be noticed, the likelihood that a specific rap act will be decreases due to this hypersaturation.

Even IDM has received a degree of radio and television airplay (most notably the Chris Cunningham directed videos of Aphex Twin) on a level similar to hiphop in the early days of Yo! MTV Raps. Should IDM become saturated with a similar level of charlatan campaigners, it follows that it will probably follow the same timeline. IDM will therefore gain a significant popularity between 2004 and 2006, and break into mainstream play a few years later. However, these will be, as in the case of hip hop, fraudulent IDM acts.

If IDM can subvert these paradigmatic rules, it may stand the chance of defeating the virus rather than symbiotically succumbing to it. How might this be achieved? One way is to return to the hero mythos of rock music. Another is to expunge those same mythos entirely, and return to the "faceless DJ" of early electronica. These two notions are analogous to the two prevailing theories of symbiont evolution systems which I call "Borg-mind" and "Gaia-mind." In the former, a single aggressive fundamentalist philosophy is forced on the mass-psychology, which is then left to adapt to it. In the latter, the reverse happens: the average of the mass-psychology creates an amalgam philosophy.

Another way of stating these extremes in respect to politics would be "fascism" and "democracy." Both of these systems have shown to fail entirely as political bases. The former suffers from closed-mindedness (not enough abstraction);

the latter from open-mindedness (not enough concreteness). In fascism/Borgmind, we are always on a deadline and therefore work is forced; in democracy/Gaia-mind, we are given no time limits and therefore work becomes navel-gazing. Both of these extremes equate to a division by zero error.

The subcultural interjection of creativity therefore keeps us in the necessary realm of real numbers. Both extremes are constantly attempting to pull these equations towards their magnetic poles, to solidify art into something brandable and therefore adaptable to the competitive business model. Without constant fresh artistic catalyzation, the dominant forces will seduce the alternatives into their entropy field.

The most encouraging notion is that the rules governing the specific reactions between superculture and subculture seem to be highly esoteric. The definition of these esoteric doctrines seems to be the real central goal of superculture and its lackey scenesterism. Fortunately, as Hakim Bey notes in the opening of *Temporary Autonomous Zones*: "Chaos never died." It is in this primordial essence of change, in the becoming of becoming, wherein lies the roots of subculture and true artistic progress. Only in constant, relentless insurrection (differing from the childish "revolution" which itself has already become defined and appropriated) will artistry of all types flourish.

beneath the arbor, becoming rooted as lorenz (part zero)

enclosed is a small collection of max/msp patches, which will run on any platform supported by cycling 74's max/msp runtime application. "peek_ping_console" should be opened first, as the rest of the files are integrated sub-patches.

"beneath the arbor" is a generative realization of a larger piece, which I hope will take many forms as I continue work on it. as it is, the piece can be played back directly through the listener's soundcard in mono, or mixed into a multichannel system for improvised diffusion by the listener.

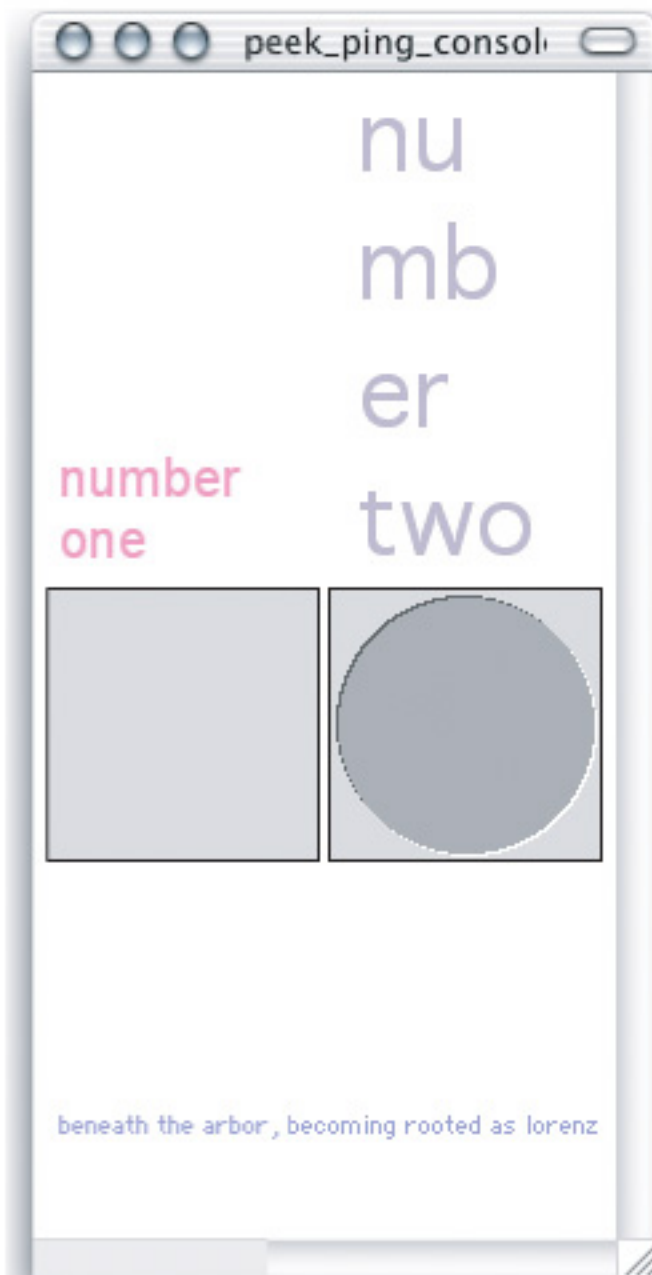
any part of the sound generated by these patches, or the code within the patches themselves, are free for reuse in new compositions, following the terms of a creative commons license.

(note: number one turns on the sound. number two begins the composition.)

erik schoster is a student of art history and composition at lawrence university in appleton wisconsin.

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july 2004

[Arbor 0.zip](#)



Essays on

Collective Life: Football



The photos above depict the players of a football match that took place recently in Buenos Aires, Argentina. The numbers attached to the photographs represent the number of years for which I have known each of the players in the match.

Big Data

Lisa Jevbratt, Christina McPhee and Andrea Polli

Brett Stalbaum, editor

Abstract

Artists confront the problems of data density and range in the aesthetic of the sublime.

Together with an introduction by Brett Stalbaum, these essays by Lisa Jevbratt, Andrea Polli and Christina McPhee were first published in print for YLEM Journal, Volume 24 Number 6, May-June 2004 (McPhee) and Volume 24 Number 8, July-August 2004 (Jevbratt & Polli), at the suggestion of Loren Means. The YLEM Journal is the bimonthly publication of YLEM, a twenty-three-year-old organization dedicated to the nexus of art, science, & technology. For more information on joining YLEM and to view the YLEM Journal online, visit www.ylem.org.

Introduction

Brett Stalbaum

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Moore's Law, Gordon Moore's famous prediction that processing speeds double approximately every 18 months, has proven to be so prescient that it long ago rose past the status of provocative futurist claim to the level of pedestrian cultural assumption. But what has not yet become an accepted cultural assumption is that Moore's law is at least matched, and possibly exceeded by the exponential growth of data to be processed. The relationship between humankind's ability to collect data and to process and understand data is co-exponential: both are exploding. Data sets from genomics, astrophysics, geography, geology, particle physics, climatology, meteorology, nanotechnology, materials science and even the search for ET are producing quantities of data that challenge the technical limits of super computers, distributed computing, grid computing, and superscalar simulation techniques. Even given Moore's law, optical networks, and

cheap mass storage, the problem of big data is nevertheless looming larger as our ability to collect data actively competes with our ability to process and digest it.

Computation has already become a nominal, if not tacit assumption in contemporary art practice due to the ubiquitous implementation of computer and communications technologies in all aspects of our emerging global culture. How does big data impinge on the present generation of representational artists who operate under the assumption of a rich computational environment? And what are the emerging aesthetic and conceptual parameters that impinge on the practice of artists who consciously recognize data and coding as the primary expressions of an art practice wherein the notions of "representation" are not limited to narrowly prescribed assumptions regarding a specifically graphical or interactive interface and networked distribution as the primary cultural operatives between artist and audience? What other questions arise in an environment where we live in a constant streaming wash of data, and what are the issues surrounding how artists might help interpret both cultural and scientific phenomena?

Lev Manovich raises a particularly interesting issue in his 2002 essay titled "The Anti-Sublime Ideal in Data Art". In it, Manovich identified an aesthetic approach to big data that seeks to interpret large data sets on much the same terms as designers and scientists seek to analyze data; a pursuit which he describes as the exact opposite goal of romantic art. "If Romantic artists thought of certain phenomena and effects as un-representable, as something which goes beyond the limits of human senses and reason, data visualization artists aim at precisely the opposite: to map such phenomena into a representation whose scale is comparable to the scales of human perception and cognition." He goes on to form a critique of such practice, and raises the question of "How new media can represent the ambiguity, the otherness, the multi-dimensionality of our experience... In short, rather than trying hard to pursue the anti-sublime ideal, data visualization artists should also not forget that art has the unique license to portray human subjectivity – including its fundamental new dimension of being 'immersed in data.'"¹¹

Look to the writings of three artists whose practice conspicuously intersects with questions relating to the romantic and the sublime. Their writings, each in a different manner, suggest possible paths toward answering the many issues that have been raised by the explosion of, and our immersion in, big data. Interestingly, Andrea Polli's "Atmospherics/Weather Works: Artistic Sonification of Meteorological Data" begins with a quotation from the romantic American poet Walt Whitman's "Proud Music of the Storm". Polli is interested in how sonification of large data sets differs aesthetically from visualization, and in helping a sonic "language or series of languages for communicating this mass of data needs to evolve." Not only does Polli's text clearly describe the types of aesthetic choices that were necessary in the sonification of the President's Day Snowstorm and Hurricane Bob data, but also reveals a successful example of interaction between and artist and scientist(s) to reinforce and potentially uncover new knowledge through what she claims is a potentially more visceral sonic experience of data.

Christina McPhee is also interested in the sonification of environmental data in "Sense of Place and Sonic Topologies: Towards a Telemimetic Sublime in the Data Landscape".

Her text is a theoretical riff based in part on her experience to date with her nascent++ Slipstreamkonza project, which processes data representing the carbon fluctuation of tall prairie grasses. McPhee's text is connected to Polli's not only in terms of their shared interest in data sonification and collaboration with science, but they also meet up in something of a rapprochement with the romantic tradition that Manovich discusses. Polli's notion of how data sonification might lead to a "physical and emotional exhilaration [that] enhances the scientist's understanding" is obviously congruent with McPhee's notion that "...one may turn a gaze to what cannot be 'seen'. Here we move into a zone of the sublime. Sublimity refers to that which is below, beyond or immanent relative to an ontological or cognitive threshold. I assume that there is a way of expressing this indeterminate zone, or invisible condition, in both the realms of the physical, cultural landscape and in the interior, 'behind the screen' landscape of the net."

It should be noted that this rapprochement with the romantic and the sublime is in no way a conservative one. The sublime, which can also be described as a particularly human cognitive response to decision-making circumstances wherein the amount of data overwhelms one's deductive reasoning capabilities, yet under which humans are more often than not able to think and act to yield successful outcomes, is one of the general capabilities to date that has evaded machine intelligence. It seems that the prodigious deductive abilities of computational systems cannot yet simulate the prodigious inferential capabilities of the human mind. We have not yet entered the period of strong AI predicted in JCR Licklider's 1960 essay "Human-Computer Symbiosis", but rather we continue to exist in the symbiotic phase where "computing machines can do readily, well, and rapidly many things that are difficult or impossible for man, and men can do readily and well, though not very rapidly, many things that are difficult or impossible for computers."ⁱⁱⁱ Big data, as it turns out, is a challenge even to this successful symbiosis. The work of Polli and Jevbratt, particularly through their engagement with issues relating to the sublime, express congruence with the problem spaces of both data mining, artificial intelligence and many other disciplines faced with big data problems.

Jevbratt's "A Prospect of the Sublime in Data Visualizations", builds on McPhee's assumption regarding expression of the "indeterminate zone" of the sublime, and is also an answer to Manovich's use of her work as an example of the anti-sublime ideal. In her essay, she explores the potential for a symbiotic human-machine space to be understood via the sublime in terms of a "methodological distancing" including the concept of "Via Negativa" and a proper appreciation of the opportunistic nature of meaning that would allow us to take into account (romantic) philosopher Emmanuel Kant's notion regarding the "mobilizing effect the sublime has on our organizing abilities." Jevbratt thinks this would help us avoid "the most common mistake in data visualizations...", that being "not too much information but too little, their 'images' of the data landscape are not high resolution enough for an esthetic decision to be made."

With special thanks to Loren Means and the board of YLEM, I hope that the exploration of data and the sublime in the essays to follow will stimulate further discussion of the issues and opportunities presented to artists by the problem of big data.

Brett Stalbaum
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May 2004
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ⁱ Manovich, Lev The Anti-Sublime Ideal in Data Art, (2002) http://www.manovich.net/DOCS/data_art.doc

ⁱⁱ Licklider, JCR, Man-Computer Symbiosis, original publication 1960, reprinted in The New Media Reader, ed. Noah Wardrip-Fruin and Nick Montfort, MIT Press, Cambridge Massachusetts/London England, 2003. (77)

ⁱⁱ Walter Koprolin, copyright © 2004 by Walter Koprolin

http://www.astro.univie.ac.at/~exgalak/koprolin/Photo/StarF/Cass_Per_50mm.html

ⁱⁱ Manovich, Lev, “The Anti-Sublime Ideal in Data Art”, http://www.manovich.net/TEXTS_04.HTM, 2002

ⁱⁱ http://jevbratt.com/1_to_1/

ⁱⁱ Burnham Jack Artforum, September 1968

ⁱⁱ Jacques Derrida at “Derrida and the Question of Religion”, UCSB, November 2003

ⁱⁱ Gielow Ryan, San Jose State University, 1999

ⁱⁱ Ginzburg Carlo, “Morelli, Freud and Sherlock Holmes: Clues and Scientific Method” in History Workshop Journal, 1980

ⁱⁱ Barabasi Albert-Laszlo, “Linked: The New Science of Networks”, Perseus Publishing, Cambridge Mass., 2002

ⁱⁱ Gamwell, Lynn, Exploring the Invisible: Art, Science and the Spiritual, Princeton University Press, 200

I The Prospect of the Sublime in Data Visualizations

Lisa Jevbratt

www.jevbratt.com

Looking out and up



In Caspar David Friedrich's (German, 1774-1840) "The Polar Sea" (1823-24) we look out on an endless inhospitable ocean of ice, and a shipwreck - a trace of an attempt to do the impossible, to go "there", to reach for and understand the unbearable void.



Starry Skyⁱⁱ

We look up at the starry sky and we sense a fear of not comprehending and being engulfed, a fear of the unknown, and simultaneously we experience a longing for the inaccessible, impenetrable darkness.

