VIRTUAL TRANSITIONS: A Report from a Shifting Field—DRAFT—
**section presented at conf begins on p.9; presentation online at:
http://www.slideshare.net/LoriLanday/virtual-art-inand-transition
Lori Landay, Associate Professor of Cultural Studies, Berklee College of Music

Figure 1: L1Aura Loire, Lori Landay's avatar, is on a shifting field!! For video, go to: http://www.youtube.com/watch?v=-dL9ntCC7kc

Change, transition, and instability are intriguing concepts in virtual worlds. The virtual world itself is made up only of constantly changing data, and one of the appeals of a virtual world is how mutable it is, how easily one can change self-representation, environment, activity. In a virtual world like Second Life, or the OpenSim virtual worlds that use the Second Life code as their basis, there is a high degree of agency, and there can be constant change. As quickly as something can be created, it can disappear. And of course, the platform itself is an ephemeral one, existing as it does "virtually," without actually being there materially. The virtual world's existence depends on software and networked technologies, on a company's or an institution's or an individual's server, and when those break down, the world breaks, sometimes disabling functions on a particular server, sometimes across the entire grid. The more complex the activity on a server, the more strain, and sims crash, functionalities fail, and assets can be lost. New releases of the

server and client-side software often mean new bugs, new instabilities, that eventually are fixed and patched, then others arise. In software, stability is not a state, but a process; when we bring the expectations of a physical world to what is developing software, there are bound to be clashes.

This paper explores a continuum of issues around instability, change, and transition in virtual worlds, at a time when the field of virtual worlds is itself shifting, with rapid expansion in open source OpenSimulator (OpenSim) grids, springing up independently, yet hyperconnected, offering a viable alternative to proprietary closed virtual worlds like Second Life and InWorldz. So, in this time of flux, what are some responses to change?

There are of course a multitude of responses, with as many reactions as there are people, or even more, as those people's responses continue to evolve. Three broad points on a spectrum of perceptions of change are: resistance, self-reflexive use of mutability, and adoption. My case studies are: first, the often-hostile response to the new viewer interface application for the virtual world Second Life; second, how artists create virtual art using the ephemeral nature of virtual worlds as a subject as well as medium; and third, how "hypergrid adventurers" risk or embrace instability to make connections and explore new grids in the rapidly expanding OpenSim virtual worlds. In each example, the metaphors people use to describe their experiences are crucial. In virtual worlds, metaphors are made manifest, because this is what software interface seeks to do, and as we'll see in the first example, virtual worlds are constituted by interface.

Part 1: Viewer 2, Resistance to Change, and a Clash of Interface

In February 2010, the Second Life Viewer 2 launched in beta (it became the default download viewer March 31, 2010) and the controversy began.[1] (The software program that users download to their computers and launch to access the virtual world Second Life is called a "viewer," and I will refer to the people as users and the applications as viewers.) The goals of the new viewer were to make it easier to use, add new features, and make Second Life more attractive to new and existing users, so the user base would increase (see Metanomics). Some users accepted it, many perhaps quietly, but what shows up on the web forums and blogs are of course the more extreme and intense responses. A lot of people really hated it. And some were furious at what they perceived as a unilateral forced change.

Figure 2: Second Life Viewer 1 screenshot

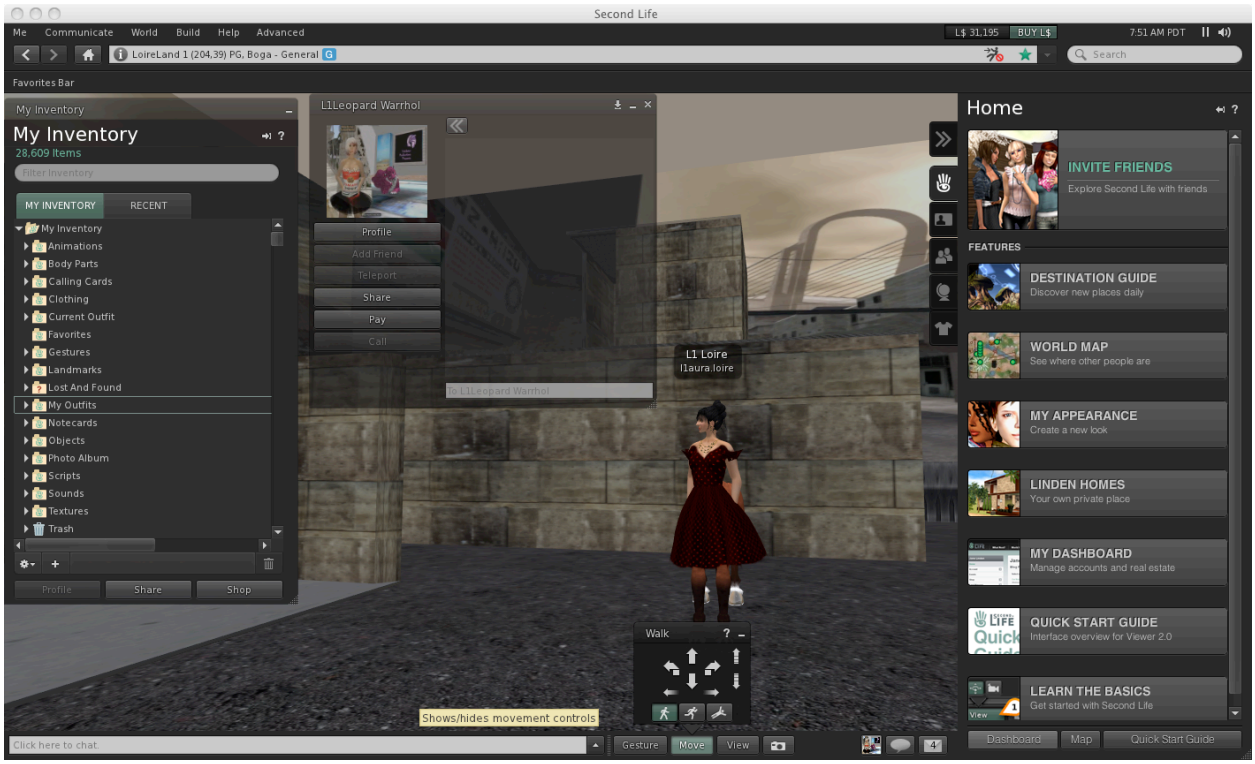


Figure 3: Second Life Viewer 2 screenshot

To be sure, there is a lot to dislike in V2. What some have called an "Adobe" style because of the dark colors, or what strikes me as more of a web browser style because of the way the interface takes up space in the window, did not improve the viewer, in my opinion. I use it to teach, and to check my installations, but I go back to the third-party viewers with more features for machinima and building. I do like the shared media features, and look forward to when the third –party viewers include it. I am very impressed, however, with the new Basic mode of the viewer, which simplifies the new user's experience by limiting the functions at first, and made a machinima when it was in beta to showcase its features (see: http://nwn.blogs.com/nwn/2011/03/second-life-basic-like-sims-3.html). My attitude to v2 could be described as one of adaptation—it is one of the range of tools I use for specific purposes in the virtual world.

Many users, however, use only one viewer, and perceived v2, and the idea that they would have to change to it, as an infringement on how they accessed the virtual world. As I studied the responses to the new viewer on blogs and forums, two things struck me. First, although they must have been early adopters to become dedicated users of an emerging technology like a virtual world, some people now wanted and expected that virtual world experience to remain constant. At an extreme, some felt they were powerless against the changes imposed upon them by Linden Lab, changes to which they felt they could not adapt, and that it ruined their experience of the virtual world, and that their problems with the new viewer were not important concerns to the company. This response can be connected to a strain of discourse about other topics one can see on the forums and blogs, that casts Linden Labs in an adversarial role against the residents. I suspect this is more illuminating about perceptions of the power dynamics of the virtual world in general than about the viewer interface in particular, although it is a fact that a user has limited rights, according to the Terms of Service (which everyone agrees to, and agrees to again when they change), and that the company owns the virtual world.

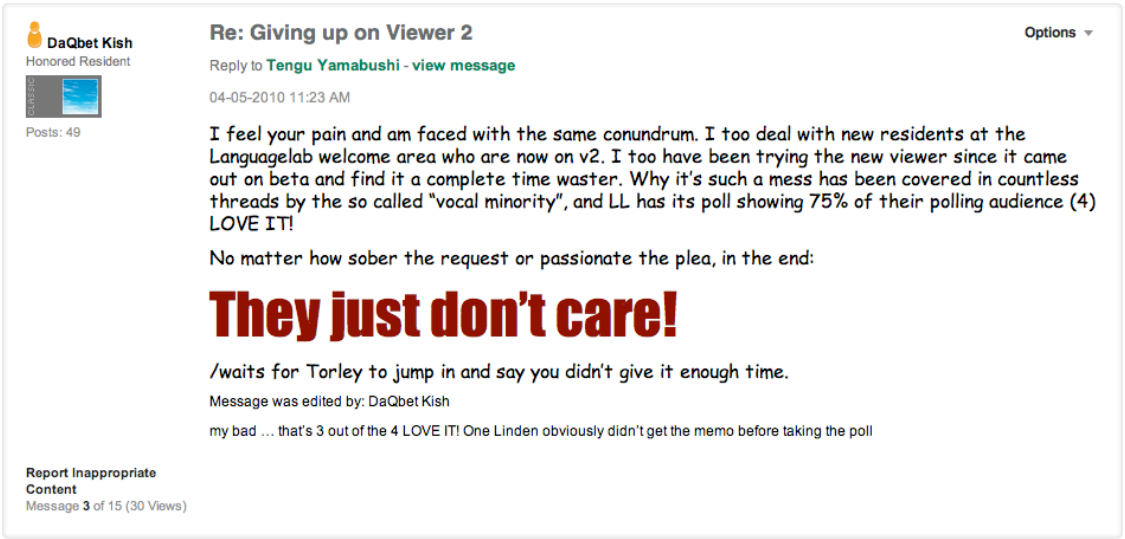


Figure 4: Screenshot from Second Life Forums: http://community.secondlife.com/t5/Viewer-2-0-General/Giving-up-on-Viewer-2/td-p/157528

There are also wider discourses about change and transition in Second Life; to take but one snapshot, the popular virtual world blog *New World Notes* featured a series of postings by blog author Hamlet Au on the issue about a vocal and visible segment of dedicated users hostility to change (see: Hamlet Au, "Second Life's Survival Seriously Threatened by Second Life Users' Hate and Fear of Change (1st of a Series)" http://nwn.blogs.com/nwn/2011/03/second-life-users-hate-and-fear-change.html). The accusations and rebuttals developed alongside a series of blog posts entitled "Sim Deathwatch" that report on sims that are closing down, either to go to other virtual worlds, or simply ending. Against the backdrop of reportage of ongoing events and in Second Life and other virtual worlds, the Sim Deathwatch—as metaphor—is a stark reminder that change can bring about loss, and one of the undercurrents of *New World Notes* is that users can foster or harm virtual worlds by their attitudes and actions around change.