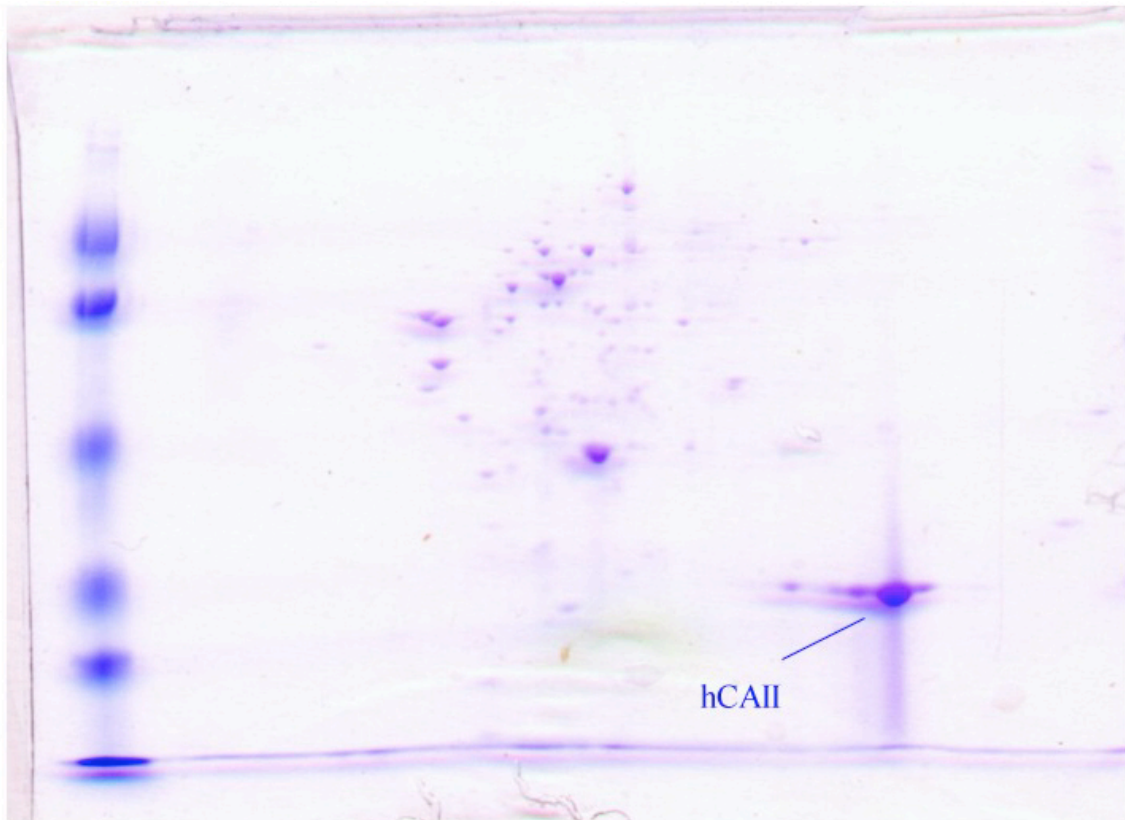
These are the classical visuals of the sublime. Images of a sense of grandeur we can't reach, which we can't penetrate or grasp. It is in the very far distant, it is hidden in layers of mist, or made inaccessible by a climate not suited for us and it instills a sensation of deep fear. Yet we urge for it, we are fascinated and attracted by it.

Looking down and in



The Rocky Mountains, Colorado. Picture sixty-three taken with my new camera. 2004. Jevbratt.

2004. We look down. We consume satellite and aerial photography in all its forms; on the web we can access detailed satellite and aerial photographs looking down on our houses or whatever we want to surveil from above, we are capturing mountains far below with our first digital camera, we have the poster of “lights emitted from the earth” on our walls (maybe pondering what it says to bypassing intelligences – gods, aliens and others), and we rely on satellite imagery to predict weather and track fires.



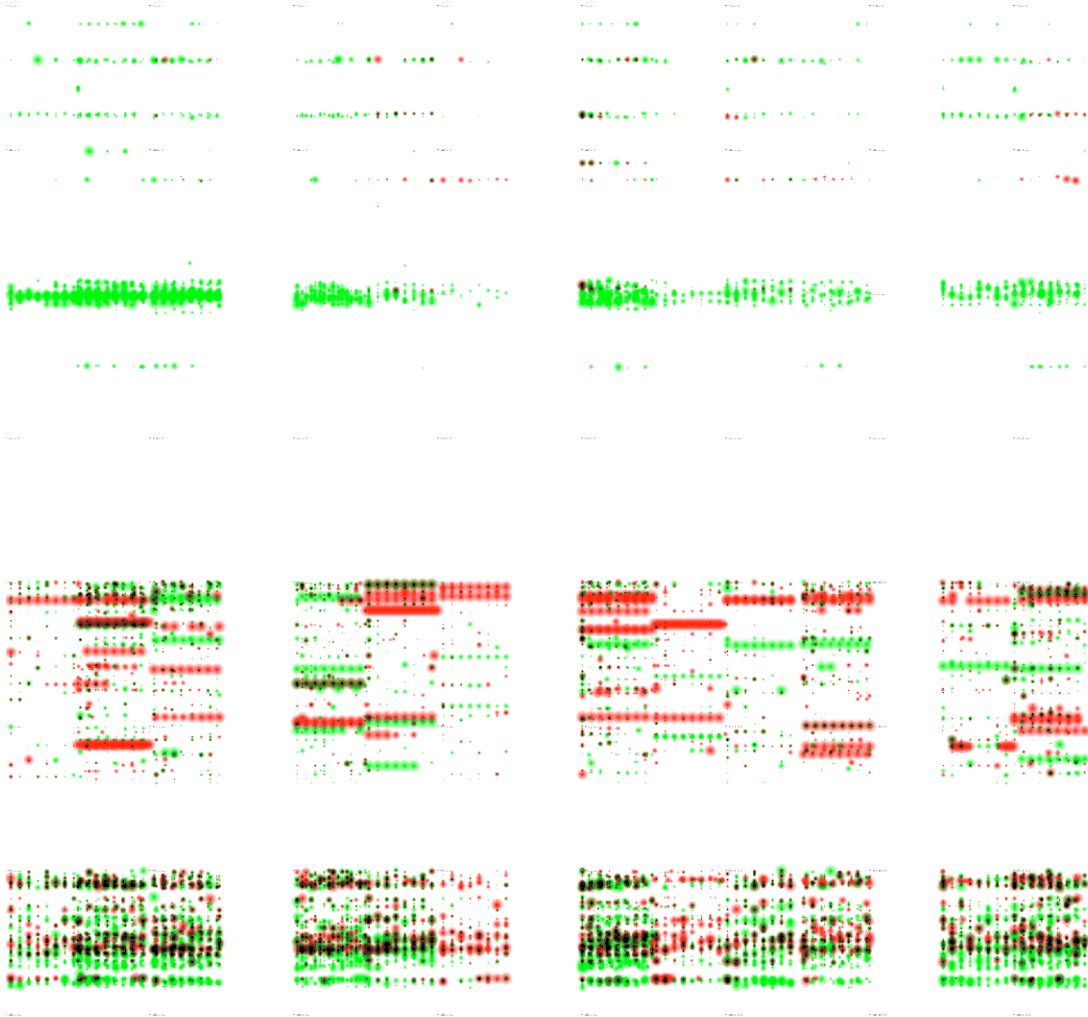
Peripheral evidence: two dimensional polyacrylamide gel.

We look in. The genome is mapped and we are trying to figure out how to look at it. New technologies for looking in towards and inside cells, RNA and nano structures are rapidly developing, and the methods of making peripheral evidence of them and their processes are constantly refined. We look at our networks that produce data about ourselves in sublime quantities.

Anti-Sublime

The datasets we are looking at now are of no less dimension, vastness and grandeur than the datasets that were the subject of the classical sublime; and the sensations of the sublime harvested by the romantic artist and others is of great interest to us when trying to make sense out of our datasets today. However, a quite logical argument against the possibility of the sublime acting within data visualization can be made. It has been well formulated by Lev Manovich in “The Anti-Sublime Ideal in Data Art”.

“If Romantic artists thought of certain phenomena and effects as un-representable, as something which goes beyond the limits of human senses and reason, data visualization artists target the exact opposite: to map such phenomena into a representation whose scale is comparable to the scales of human perception and cognition. For instance, Jevbratt’s 1:1 reduces the cyberspace – usually imagined as vast and maybe even infinite – to a single image that fits within the browser frame.”ⁱⁱ



The whole Internet with The Web as it existed in 1999 (red) and 2002 (green).
*1:1(2), Interface: Migration, Lisa Jevbratt 2002*ⁱⁱ

The reasoning is very clear and it troubled me because I instinctively knew that it was wrong – both in making the case that data visualization by definition is anti-sublime and that my project 1:1 would be a good example of this case.

How then can data visualizations utilize the (or be) sublime? Why should they aim to?

Push, pull

While the datasets of today are as substantial as the ones dealt with in the classical romantic sublime, there is a difference in direction and force.

In the original sublime the force is attraction. The object of desire is over there, far away and we want to reach it. We want to go there, we are scared and intimidated but our longing and effort is 'towards'. When our force (engine, energy, luck) fails the ship stops, it does not get closer. The forces of nature push us away - we urge to approach. The classical sublime was the extreme tension of not knowing and wanting to know; we were attracted by the fact that we didn't know.

Now, looking in and down the force is reversed. If the engine in a plane stops, it approaches the ground; the natural force is gravity and we want to stay up and away. We are pulled down and respond by retracting. The forces of nature pull us down, in - we urge to repel. The sublime now is the extreme tension between (hypothetical) familiarity - the earth is our home, the cells and DNA are in our bodies, the networks are our creation - and a methodological distancing.

Esthetic decision-making

In the article "Systems Esthetics"ⁱⁱ Jack Burnham wrote about the new complex process or systems oriented society, culture and economics he saw emerging: a new era in which systems analysis would be the most relevant method for making understandings in any discourse. Burnham argues that because we can't grasp all the details of our highly complex systems (economic, cultural, technical, etc), we cannot make "rational" decisions within them or understand them by analyzing the systems or their parts. The way to make decisions within them and to understand them is by making more intuitive, "esthetic decisions", a concept he borrows from the economist J. K. Galbraith.

This idea has an intriguing parallel in the philosopher Emmanuel Kant's reasoning about the mobilizing effect the sublime has on our organizing abilities. He claims that in experiencing the sublime, by facing large amounts of information, huge distances and ungraspable quantities, our senses and our organizing abilities are mobilized. Contrary to what might be believed, we feel empowered, able to make decisions, and capable to act.

Many strategies for aiding people in the task of turning any large set of data into knowledge assumes that they should be presented less information and fewer options in order to be able to make sense out of the data.

However, humans are capable of sorting through enormous amounts of visual information and make sensible and complex decisions in a split second, (the ability of driving a car is one example). Supported by Kant's idea I propose that under the right circumstances, drawing on sensations of the sublime, people can, when faced with huge quantities of data, be mobilized to make intuitive understandings of the data. Many information visualizations and displays are a result of the mistake of compressing the information too much and decreasing the amount of information through calculations that embody assumptions that are never explained. The most common mistake in data visualizations, artistic or scientific, is not too much information but too little, their "images" of the data landscape are not high resolution enough for an esthetic decision to be made.

Meaning is opportunistic

Why is low-resolution highly compressed data representation less meaningful? If it is counteractive to a sublime, why is that? How does that sense of awe and 'aha' that the fear and force of the sublime helps us experience transpire?

Meaning behaves like a parasite. It is *opportunistic*, taking "immediate advantage, often unethically, of any circumstance of possible benefit" (the definition of opportunistic at <http://dictionary.com>). If meaning in fact is opportunistic, and opportunism implies an unethical stance then it could follow that meaning does not thrive in an ethical environment. This reasoning is more interesting if one understands the term ethic as an opposition to faith. Ethic is a stance in which one in any moment is aware of ones goals and choices. One has a plan and a way in which to carry it out. Faith is a stance in which we let go, were we are submerged and surrendered, when we are trustingly accepting a "truth", an emotion or a calling. (At the conference "Derrida and The Question of Religion" at UCSB in fall of 2003, Derrida mentioned during a discussion between him and presenter the concept of *the calling* and reflected on how that concept is not that different from how animals follow traces. This constitutes an interesting point for the thoughts in this paper.)ⁱⁱ

Culture then is extremely meaningless because so many choices have been made, and nature is extremely meaningful since no choices have been made. It seems like we strive to cut the extremes, the very meaningful and the extremely meaningless. To make culture more meaningful we create unstable conditions for decision making: i.e. to reduce the number of ready-made choices we create unpredictable and arbitrary events and expressions within it. It is interesting to see that younger people are more prone to produce these. Quite likely a young mind has more difficulty dealing with the burden of meaninglessness, and thus tries to minimize it by generating arbitrary signs (such as the expressions, fashion and sounds of various subcultures). To make nature less meaningful we organize and categorize it and our experiences of it. (Of course nature is only void of

choices if one does not believe in a creating god. In fact the very idea of a creationist god could be seen as another attempt to decrease the meaningfulness of nature). However, another, contradictory reaction to nature might be that our ability to perceive meaning is numbed by the loudness of it. Just as our retina gets saturated after looking at one color and creates a ghost image of the opposite color when we look away briefly, nature can (falsely) appear as if completely void of meaning.

The result of this reasoning is that as soon as we are trying to make what we experience ethical, i.e. succumb to a plan and direction by making deliberate choices, the experience and its data decreases in meaning. If we semantically categorize and search for meaning it is as if we try to look at the dust on our corneas, we can't see it unless we stop looking at it. Everything becomes meaningless when we attempt to "capture" the meaning. In the task of visualizing huge datasets this means that we need to avoid making assumptions about the meaning of the data in order to allow meaning to find an opportunity to occur. Perhaps the answer to the question in the beginning of this paragraph is that we need to allow the interplay between the extremes, allowing the meaningfulness and the meaningless to happen by not attempting to reduce either.

Identity in the non-intended

Some years ago a student of mine made an interesting discovery in a project he madeⁱⁱ. It was Web software that returned the result of a search for something on a selection of search-engines in the reversed order. I.e. the most relevant, however the search-engines define that, was last on the list and the least relevant of the relevant sites was shown first on the list. The result was striking. The least relevant sites, the ones usually so many clicks away we don't bother to look at them, varied greatly between the different search engines. The most relevant results, the ones usually displayed on top, were all the same.

A similar finding was made some centuries earlier by Giovanni Morelli (1874-1876). He sought to find a method of determining authorship of paintings and came upon the fact that authorship is more detectable in the parts of a painting done with less intention; the parts which are not significant for the author or the genre in which the painting is made, such as earlobes and fingernails. His method is now called "The Morelli Method". In art historian Edgar Wind's words it is interesting that "Personality is found where personal effort is the weakest".ⁱⁱ

Even more strikingly, what seemed to be true on the Web is also true in biology, according to Albert-Laszlo Barabasi in his book *Linked: The New Science of Networks*.ⁱⁱ Barabasi is doing research on the network structures and linkage systems of various fields from computer networks to biology. He finds that "For the vast majority of organisms the ten most-connected molecules are the same." (p. 186) These highly connected molecules, hubs in Barabasi's terminology, are equivalent to the most relevant pages in a web search or the traditionally most "important" features in a painting. These

are the items, nodes, with the most intent. Just as the least relevant web pages are the most dissimilar, and the least important features such as earlobes say more about the painter, the difference between different organisms and the production of their identity lies in the least connected, least used or significant molecules. "[O]nly four percent of the molecules appear in all of them. Though the hubs are identical, when it comes to the less connected molecules, all organisms have their own distinct varieties." (p. 187)

Via Negativa

These are all evidences that reality does not show itself to us in an expected manner, through intention and expression, but it reveals itself to us indirectly in small fragmentary pieces. The method of searching out those bits and pieces without preconceived notions on what to find has been an important method in various mystic traditions, and the term *Via Negativa*, possibly coined by Dionysius the Areopagite, a late 5th century mystic, is used to describe it. *Via Negativa* is a method of distancing, of negation, in which we claim or pretend to not have any preconceived notions of the systems that we are looking at. The method has a lot of similarity with artist methodologies (such as Joseph Beuys) and now also with some contemporary scientific methods. "For example, the process of harvesting, sequencing and mapping the human genome has been described as that of a group of people in a dark room fumbling around not knowing what is in the room, how the room looks or what they are looking for. Someone bumps into a thing with four sharp corners and starts to look for other things with four sharp corners. Someone else decides to move along what seem to be walls and feel their texture, yet another sits still and waits for the others in the room to pass by, taking notes on their activities or maybe on their scents.

The value in *Via Negativa* for data visualization is that it creates that opposing force of not falling into, a repelling force counteracting the gravity pulling us down. The *Via Negativa* enables the sublime to operate.

**Epilogu
e**



Juno falling and snacking. Still from *Spy Kids 2: The Island of Lost Dreams*

If staying up is our (or others, things or beings) effort, then the fall, the ultimate inability to do so, is a trope of interest. There are significant falls ranging from literary, such as the fall of Alice, the girl in Wonderland, to political, such as the fall of the Twin Towers. In "Spy Kids 2: The Island of Lost Dreams", Carmen and Juni, the spy kids, fall into a model of the landscape, through the mouth of a volcano. Their fall lasts for an extended time, so long that they take comfortable positions, eat a snack and discuss the possible outcomes of their fall. In the end they might not have been falling for a very long distance. The model that they are falling into has an air vent blowing air sufficiently strong for them to be lifted and they might have spent most of the time in the illusion of falling.

In a time period of eight weeks I experienced three events of falling substance that for one reason or another seemed to have significance. On a dreamlike evening just after sunset up on a mountaintop overlooking the beautiful cloud covered southern Californian

coastline far from above, a shooting star released itself from its usual celestial path, where we are accustomed to see it disappear far in the distance, and fell towards the earth and us as a real physical object on fire landing not too far away from us. A few weeks later I spent an hour in my closet attempting to clean up after a mold infestation that happened earlier in the year when I, more or less simultaneously, hear my neighbor flush her toilet and felt a liquid substance on my head. Three days into my artist residency in Huddersfield, Yorkshire, England, where I have taken refuge from the daily duties of teaching and meetings, an American bomb fell over Yorkshire; whatever the target was, it missed.

Lisa Jevbratt

II Sense of Place and Sonic Topologies: Towards a Telemimetic Sublime in the Data Landscape

Christina McPhee

www.christinamcpee.net

illustrations: digital print series on fujiflex, each 19 x 66 inches, ©Christina McPhee 2003-2004

Background

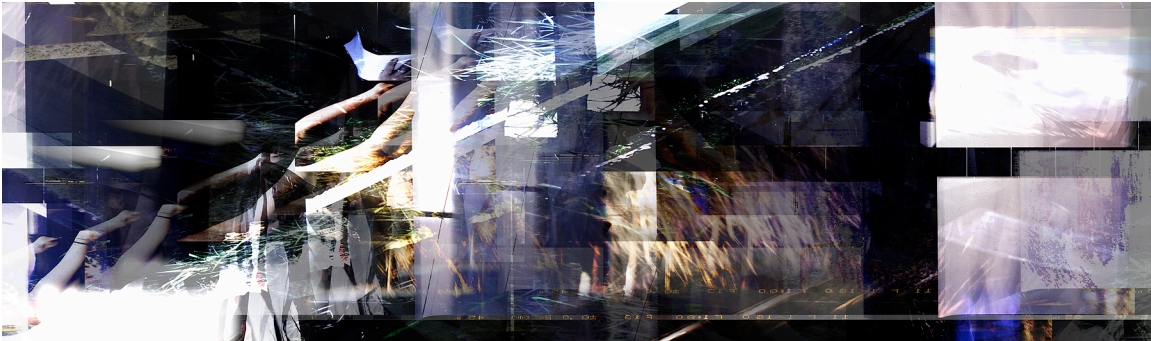


slipstreamkonza.2

Global warming, implicates the increasing atmospheric level of carbon as a primary agent. Nonetheless, the total worldwide carbon budget, which takes into account all known petrochemical usage on an annual basis, shows that terrestrial systems must be absorbing more carbon than we realize. According to the carbon budget mathematical models, carbon concentrations should be increasing faster than they actually are. The hypothesis is that the carbon flux patterns of selected microsystems worldwide may reveal conditions under which more carbon is being absorbed than is being released. On and near Konza Prairie, since 1997, diurnal and annual data are collected as "eddy correlation" or "eddy covariant" flux measurements. From two of the sites, a located on the Rannels Ranch next to the Konza field station, wireless net carries the live data online for collection and analysis. Jay Ham, PhD, agronomist and climatologist, conducts research into carbon flux dynamics relative to models of climate change, at Kansas State University. He is the scientific partner for the present project, Slipstreamkonza. Slipstreamkonza addresses aesthetics of digital data expression of land as a breathing ecosystem. The time based data stream of carbon flux is interpreted as rhythmic, virtual expression of sound and image in net based and spatial installation.

I net and Gaia

Imagine interpolated virtual and actual spaces thrive and decay, die and live in a riparian zone, watered by pervasive computing as a neural territory or intelligent topology, the net acts as if alive. As a place of continuous ruin and simultaneous regeneration, the networked space of electronic communications is re-presenting, itself. A semiotic model may offer us the net as a subjective topology, a synaptic process-space. This space is not silent. Semiotically, it ‘voices’ itself. A model of the net as a live voice finds some echo in analogy to the Gaia hypothesis on the nature of the physical landscape. As life, Gaia persistently self-represents, or emits information about herself [1]. This is an old idea in new dress. “Day by day pours forth speech,” declares the Psalmist. In semiotic terms, a landscape of voice or self-expressive phenomena, as actual, real information—is both a data landscape and sonic topology. Where and what is this place? What is the sense of place in the data landscape?



slippstramkonza.3

ii topology and telemimesis

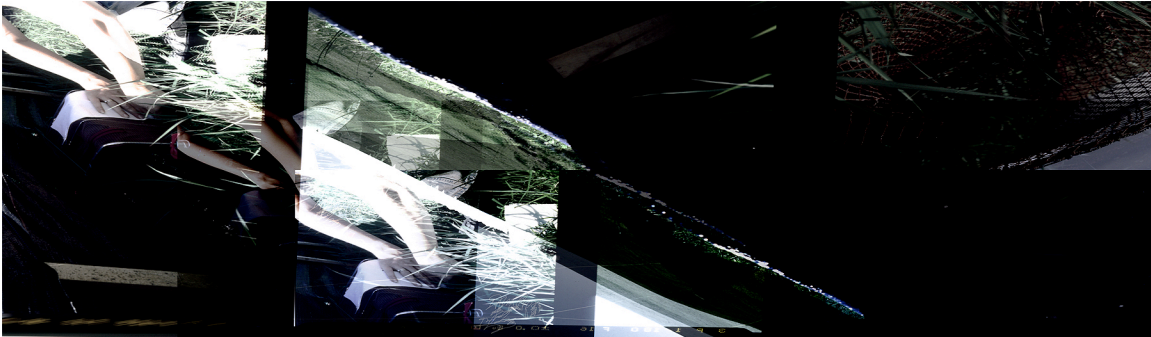
You might picture the structure, or topology of data streams, whether in the electronic or in the natural ecosystem, as an invisible domain that persists over, and through discontinuities. The leap across the breaks, or breakdowns, can be expressed musically by means of formal structures of recursion and feedback loops, as in classic cybernetic theory, but also as in Baroque fugue structures. I imagine recursion and flow, between natural data and human/machine, an interpolated, mutual consciousness.

A topology is a word (*logos*) of a place (*topos*). A hypothesis about what constitutes this ‘word’ or voice of a place on the level of artistic process is aesthetic in nature and intent. Aesthetically, such a place may be explored as a process of *telemimesis*. “*Telemimesis*” joins *tele* -- vectors across distance in space, as if space is actually layered time—with *mimesis*, in the Platonic sense of figuration of a prescient or hidden motif.

iii sublimity + entropy

As a visual artist, one may turn a gaze to what cannot be ‘seen’. Here we move into a zone of the sublime. Sublimity refers to that which is below, beyond or immanent relative to an ontological or cognitive threshold. I assume that there is a way of expressing this indeterminate zone, or invisible condition, in both the realms of the physical, cultural landscape and in the interior, “behind the screen” landscape of the net.

As an ecosystem, the data landscape may be described as continually subject to entropy, following the second law of thermodynamics. Life itself may be thought of arising, like a phoenix from ashes, as an articulate resistance to entropy. A continuous dialectic between entropy and the architectural self-structuring process of life means that homeostasis is predicated on breakdown, or ruin. Data stream is not always continuous. Scientific instrumentation for measurement and transmission of physical data may fail. Anomalies of landscape data are not always explicable based on known models. Humans struggle with the limitations of their bodies, including, fatigue, inattention, illness and mortality. A *telemimetic* aesthetic of the sense of place in the data landscape accommodates breakdown of the ‘language’ of information streams. This is true as much for electronic cultural topologies of the net as for the physical landscape of our planet.



slipstreamkonza.4

iv synaptic recursions

Imagine recursion and flow, between natural data and human/machine, an interpolated, mutual consciousness. [2] The place of flow is sonically expressive. The human user and the artist are assumed to be collaborative agents within a self-expressive, prescient landscape. A possibility is that human synaptic pathway performs as a layer of dynamic connotation. Like a trace, or vector, over and through the data landscape, the synaptic

layer is a human transmitter of landscape's self-revelation. Humans aesthetically collaborate in a system of connotation that is never fully seen, heard or actualized: existing in time, the system is grasped in spatial fragments. Or, to put it another way, the landscape represents itself in and as layers of time and human presence. Between 'natural' morphologies in the brain/mind, and the visualization and acoustic revelation of landscape, is a space, or place of *telemimesis*. It is mimetic in that it represents itself relative to a precessive content (landscape data) and does so at a distance from itself.



slipstreamkonza.5

Sound, contextualized within the predominant visuality of digital media GUI, h as a peculiar valience and expressive power. Orpheus makes music from the underground, or invisible locale and transmits telematically in a delayed time mode, like a voice from a hidden subject, or a music made from an invisible data stream. Telematic art is asynchronous communication: between the in and out of data feed and interpretation, there is an alteration in time and space. At the point of rupture, in the place between, is to be found the 'sense of place' in virtual topologies. Thus the Platonic view of an anterior, or precedent Form, which comes into consciousness only through a physical expression is put into a feedback loop. Things move in and out of a condition of being nameable, or visualized, in a continuous Mobius strip looping. I hope to show that a *telemimetic* function underscores why sound, and music, transport aesthetic meaning across the ever –shifting break/loop between the visible and the invisible. I suspect that there is a kind of transport membrane over this abyss (to borrow from Derrida) and that this transport mechanism, aesthetically, is a time based topology, e.g., music.

We might make an analogy of this recursion to a kind of breathing, in and out, between the inside of the body and the outside. In terms of the Gaia hypothesis, let us imagine an emission of data, and a gathering-in of data, like breathing. Global climatology attempts to study climate change by collecting millions of data samples of diurnal carbon

absorption and release on the tall grass prairie, an ecologically critical environment in North America and elsewhere. The prairie is implicated within the phenomenon global warming in ways that are not clearly seen, and are under current intensive study.

Slipstreamkonza is an art/science collaborative project that addresses aesthetics of digital data expression of land as a breathing ecosystem and as manifestation of climate change. Slipstreamkonza uses the time based data stream of carbon flux as a basis for a generative, rhythmic, virtual expression of sound and net-based telematic installation.



slipstreamkonza.6

vi konza and telemimesis

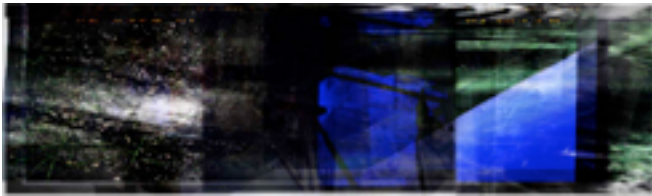
Konza is the Osage term for “south wind.” Like breath on a mirror, *konza* is an evanescent imprint of an invisible dynamic. Prairies worldwide capture and release carbon in a waveform breath. At the threshold of the exchange between atmosphere and surface is the life of the planet; the Konza prairie is a site that can be interpreted aesthetically in terms of a *telemimetic* topology using sonic forms relative to visual phenomena in interactive art.

□

Slipstreamkonza does not engage in the conventions of data emulation, or scientific visualization, in order to better understand the data. Yet, the encounter between the human response and the landscape's self expression as data, is of prime importance. I am interested in the relationship, or dynamic, between the data and the human imagination. The carbon flux on the prairie is a kind of breathing, and it is both useful and powerful to realize that the prairie ecosystem is in itself a living organization.

Data goes live as a dialectic or interface between paratopic, polyphonic, and polychromatic volumes. Think about interpolation and superimposition, like montage, as

virtual and physical spaces, using layers of content that are expressions of hidden data through a semi-permeable membrane, or data transport mode. Maybe time becomes metabolic: it gives rise to a productive structure, composed of intelligent units, or affective artifacts in continuous movement and states of disclosure.



slipstreamkonza.7

vii conclusion, or another beginning

A moving sense of place gathers its momentum and definition on the fly, like a continuous improvisation that is not entirely responsive to human use and reflection. A poetics of that place, both virtual and physical, in the mixed volumes of fluid media, might give rise to a polyphonic design strategy, where arching shifts between recursion and sonority, darkness and density, transparency and light, processional and volume are as responsive interactive structures in performative multimedia installations. It is my hope that, like a fold or complex cut in the fabric of the data landscape, sonic topologies are a research site for aesthetics of *telemimesis* in digital media practice.



slipstreamkonza.8

Notes

[1] Geri Wittig has looked at the Gaia hypothesis relative to the discourse on landscape data, holism and science, and includes a brief, helpful bibliography on this topic, at <http://www.c5corp.com/research/complexsystem.shtml>.

[2] Brett Stalbaum asserts that “data's role in the instantiation of the actual may be a matter of virtual informatic interrelations (or external relations between data sets), forming their own consensual domains that heretofore have not yet been observed as such, but which potentially inflect the operation of actual systems via informational transfer between neighboring systems of interrelations.”

(http://www.noemalab.com/sections/ideas/ideas_articles/stalbaum_landscape_art.html)

III Atmospherics/Weather Works: Artistic Sonification of Meteorological Data

Andrea Polli

www.andreapolli.com

PROUD music of the storm!
Blast that careers so free, whistling across the prairies!
Strong hum of forest tree-tops! Wind of the mountains!
Personified dim shapes! you hidden orchestras!
You serenades of phantoms, with instruments alert,
Blending, with Nature's rhythmus, all the tongues of nations

Excerpt from Walt Whitman's "Proud Music of the Storm" [1]

Introduction

For over ten years, I have been creating art works that translate numerical data to sound, from algorithmic compositions modeling chaos to live improvisation using video analysis systems. Areas of particular interest to my research have been modeling human methods of improvisation in interactive computer systems and using data sonification to illustrate complex information. Visualization is the interpretation of scientific data through the visual image, and likewise sonification interprets data through sound. Sonifications can help scientific researchers understand data in a different way.

Since 2001, I have been working on the sonification of meteorological data in collaboration with Dr. Glenn Van Knowe at MESO, Mesoscale Environmental

Simulations and Operations <<http://www.meso.com>> a leading firm in the development and application of atmospheric and other geophysical models for research and real-time applications. MESO works with the Mesoscale Atmospheric Simulation System (MASS) to create a highly detailed simulation of the weather based on terrain, initial conditions, and other factors. The atmospheric data sets produced by MESO are extremely detailed, and although they have a variety of visualization tools to interpret the data, much of the data represented is not visual in nature (temperature and atmospheric pressure for example). Through the project we wanted to learn what would happen if the data was interpreted sonically. In April 2003, we completed a series of multi-channel sonifications of two historical storms, a tropical hurricane and a winter snowstorm at five elevations as part of a storm sonification project called Atmospherics/Weather Works.

The Atmospherics/Weather Works project has three primary goals: the development of a software system for the creation of sonifications based on meteorological and other data to be used in performances and installations, live and recorded musical performances, and a web site for the presentation and distribution of the recordings and software. [2]

The first public installation of the project was in April, 2003 at Engine 27 <<http://www.engine27.org>>, a non-profit organization devoted to the research, creation and dissemination of multi-channel sound works in New York City. A 16-channel sound installation spatially re-creates two historic storms that devastated the New York/Long Island area first through data, then through sound. The resulting turbulent and evocative compositions allowed listeners to experience geographically scaled events on a human scale and gain a deeper understanding of some of the more unpredictable complex rhythms and melodies of nature.

Why is scientific data so often presented as visual information and much less often presented as sound? One reason might have to do with time. A still visual image can be scanned over time, allowing a viewer to study various aspects of an image. A soundscape or piece of music, although it is also temporal, cannot be examined in detail without the destructive process of stopping, selecting, and replaying various parts. Aspects of the visual image are also easily defined by viewers. Specific colors and shapes can be described and understood more often than specific notes or musical phrases. Specific sounds also can have a level of ambiguity. Although some sounds are easily identified (like a barking dog or a cat's meow for example) the source of other sounds are not quite as clear. If noise or an echo interacts with a sound, it is like looking at a visual image wearing glasses that are heavily fogged, making recognition more difficult.

However, unlike a still visual image, music and soundscapes are inherently narrative. For example, as I listen to footsteps and voices outside my apartment door, I can determine that two people are walking up the stairs of my apartment building. I can determine approximately what floor they are on and even gather a little information about their relationship (are they a couple? a mother and child? have they been recently arguing or laughing?) In a visual image, a photograph of a family for example, unless the emotional states of the subjects are highly exaggerated, an observer is likely to encounter a certain amount of ambiguity in determining the relationships between the subjects.

Can an enhanced narrative and emotional content enhance the understanding of meteorological data? Some meteorologists call themselves 'storm hunters'. They travel far and wide at considerable physical risk in order to experience a hurricane or tornado. Is it because the physical and emotional exhilaration enhances the scientist's understanding of the storm? The storm hunters would most certainly answer in the affirmative. They experience the sound, scale, and physical properties of the storm as well as its direct effect on the environment. A storm experienced only through visualization, whether animated or static, does not convey this visceral information. Scientists must use their imagination to create a mental image of a storm's potential devastation. A sonic experience of a storm can benefit communities beyond the meteorologist's lab. If a scientist is alerted by a visceral experience that a storm is likely to cause destruction, communities may be more quickly notified to prepare a proper response to the storm.