The second realization, and more interesting to me, is about the different ways that a virtual world interface has to operate. To borrow some terms from Lev Manovich, the virtual world viewer is an interface that incorporates both the "general-purpose HCI [human-computer interface], be it the MAC OS, Windows, or UNIX" that lets users perform actions on computer data and the "cultural interface" that attempts to combine the general-purpose interface with the kind of position inside an imaginary fictional universe that you have with a traditional book or film. In a battle between representation and control, cultural interfaces try to "mediate between these two fundamentally different and ultimately noncompatible approaches." (90)

In the example of the virtual world interface program, there is a HCI overlayed on a cultural interface. What do I mean by this? The "objects," "spaces and places," and avatars or "people" that you see "in" the virtual world are part of the cultural interface—they go

beyond what Manovich describes when he says that "cultural interfaces typically hide the hyperlinks within a continuous representational field" (90). Manovich makes a distinction between how a general-usage HCI uses consistent menus, icons, dialogue boxes and other interface elements that the user recognizes across software applications to identify unambiguously which objects are the ones to click in order to make things happen, and how a cultural interface is more of a unified representational field functioning as a control panel in which a user discovers which elements make things happen by rolling the cursor over the different parts of the screen, or clicking exploratively. "As a result, the computer screen becomes a battlefield for a number of incompatible definitions—depth and surface, opaqueness and transparency, image as illusionary space and image as an instrument for action" (90).

The viewer application has to do several different things, fulfilling the demands of both the general purpose interface of "WIMP" (windows, icons, mouse, pull-down menus) and the representational field that the virtual world constitutes. As Anne Friedberg summarizes in *The Virtual Window: From Alberti to Microsoft*, overlapping windows in the graphic interface meant the "space mapped onto the computer was both deep and flat. It implied a new haptics in the position of its user: in front of and above" (227).

More than in front of and above, the virtual world viewer attempts to position its user in front of and *within*. I used the concept "virtual kino-eye" to explore the ramifications of the kinetic point of view within the virtual world and argue that it is through this virtual kino-eye that virtual subjectivity is constituted.[2] We can now consider this as part of how the viewer interface positions the user within the virtual world, and the virtual kino-eye is a function of both general-purpose and cultural interface, of both representation and control. Moreover, the new viewer significantly changed how the

viewer positioned the user *in front of* the virtual world, even if many of the functions themselves did not change, or even really change place or name (although many did), as well as some of the ways the user is positioned *within*.

To change both the general-purpose look and functionality of the viewer means a profound change in how the cultural interface is experienced. What was once "natural," an overlaid window made transparent by familiarity, all of a sudden is visible and an obstacle. Moreover, when the viewer looks more like a web browser, that changes the web of cultural references of representation and control that the interface has to mediate. To locate the virtual world more fully, metaphorically speaking, on the web than on the desktop computer, is an interesting move, and a step towards the future. But it is a transition that understandably has connotations beyond simply where the sound settings have been "hidden."

That experience of controls being "hidden" is not one to dismiss, however, because the changes in the viewer interface suddenly were brought back into the conscious level of software application use, rather than keeping it submerged behind the illusion of a more "immersive" experience. It is instructive to consider Walter Benjamin's comment in "The Work of Art in the Age of Mechanical Reproduction," "the ability to master certain tasks in a state of distraction proves that their solution has become a matter of habit." Perhaps experienced users had become so accustomed to v1 that they no longer saw it as intruding upon the window into the virtual world, or they knew how to minimize or manage the intrusion to how they preferred it.[3] It didn't help that the new viewer took up more of the window, and was more intrusive on the way the viewer operated as a window into the virtual space rather than as a viewer itself.

What can we understand about transition in a virtual world by thinking about the user's experience of interface change, and in particular, the resistance to change? It would be easy to conclude that a resistant attitude to change in a viewer is likely a reflection of a resistant attitude to change in other aspects of life, or that people want to exert control over their experience of the virtual world, including how they interact with it (although both observations have merit). But it is more illuminating to look at the complexities of what is involved in changing an interface, because it is where technology has not yet become part of everyday life that we notice it, where it is still strange and separate from our bodies and our habits. It is when we are conscious of the tools, before they can be used in a state of distraction, that we can see what they are and how they impact us, how we will adapt to them cognitively and physically, as well as how we will adapt them in order to use them "naturally."

Part 2: Making Virtual Art out of Change: Glyph Graves, Selavy Oh, and Oberon Onmura

To digress for a moment from virtual worlds accessed through viewer interface applications, let's extrapolate from virtual worlds to consider truly immersive environments, rather than graphical representations of them experienced via avatar. Using a viewer interface to participate in a virtual world with any degree of agency (and the kind of world-building possible in Second Life and OpenSim environments as well as the experiences and resulting subjectivities enabled by those platforms have a very high degree of agency,) is still a flat-screen graphical rendition of a three-dimensional space, and the avatar is a stand-in for the user, no matter how strong the identification, how immersive the emotional or intellectual experience, or how intensely the mirror neurons

fire. But as Oliver Grau concludes in *Virtual Art: From Illusion to Immersion*, aesthetic distance (and other kinds of distance between self and environment necessary to act upon an environment) vanishes as the interface dissolves if a person is immersed in a 360 degree high resolution illusion space:

> In virtual environments, a fragile, core element of art comes under threat: the observer's act of distancing that is a prerequsitie for any critical reflection. Aesthetic distance always comprises the possibility of attaining an overall view, of understanding organization, structure, and function, and achieving a critical appraisal. This includes searching for hypotheses, identifications, recollections, and associations. Not withstanding the longing for "transcending boundaries" and "abandoning the self," the human subject is constituted in the act of distancing . . . (202)

Grau's point is that in virtual reality (not virtual world viewer interface), interfaces become more "natural," the boundaries of the data space seem to disappear. One way to think about this is that as virtual reality becomes less like the general purpose interface and more a kind of cultural interface that replaces in a significant way the actual, physical world, be it reduced to keyboard, mouse, and screen, as the entire visual field and haptic, kinetic interaction becomes a virtual control panel, the lines between self and interface become blurred. Grau and Manovich both wrote before the advent of the kind of augmented reality exploding today, where we can imagine layers of different kinds of interfaces, haptic, kinetic, visual, overlayed on the actual, material world, which actually do the opposite of what Grau describes above. Instead of subsuming the actual with the

virtual in an illusion, augmented reality makes the actual world part of the interface, recasts the material world as another level of window, a level of data, that can acted upon through interface, sometimes in the form of the general purpose interface. When we re-vision reality through augmented reality, rather than substituting virtual reality for actual reality, we do not necessarily dismiss physical reality or immobilize the body.

After thinking through some possibilities for augmented reality, which reveals what virtual worlds accessed through the viewer interface are not, we can return to current virtual worlds, and see how artists call attention to their possibilities and limitations, especially through works that use the malleable, transitory, and changeable characteristics of interactive, immersive 3d virtual art in their work. An artist has a range of features of an artwork which he or she can change: an object's appearance, position, or even whether it is there or not; what an avatar does, its camera position so it is looking at something specific, or where it is; and how objects, avatars, and the virtual world environment interact with each other. Although not all scripted changes require someone to click (some are triggered by chat, or proximity, for example), I often term these interactive pieces "clickables," and to me, they comprise the most interesting art being created in virtual worlds, along with some performance art.[4] For a range of examples from winners of the University of Western Australia's year-long Imagine 3d Art & Design Challenge, see my machinima "Click: Immersive & Interactive Virtual Art" http://www.youtube.com/watch?v=2Sf3Q2VAlKE.

This section focuses on three artists who make art about and out of the virtual world's capabilities for transformation and change: Oberon Onmura, Selavy Oh, and Glyph Graves, although it could easily make analogous points about transition and instability in the content, technique, and aesthetics of several other virtual artists, including comet Morigi, Gazira Babeli, Blue Tsuki, Maya Paris, Misprint Thursday, Douglas Story and

Desdemona Enfield, Pinkpink Sorbet, pixel Reanimator, Kolor Falls, FreeWee Ling, Bryn Oh, and others. The artists focused on here extend conceptual art into the virtual platform where art is necessarily of the mind, not the material, and the artist' (and observer/participant') agency is unquestionably central. Each uses different aspects of the form and content of virtual art, from the more figurative Glyph Graves, to the Dada-influenced Selavy Oh, to the virtual-minimalist Oberon Onmura.