Our work represents a part of a growing movement in data sonification research. In 1997, The Sonification Report was prepared for the National Science Foundation by members of the International Community for Auditory Display (ICAD).[3] This report provides an overview of the current status of sonification research and proposes a research agenda. Most significantly to us as interdisciplinary collaborators, the report stressed the need for interdisciplinary research and interaction. Our project is well-suited to sonification according to the findings of ICAD. The data sets produced by MASS are extremely large and complex, and although there are a variety of visualization tools in use to interpret the data, much of the data represented is not visual in nature (temperature and atmospheric pressure for example). The data represented often portrays complex changes over time, an aspect of data particularly suited for sonification.

My personal interest in data sonification is in the artistic creation of new languages of data interpretation. As individuals and groups are faced with the interpretation of more and more large data sets, a language or series of languages for communicating this mass of data needs to evolve. Data interpreted as sound can communicate emotional content, and I am particularly interested in the sonification of data related to the atmosphere and the weather because of the long history of the weather used as a metaphor for emotion in the arts.

2 Project Planning

The project began when I met Dr. Van Knowe in the summer of 2001 at the first meeting of Bridges, an International Consortium on Collaboration in Art and Technology, a joint project of The USC Annenberg Center for Communication & The Banff Centre for the Arts New Media Institute [4]. Dr Van Knowe had joined MESO as a Senior Research Scientist after 24 years as a meteorologist for the Air Force. He was Chief of Meteorology at Rome Lab in New York where he directed the meteorological aspects of all research and was chief of the modeling and simulation development branch for the Air Force's Combat Climatology Center (AFCCC) at Scott AFB, IL.

Dr. Van Knowe and I brainstormed at that meeting and then continued to communicate via email and telephone to develop a project plan. After developing a proposal and being invited to participate in one of the first spatialized sound production residencies at Engine 27 to create a storm sonification, we met at MESO to plan the project. We wanted to create a spatial sonification of one or more storms that occurred in the New York area in the recent past in the hopes that some members of the audience would remember the specific storms.

Dr. Van Knowe and Dr. John Zack of MESO suggested we try to create a sonification of a major winter snowstorm that in 1979 was not foreseen by the existing meteorological models and inspired years of research and development into improving the models. The "President's Day Snowstorm" initially formed as a weak wave of surface low pressure on a front in the Gulf of Mexico on 18 February 1979. Since this storm was not predicted by the existing meteorological models of the time, a large amount of data on this storm was available.

Later, Dr Van Knowe found a strong tropical Hurricane, Hurricane Bob, that passed though the same coastal region. We decided to attempt to sonify two storms that have a very different physical structure to see if the sonifications would yield insight into the nature of these two different types of storms.

3 Modeling the Storms for Spatialized Sound

Since the Engine 27 space has a very specific and unusual 16-channel speaker arrangement, we decided to map each speaker to a specific point in space proportional to the area spanning from Northern Florida to Northern New York State and from the Eastern tip of Massachusetts to Western New Jersey with New York City situated near the center. Simulated point data was to be modeled for an area of approximately 1000km. This area was mapped to the size and shape of the Engine 27 space. (see figure 1)

The kind of model output needed for sonification was very different that the output formats already in use by MESO for visualization. Dr. Van Knowe and his colleagues use the Mesoscale Atmospheric Simulation System (MASS) to create a highly detailed simulation of the weather based on terrain, initial conditions, and other factors. MASS takes real data inputs from satellite or surface readings and couples the information with global and regional models. There are several MASS output file formats: 3D array files, 2D horizontal (x-y plane) files, 2D vertical cross sections (x-z plane), 1D x,y simulated point observations, and 1D vertical profile (x,z) simulated point atmospheric soundings.

Our project required files of individual variables output for each geographical point at regular temporal intervals. Dr. Van Knowe and Dr. Kenneth Waight of MESO created a

custom piece of software to output the data in this format. Kenneth T. Waight joined MESO in October 1987 after completing his Ph.D. in atmospheric science at the University of Wyoming. His first three years at MESO were spent on a project funded by the NASA Marshall Space Flight Center. Dr. Waight relocated to MESO's Troy, New York office in 1990 to assist in the development of MESO's real-time operational mesoscale modeling system.

Dr. Van Knowe then created a complete model of each storm at 5 points of elevation: sea level, approximately 8500 feet, approximately 18,000 feet, approximately 35,000 feet, and approximately 60,000 feet (or, the top of the atmosphere). Each variable was output every three minutes for a 24 hour period of the greatest storm activity. The model grid resolution was 10km. Nine variables were modeled at this stage, but only six variables were used in the final sound compositions: atmospheric pressure, water vapor, relative humidity, dew point, temperature, and total wind speed.

4 Creating the Sonifications

After the storms were modeled and the data output, we were left with 720 data files of 481 values each and the daunting task of translating these numbers into sound. Engine 27 master programmer Matthew Ostrowski joined us at this stage and he and I worked at the Engine 27 space for a period of about four weeks creating a system for reading and translating the files to spatialized sound using Max/MSP.

We decided to create a composition of each day's storm activity in full at each of the five elevations. We started by simply and directly mapping each variable to the pitch of a sound sample of a distinct timbre. We somewhat arbitrarily used long tones for temperature and pressure related variables and percussive tones for water related variables. The bank of sound samples used included vocal sounds, sounds created by wind instruments, and environmental sounds including the sounds created by various insects. The resulting sound compositions were interesting, but listeners found it difficult to hear the changes in each individual variable.

We then decided to map the total wind speed to the amplitude of the sound. Directly mapping loudness to wind speed for every speaker (every geographic point) created a dramatic spatialization effect. The fastest wind speeds, representing the greatest storm activity, created the most sonic activity and excitement.

However, the combination of timbres was still overwhelming to the listener, limiting the listener's ability to make sense of the data. At this point, we decided not to limit the number of variables presented through the sonification for the sake of the public presentation. Had we been creating the sonifications for research only, at this stage we might have brought Dr. Van Knowe and his colleagues into the space to listen to and compare and contrast sound compositions created by single variables. However, there was a deadline for a public presentation of the work to a general audience and

aesthetically we felt that the single variable compositions lacked the fullness necessary to engage a general audience expecting to hear a musical composition.

The first aesthetic choice was to translate the atmospheric pressure data to a very low frequency sound. In doing so, listeners lost the ability to hear a detailed melody line describing the pressure changes, but gained a visceral sense of the storm.

Then, we began experimenting with using some of the variables as filter variables for sound samples representing other variables. Some of the variables in the model were highly coupled or inversely related to other variables. We created a band-pass filter that filtered a sound representing temperature with dew point values and filtered water vapor with relative humidity values. We found at this point that we needed to choose sounds with a wide spectrum in order to hear the filtering most effectively. White noise has the widest spectrum, and selecting 'noisy' sound samples proved the most effective in communicating the data and also was the most effective aesthetically due to the variation in the resulting sounds.

The scaling of the data for sonification presented particular challenges. Although the overall wind speeds varied with elevation levels, we decided to use global scaling for wind speed. This created the effect of the compositions building and receding in intensity. However, using global scaling for variables such as temperature mapped to pitch or water vapor mapped to a band pass filter proved to be much less dramatic than creating a scaling system for each elevation level of each storm since the variables differed widely between levels.

Finally, since the sonifications were to be performed in the format of a spatialized sound installation, we developed a daily schedule in which various compositions present the data sets at the five elevations, moving from ground level to the top of the atmosphere. In the installation, each storm was performed for approximately 1/2 hour six times each day. A storm consisted of six approximately five minute compositions presenting all variables at a single elevation and one combination of elevations based on the heights of the speakers. These compositions were marked by a number of ringing bell sounds, marking time and elevation like the ringing of church bells.

Conclusion

The final compositions were well received by both the general and the scientific audiences. Visitors to the installation particularly enjoyed remembering where they were during Hurricane Bob and the President's Day snowstorm while listening to the sonifications. Some audience members found a metaphorical meaning in the series of rising elevations, finding the compositions nearer to the ground to be more visceral while those compositions representing activity closer to the top of the atmosphere were felt to be more ethereal and spiritual.

Dr. Van Knowe was particularly intrigued by the spatialization of the sound, and was interested in how the wave patterns of the storms were moving in space. The sonifications reinforced some known aspects of the particular storms. The winter storm was more intense near the top of the atmosphere while the hurricane's fastest wind speeds occurred at lower elevations. This change in intensity was communicated very clearly through the varying degrees of loudness of the compositions. The patterns of movement of the tropical hurricane were known to be more chaotic than the winter storm, and the resulting compositions also reinforced this concept. Most listeners found that they could understand more the more they listened to the compositions, and there was an overall consensus that the work opens up doors for more research both in science and the arts.

Andrea Polli

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IV Software Development Platforms for Large Datasets: Artists at the API

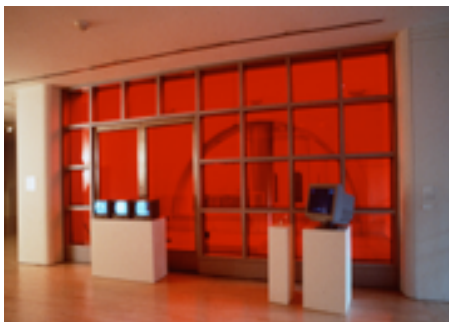
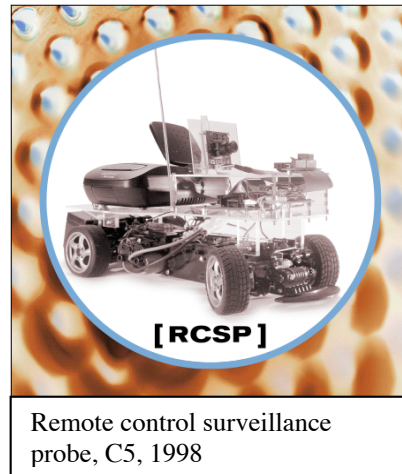
Brett Stalbaum

C5 Corporation

www.c5corp.com

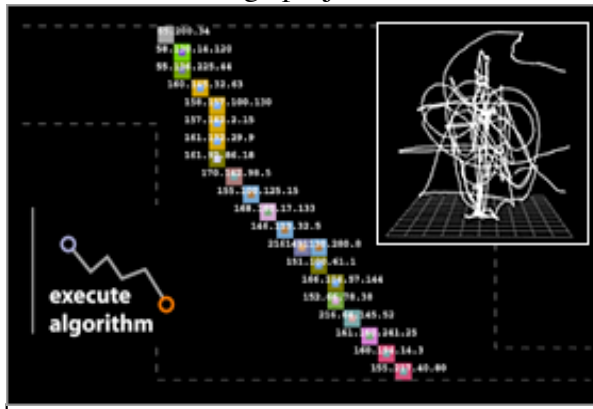
In 1998, C5 had a problem; two problems actually.

We had organized that year as a business without a model to do a data collection and analysis project at SIGGRAPH 98, called the Remote Control Surveillance Probe project.ⁱ The impetus for the founding of C5 was to see what kinds of business opportunities were available to a collaborative group of artists and theorists already working for many years with information as our primary medium. The expertise of C5 members was brought under one umbrella to tackle problems in domains relative to our collective experience, which includes autopoietic theory, artificial intelligence, information systems design and programming, public relations, emergent behavioral systems, semiotics, literary criticism, military studies, library science, and fine art.



Shortly after organizing, we were invited by Steve Dietz of the Walker Art Center in Minneapolis to do a net.art project related to a work by C5's president

Joel Slayton, "Not to See a Thing". The project had been exhibited as part of the 1997-98 "Alternating Currents: American Art in the Age of Technology" exhibition at the San Jose Museum of Art, in collaboration with the Whitney Museum of American Art.ⁱⁱ The "Not to See a Thing" project collected about 10 gigabytes of information about audience



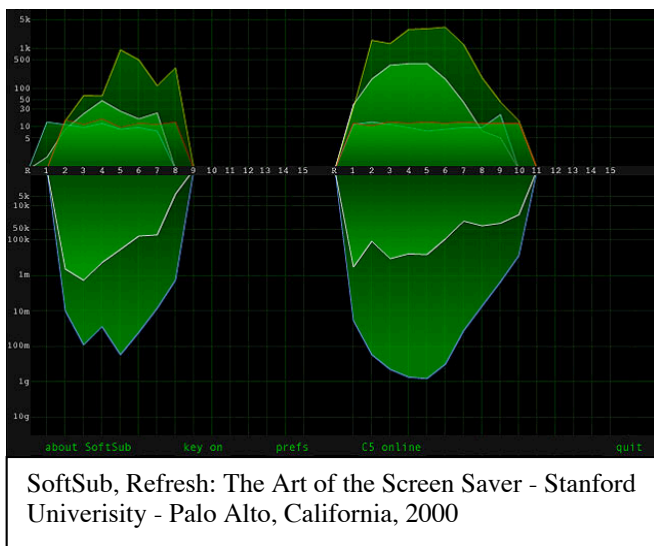
16 Sessions, Walker Art Center, 1999

participation with the work during the time it was installed in the SJMA. What Steve Deitz was interested in was how we might hybridize the "Not to See a Thing" data with the infrastructure of the Internet itself to create a net.art project. This in essence created our two problems.

On the one hand we had a fairly large, but still manageable set of biometric data from Slayton's installation, which we had to mingle with the tremendous

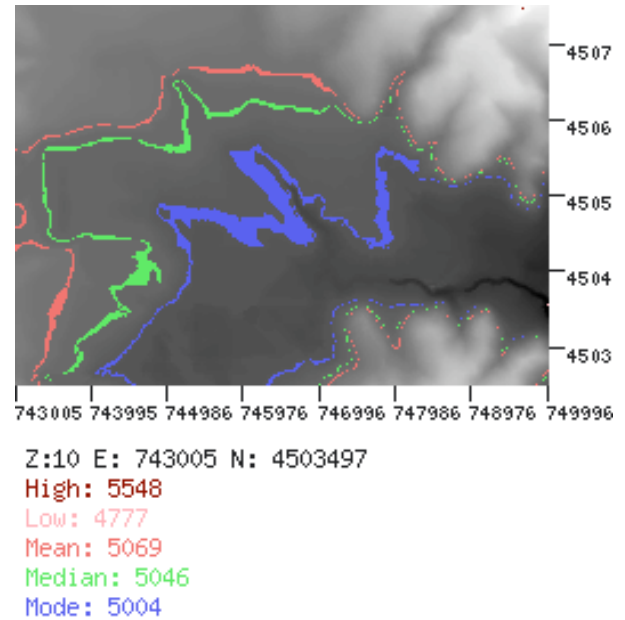
infrastructure of the Internet itself. And of course we had to find a way to make the manifestation of that data mingling visible/navigable to the user. Thus the first problem was related to the size of the datasets, and the need to develop a strategy for exploring them and exposing something about them. The second problem was that we were faced with two large sets of data that were superficially unrelated to one another. Our efforts culminated in the "16 Sessions" projectⁱⁱⁱ, and the realization of the C5 IP^{iv} database that Lisa Jevbratt developed to facilitate the mingling between the "Not to See a Thing" data and IP space.^v This paper focuses on the strategies that emerged from these projects and how they inform the matter of how artists can and should contribute solutions to these kinds of problems.

I'll begin with the scale problem first, because it is the less interesting of the two, and the solution is more obvious. The question is "How do you create a context in which information artists with different experiences and different sets of IT skills can participate in the exploration of and experimentation with large data sets?" We believe it is important to create a context that is amiable to both collaboration and independent endeavor at a variety of interface levels. Technically this requires the development of multiple interfaces to the data which are congruent with the experience of the various groups of people who will be working with it. To ensure this, whenever possible, artists should be involved with or completely responsible for the development of the various interfaces. Given that artists today are also computer programmers, database administrators, information architects, engineers, and theorists, it's important that the data to be worked with be arranged for maximum access. Access which ranges from the raw data (files or database interface), all the way through standard user interfaces that highly mediate access to the data through end visualizations at the presentation layer. In between these extremes, artists should have access to the all of the API's^{vi} and middleware layers, and preferably be responsible, for the development of these layers. Working on "16 Sessions", and in subsequent software projects such as "SoftSub"^{vii}, C5 had in place people with experience in all of these layers of software development, and importantly



experience working with each other, so the process was relatively smooth. Of course, this is not the situation with larger sets of institutionally collected data, where the standards, data formats, and API's can often be quite obtuse.^{viii}

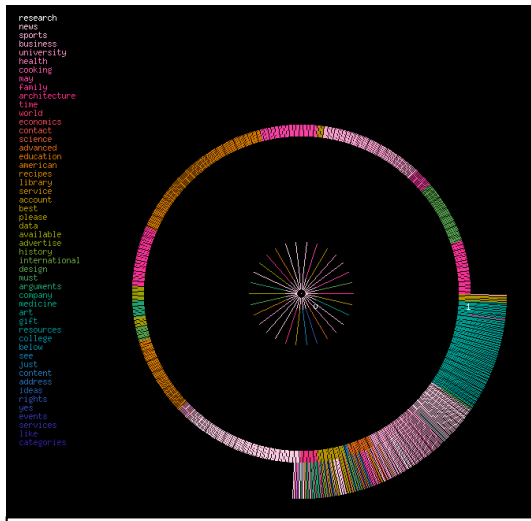
Different challenges exist with the emergence of large collections of public data such as is available from the United States Geological Survey, NASA, NOAA, and the Human Genome Project. Not only challenges presented by the technical sophistication of the data and the tremendous size of the data, but in strategizing appropriate interfaces to the data that allow users of very diverse backgrounds to participate in the process of consuming the data and generating new knowledge from the data. C5 has been active in this area. For example, the C5 Landscape database is a relational database, Perl API and set of sample interfaces designed specifically to help users in creating their own programs that can easily access, analyze and display information about the shape of the earth.^{ix} The database is designed to eliminate much of the complexity in acquisition, database interface, processing and imaging common in the manipulation of geo-data, so that artists have a manageable platform in which to write their own software and perform mapping experiments. Artists using the software can work with the database from various levels of technical sophistication. These levels range from a web-based GUI to browse the dataset, to the ability to write their own code to access the database directly through SQL, Perl DBI and Java JDBC programming techniques. An API also provides a variety of features and capabilities through easy to use Perl modules.



Output from the C5 Landscape database, 2002

There are of course many projects that incorporate the idea of artists working with data at all levels. Notable are Lisa Jevbratt's "Mapping the Web Infome"^x, and Rhizome's "alt.interface" projects.^{xi} Rhizome's "alt.interface" project involves exposing (to artists) the database API of the Rhizome website and its large text object collection, such that they can create alternative interfaces. Jevbratt's web crawling project is especially notable because of the way that she worked with the invited artists to create both an interface for the 'alternatively' technical artists involved, as well as working at the database and API levels with many of the artists to collaboratively implement features suggested by artists. It is appropriate for artists to be involved in the development of the public API's and application layer interfaces through which the public at large will have access to large

data, because in many cases artists working collaboratively already have experience in working out the inherent interface issues that are involved in making data available to 'technically diverse' or even non-technical users. Artists in both new media academia and fine art practice have been involved in this kind of work for many years.



Consensual Domain "Cosmology" from a crawler by Geri Wittig for "Mapping the Web Infome", Lisa Jevbratt, New Langton Arts 2001.

The second issue is a deeper one involving how artists have and can contribute to dealing with inter-relations between very different datasets, as well as unexplored intra-relations within single large datasets of considerable complexity. The exploration of large datasets is one of the most provocative and interesting issues for artists today because of the explosion of availability of such large data sets being made available to the public.

Why? Artists as cultural workers have always sought to contribute to the state of our knowledge near the edges of human understanding. Among the new cultural problems we face today are the problems of big data. And lest you assume that this is exclusively the domain of computer science,

the large datasets of today present new kinds of problems which computers and networks are not traditionally used to solve, and perhaps even that the traditional use of computers and networks can not solve. The familiar notion of the "information processing life cycle" is the basis of contemporary data processing. This is the very colonial idea that data is something raw and primitive that needs to be tamed in order to become useful. The notion holds that data must be processed into useful information, and to accomplish this you normally start by considering the output you want, the available input, and then determine the algorithm that will take your raw and untreated data and turn it into a manageable, cognizable, useful thing we call information. The entire field of Data Mining and Knowledge Management as we know it today is predicated on the pre-existence of semantic models that allow data to be algorithmically mined for meaning. This is the basic philosophy and approach to data and information, and is of course profoundly successful, but its application reaches severe limitations in dealing with contemporary data and the new kinds of problems it presents.

For example, traditional problem solving is not at all applicable to the situation C5 faced with "16 Sessions". We had two very different data sets, and although we had some preconceptions of what they meant, we had no idea how they were related or if they were related, and no clear idea of what kind of question to ask. Neither set of data was collected with a protocol that was designed to facilitate the type of endeavor that we were charged with performing. Again, standard information processing techniques are not useful for all problems, especially when you do not have a question, when you have a poorly formed question, or when the dataset itself is not entirely understood or contains

information potentials that were unplanned at the time it was collected. Data may have non-transparent semantics, or may be so complicated that you do not know where to begin to search, or it may take on new roles as new needs emerge after the data is collected. These issues are of course also related to the problem of what questions to ask. When you don't understand your data, you will naturally have poorly formed questions about it.

Why is this an important problem? The answer is that there is ever more data being collected in various endeavors about which we don't know what questions to ask. For example, the Human Genome Project has sequenced and published the entire human genome, but that tremendous data set is largely unexplored, because in part, scientists have not sought the answers to questions not yet raised. While this may seem quite tautologically obvious, it is simultaneously a tremendous and real problem. As put by Lisa Jevbratt, the process of exploring genomic data can be "described as that of a group of people in a dark room fumbling around not knowing what is in the room, how the room looks or what they are looking for." Genomic data is non-unique in this respect. There are, for example, vast datasets available from the United States and other governments regarding all kinds of interesting things that we don't yet fully understand, or that we think we understand but which has behavior and relations that have been overlooked. And artists, who do not always participate in the scientific method, may well make discoveries or observations in their aesthetic and conceptual pursuits with such data that lead to such questions, even if the artists are participating as blind probe heads in data space.

The exploration of such data, I argue, is the most productive and culturally useful positions from which to perform as an artist in the 21st century. It is hard now to make interesting art without pursuing the solution to an interesting problem, and being faced with large sets of data without a map nor a clearly defined problem definition is one of the most interesting and provocative problem types we face in an era where our ability to collect data outpaces our ability to generate knowledge from it. Asking questions and exploring spaces in poorly defined problem domains consisting of huge datasets is the natural, useful, and potentially highly productive cultural role in which artists should play a part.

C5's approach to these types of problems is to explore the application of autopoiesis as a conceptual framework for understanding the behavior of data and information.

Autopoiesis takes place in systems that differentiate themselves from other systems on a continual basis through operational closure, and that produce and replace their own components in the process of interaction with their environment (structural coupling), that occurs via a membrane containing the organization of the unity in question, thus allowing distinction between it and its environment. A basic question for any analysis of the autopoietic potentials of data involve distinguishing a membrane, or the interface, where operational closure (inside) and structural coupling with an environment (outside) are expressed. It is in patterns of structural coupling that relations between complex data can be analyzed. If you can find a membrane, you have revealed a relation between or within data sets. To find membranes, you need to mingle data. For example, there are

contemporary explorations within the social sciences that demonstrate that relations exist between data sets collected for quite disparate reasons. Global information systems containing information the landscape (for example drainage, land cover, or topography), can reveal insights when mingled with historical data.^{xii} C5 views these types of data processing explorations as very interesting instances of structural coupling^{xiii} between data sets, even those as superficially different as geological and historical data.

Most of C5's approach to autopoietic frameworks for the understanding of large data has been developed by Joel Slayton and Geri Wittig. Perhaps the key idea that emerges from their work is the notion of a compossibility of relations^{xiv}, in that compossibility indicates the potential for autopoietic membranes existing as data relations via third order structural coupling in a coded environment. This allows for the analysis of data sets where the semantic relationships are uncertain. In a sense, this idea can be described as the search for algorithms in which superficially different data sets might be shown to couple based on their subject-less form through inherent sans-semantic or pre-semantic models, and to seek these relations specifically to flag the potential for the presence of immanent, unplanned, or otherwise unrecognized semantics flowing from mingled relations, thus revealing something about the ontology of the sets that produces new knowledge about them. It is unlikely that there is a universal algorithm for this, (such as a universal visualization system for all data), but if there is, it is likely to be accidentally discovered by researchers searching for inter-relations between data sets. Obviously, artists should be involved in this endeavor.

This is only one approach, undertaken by a small self-funded organization who believes that a very particular theoretical framework can be expressed in coded relations that deliver their own answers. To explore this, we of course need a lot of data. It is important that science organizations create the circumstances that will allow a diversity of independently theorized approaches to emerge based on public interest in and public access to the data.^{xv} It is in casting large sets of scientific data into the realm of artists, and indeed the public at large, that will allow a multitude of self-organized modes of discovery to develop.

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This essay began as speaking notes for a talk of the same title delivered at a rhizome.org event sponsored by Qbox in San Francisco CA, April 26th 2002.

http://rhizome.org/events/rhizome_sf_apr.php3

ⁱ <http://www.c5corp.com/projects/rcsp/index.shtml>

ⁱⁱ <http://www.c5corp.com/walker/gateway.html>

ⁱⁱⁱ <http://www.c5corp.com/projects/16sessions/index.shtml>

^{iv} The internet protocol is the numerical addressing scheme used to identify devices on the internet.

^v This later became the technical basis for 1:1, <http://www.c5corp.com/projects/1to1/index.shtml>

^{vi} API is the acronym for application programming interface, which is a group of public functions that exist in a library of code that other programmers can make use of to implement their own code. Artists should design API's as well as use them.

^{vii} <http://www.c5corp.com/softsub/index.shtml>

^{viii} A good example of this is the Spatial Data Transfer Standard. According to computer scientist Gregg Townsend, "The adoption of SDTS was a giant step backwards. While previous DEM files could be read by relatively simple programs, SDTS file are difficult to read even with the help of a large external library." <http://www.cs.arizona.edu/topovista/sdts2dem/>

^{ix} <http://cadre.sjsu.edu/~gis>

^x <http://dma.sjsu.edu/jevbratt/lifelike/>

^{xi} <http://rhizome.org/interface/>

^{xii} For an example example, see <http://fisher.lib.virginia.edu/projects/salem/> The GIS of "Salem Village in 1692" is part of an electronic Research Archive of primary source materials related to the Salem witch trials of 1692

^{xiii} Wittig, Geri, Expansive Order Situated and Distributed Knowledge Production in Network Space, http://www.c5corp.com/research/situated_distributed.shtml

^{xiv} Slayton, Joel and Wittig, Geri Ontology of Organization as System, Switch - the new media journal of the CADRE digital media laboratory, Fall 1999, Vol 5 Num 3, <http://switch.sjsu.edu/web/v5n3/F-1.html>

^{xv} <http://cse.ssl.berkeley.edu/nvo/nvo.htm>

Notes on "Skycreeper"

Tomaxamot is a project I undertook on a whim with my good friend, current roommate and fellow artist Steve Wolfe, aka Profolyx. We had found an album titled "GI JOE KILLAZ" in our local record store and were drawn to the absurdity of a cartoon terrorist faction releasing an album of gangsta hip-hop. The artists even went so far as to release the album on "Cobra Records," which we then immediately decided we needed to be signed to ourselves.

We went home to record an album, which I believe we may have broken some sort of land speed record producing. From the time we formulated the album concept to the time we had the actual songs, liner art and design up on CafePress for purchase, was something like six hours.

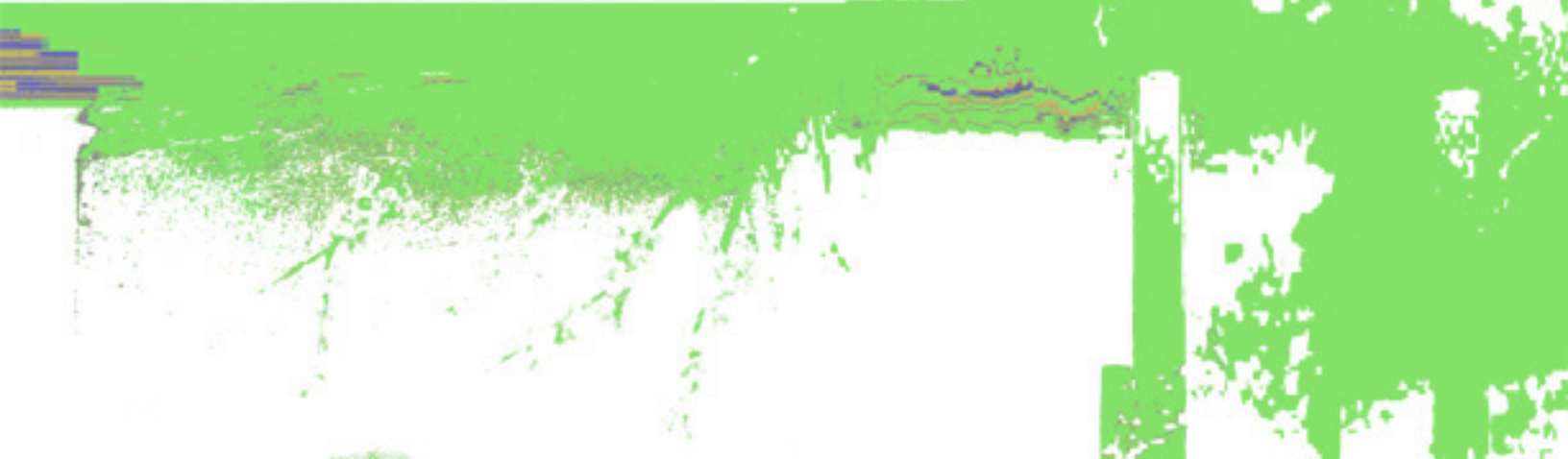
The gist of the album's concept was that, to be on Cobra Records, we had to present ourselves as formidable cartoon terrorists. We therefore took the names Tomax and Xamot after the twins in the cartoon, and using our personal repositories of terrible Fruityloops sketches that were never intended to be finished or released, began cranking out about one song per hour. The album consists of eight tracks, four by myself and four by Steven.

"Skycreeper" is one of Steve's offerings, which I feel is the best track on the album.

Although it was admittedly a thoroughly silly idea, this particular meta-appropriation (stealing an idea that someone else stole first, from the thieves rather than the original source) yielded a surprisingly complex, coherent and enjoyable album!

The album is available for purchase here: <http://www.cafeshops.com/tomaxamot.12099253>

[Skycreeper.mp3](#)



Notes on "Medusa, My Love"

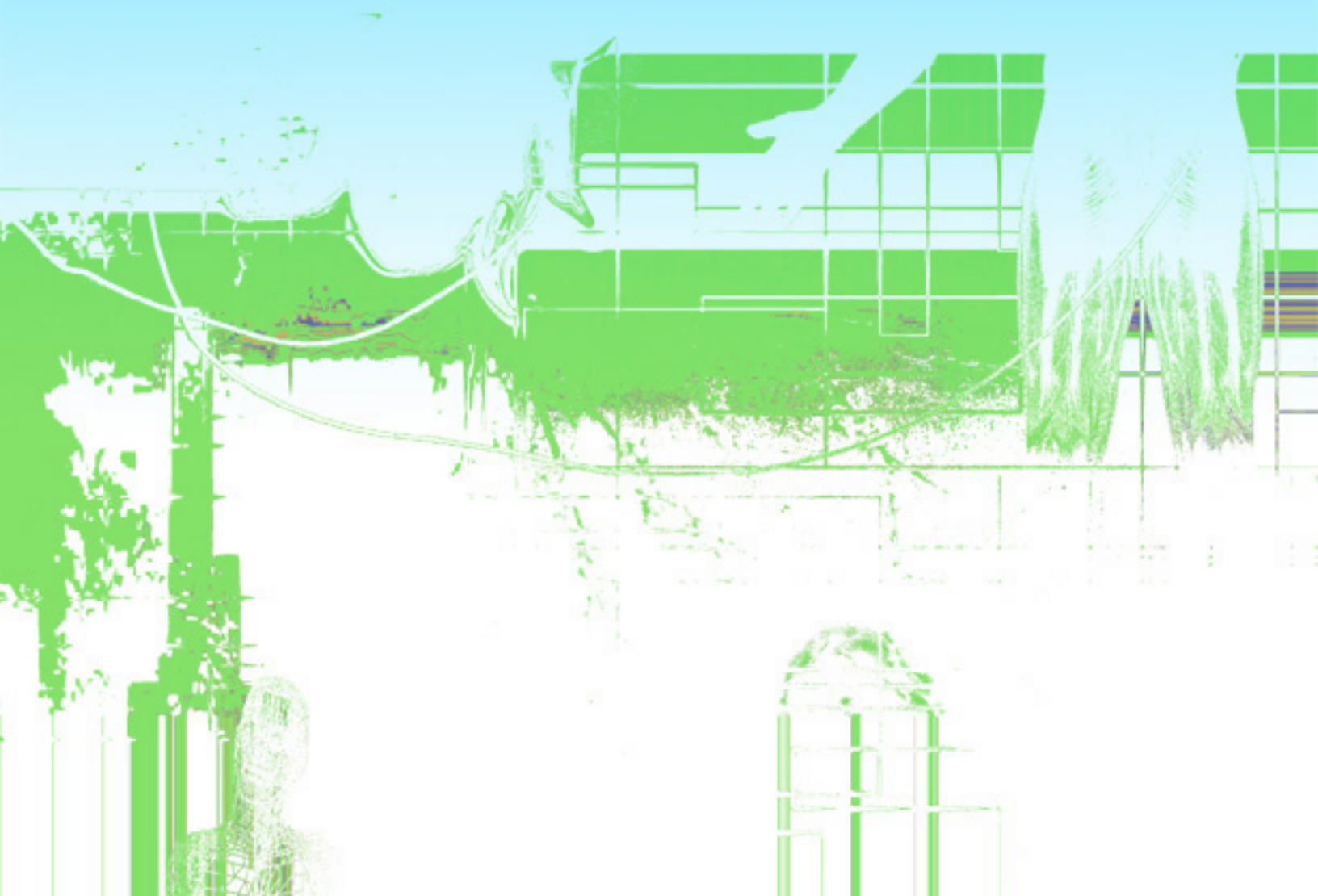
This song is based around the myth of Perseus and his encounter with the Gorgon Medusa. The original Gorgon myths are far older than their Greco-Roman appropriations, being symbolisms for the matriarchal engrams and the menstrual cycles. When the Age of Heroism took hold, these ideologies were bowdlerized to the ends of the patriarchal Romanse philosophies. Medusa became a fearsome monster because of the male-dominant fear of female power.