We begin with minimalism, because by stripping the figurative, we can focus more fully on the changes occurring to the simple shapes in the virtual environment, observed and acted upon by the avatar. What does minimalism mean in a virtual world? For Oberon Onmura, it means an aesthetic style that eschews textures and sculpted shapes for simple geometric prims and colors, with a focus on what interested the minimalists of the 1960s: the relationships of objects, people, and the environment in which they are installed. But the specific properties of a virtual world creates new questions: If the column or cube in a space of 1960s minimalist artists Robert Morris and Donald Judd is about a new relationship of the person perceiving it to the work of art, then what happens when that object is not really there, or it can pass through or be passed through by the avatar, or move in response to changes in the virtual world's clouds, part of its weather system? Oberon Onmura deploys scripts that work cleverly with data and the Second Life physics engine to set objects, avatars, and the virtual world environment in interaction with themselves and each other, in different combinations. Oberon Onmura's obelisks change, in a piece like "Path Monitor," (May 2009), when an avatar walks through them, turning a color specific to that avatar and displaying its name. The obelisks show the path the avatar took.

Figure 5 :"Path Monitor" by Oberon Onmura. Screenshot by Lori Landay

Two other Oberon Onmura installations, “Plaza” http://vimeo.com/19230602 and “Storm Cells” http://vimeo.com/18762858, are experiments with dynamic transition, showing how the same scripts to change the height and color of blocks of the floor according to changes in the virtual world’s clouds can create very different effects. Working as a virtual-minimalist, with the barest hint of object shape and color suggesting either a natural or urban landscape, where “Storm Cells” achieves an ethereal sweep over an entire sim of colored sky ballet reaching to the sky, “Plaza,” with its concrete-like slabs and randomly appearing chairs that fall over and tumble around, suggests an unstable surreal urban space, disturbing yet equally fascinating to watch and be in.

"Plaza" offers what can be interpreted a public city space with its grayscale colors and smaller scale, a piece that an avatar easily can take in and walk around on, except perhaps for the unstable terrain and chairs that suddenly appear, sometimes topple, and then disappear. The chairs, more like office chairs or utilitarian extra chairs one might have around than comfy, welcoming chairs, with their spiky legs all akimbo across the shifting plaza, can be sat upon, but for what? Every now and then, a red one appears, but its color doesn't seem to have any special significance after all. It, too, comes and goes without purpose or warning, like the unknown people who cross the city plaza, perhaps there for a time, then gone, just as unknown and unchanged as when they entered, or maybe not. Even though Oberon rejected my suggestion that in a piece like "Plaza," his chairs are a reference to Joseph Kosuth's "One and Three Chairs" (1965), I still see something similar in the choice of the chair in his (and Selavy's) pieces. A functional object, taken out of its usual functional context, like the chairs on this plaza, calls attention to the nature of the object in art, a favorite concern of minimalism (as well as surrealism and Dadaism).

In contrast to the urban, human-made, yet lonely "Plaza," with its cold grays and moving floor, "Storm Cells" (2009) is a full-sim work that not only uses the cloud formations as data that dictates the colors and height of the cubes that comprise the installation, but becomes part of the virtual world sky. Where the change and instability seems disruptive, harsh, abrupt with the combination of the colors and the chairs in "Plaza," there is a stronger sense of continuity and flow in "Storm Cells." The kind of change is not controlled by the artist, but by the virtual world weather, so it is the aesthetic frame, the metaphor, the scope, and the location in which the change occurs that shape my interpretation, my subjective experience of the two pieces. By experimenting with change,

by making the agent of instability constant between the two pieces, Oberon sheds light on not only on change, but on the perception of change itself.

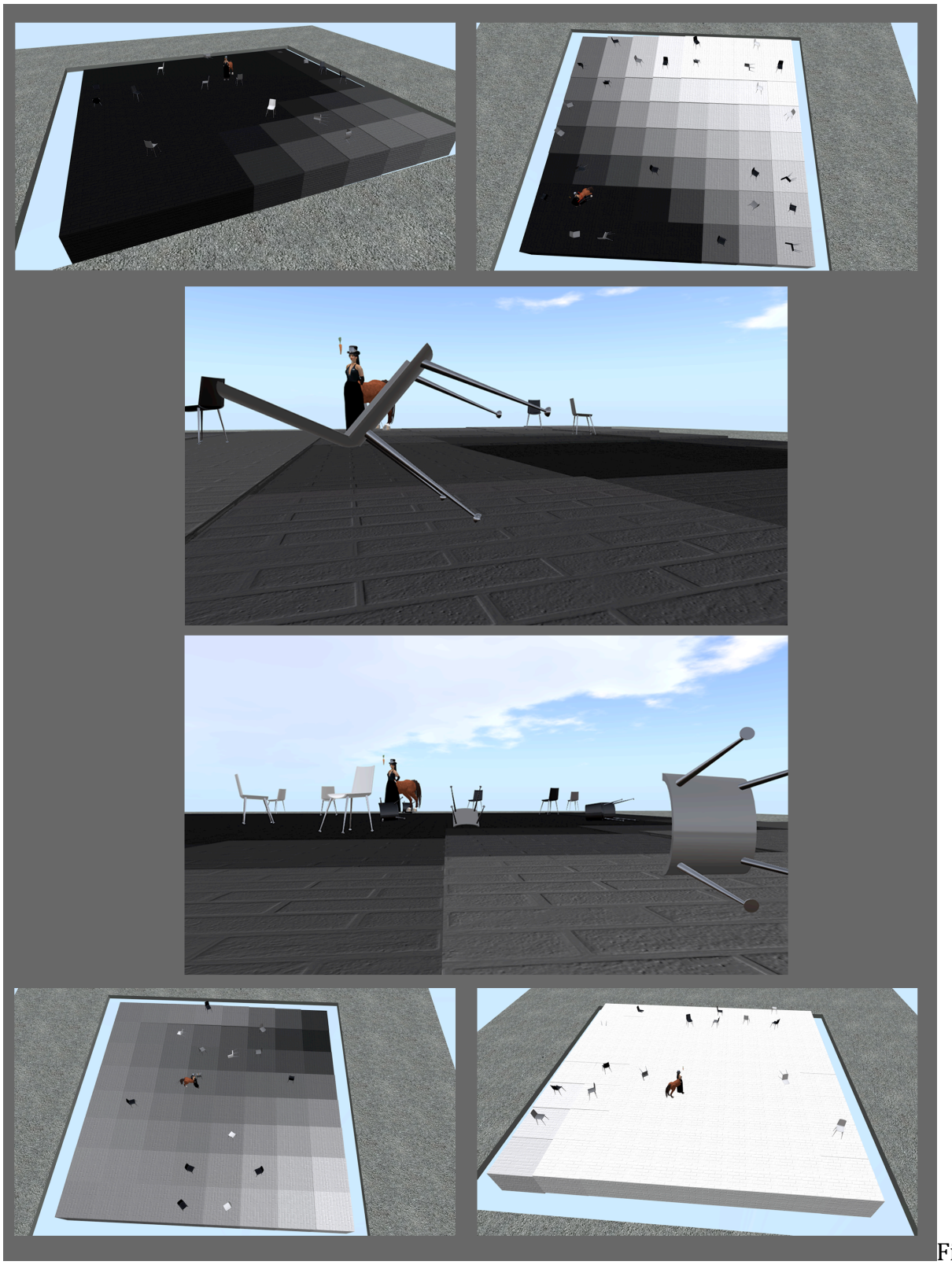


Figure 6: "Plaza" by Oberon

A similar self-reflexivity abounds in the work of Selavy Oh, the artist working in virtual worlds who Oberon considers the most influential on his work. Selavy Oh's art installations in Second Life are always an experience that interfere with you in some way. A master at manipulating the physics of the virtual world in a tricksterish, sometimes obstinate way, Selavy Oh's pieces are initially benign-seeming because of the minimalist aesthetic she appears to share with Oberon. But where Oberon's pieces tend to be about a process of interaction and intersection between objects, avatars, and the environment, Selavy Oh often adds a more emotional element, playing with expectations, and refusing to play along with convention. Where Oberon's disruptions might tip you over, Selavy's could entrap and confound.

Selavy created one of the most annoying art installations I've experienced, diabolical in its irritating cleverness. In a way, it is the less pleasant experiences that test the intensity of virtual subjectivity—the sense of loss when an avatar friend stops logging in, or when a virtual place disappears forever. "Attractive Object" (2009) was installed at one of those places I miss, Brooklyn Is Watching, and it worked this way: it would pull your avatar from someplace on the sim under the floor, and pull you back when you tried to walk away from it. It literally stopped you from whatever you were doing (in the case of this machinima clip, from filming Selavy's other piece for a lecture I was giving on virtual art!) and took control of you for a short while. I think it got me three or four times that week. The local chat has "attractive object" call the avatar by name and say: "look at Selavy's work!" and "thanks for your visit!" as if it were voluntary. After bringing you back when you try to leave, it says: "please don't leave already! Thanks for coming back :)" Selavy uses the emoticon, exclamation point, and cliché as she does in other text chat pieces to underline the hypocrisy of language and our discourse, in virtual worlds and beyond.

Overall, “Attractive Object” uses the scripting and physical properties of the virtual world to disrupt and destabilize, wresting control, plunging the avatar and user into momentary paralysis. Incapable of doing anything other than looking at the cube posing as the attractive object until it releases you, the piece calls one’s notion of stability and control into question.

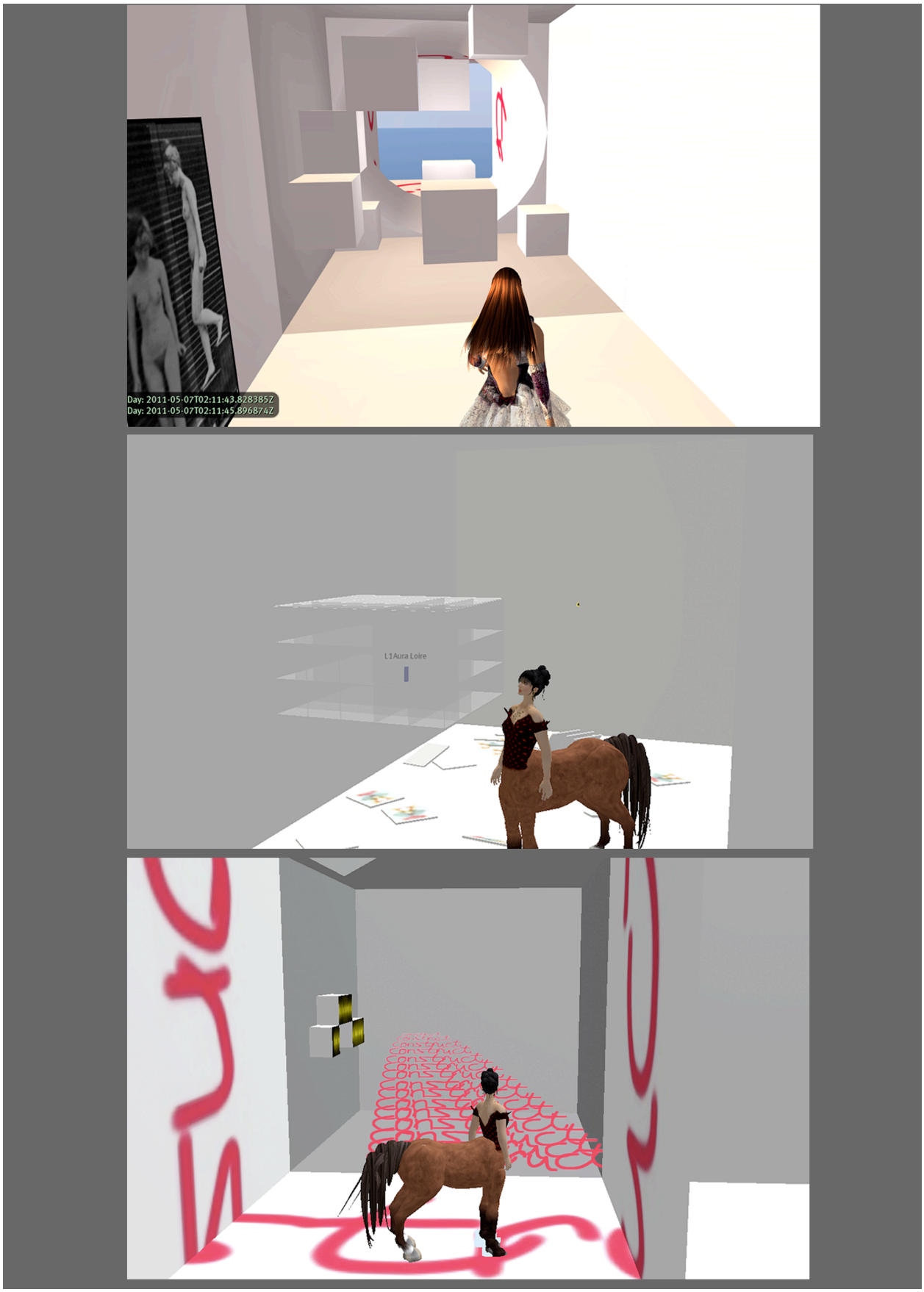
Figure 7: "Attractive Object" by Selavy Oh captures L1 at Brooklyn Is Watching, August 2009. Machinima at: http://www.youtube.com/watch?v=E-AfQjFLLbU

Selavy Oh’s most recent installation, “Construct,” is a tour de force of the kind of playful and sometimes disturbing use of transformation, instability, control, and change evidenced in “Attractive Object.” (See machinima of “Construct” here: http://www.youtube.com/watch?v=JNhMMpih_tI&feature=related .) There is no way to

predict what will happen when entering the seventy-five cubes built over seventy-five days between February and May 2011. Each yields a different experience, and not always the same one, almost all without a context other than an experience of being in a space constructed in one way or another, that may or may not change. Sitting on a chair might trigger an animation, or whisk the avatar to another location. Walls might disappear, be able to be walked through, or might close in around you. An "identity check" performed a google search on my avatar name that displayed on a cubicle wall. A small blue rectangle showed where my avatar was in a model of the whole installation, and stayed there, a trace that I had been there. The word "construct" showed up, mostly in red, in different ways. Other text, asking questions, appears throughout, a hint of the artist's thoughts on that day, perhaps, but more of a tease than a record, and always an invitation to think.

As artist Oberon Onmura writes about the installation, “Selavy is among the very few artists working with this "new medium" who fully explores its conceptual space. Her

resulting artworks, over the past few years, have consistently shown the rest of us how to expand the boundaries, exploit the resources, examine expectations - in short, she shows us what it means to make art in a 3D virtual environment that is very definitely not 'real life'" ("Explore 'Construct', the Latest Second Life Installation by Duchamp-Influenced Conceptual Artist Selavy Oh," http://nwn.blogs.com/nwn/2011/05/second-life-artist-selavy-oh.html#more).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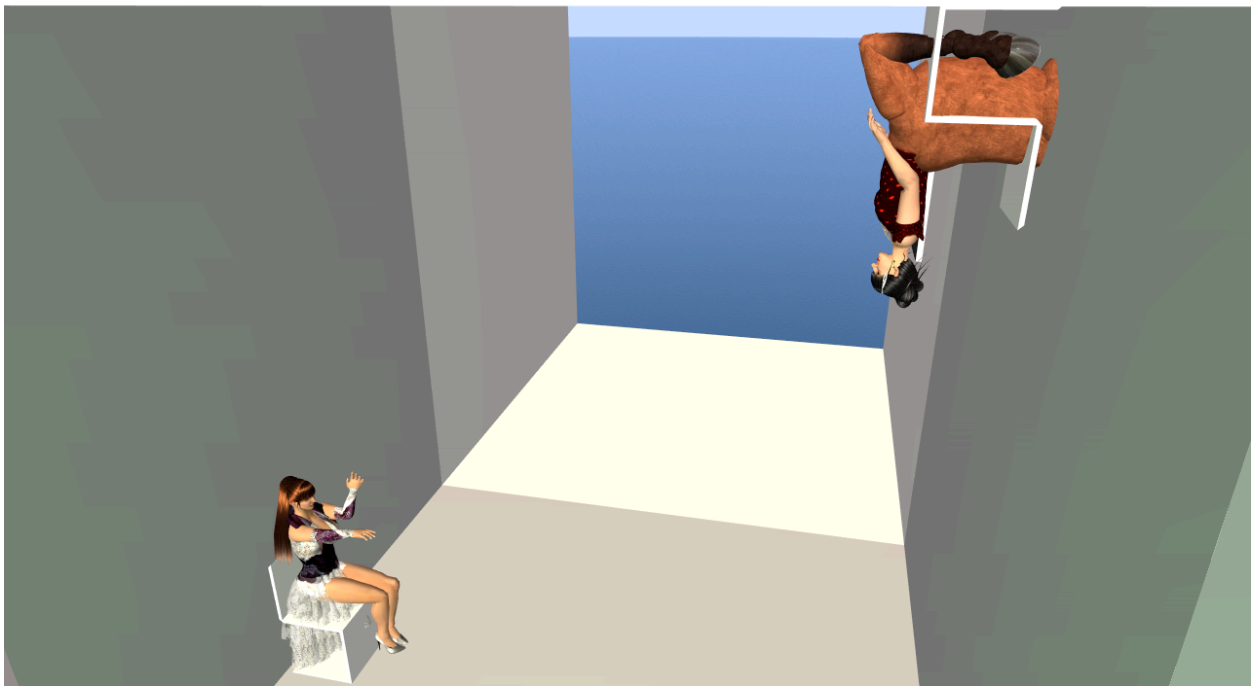
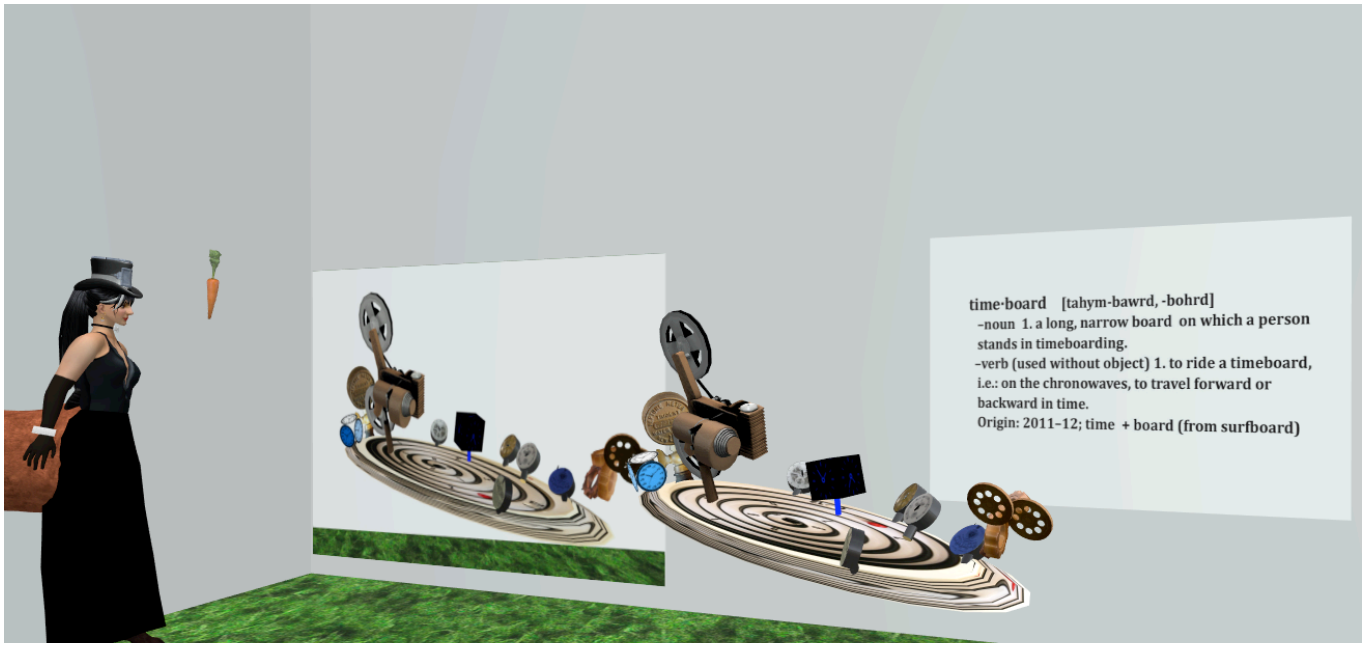
L1Aura Loire