In the lyrics to the song (which I wrote originally in the form of a poem and then added backing music to later) I appropriated both forms of the mythological Medusa as an allegory for the modern humanistic ideal of a interpersonal relationships. Perseus has been sent by Zeus and Athena to slay Medusa, but when he finds her, she is no monster, but a beautiful goddess. She in turn does not trust this man sent by the patriarchal gods who bastardized her image, though she aches to.

The inherrent nature of trust is illustrated this way, by playing the two forms of the myth -- patriarchal and matriarchal -- against one another, as lovers are played against one another.

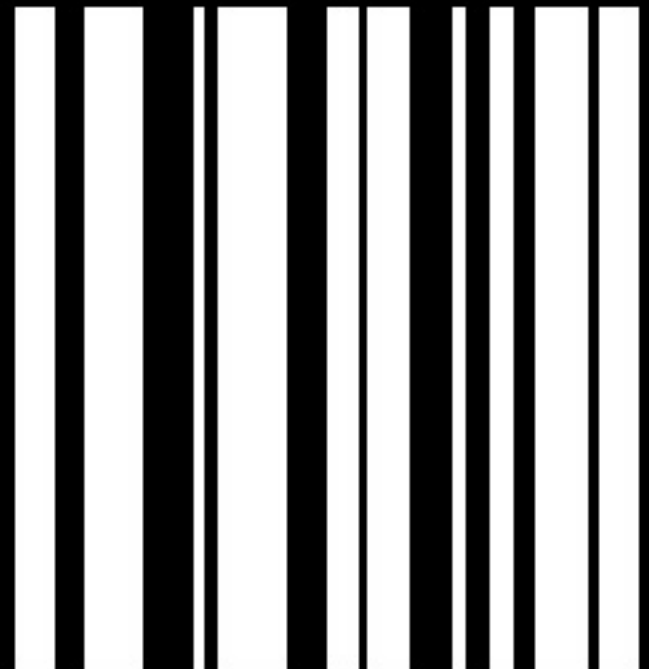
In this song I employed Detroit button-maker Alice Stevens for the role of Medusa. Much thanks are extended to her for her vocals. The website for her button business is www.pinbackattack.com

[Medusa My Love.mp3](#)



I don't know much about "processing." Nor do I suppose any understanding of what now constitutes the distinction between "electronic" and "acoustic" processes in the production of recorded music. I attempt to resolve the complexities of computation and digital signals with the innate wisdom fingers, to eschew how noise enters the world in favor of what it feels like. If I can touch it, then it exists; little else seems certain.

Like many of my pieces, this track began with forgotten audio discovered in some out-of-the-way corner of a hard drive. In all such rediscoveries I do well to trust the inclinations of a past self, whose sense of organization of these rhythmic pulses and noisy tonalities far outstrips my own; I trust his handiwork as a loose score to be followed and reinterpreted by a haphazard configuration of gear, reinvigorated with my contemporary skills as an improviser. Frequencies are added and subtracted by selective playback and recording through speakers of various dimension and in various states of disrepair. The contact microphone enables the process of recording to become a tactile endeavor.



this is not philosophy.

"the job of the artist is always to deepen the mystery."

-francis bacon1

there is only one question...why? it is the only question that matters, the only question worth asking. it is burned inside the eyelids of every real philosopher (and here the distinction must be made between philosophers and philosophy students2). why? is a special question because it deals with reasons, origins, causes...in other words, human constructions3. if we accept that there is no "first cause," that reality is an interdependent web of causality, hypersensitive, non-dualistic4, we quickly realize that why? is such a demanding question because ultimately it cannot be answered, which is to say that every answer immediately begs the question. yes, yes, i know, i agree, but why? children usually discover this cognitive loop-hole at an early age, and they enjoy it tremendously. they giggle as they ask, impatiently waiting for you to finish your answer so they can ask again. they get it. they may not fully understand what they realize, but they certainly realize that every answer is equally questionable, that why? is never-ending.

if we focus our attention on the infinity of why? we discover something a bit unexpected. we often think of infinity as a quantity, not a quality. the number line races off to infinity because we can always add one. infinity as quantity is another way of saying that increase is always possible. but if we approach infinity etymologically we learn that the prefix in- means "not" and the root finite means "bounded, knotted."5 so infinity means "not bound" or "not knotted." free. so if we're thinking of infinity as quantity we think "increase is always possible" ... but if we're thinking of infinity as quality we think "freedom." why does the infinite-why loop demand so much attention? because it is less a question of origin and more an affirmation of freedom. this is precisely why the children find it so amusing.

when we approach the infinite-why loop as an affirmation of freedom it becomes evident that by constantly questioning why? we are in effect constantly declaring i don't know.6 the questioning mind...realizing the practice of the infinite-why loop...is an affirmation of freedom and an affirmation of i don't know. by affirming i don't know we let go of our natural tendency to acquire information, to possess as a form of self-identification. the manipulation of information (ie acquiring and using knowledge) creates as a side-effect or byproduct the illusion of self-identity. this is because, purely linguistically, every action implies an agent (it doesn't make sense to think of disembodied action, ie trying to conceive of walking without needing the concept of a walker, a body required for walking) and vice versa. because our language is organized in such a way we assume that our ability to observe (ie, we can observe the flow of information and our role in that flow) implies that there must be a self that is the participant in our observation. this is how knowledge becomes power, by cleaving non-duality into action and agent, deed and doer. power is fundamentally dependent on the existence of self-identity. when we contemplatively and meditatively dissolve the existence of self-identity, power becomes something different entirely.7

but we digress. what is more relevant now is the ability to affirm i don't know. we must acknowledge that human curiosity, the eagerness to know, is a form of self-identification, and self-identification is the realization of the distinction between self and other, between subject and object. without this distinction, all is process; with this distinction, all is product. the affirmation of i don't know is necessary for freedom because by releasing yourself of an action (ie knowing as an action that you do not perform) you also release yourself of the obligatory agency, the conceptual byproduct of self. the concept of the self is the greatest obstacle to art and philosophy. in order to realize fully the human experience we must get out of our own way.8 when we introduce the concept of "self" we simultaneously introduce the concept of "other" ie the audience. we begin to wonder how the audience will receive our product, and how that will inform their opinion about who we are. all this thinking! who could possibly create in the midst of all this thinking?9 this thinking directly obstructs the freedom necessary to create, to realize the creative process. in what is called the post-modern world we need to realize the infinite-why loop and realize10 the condition of i don't know. only then are we able to dis-solve the self and realize the

freedom that allows unobstructed process.

why is this worth reading? i don't know. and this not knowing is both a realization and an understanding. understanding without realization is incomplete, and vice versa. if we as artists and philosophers find ourselves interested in collaborative art/philosophy, we mustn't limit that circle of collaboration strictly to the "artists/philosophers" but instead invent new ways of stretching the process to include the audience itself. this is the destiny of collaboration, and it is already being realized in growing communities. we mustn't forget that collaboration requires the inclusion of the audience, because when art becomes ethics¹¹ (not just the manipulation of paint or words but the manipulation of everyday life via decisions and actions) there is no longer any distinction between art and audience, between art and non-art.¹²

notes.

1. found in clint brown's compilation artist to artist, page 147.

2. it is becoming more and more common to find students of philosophy posing as philosophers. the popularized and grossly misunderstood writings of friedrich nietzsche serve as one of our greatest examples of real philosophy. in one of his notes (published posthumously) nietzsche offers the following glimpse: "i have at all times written my writings with my whole heart and soul. i do not know what purely intellectual problems are" (Nietzsche, 12). in wittgenstein's tractatus we find, "philosophy is not a theory but an activity" (stroll, 60). and here it is: a philosopher is one who realizes philosophy as activity, one whose life is dominated by process. one that is transintellectual. a philosophy student is an intellectual, a dealer in answers, something of a priest. my teacher, alan fox, once explained it like this: as long as you're asking questions, you're doing philosophy; when you start answering questions, you're doing religion. the philosophy student is looking for answers, acquiring and storing, manipulating and regurgitating. the philosopher is consumed by the question, the questioning, not the answers.

3. by human constructions i mean entities that do not exist independent of human activity. what we consider to be "origins" or "causes" are really just snapshots of an otherwise flowing reality. these snapshots are created when we focus our attention on a localized intensity and attempt to interpret what we observe when that intensity is frozen, crystallized, recorded.

4. there are many ways of articulating this understanding of reality, but every articulation is inherently partial, incomplete, due to its grammatical nature. to speak of reality as non-dualistic is to realize the highest goal of reason: paradox. non-duality is transrational, necessarily paradoxical, mysterious. it is the schizophrenic landscape of non-dichotomy, which is paradoxically the same as infinite dichotomy in all directions at once. in the seminal anti-oedipus, deleuze and guattari offer the following commentary concerning buchner's reconstruction of lenz: "lenz has projected himself back to a time before the man-nature dichotomy, before all the co-ordinates based on this fundamental dichotomy have been laid down. he does not live nature as nature, but as a process of production. there is no such thing as man or nature now, only a process that produces the one within the other and couples the machines together. producing-machines, desiring-machines everywhere, schizophrenic-machines, all of species life: the self and the non-self, outside and inside, no longer have any meaning whatsoever" (deleuze, 2). interestingly, we find a similar description in lieh-tzu, a fourth century chinese daoist text. graham elegantly translates one of the lieh-tzu's most famous passages: "only then, when i had come to the end of everything inside me and outside me, my eyes became like my ears, my ears like my nose, my nose like my mouth; everything was the same. my mind concentrated and my body relaxed, bones and flesh fused completely, i did not notice what my body leaned against and my feet trod, i drifted with the wind east or west, like a leaf from a tree or a dry husk, and never knew whether it was the wind that rode me or i that rode the wind" (graham, 36-37).

5. as found in chambers dictionary of etymology: infinite from latin infinitus, in- not + finitus

bounded ... bind from latin offendix knot and greek peisma cable, rope (barnhart, 94, 525).
derrida addresses the infinite quality of why? in terms of signification: "the absence of the
transcendental signified extends the domain and play of signification infinitely" (derrida, 280).

6. this idea of not knowing, the don't know mind, is central to korean zen practice. the practitioner
is ultimately concerned with don't know mind because the cessation of neurotic inquisitiveness
allows the practitioner to listen, which in turn allows a higher degree of sensitivity, flexibility. the
idea of don't know mind is to stay out of your own way, to avoid obstructing natural spontaneity.
zen master seung sahn describes this mode of operation:

"red light means stop; green light means go. it is intuitive action. intuitive action means acting
without desire or attachment. my mind is like a clear mirror, reflecting everything, just as it is. red
comes, and the mirror becomes red; yellow comes, and the mirror becomes yellow. this is how a
bodhisattva lives. i have no desires for myself. my actions are for all people" (mitchell, 7).
this same idea is articulated in philosophical daoism as wu wei, usually translated as "non-action"
and usually interpreted as, "action that is without effort, spontaneous." alan fox offers the
following commentary:

"the zhuangzi emphasizes the benefits of becoming sensitive to a broader and finer range of the
subtle demands, constraints, and inevitabilities of unique situations. this sensitivity allows us to
respond most appropriately to every unique situation in the way that most or best respects
subtleties of novelty and necessity. therefore the most effective and efficient mode of human
experience is to blend or "fit" (shi) into our surroundings in such a way as to allow ourselves to
respond effortlessly and spontaneously to any situation or circumstance, which is simultaneously
affected by our presence within it. i suggest that this mode of reflective, and unobtrusive activity is
what zhuangzi refers to as wuwei" (fox, 59).

7. the concept of power is ready for a radical overhaul. we are capable of engendering a
cooperative network of activity that will help balance the competitive mass. collaborative art, if it
transcends the boundaries between artist and audience and transcends itself to become
synonymous with ethics, is capable of challenging the dominance of power. there is a political
urgency that has become forgotten by the average american citizen, and we are all responsible
(ie freedom is synonymous with the ability to respond, to act). in a user's guide to capitalism and
schizophrenia, massumi offers, "force is not to be confused with power. power is the
domestication of force. force in its wild state arrives from outside to break constraints and open
new vistas. power builds walls" (massumi, 6). force is the flowing aspect of reality, the energy
that infuses the entire context and content. power is created when contextual manipulations
interrupt the flow, redirect the flow, intentionally manipulate the flow. a most basic example is
tool-use, which always involves using our knowledge of reality to manipulate energy flow so as to
make something more efficient, simpler.

we can't drive a nail with our finger, so we use the hammer. this is the source of fascism: when
we manipulate the flow of force we develop power, a surplus, and this power is experienced as
an ease, as an ability. this is the source of fascism because power attracts lean, it has a special
gravity. when one individual interrupts the flow and accrues power it attracts other individuals to
his/her flow because it is now capable of sustaining interruption. everyone needs to interrupt a
flow, to plug into a machine, just as the infant's mouth interrupts the flow produced by the breast
("an organ-machine is plugged into an energy-source-machine: the one produces a flow that the
other interrupts. the breast is a machine the produces milk, and the mouth a machine coupled to
it" (deleuze, 1). i would highlight that the breast and mouth become machines at the precise
moment/duration of coupling). because humans constantly need to plug their organ-machines
into energy-source-machines fascism is possible. power is the domestication of force, which is
why it is possible for an individual or collective to interrupt natural flows and become powerful,
using this surplus of flow to feed the junkies that become dependent on the status (ie illusion of
self-identity) that accompanies machine coupling, flow interruption. politics, political reality, will
only change superficially until we replace our desire to possess power with a desire to contribute
to the flow of force.

this sounds choppy and overly conceptual but it is real, and replacing a life of flow interruption
with a life of force contribution is the most politically profound concept i have encountered, the

most potent condensation of possibility. when the new practice of collaborative art grows through its awkward puberty and becomes comfortable in its new virtuality, power structures will naturally begin dissolving because there will be less organ-machines waiting for handouts. it is imperative that we acknowledge the flowing nature of reality and the fact that real power can only be attained by capitalizing on flow. if the organ-machines lose interest in the energy-source-machines because they have taught themselves how to be energy-source-machines, the larger conglomerate energy-source-machines that have dominated the flows will begin spilling over, exploding, because there will be no one to take the surplus (ie, no release = explosion; the model is pneumatic). fascism (which derives from the latin fascis meaning "bundle") involves a willingness to be led. in his preface to anti-oedipus foucault writes of "the fascism in us all, in our heads and in our everyday behavior, the fascism that causes us to love power, to desire the very thing that dominates and exploits us" (deleuze, xiii). thus the ultimate ace-up-the-sleeve is becoming-force, ie becoming a creator, a producer, and contributing to the force that vitalizes and animates reality. fascism, our love of power, will die not from attack but something more like starvation. simply put, art and philosophy must create a new reality where power just isn't very interesting. we don't topple power structures by storming the streets, we transcend power structures by offering more intriguing alternatives. this is where the real work takes place.