Selavy's chairs, like Oberon's, remind me of Duchamp's ready-mades (as well as Magritte's 1929 "The Treachery of Images," with the declaration "Ceci n'est pas une pipe." under the very realistic image of a pipe, and Selavy's dynamic use of the word "construct" plays with these referents, too.) On one level, an avatar does not "need" to sit, having no real legs that tire, or body that can feel more comfortable in one position or another. On another level, what an avatar does is part of the user experience. Yet on another level, sitting on an object reduces lag for the user and everyone else in a sim, and so does perform a function in the virtual world. And even more pertinently in this discussion of instability and change in art, when one clicks on, or sits on, something for the first time, one does not know what will happen. If a chair is part of a museum installation, it probably can't be sat upon, but the virtual chair must be sat upon because it is the interface. By using a chair, instead of another, more specific, precious object, Selavy in "Construct," or Oberon in "Plaza" connect to the new role that ready-mades can play in virtual art. Sit here. Experience what happens.



As I often do, I made a virtual art piece that explores the critical concepts I've been thinking about in this paper. "One and Four Timeboards" takes an imaginary prop from my recent machinima "Time Journey" (http://www.youtube.com/watch?v=zpWN0ELs0jk)and gives it the same installation as Joseph Kosuth's *One and Three Chairs* (1965): the object itself, a photograph of the object where it is installed, and aligned with the top edge of the

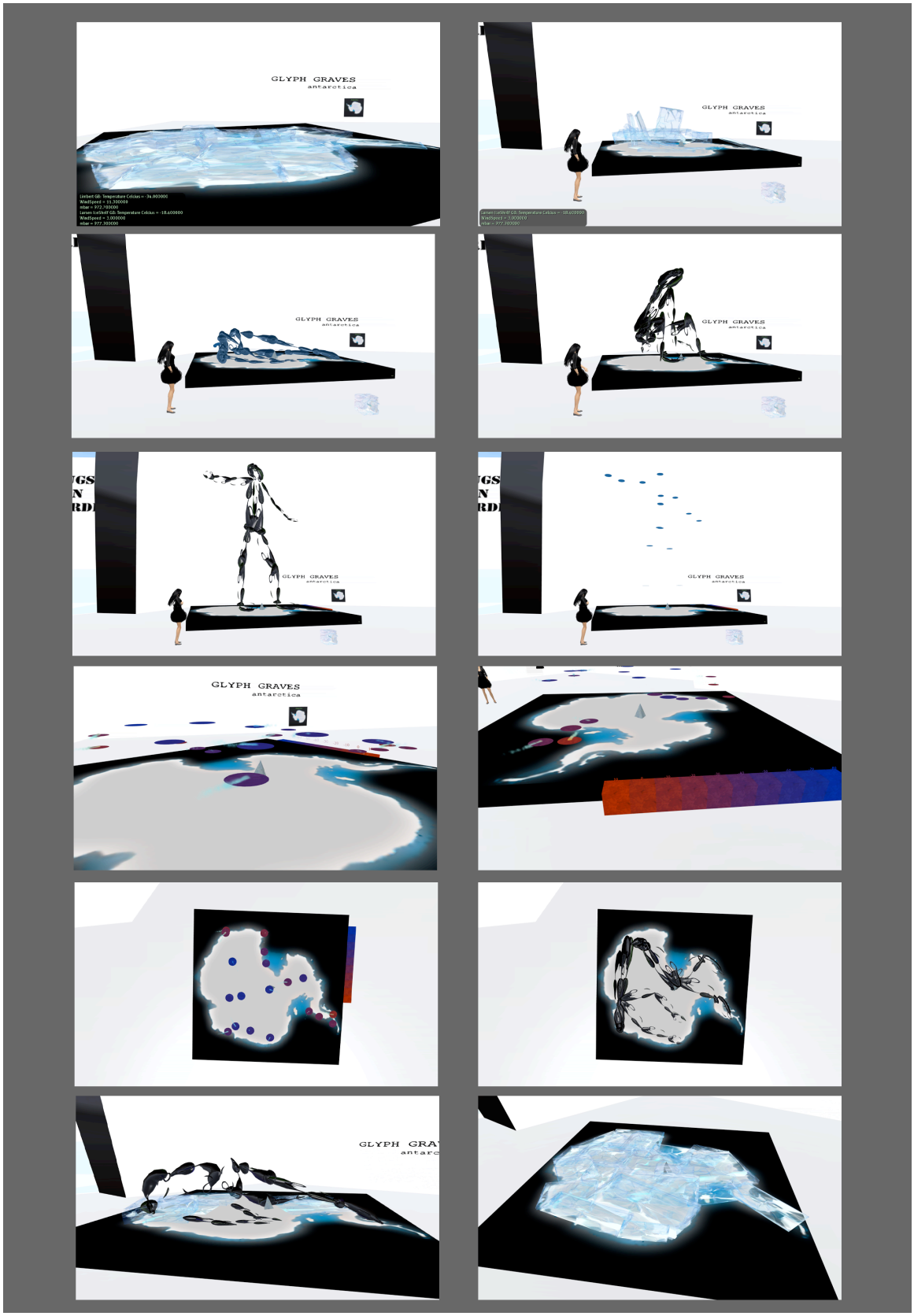


photograph, a dictionary-type definition of the word. But because this is a virtual world piece, it is clickable, and yields, to the user, an unknown and unpredictable result: being teleported to a sphere above the gallery which mimics the swirling spiral that marks the timetravel sequences in the movie.

It is meant as a moment of disorientation, of disruption, of instability in one's perceptual field, to be in a "gallery" space of relatively static representation and then to click and suddenly plunge into the swirling vortex. It suggests that in virtual art, there is a fourth aspect of meaning to consider beyond the object, the word, and the photographic image: the experience of transition.

In contrast to Selavy and Oberon, the third artist, Glyph Graves, is a more figurative artist, but his work concerns transformation and change in form and technique as much as the minimalists. Glyph is the avatar of an Australian geneticist and evolutionary biologist, and he draws on his scientific expertise in creating virtual artificial life forms, some of which evolve according to genetic algorithms, or other real-world data or models.

For example, his piece “Antarctica” uses real-time weather data from nineteen weather stations in Antarctica as the basis for its visualization in the virtual world,



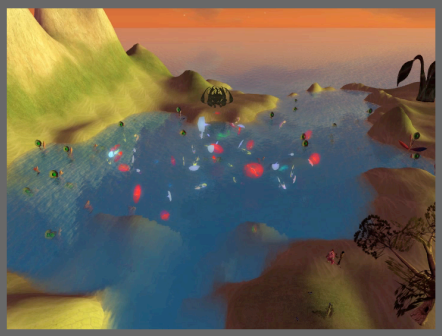
analogous Oberon' use of the virtual world "weather" in "Plaza" and "Storm Cells." Glyph Graves takes data from the University of Wisconsin-Madison's AWS site, and turns it into an evocative, dynamic, always changing piece that uses sound, color, shape, and movement to, the artist says, pose the question of "What is an avatar?"[5] To me, however, it calls attention to the metaphors we use to describe places, whether it be a continent like Antarctica, so hostile to human needs for habitation that it might as well be a stream of data, or an ice sculpture, or an oil-like possibly menacing giant waking from slumber if it melts—or the metaphor of space and place, of geography, that we use every time we say "virtual world." It is that metaphor that encourages a certain expectation of stability, of permanence, in the simulated "world."[6] As shown in the photographs from the installation of the piece in the Housebugs show for Cyberfest 2010, the piece has a circular transformation, starting and finishing with blue and white ice shaping the continent. When the avatar clicks the platform however, a process begins. The ice rises, and transforms into darker blue, and then black shapes, which form a figure; the figure stands, as if waking from long slumber, and stretches when it reaches full length. Suddenly it whisks into different colored disks, which settle into a color and position based on the real-time weather data Graves uses as the input in his scripts. This is the part that is different each time. After a pause as the visualization of the real-time data, the disks converge into the form of the figure again, almost as if going home, back to sleep, and then the figure reverts to the ice filling the shape of Antarctica on the platform once again. The music of this transmutation marks and connects the different phases. See Machinima of "Antarctica – An Individual Existence" by Glyph Graves: http://www.youtube.com/watch?v=v4jvs5gP2JA

Figure 8: Photographs of Glyph Graves's "Antarctica" by Lori Landay

Graves had previously used a similar kind of assembling and disassembling figure in his Entropy sim-sized installation for the Shanghai 2010 Expo. (See: short video filmed at the Entropy sim, a deleted scene from my machinima, "Open End," at http://www.youtube.com/watch?v=oO_ldLBsn-c and machinima of the entire sequence: *Entropy*, by Chantal Harvey: http://www.youtube.com/watch?v=cEeiHbRhH0A .) Several figures comprised of flowy parts perch on mountaintops overlooking a lake; an avatar whispers into the "whisper tree" (which was part of all the sims built for the Expo) and the figures move out of their individual figurative form into their constituent parts of color and shape and glide toward the center of the lake, joining and melding with the parts of the other figures who had been on other mountaintops. The parts join in a kinetic dance of color and movement, something made up of the same material that can sometimes come back together, and sometimes must exist apart. Soon the time comes for the pieces to reassemble and wing their way back to their places on the mountaintops, and they swirl along, slipping back into position as figures, once again taking up—what is it? Guardianship? Surveillance? Waiting until they can conjoin again? Respite until they must intermingle yet again? There is something evocative in the ambiguity of these figures, endlessly repeating their scripted actions, elegantly moving between states of abstraction and figuration.





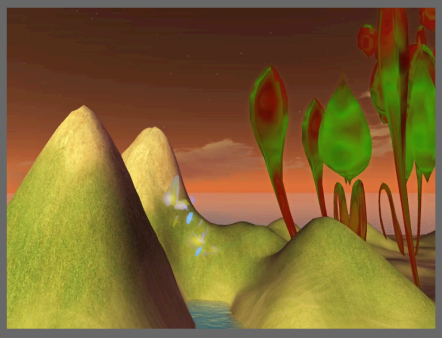


Figure 9: "Entropy" sim by Glyph Graves, 2010. Photographs by Lori Landay.

In each of these figure pieces, one click sets off the chain of events that cycle through the series of state changes until they return to the original one. The last piece I'll discuss here, "Organic Recurve," has two levels of interactivity. One is within each of the "organisms" Graves creates, and the other is when an avatar interacts with the piece by touching an organism, or by moving around within the piece. The organisms change color, move, and emit sounds.[7] When I was filming the UWA winners for "Click," I spent a lot of time in "Organic Recurve," "playing" the piece with two avatars, exploring the range of behaviors and sounds. The kinetic interactivity in that piece, with its two levels of the objects being triggered by each other and the avatar also causing state changes in more than one way (clicking and proximity), makes for a very dynamic experience, which is in an interesting tension with the soothing, yet "distressed" sound and shiny, glossy exterior of the organisms. There is a lot going on in that piece, and immediately, one becomes part of it. It is indeed, as the artist terms it, "social."

In the three pieces discussed here, which range in scope from the relatively small "Antarctica," to the dome in which the avatar moves around that contains "Organic Recurve," to the sim-wide "Entropy," stasis is not the desired situation. It is change, instability, the moment of transformation, the process of becoming and unbecoming, that interests. We experience transition and instability as cyclical in "Antarctica" and "Entropy," or as something in which we participate, in "Organic Recurve."

Transition is the goal in the work of Oberon Onmura, Selavy Oh, and Glyph Graves. Objects in their pieces change. They change in ways that are particular to the virtual world, and to different degrees, call attention to the ephemeral nature of the virtual world. Oberon's pieces "Plaza" and "Storm Cells" make you aware of the virtual world weather, but

not as part of a realistic simulation, but an interesting dynamic data set that shifts, part of the environment. Look what can be done with it this way, then that. Selavy's pieces that use the physics engine to move or trap your avatar, or scripts to suddenly make the walls and floor disappear so that your avatar and the objects are suspended in air, jerk the physical properties of the virtual world around, and your sense of stability with them. Glyph's cyclical pieces, moving through each stage to begin again, are about transition and change, an organic process that he brings into the virtual world not exactly mirrored from actual biology and organism behavior, but based on them.

I've focused on these pieces, these artists, because I am primarily interested in 3-D virtual art that takes advantage of the specific properties of a virtual world platform, like scripting, animating an avatar, taking camera position, particles, transparency, and interactivity (some of which have actual world analogs in installation art, and some of which do not). Two-dimensional art or photography that is displayed in a virtual world can be interesting to see, but then the specifically virtual aspect is how it is shown, or virtual exhibition, which can be quite innovative and could transcend mirroring actual-world models. The distinction draws on the concept of "impossible in everyday life," a shorthand for summarizing what is possible only in a virtual world, whether that be transcending physics, or one's avatar being able to be, for example, a centaur. To be sure, some of what is important and significant about actual sculpture, actual installation, is the manipulation of materials, working within constraints, and triumphing over circumstance. When we see a huge steel sculpture, for example, that dwarfs us, rising up out of a space, whether a grassy expanse, a city plaza, or inside a structure, that gives a feeling of perspective and changes the space we are physically experiencing in a way that seeing an avatar in front of a virtual recreation of the same sculpture cannot. Analogously, what is

important about experiencing art in a virtual world, is the manipulation of virtual materials, and triumphing over those circumstances. When the avatar walks through it, or when the "steel sculpture" changes into something else, or moves through the avatar and takes on its name, or vanishes completely, there one moment and then gone . . . then that is where the experience of virtual art actualizes the possibilities of a platform characterized by transition and transformation.

Part 3: Adventurers Jumping Between Worlds: Embracing Change

The third response is to fully embrace instability as a pioneer or explorer, take it in stride as you light out for new territory, and not seek out stability per se. The growth of open source OpenSim software and grids, the ability for people to have a "sim on a stick" (ie: on a USB drive), new companies and institutions exploring different kinds of virtual worlds (albeit on the shoulders of Second Life), Second Life's discontinuation of the discount for education and not-for-profit organizations have all contributed to resources and creativity shifting from Second Life to a myriad of Open Sim and other virtual worlds. To be sure, there are economic and other practical reasons why people choose OpenSim virtual worlds, but I'd like to focus here on the metaphors and rhetoric of "exploration" to tease out its implications as a way of responding to change.

The name of "The Hypergrid Adventurers Club" sums up this attitude towards instability and transition: it is an opportunity for adventure, exploration, connection, and community. The "hypergrid" is the term for virtual worlds running OpenSimulator software that are on the internet and have chosen to be connected. OpenSim grids are exciting, rapidly growing, and a magnet for early adopters and self-starters. Here is a definition: OpenSimulator "is an open source multi-platform, multi-user 3D application

server. It can be used to create a virtual environment (or world) which can be accessed through a variety of clients, on multiple protocols." (http://opensimulator.org/wiki/Main_Page) Many see OpenSim development as the way the 3D web could develop outside of one company, more like the world wide web as opposed to the early attempts of Compuserve, AOL, and Prodigy to provide internet access. Here is how the wiki describes one of its goals: "OpenSimulator lacks support for many of the game-specific features of Second Life (on purpose), while pursuing innovative directions towards becoming the bare bones, but extensible, server of the 3D Web. OpenSimulator is getting more stable as it approaches release 1.0, but we still consider it alpha software; so should you." http://opensimulator.org/wiki/Main_Page

The warning about being alpha software is not to be taken lightly. In contrast to the attitude of wanting someone to ensure stability to the point of not changing anything (the extreme from the other end of the spectrum), people using OpenSim know that they are part of an ongoing process moving towards greater stability.[8]

Another pertinent aspect of OpenSim grids is that they are standalone grids, unlike a huge grid like Second Life, and therefore would be isolated if not for the ability to hyperlink the individual Opensim as if they were part of one big grid that could be accessed from one avatar account. Quoting from the OpenSimulator wiki:

> The hypergrid is an extension to opensim that allows you to link your opensim to other opensims on the internet, and that supports **seamless agent transfers** among those opensims.
>
> The basic idea for the hypergrid is that region/grid administrations can place hyperlinks on their map to hypergrided regions run by others. Once those hyperlinks are established, users interact with those regions in exactly the

> same way as they interact with local regions. Specifically, users can choose to teleport there. Once the user reaches the region behind the hyperlink, she is automatically interacting with a different virtual world **without having to logout from the world where she came from**, and while **still having access to her inventory**. http://opensimulator.org/wiki/Hypergrid

The true viability of OpenSim depends on the hypergrid; otherwise there are only separate, alienated grids, little obscure private blips, and any real metaverse can only exist within a large corporate framework. To create a community and foster exploration, John "Pathfinder" Lester, previously with Linden Lab and now Director of Community Development at Reaction Grid, runs the Hypergrid Adventurer's Club. Each meeting has a discussion portion and then a group excursion through a hypergate to a new virtual world. The tone of the HGAC meetings I've been to has been exceptionally friendly and fun, both in the discussion and the exploration part. From the group tags, to the visuals and sometimes the ways people talk about what they're doing, the metaphors of adventure, exploration, and pioneering abound. As Pathfinder explained at a recent meeting, "I chose that metaphor of "pioneers" very carefully ..... 1) to set expectations. I wanted people to understand that exploring the hypergrid would be bumpy/crashy/full of unexpected results. Not a slick tour, but rather a bit of a pioneering adventure. ;) 2) to frame the reason we're doing this. We're pioneers in that we are helping this platform develop by pushing the limits of it. :) Our explorations give the world owners and opensim developers more data to help fix things that are broken here and to evolve the software."