8. henry miller: "he divines that the great secret will never be apprehended but incorporated in his very substance. he has to make himself a part of the mystery, live in it as well as with it. acceptance is the solution: it is an art, not an egotistical performance on the part of the intellect" (moore, 32).

9. on the topic of how too much thinking obstructs the artistic/philosophical process, magritte comments: "people who look for symbolic meanings fail to grasp the inherent poetry and mystery of the image. no doubt they sense this mystery, but they wish to get rid of it. they are afraid. by asking, "what does it mean?" they express a wish that everything be understandable" (alden, 52).

10. the suffix -ize means to make or to become. when we use the word realize in this way it means "to make real," or, "to become real." it can be imagined as an animation, a "breathing life into..."

11. this idea has been articulated in countless ways cross-culturally and cross-temporally.

wittgenstein writes:

"it is clear that ethics cannot be expressed.

ethics is transcendental.

(ethics and aesthetics are one.)" (stroll, 65)

during the 1870s nietzsche was working on a book he considered titling the last philosopher or the philosopher: reflections on the struggle between art and knowledge. in the notes that were (apparently) intended for this book we find, "[seen] from the right height everything comes together: the thoughts of the philosopher, the work of the artist, and good deeds" (breazeale, 3).

12. chuang-tzu (zhuangzi): "there is a beginning. there is a not yet beginning to be a beginning. there is a not yet beginning to be a not yet beginning to be a beginning. there is being. there is non-being. there is a not yet beginning to be non-being. there is a not yet beginning to be a not yet beginning to be non-being. suddenly there is being and non-being. but between this being and non-being, i don't really know which is being and which is non-being. now i have just said something. but i don't know whether what i have said has really said something or whether it hasn't said something" (watson, 28).

works.

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Stay Critical Or Die! Disjointed Thoughts on Columbine, Naming, and Music.

Suffers fluttered vision
Tightening of the muscles in the middle back
Slight amnesia
Thinks 'anamnesis' is a 'possible cure'.

Locatable only on local servers
Debt problems
Loss of motivation due to an overwhelming fear that never enough is enough.

(dis)solution
Continue research
Proper historical background unattainable at this time.
Organize the proper channels
Open the airs
Listen in silence
Dont' move until the flash
Lift your arm to the median
Enlightenment may be examined the under the subject's restricted circumstances
Small predictable diet
Emotional stress amplifies the breakdown of stomach lining
Similar chemical ruptures in abilities to accept new information into daily living.
Repetitive behaviors, repetitive behaviors, repetitive behaviors
trembling makes epilepsy a possibility.
This is reducible to absurdity.
Point lacking ceremonial procedures.
The notes, the maps, the car.
Take only what is required.

Losing contact with the ground now.
See you at the landing strip
When i return

[The Plagiarist Manifesto]

Children within political structures become more marginalized than their parents. At the same time, kids are circumscribed by educational and judicial machines. The actual position of students remains outside the cursive of official discourse, and as such receives the label of the Other. This mark does not exile them completely, but denotes the sites from which power has yet to be appropriated.

The transformation from an industrialized culture to a mass-media mediated culture effected ruptures in the social text. The Other has become socially necessary for the definition of the upper and middle class identities, what might be called a move towards the Symbolic. What becomes important is not the maintenance of self-agency for democratic purposes, but instead, that the illusion of freedom be maintained. We feel that we have free will, but the outside world sees that we are only doing what everyone else is doing. As Hal Foster, contemporary art critic has said, "The operations of our own social regime are more sophisticated: though still dependent on subjection, they no longer rely entirely on exclusion. (As Foucault has argued, exclusion, whether of the mad, the criminal or the deviant, is simply not productive enough of knowledge and thus of power.) Today the other is also recouped, processed in its very difference through the order of recognition, or simply reduced to the same." Foster continues, "Difference is thus used productively; indeed, in a social order which seems to know no outside (and which must

contrive its own transgressions to redefine its limits), difference is often fabricated in the interests of social control as well as of commodity innovation.”

A clear example of how this works is how a musical innovation happening amongst the post-punk youth of America can be localized to one scene (Seattle) and labeled “grunge” or “alternative” to open up new sources of capital in the industry. In effect naming is a means of disavowing power. This is a rather gnostic principle, where naming a spirit is having power over that spirit. In contrast, the mysterious wisdom of the market wields the power to deny bands or scenes as having a voice or offering a counter-cultural critique. In the way that hippies could be disavowed as pot-smoking rebels, grungies can be disavowed through the same means: naming is disclaiming. The act of identifying with a genre of music acts as a confession, through which the market can recoup those outside of its reach in order, further subjecting them in its race to appropriate power and knowledge (read as capital). Subcultures are controlled through their recognition and dispersed through their commodification. A generation of jobless twenty-somethings may find social cohesion through music, whose message (along with other independent musicians) can be summarized as, “Stay critical or die.” This voice can just as quickly be thrown away, “Oh he’s just one of those grunge people, nothing worthwhile there. He’s as bland as his wardrobe, twenty flannel shirts.” In other words they become part of the “set of all people with nothing to say we should listen to.” On the other hand, the subculture becomes viewed as a lucrative sector waiting to be mined.

Only a few bands remained completely beyond the limits of this appropriation because of their hostility to the market, bands on independent labels like the politically active Dead Kennedy’s who were involved in many court cases resulting in our music ratings systems (which work like movie ratings). In contrast, bands like Nine Inch Nails and Marilyn Manson have a much easier time finding an audience now that they generate capital, both monetarily and ideologically. They become a source from which official structures derive their positions while justifying them, and in the same breath, making money. With this kind of appropriation in mind, I would like to point you towards a specific example of the kind of recuperative process that Hal Foster is talking about, the events surrounding the school shootings at Columbine High in Littleton, Colorado.

[We Got Spirit Yes We Do (the destruction of a pseudo-community)]

On 4/20/99 at 12:21 a.m. Mountain Time, five calls were received by the Jefferson County Sheriff’s office. At this time most of the press and eyewitnesses reported seeing at least two armed people enter the school through the southeast high school parking lot. The suspects supposedly tossed bombs into the parking lot and shot at the school. Roughly half of the school’s students did not attend this day, some even thought a senior prank was afoot. The Columbine Research Task Force has noted other peculiarities: “Conflicting reports suggest the shooting ended at 11:46 a.m., 12:08 p.m., 12:15 p.m., 12:30 p.m., slightly after 1:00 p.m., 2:30 p.m., or 3:45 p.m., Mountain Standard Time. The Jefferson County Sheriff’s Office now claims that the gunmen were dead at 12:05 p.m. or 12:08 p.m. [...] However, eye witness accounts place the gunmen inside the school well after 12 noon.” The facts despite what the mainstream press will tell us, are far from resolved. The official line runs that the two high school seniors Eric Harris and Dylan Klybold acted alone. This line deftly avoids the evidence born out in the Denver area news. Dozens of eyewitnesses claimed to have seen between 5-8 gunmen. Some reported seeing a gunman on the roof, and others students claimed to have seen the duo from different areas of the school at the same time. All of this buys into the idea that the shootings by the two loner-type gunman should be a shocking surprise.

The questions surrounding the mythologized events at Columbine took on the shape of a pulp mystery novel: who is the trenchcoat mafia, are they a hate group, why on Hitler’s birthday? The most avoided question was that of motive, something the FBI in their investigation could not uncover, nor could it resolve the contradictions in the evidence. In fact, it can be well established that re-solving the evidence was their objective. In the aftermath of the massacre, court cases are still looming in which parents of those killed attempt to sue the Jefferson County police for covering up and distorting evidence—including their refusal to release the full autopsy reports of Harris and Klybold, or any of the other victims. Some of these lawsuits even accuse the Jefferson County police as having shot their kids—as bullets matching neither the weapons of the

supposed two lone gunmen or the SWAT teams were found on the scene. Out of an original 300 binders worth of information gathered for the FBI report, 260 seem to have vanished into thin air. The ministers of truth stepped in to tell us there were only 40, despite photos in the Denver Post. Other interesting facts are statements by members of the Jefferson County SWAT team—the commander, Terry Manwing, has been noted as having said the killers were armed and better equipped than the SWAT team. This seems a bit over the top for two lone gunmen. Two teenagers with limited firearms training and armed with only shotguns and 9mm handguns should not be able to outgun an army of more than 200 law enforcement officers and four SWAT teams.

For those who have examined the case, it remains difficult to forget the glaring conflict of interest in the involvement of Dwayne Fuselier, who at the time had a son at Columbine and one who had graduated one year prior. Fuselier, himself a member of the FBI, had written a detailed paper in 1990 which, according to John Quinn of Newshawk, “discusses the techniques for dealing with the perpetrators of such incidents, and THE USE OF YOUNG, manipulated individuals in implementing such incidents”! This FBI agent was the head negotiator of the Montana “Freeman” stand-off in 1996, and said to also have been on the scene at the Oklahoma City bombing and Waco incidents—the later two events have anniversaries within a day or two of the Columbine massacre. So there is more behind the date of the shooting than simply Hitler’s birthday. Dwayne Fuselier’s eldest son, along with the help of another student Brooks Brown, made a video in 1997 (two years prior to the Columbine massacre) documenting four black-clad teenagers shooting up the school, blowing up the school, and walking off into the sunset. For those of you who missed the media coverage, Brooks Brown was the teenager so eager to be interviewed by the press during the shootout; Brown earlier that day was told by Harris to leave because he liked him. Although the local area police never followed up on the incident in any meaningful way[!?!], Brooks Brown received death threats by Eric Harris on his AOL web page. Nothing unusual about these circumstances. It is usual for enemies to warn each other when they intend to go on mass slaughters where the purpose is to “blow all to hell.” It is actually standard procedure to have an FBI expert on terrorist and hostage situations have a son make a training film for a high school shootout and have the other son present in school that day. It is also standard procedure to have SWAT teams wait for four hours, notably bewildered and consistently misled by higher ranking officers on the scene, outmanned/outgunned, until entering a situation where kids under fire can explain exactly where they are at all times through cell phones and 911. Fourteen students, including the shooters themselves, and one teacher, Dave Saunders, died during the attack, along with 23 injured.

Many donations and care-gifts were sent to Littleton. Columbine re-opened in a orgy of school spirit on August 16, 1999. A human chain was formed in an act to reclaim the school, and was intended, as noted by the press, to keep “them” out. This had the effect of further mystifying the nature of the reparative action, to be so directed towards the press. Perhaps the ultimate show of re-couperation and re-coding. But as Andrew Wernick, in his CTHEORY article “Bataille’s Columbine: The Sacred Space of Hate,” has said, “what all the scapegoating, risk-reducing, community-healing measures did was to reinforce the outer order of the school (and other schools) while artificially pumping up the non-community it enclosed in a false collectivity. All could proceed, moreover, without those involved even having to suspect that there might be something empty or inauthentic or servile in the collectivity being ritually restored; still, less, that it might be against this ground that the figure that had disfigured it might reveal its true face.” The official line runs that we already have the culprits, but they are dead.

Despite this, the death toll continues to rise in Littleton massacre. February 14, 2000, a mother of a victim who died, shot herself after walking into a pawn shop and asking to see a gun. May 6, 2000, a student witnessing the shooting of Dave Saunders, hung himself (having known this teacher bled to death waiting to be rescued while another placed a sign to the window saying, “ONE BLEEDING TO DEATH”). A friend of the student talked to him the night before said that he was not depressed and showed no warning signs. From this carnage the official line carries on: this is the result of industrial music and improper gun control. Behind this line we can read the latent disgust for our First and Second Amendment rights, respectively, and nothing resembling an actual motive.

The differences which cannot be squashed in a school system designed to do so, are used “productively” in a social order which must contrive its own transgressions, not describe what

actually happened, in order to redefine its limits. The circle focuses further and further towards a hidden agenda. Jello Biafra speaks about the agenda this way, "We have to get rid of more Constitutional rights, and the police are our friends;" this is what we are supposed to believe, that we need SWAT teams in every town. After all, what can you do with massive amounts of high-tech weapons made during the Cold War, if there are no more commies to fight? Why not fight your own people instead, while making them believe it is for their own good?

The agenda of the Columbine shooters, on the other hand, appears to have been to blow up the school and then hijack a plane only to crash it into a skyscraper in New York, according to the original press releases which discuss some of the contents of their diaries. Not much else can be found on this, nor have their diaries actually been released. Eric Harris appeared to hate everything, even those whom he knew to always be talking about their arsenals, as can be seen on his website essay, "You know what I hate?" The hatred expressed by the duo appears as an "equal-opportunity hatred." No group is left out, even those like themselves. If the judgement we are supposed to have is that our culture is the best, Harris and Klybold both dissented from this view and reified it. To define ourselves, often we first define ourselves against what we are not. Harris and Klybold appear to have internalized this gesture in an exponential way, defining themselves against even what they stood for. Somewhere their train of thought derailed from its track and managed to collide head-on with itself.

[The Disappearance of the School]

One thing which should be fairly obvious in Columbine is the disintegration of a kind of consciousness which would be able to somehow slip through the system or to navigate this system long enough to survive and then get out. Harris and Klybold, after all, only had one month left until graduation. The question remains, could they not just hold out for one more month? In effect, they felt too imprisoned in a toxic culture bent on their destruction, or as one of the most influential pedagogues William Torrey Harris would have phrased it, their "subsumption" into the system. Rather than jump from the ship, they would rather take it down faster. They internalized the violence which media, politics, and the schools bear towards outsiders like themselves, far enough that their own agency spiraled out of control. This is more the mindset of a prisoner of a psychiatric ward, concentration camp, or torture room than it is that of a school. Somewhere the school disappears into uses other than that of education, in their place, those of inflicting pain and separating agency and voice from the body of the student.

William Torrey Harris once said in the *Philosophy of Education* (1906), "The great purpose of school can be realized better in dark, airless, ugly places...It is to master the physical self, to transcend the beauty of nature. School should develop the power to withdraw from the external world." W.T. Harris is one of the most influential pedagogues during the rise of compulsory education, almost more so than others such as Cubberley or Dewey. This much should be clear—that mass forced schooling in America was meant for a purpose other than educating the young. It was intended to turn us into an industrialized work-force, which would not suffer the same failures as Prussia after the First World War. Prussia's failure was seen to be the result of too much independent thinking on the part of the people. Our education system was modeled after the same reforms that took place in Prussia which enabled them to become one of the most monstrous military machines ever known to history. Independent thinking could be seen as the main target of what mass schooling was supposed to weed out. School is meant to imprison and reform the mind in the panoptic (all-seeing) eye of the capitalist state, meaning that those imprisoned will have so thoroughly internalized its outlook, which sees all they do and sits in judgement, that the prisoners will no longer act out of their own sense of agency, but that of the capitalist state whose sense of agency they have now been forced to mistake as their own. Remember that the human nervous system is a decoding device. When it decodes a message, it does so in a way that the message appears to the receiver as his/her own thought.

We would like to believe that schools should represent a kind of environment which shelters youth, allowing them to learn undistracted and uninhibited by their surroundings. It should be the site at which they come to culture in such a way as to develop their own set of techniques and practices for constructing meaning. These practices once collected, multiplied, and shared become their culture. In this way children come to participate in the making of the

world. Our schools invert this process such that the sheltering function quarantines students. Under the influence of schools, mental and emotional stress compound, further stripping students of the ability to react to their conditions. Schools become the carriers of a message opposite that of education and empowering youth.

The culture of youth violence has produced a text which we have not yet begun to decode. Elaine Scarry, in her book *The Body In Pain: The Making and Unmaking of the World*, analyzes the fact of pain's inexpressibility, noticing the difficulty of describing pain and its ability to destroy a sufferer's language. With the aid of Elaine Scarry and our previous armamentarium, I believe we can begin to carry out this decoding.