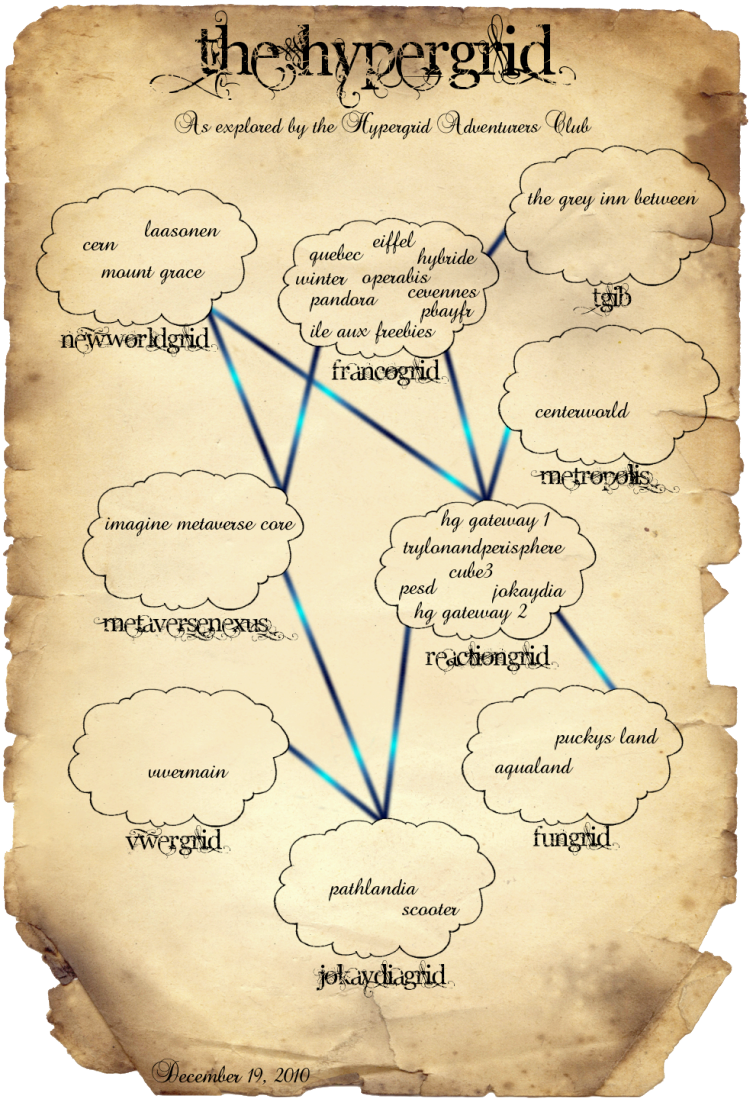


Figure 10: Hypergrid map, from http://becunningandfulloftricks.com/2010/12/20/maps-and-hyperbase42-charting-the-hypergrid/

The Hypergrid Adventurers Club gives early-adopters a big picture perspective at the same time that it supports the development they are doing on their own individual grids. That combination of the local and the meta is absolutely key to a virtual world being a dynamic, changing world rather than a static simulation that achieves stability but cannot develop or transform. I asked the members of the HGAC, in a meeting, and on the google group forum, to discuss their attitudes towards instability and change, and received a variety of interesting responses. Several suggested that their attitudes in the actual world

and virtual worlds were similar, and that they were used to experimentation. The overall understanding of what the software is and the technology involved was (not surprisingly) sophisticated, which encourages tolerance. Overall, the hypergrid adventurers (or hypernauts, as someone termed it), enjoyed the adventure, and the community of early adopters. Three comments summarize the approach I would associate with the hypergrid adventurers:

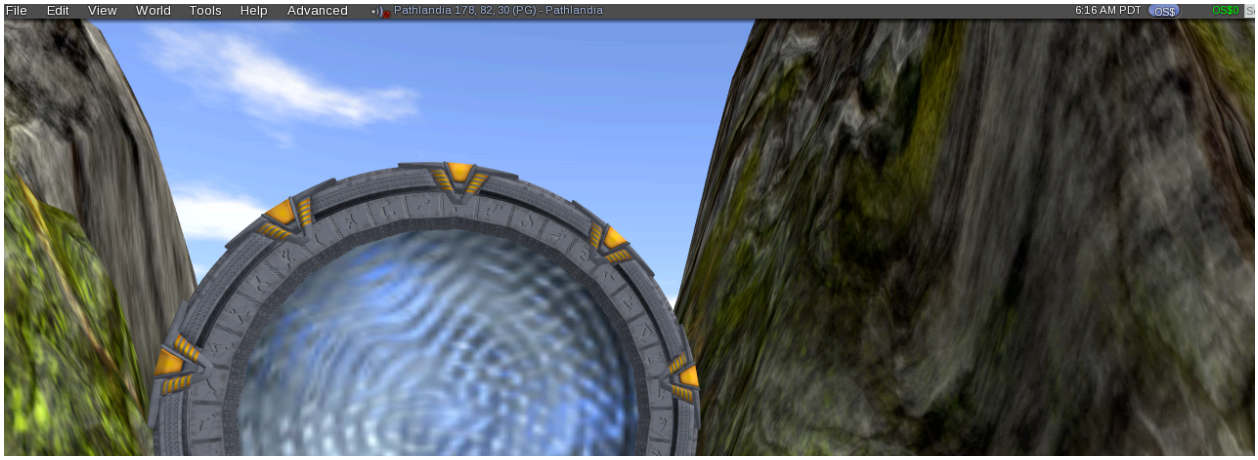
> Instability, crashes, problems are an intricate part of the joy that comes from dealing with it or sorting it or sidestepping it. I have that same sense of pioneering, discovery, frustration compensated by sheer and utter joy, makes me smile, literally and physically, even now thinking of it while typing this out. I never much cared for flawlessly, smoothly running systems, all you can do is watch." (Gwynn Gunawan)

> The excitement of the OpenSim experience and the overall learning process trumps any "negative" aspects of instability and changes of hypergrid jumping. At times, I feel like a "frontier explorer" and I look forward to the day when the "exploration" glitches will be considered just growing pains. As a real life medical technologist, testing and re-testing are natural processes. So, I see Hypergrid Jumpers as "Testers for Future Travellers" or "Frontier Scouts" who will enhance the experiences of future jumpers by clearing the glitches today. (SarVana Cherry)

> I think Pathfinder pegged it with the name of the group: adventurers. People who are risk tolerant because they're so motivated to explore the frontier. It's so much more creative and full of possibility when you're crossing boundaries. Sort of seems to encompass nicely much of the shared sentiment of the "early adopter" crowd: such adrenaline junkies ;) (Jonathan Richter)

The objects people have created to make the metaphors of hyperjumping manifest in the virtual world are imaginative and speak to the achievement of the link between virtual worlds. Borrowing heavily from science fiction (*Star Trek*! *Stargate*!)


File Edit View World Tools Help Advanced
Pathlandia 176, 86, 28 (PG) - Pathlandia
6:16 AM PDT
IDLE
experimental hypergate
use at your own risk!
type "/1 help" for info
Experimental Stargate: Valid addresses are: wizzy, permutation, hg gateway 1, hg gateway 2, core1


File Edit View World Tools Help Advanced
Pathlandia 178, 82, 30 (PG) - Pathlandia
6:16 AM PDT

The metaphors we choose are powerful: they shape the experience we have. It is savvy for the director of community development of an OpenSim grid which is part of the hypergrid to build the wider hypergrid, and to do so not only in practical ways, but also with metaphors that provide individuals with a positive frame for what may be a bumpy experience. From his work at Linden Lab to his current innovations with Unity 3D and Jibe at ReactionGrid, Lester makes choices that show he understands the big picture of what virtual worlds can be at the same time that he works with the people and technologies where they are right now. In his keynote at the 2011 Virtual World Best Practices in Education Conference, Lester said, the key for educators working in virtual worlds is what they connect to: "It's about creating environments that are permeable. It's about creating platforms that are interconnected. It's about creating things that integrate with other things at the most fundamental level." [9] He continued by talking about the integration of virtual worlds embedded in the web with other web content so it is part of an

"interconnected seamless experience." Not only does Lester seek to create community among individual adventurers, but also to connect virtual worlds to the rest of the web.

When we use the terms of explorer and pioneer, we recast virtual worlds as discoverable terrain, and make them more stable. But more importantly, I think, is the aspect of the response to instability and change in the platform in transition of the virtual world: the creation of community, the searching out of community, of others with whom to connect and network, always at the center of the idea of the internet, and that is how a metaverse is created. It is a necessary part of a viable virtual economy--a critical mass of concurrent logins, enough unique visitors, to sustain businesses--and indeed other aspects of the hypergrid and OpenSim project focus more on building an economy. Maria Korolov's *Hypergrid Business* online magazine (http://www.hypergridbusiness.com/) publishes information pertaining to OpenSim business and technical development, providing a forum for sharing resources and publicizing statistics and growth.[10]

A federation of hyperlinked grids seems to me to be the brightest hope of the future, although I understand that the lack of copyright protections and the openness of the permissions system in hypergrid transfers of content are a serious obstacle to connecting all virtual worlds (and why "closed garden worlds" like Second Life and InWorldz are not open to hypergrid connection).[11]

The issue of a closed-garden world or an OpenSim world is not only whether there can be a viable business model, but it gets to the very heart of the issues of this conference: transition and instability in the platform. If goods, ownership, and even who is listed as the creator of a virtual object or asset are in flux as they are moved across the hypergrid, it is more than only our accustomed metaphors and experience of physical stability that is at stake in the open source, hypergrid connected virtual worlds, but the grafting of the

economic model onto the virtual world itself. To be honest, it seems likely to me that when the 3d web does reach critical mass, it will be because something with mass popular adoption, like Facebook, and a viable virtual currency, decides to go in that direction. Perhaps it expands a game like Farmville, using existing real-life social networks, with a web-based (maybe Unity or Jibe) viewer, very limited agency, and probably a much-diminished idea of "avatar," perhaps from the way people use that term as the image that represents them on twitter or other 2d social networking platforms. But that end of the 3d web will meet up, somewhere, somehow, with the high-agency, open-ended, OpenSim, hypergrid, just as the world wide web emerged from earlier walled-off models.

There is an instability about the rapidity of transformation in the digital copy: It took medieval scribes years to copy texts, and they knew every word, but, it takes only a moment to copy entire creations, terrain files, sims, despite the hours of work that might have gone into them. As Hillel Schwartz evocatively explains in The Culture of the Copy, "Copyright law intends the cricle around its c to be an embrace and an enclosure, rewarding the creatrix and protecting the copies; but when copying is second nature, that circle comes to resemble a snake devouring its own tail." (245) When we consider that the object or asset being copied is always simulacrum, and has no existence outside the interface of the virtual world except as data, the layers of instability multiply.

***

In conclusion, I wonder if the virtual world itself is an attempt to cope with instability and change in the actual world? In making a simulation, does one try to create a controllable world, with limits and boundaries? At one point I thought so, and perhaps in some ways virtual worlds and games can function in the same way as a collection, or a dollhouse. But it will be unchanging and stable only if no one else is involved, and if it is

static, with no room for improvement. By its nature, the virtual world is always in transition. The technology that it consists of changes. The people that it consists of change. And when those two factors are taken together, they form a dynamic relationship based on change.

NOTES

[1] There is plenty of blogging and other reaction to specific features (and, to give a sense of my own reaction, I titled a blog entry "'I, too, dislike it' or, Why I Built My Caerleon Museum of Identity Installation for Viewer 2—" my answer was to keep changing and to experiment with the new shared media features in a piece that used a lot of video). There is also a wider conversation (sometimes a shrill one) about the long-term, highly dedicated Second Life user-base being "hostile" to change, which began soon after I proposed this paper, and is outside its scope. To start, see Hamlet Au's provocative posting in *New World Notes* "Second Life's Survival Seriously Threatened by Second Life Users' Hate and Fear of Change (1st of a Series)," http://nwn.blogs.com/nwn/2011/03/second-life-users-hate-and-fear-change.html For a positive review of the features of V2, see: "**21 Reasons the New Second Life Viewer 2.0 is a Huge Improvement"** http://www.secondtense.com/2010/02/21-reasons-new-second-life-viewer-20-is.html

[2] "Virtual KinoEye: Kinetic Camera, Machinima, and Virtual Subjectivity in Second Life." *The Journal of e-Media Studies* 2 (1) (2009). http://journals.dartmouth.edu/cgi-bin/WebObjects/Journals.woa/2/xmlpage/4/article/340

[3] As someone who makes machinima and frequently turns off the user interface to "film," perhaps I am particularly aware of the difference that the interface makes in the viewer window, and, HUDs (heads up displays) aside, how little beyond simple movement and activating poseballs that have been created to so the avatar can sit with a single click can be accomplished without using the more general-purpose HCI elements of the interface.

[4] Performance art in virtual worlds is beyond the scope of this piece. I've touched on the idea that one kind of virtual subjectivity can be thought of a kind of performance art elsewhere. For an excellent essay on performance art in virtual worlds, see: Patrick Lichty, "Why Art in Virtual Worlds?" http://colum.academia.edu/PatrickLichty/Papers/252748/WHY_ART_IN_VIRTUAL_WORLDS_E-HAPPENINGS_RELATIONAL_MILIEUX_and_SECOND_SCULPTURE

[5] From the description for youtube video, "Antarctica –An Individual Existence," Glyph Graves:
"Created in Second life using real time data from 19 automated weather stations in Antarctica Antarctica .. a continent of of ice, rock and wind that for most of its frozen expanse rises above the sea as the Antarctic High Plateau around 3000 meters. This piece brings the continent into a virtual world and poses the question : What is an avatar? The word avatar is not a new word --noun 1. Hindu Mythology. the descent of a deity to the earth in an incarnate form or some manifest shape; the incarnation of a god. 2. an embodiment or personification, as of a principle, attitude, or view of life. 3. Computers. a graphical image that represents a person, as on the Internet. This piece is a personification of a continent, and a fragment of its current (real time) existence is projected into virtual in the same way that we project a fragment of ourselves into SL and call it our avatar . It speaks as a symphony of music that is generated by the wind direction from location across

its body. Its form is described by the height and position of its parts. Its skin (the thin layer of air just above the ice) coloured by its temperature. As this is real time the composition will change from hour to hour, day to day as the conditions at each of the 19 locations on the continent change giving a song of Antarctica. While the discs are visible as well as touching the disc there is also a colour scale that will tell you the temperature at each site at a glance.
This piece has two phases
Phase One The first incarnation personifies the continent ice cover as a human figure. It stands then breaks into its component parts. Each part is a real location on Antarctica, the site of an weather station that is streaming real time data on the conditions.
Phase Two The second incarnation transforms into separate discs and takes the last 20 readings from each of the 19 weather stations (about the last 5 hours with the last being current). Each disc represents an automated weather station and contains a set of individual notes. The direction of the wind at that location determines which note from each set is played at each location. NB there are no sound loops rather notes are generated one at a time depending on the wind direction.

The direction of the wind is also given by the direction of the texture animation and the particle stream. The speed of the wind is given by the speed of the texture animation and the density of the particle stream. The temperature is signified by colour - red is the hottest and bright blue the coldest. If it goes over 0 degrees it will begin to drip. The relative height of the discs conform to the height of the weather station.

Technical aspects and Acknowledgements I take the data from the web, pipe it though my hosted web site and transform it into music and colour. It uses several transformations that are facilitated via scripts that modify the primitive parameters of each unlinked prim in the piece. For the height of the station I have used the barometric pressure in the same way it is used by an aeroplanes altimeter. Any difference due to temperature or local air pressure changes is negligible compared to the variation caused by altitude. The data is provided by the University of Wisconsin Madison through its AWS site and I gratefully acknowledge their permission to use it. I pull the information from that site and then pre-processed on my hosted site (I learnt php for this project) Each element in the piece then request the last 20 readings (about the last 5 hours). I use the temperature, wind speed, wind direction and barometric pressure.

All scripts (off world and inworld), sculpts and textures are my own.

The music come from sets of notes in each element. I utilise 4 instruments to create the symphony.
Ghost Blow notes created by Jovica - www.freesound.org
flute - by Lorin Tone
Chord set by Lorin Tone.
Violin notes London Philharmonic

[6] For example, I didn't understand at first why suddenly I might have trouble moving from one region to another. When someone pointed out a "sim crossing" sign and explained that each sim was on a different server, and that all my inventory assets had to transfer to

another server, I could understand and better tolerate a reasonable moment of instability in what looked like it should be a seamless space. By making that technical situation into a metaphor that interrupted the visually seamless space, the sign may have been less "realistic" in one way, but much more so in another, more useful way.

[7] From the description on youtube, "Organic Recurve," Glyph Graves

The conceptual underpinning This is a social piece. There are two levels of social interaction, between each of the "organisms" and between the organisms and the avatar(s). The interactions are initiated by the avatar touching the one (or more) of the organisms. The touched organism will change to a distressed state changing colour but not emitting any sound. The close by organisms will then respond to their "distressed"/ activeated neighbours depending on the degree of their removal from that neighbour (or degree of separation if you like) firstly by becoming distressed themselves and then depending on their degree of removal they will change to a colour and play a note (one of the three available depending on the distance of their active neighbour). Their neighbours will in turn react to them and so on. Any distressed organism further than 3 away will be ignored emphasising a friends and family/social grouping model of reaction. If the avatar moves close then the spatial arrangement of the organisms will change to crowd around the avatar providing another level of interaction. NB its not a sound loop, each organism will produce one of a different set of notes depending on a simple rule set. The melody gives an audio sculpture of the interaction and will be unique on each occasion. Technical stuff It's a cellular automata ...of sorts...of my own design. it doesn't have a fixed pattern of neighbours, the physical location of the elements depends on the avatar(s) and the neighbours are defined both spatial position and by their "emotional" condition. It is also different from the run of the mill cellular automata in that it is asynchronous (i.e. it does not update all at once). From youtube description:
http://www.youtube.com/watch?v=9aVfxMVO6Y4

[8] There have been some serious missteps on OpenSim grids (and on other grids, too). A very promising OpenSim grid, Craft, http://www.craft-world.org/index.php?option=com_content&view=frontpage&Itemid=1&lang=enwhich attracted many Second Life artists, was damaged to the point that over 3 months worth of inventory was lost, and any account created on Craft between December 23. 2010 and March 3, 2011 was deleted, and people would have to sign up again.

"Sad news in Craft : Owing to a serious error during maintenance, the Craft Database has been damaged. The Grid will be restored to its status as of 23 December 2010. This means anyone who joined Craft after that date needs to sign up again. All inventories will revert to 23 December. Payments for whose who are renting land in Craft are suspended. Sims are being reviewed on a case by case basis, and wherever possible, the most recent version will be restored." Quoted on http://pingsfromtheafterlife.wordpress.com/2011/03/02/lost/

[9] John "Pathfinder" Lester, keynote, "Exploring the Educational Affordances of Web-based Virtual Worlds," Virtual World Best Practices in Education Conference 2011, around minute 19:30, http://blip.tv/file/4906985 See also: Hypergrid Adventurer's Club: http://becunningandfulloftricks.com/ &, on Unity & Jibe:

http://becunningandfulloftricks.com/2011/03/22/new-group-to-discuss-virtual-worlds-on-the-web-using-unity3d-and-jibe/

[10] See: "OpenSim grids reach new peak," ***Maria Korolov*** http://www.hypergridbusiness.com/2011/01/opensim-grids-reach-new-peak/ and Most recent April OpenSim statistics (grids, regions, users, etc): http://www.hypergridbusiness.com/statistics/april-2011-opensim-growth-statistics/)

[11] For more information on the issue, see the "Designing Worlds" avatar television show at http://designingworlds.wordpress.com/2011/04/15/can-content-creators-be-safe-in-open-sims/ and Maria Korolov, http://www.hypergridbusiness.com/2011/05/the-business-case-for-opensim/ See also: http://www.kk.org/thetechnium/archives/2008/01/better_than_fre.php