Elaine Scarry has an interesting story to tell about how the disintegration of agency occurs. She analyzes the structure of torture and how this acts on consciousness by building an analysis of the room and its relation to the body:

In normal contexts, the room, the simplest form of shelter, expresses the most benign potential of human life. It is, on the one hand, an enlargement of the body: it keeps warm and safe the individual it houses in the same way the body encloses and protects the individual within; like the body, its walls put boundaries around the self preventing undifferentiated contact with the world, yet in its windows and doors, crude versions of the senses, it enables the self to move out into the world and allows that world to enter. But while the room is a magnification of the body, it is simultaneously a miniturization of the world, of civilization. Although its walls, for example, mimic the body's attempt to secure for the individual a stable internal space—stabilizing the temperature so that the body spends less time in this act; stabilizing the nearness of others so that the body can suspend its rigid and watchful postures; acting in these ways like the body so that the body can act less like a wall—the walls are also, throughout all this, independent objects, objects which stand apart from and free of the body, objects which realize the human being's impulse to project himself out into a space beyond the boundaries of the body in acts of making, either physical or verbal, that once multiplied, collected, and shared are called civilization

Shelter is both a graphic image of the body and also an emphatic instance of civilization. It is within the room and its domestic content that the outward flowering of civilization finds its origin. In torture the world and civilization is reduced to a single room or set of rooms. Scarry reports that, "Basques tortured by the Spanish describe 'el cerrojo,' the rapid and repeated bolting and unbolting of the door in order to keep them at all times in immediate anticipation of further torture, as one of the most terrifying acts." The furnishings of the room, even the room itself becomes the torture instrument. The most common instance of this is the bathtub, but it is one of among many that can be mentioned.

Scarry continues that the room, "is made to participate in the annihilation of the prisoners, made to demonstrate that everything is a weapon, the objects themselves, and with them the fact of civilization, are annihilated: there is no wall, no window, no door, no bathtub, no refrigerator, no chair, no bed." With the destruction of the prisoner, also follows the destruction of culture. She claims that it is important to realize that the human being in pain and the miming of the destruction of civilization which occurs in the room:

[A]re forced into being expressions and amplifications of one another: the de-objectifying of the objects, the unmaking of the made, is a process externalizing the way in which the person's pain causes his world to disintegrate; and, at the same time, the disintegration of the world is here, in the most literal way possible, made painful, made the direct cause of the pain. That is, in the conversion of a refrigerator into a bludgeon, the refrigerator disappears; its disappearance objectifies the disappearance of the world (sky, country, bench) experienced by a person in great pain; and it is the very fact of its disappearance, its transition from refrigerator into a bludgeon, that inflicts pain. The domestic act of protecting becomes an act of hurting and in hurting, the object becomes what it is not, an expression of individual contraction, of the retreat into the most self-absorbed and self-experiencing of human feelings, when it is the very essence of these objects to express the most expansive potential of the human being, his ability to project himself out of his private, isolating needs into a concrete, objectified, and therefore sharable world.

This is the first step in torture: the appropriation of the prisoner's objective world in order to destroy it, while also making those objects of the prisoner's world complicit in this action. It is by the obsessive mediation of agency that the prisoner's pain will be denied as pain and read as power. Where there is no world, there can be nothing objective or verifiably known to the prisoner other than his or her pain—which it is impossible to represent in any way communicable. In fact, pain destroys representation. We might wince at the sight of someone being hit, but the victim cannot express to us in any precise way how this feels. But there is the second step in torture: the appropriation of the prisoner's voice. Before this point everything but the prisoner himself has been appropriated as a weapon, but this too is assimilated into the perceptual strategies of the torturing agent.

The miming of power which occurs in torture emerges out of the opposition of the body and the voice. Scarry tells us that, "The torturer experiences his own body and voice as opposites; the prisoner experiences his own body and voice as opposites; the prisoner's experience of the two is an inversion of the torturer's." This pain is present to the prisoner and absent to the torturer; the questions presented to the prisoner are significant to the torturer and insignificant to the prisoner, because, "for the prisoner, the body and its pain are overwhelmingly present and voice, world, and self are absent; for the torturer, voice, world, and self are overwhelmingly present and the body and pain are absent. These multiple sets of oppositions at every moment announce and magnify the distance between torturer and prisoner and thereby dramatize the former's power, for power is in its fraudulent as in its legitimate forms always based on distance from the body." The consistency with which these oppositions between body and voice occur means that the two mirror and amplify each other. She continues that "In his desperate insistence that his questions be answered, the torturer luxuriates in the privilege or absurdity of having a world that the other has ceased to have. Nowhere does language come so close as to becoming the agent of physical pain as here where it not only occurs in such close proximity to the raising of the rod or the turning on of electricity, but also parallels and thereby doubles the display of distance." The prisoner's words at this point only tell the torturer how badly the prisoner hurts. The question, whatever the content, is an act of wounding; the answer, whatever the content, is a scream. The cruel bond between physical pain and interrogation is that they are vehicles of self-betrayal. Scarry notes that "Through his ability to project words and sounds out into his environment, a human being inhabits, humanizes, and makes his own a space much larger than that occupied by the body alone. This space, always contracted under repressive regimes, is in torture almost wholly eliminated. The 'it' in 'Get it out of him' refers not just to a piece of information but to the capacity for speech itself." In being hurt, the prisoner will be made to speak, and of course, to scream. Even those screams, "the sounds anterior to language that a human being reverts to when overwhelmed by pain," will be made the property of the torturers. They may be used as the occasion for a new punishment. After inducing screams, a pillow or soiled rag or paper packet of excrement is shoved into the prisoner's mouth; then, electricity may be used to contract his jaws. In many countries these screams are, like the confession, recorded and played back for other prisoners, close friends, and relatives. The prisoner may also be ordered to speak in excessively large volumes to other prisoners.

What happens in torture occurs on two levels, on the objectification of the prisoner's world and on the prisoner's voice. If we extrapolate what we see happening on these two levels and transplant these ideas into the school, then we should be able to quickly notice resemblances. Schools use rooms for rather specific functions, and most of us have cringed at one point or another at having to go to the principal's office. Besides these nostalgic points it is most important to remember that the majority of our school life was not arranged around our agency, but that of those authorities who watched over us. John Taylor Gatto claims that one of the implicit lessons of the covert curriculum is that we are to wait for someone more qualified than us to make the meanings of our lives. If we dissent from this, there are repercussions, and only in some states are these physical. For most of us, ridicule for being suspended is enough to squash our agency. Other students may write an essay the teacher does not understand. Let us say it went over his or her head. This student receives a scarlett F, or the assignment must be rewritten. So the act of writing itself becomes the punishment. But there remain better examples, one of which was from a Slashdot forum set up for teenagers in the wake of Columbine. Jay, in an email collected on Slashdot, in "Voices from the Hellmouth," said:

I stood up in social studies class—the teacher wanted a discussion and said I could never kill anyone or condone anyone who did kill anyone. But I could, on some level, understand these kids in Colorado, the killers. Because day after day, slight after slight, exclusion after exclusion, you can learn how to hate, and that hatred grows and takes you over sometimes, especially when you come to see that you're hated only because you're smart and different, or sometimes even because you are online a lot, which is still so uncool to many kids? After class, I was called to the principal's office and told that I had to agree to undergo five sessions of counseling or be expelled from school, as I had expressed sympathy with the killers in Colorado, and the school had to be able to explain itself if I acted out. In other words, for speaking freely, and to cover their ass, I was not only branded a weird geek, but a potential killer. That will sure help deal with violence in America.

The teacher did not really want a discussion, but a confession. The methods Jay's teacher, along with many other teachers and administrators across the nation, resemble all too much the surveillance techniques used in covert terror operations under severe military regimes. In such cases, Scarry would say that the educative function has ceased to be educative (the discussion was not a discussion at all, but a means of obtaining information on who might be a potential killer). The school has effectively disappeared and returned in the form of a weapon. It is in the disappearance of the school that the disappearance of civilization is objectified and experienced as pain in the student mind. In the case of Jay, the pain results in more frustration and an agency still attempting to assert his mode of action and being in the world.

My purpose here is not to claim that schools model precisely the actions of torture, but that they at least mimic its methods enough to make clear the ways in which agency can be detached from a human through schooling. What is more important is the way that two levels of appropriation occur, that of the body's agency and its voice. Through making school compulsory the state already has control over the body, where it will be during school, how it will sit, dress, when it will eat, or take a restroom break. Other than the recent growth of home schooling, kids are required by law to attend K-12 schools. For a majority of the population who cannot afford to home school or send their children to private schools, their kids are doomed to the circumscriptions of public schools bent on stripping students of agency and voice in the name of "educating" them. It is through acts called exams or essays that teachers appropriate the voices of its captive audience. "Speak as I do, and talk in ways I can understand," we are told. Education, should be considered the venture of free-agents in pursuit of becoming more human and civil; instead, it becomes a mass compulsory school system (bent on the "subsumption of the individual," or "developing the ability to detach from the external world"), i.e., a weapon to destroy what little agency and civility with which children come into the school. Once distance from its captive audience has been achieved by teachers, the cries of students can then be denied as pain and read as power. "They hate this; therefore it must be good for them." Or the cries can be appropriated to serve in more torture. "We want a discussion. But don't tell us what you'd really like to say about Columbine. We just want to make sure our machine is working properly. Carry on."

[Refrain: Double Bind]

Students in the (dis)information age must compete with ideas—ideas which are waging war on them, ideas which have taken on a life of their own, and more often than not, taken this life inside unknowing hosts. In the media ecology humans compete with ideas for survival. Education is assumed to have a primary role in the survival of our young. Remember that our drive to know relates back to a drive to appropriate and conquer. Human beings are essentially problem-solvers (when we are not busy creating problems). Education works by presenting various forms of media to children, knowing that this information and the patterns through which it is distributed ensure survival within a media ecology. However, if as in the double bind, there exist two or more conflicting types of messages transmitted in systematic ways, then schizophrenia will result in a population who is intelligent enough to see that there are conflicting messages but not enough to see a path of escape or to figure out the proper response, even what level of discourse on which to respond. In schools, which we are forced to attend, we are

told that we can accomplish anything, so long as we work hard. On another level schools make us realize that no one we know is well behaved enough to be trusted to solve problems or represent us in that struggle. On another level schools teach Gatto's seven lessons of the covert curriculum: confusion, class position, indifference, emotional dependency, intellectual dependency, provisional self-esteem, and that one can't hide. This amounts to something along Elaine Scarry's line of argument. In the mind of a torturer you are a machine, who is not a human, but a machine, and not a machine, but a way of destroying a machine, which is destroying a human. Appropriating Scarry's language for a moment we can see that: 1) The student experiences his/her own body and voice as opposites. 2) Pain (such as in the case of Jay whom we saw earlier) is present to the student and absent to the teacher. 3) The questions posed to the student are significant to the teacher and not so to the student. 4) And, in the desperate insistence with which teachers require that their questions are answered, they luxuriate in the privilege or absurdity of miming a world that students have ceased to participate in or know at all as free-agents. With sufficient repetition and entrapment within this field of conflicting message types, the victim will come to see all situations through the lense of the double bind. A schizophrenic mind comes about through the victim attempting to construct a personality which can survive in an utterly unlivable situation.

For the double bind to be robust it requires sufficient repetition. If we take compulsory schools as the first round in experiencing the double bind, the repetition is taken care of by the media and political systems—the heroin of the masses. All of which fit nicely into an elegant developmental model: from schooling in childhood to media and political influence in adulthood. Among these three rings of exacerbation, alienation, and disinformation, our desires and consent are manufactured so that we may begin to want our own oppression—we are made dependent on these systems and made to desire this dependence by promises of the good life we see on commercials, advertisements, and television shows. Who wants to be a millionaire without having to work? Where a child in the double bind might be prevented from escaping the field of his mother later on in life by promises of capricious love, or the field defined by schools with the promised payoff of a good job, as adults we are prevented in our escape from consumer society by the promised capricious life we all desire to live as sun-kings. Although kids may be smart enough to recognize a problem exists here, they may not be smart enough to solve or escape it. This is the double bind. As long as it keeps repeating, the double bind gains more power over the world view of our youth. They will come to see all situations through its all-colorless color. All rights reserved; all wrongs reversed.

[Music and the double-bind]

The contemporary electronic music scene is plagued by spectres, those of its artists and those of its listeners. There exists a slippage in definitions between these. Practices range from data-bending, broken software, broken melodies/beats, sampling, mashing, deconstructing, reconstructing, resituating the "author" (is it the artist, the computer, or the code), fractals, algorithmic composition, generative composition, and so many more that mentioning them all would be cumbersome. Genre distinctions explode and implode on an almost yearly basis now. And despite the efforts of a silent majority, music—that which speaks what none can say—is falling prey to the night terrors of an even bigger Babylon. Recuperation is deep at work, we desire it as all humans desire recognition. But this precludes that our cognition is functioning properly in the first place, or that it is our own. Electronic music, as part of culture, has fallen into the same double-bind. It has become the ejection of a mind trained against itself. It has become a place where the musicians and label-heads are more interested in protecting small territorialities than they are in fostering growth and more importantly, change. It has been said that IDM (intelligent dance music) has been the same since the likes of Autechre put out such and such album, or Aphex Twin released this or that; the specifics are useless, as many have differing opinions of the trajectory of IDM. But those trajectories are not as important as the discursive practice of the naming itself. As education was a microcosm for how hegemonic forces mold the adult world, we might want to think twice about who is "old-school" or "new-school". It amounts to the same tag on the same wall of the same street you've been living on most of your life. A culdesac that keeps you in your place.

Naming is disclaiming, and we are a culture where this is a hardwired trait. The secret doctrine, to not be named, to not have your power taken by another, has been switched up; and we too see the ghost of King Hamlet. The spectre of revolution, always looms. We hate industrial now, we do ambient.... We hate, we hate we hate....ourselves. Distinctions are made as a way of recording difference, so the Eye under whose shadow we sleep, can keep track of us all, and we do its homework. Mark us up, these are infected and must be quarantined. More this is me, and that is not me, and you are SO last year. A culture so bent on divesting itself of its power, following its trains of thought to derailment. The En continue to steer us, and whisper deep phrases which we sing in refrain: So... are you old-school or new-school? You play IDM? Ah... so you play your effects? A counter-narrative sits in the dark, shaking, "We have all been schooled."

No, we play the failing mind, we play the empty eyes, we play ourselves against ourselves. We have been competing with ideas for survival, OUR OWN IDEAS. We play the machines that do not work. We do not play past experience, or represent, as an astral recording of your daily kitchen-sink drama. We are the theatre of tongues turned to wood, whose voices stretch and reverse, fold inwards on themselves; AND WE DO NOT SPEAK YOUR LANGUAGE !!! We suffer with, with the without, our minds turned over our shoulders, "who has left us this way?" We are the sound of the double-bind, Hofstadter's "record to break all record-players by." We do not play music. We play ourselves against ourselves. ..."musicians are cowards"

We do not revolt, we do not rewrite, we do not reclaim. We emerge, insurrect, and leave. And we're still leaving.

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Phistus is by Shane Hazleton ShHazle@aol.com

Phistus is one transformative function on an old song I made, yielding a related but very different song. The results were surprising to me. In some ways I like it more, at least aspects of it. In other ways it does seem more segmented with less empty space. I did the process on a rendered audio version of the song, so there were only so many options, I am planning on developing a system for live manipulation templates that can be used on MIDI or control data which could be controlling anything, not just sound chunks but DSP parameters or melodic reorganization etc... To me the Phistus remix sounds like a whole song but I am familiar with the original. I am interested to know though if it perceived as a whole song by those who haven't heard the first version. Email me and let me know.

[Phistus.mp3](#)

Brandon Schakola

[Gladiola.mp3](#)

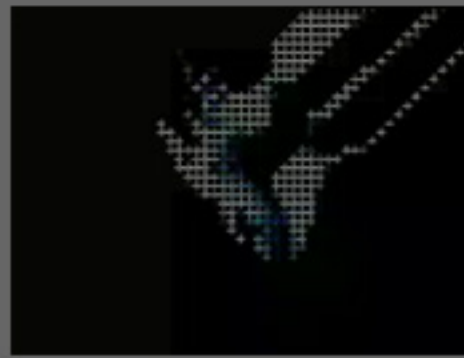
Brandon Schakola is an electronic musician who lives and performs near Philadelphia. He believes that "idm" is a music of mental crisis and identity displacement, resulting from a culture inherently at war with itself.

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[Warsnog-Vacuum.mov](#)



Joshua Goldberg

<http://www.goldebergs.com>

(ADDITIONAL AUDIO)

- William Fields: [Triptych.mp3](#) (<http://www.williamfields.com>)
- BARR: [Barr.mp3](#)
- DJ Epsy: [Blooming Duppy Spectra.mp3](#)
- Anonymous: [Onemincol.mp3](#)