

ON DRAMATIC INTERACTION

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Art or existential recursion? Virtual reality, like drama, can turn a transformational lens on human experience.

Fourteen years ago, when I was a graduate student in theatre, I had a conversion experience. A friend of mine worked at a large think tank where he was head of a new department in computer graphics and imaging. Late one night he asked me if I wanted to see a computer. We went through three security checks and up an elevator and through a maze of cubicles to a workstation where images were materializing on a little screen. I think it was Mars we were looking at. All I remember now was that I saw a portal to a new world, a million new worlds. I fell to my knees and said, whatever I have to do, I have to get my head into this stuff.

Since the beginning of my involvement with the medium, I've been driven by one very rich metaphor. Like a fractal, the closer I look at it the more I see.

Computers are theatre. Interactive technology, like drama, provides a platform for representing coherent realities in which agents perform actions with cognitive, emotional, and productive qualities.

Novices are often struck by the computers-as-theatre metaphor when they first encounter the virtual world of a computer game. Designers incorporate theatrical jargon into their process-computer-generated "actors" receive "directions"; users "willingly suspend disbelief". But the comparison languishes once its superficial levels have been mined. The rich substrata of formal and productive knowledge that gives the computers-as-theatre metaphor its power remains unexplored. Yet millinea of dramatic theory and practice have been devoted to an end which is remarkably similar to that of human-computer interaction design; namely, creating, artificial realities in which the potential for action is cognitively, emotionally, and aesthetically enhanced.

A "scientific" approach still dominates the design of human-computer interaction. We count keypresses, measure users' eye movement, and analyze errors, drawing on such disciplines as cognitive psychology and ergonomics. More recently, artistic disciplines like graphic design and storytelling have gained grudging acceptance, but contemporary design practice accomodates them as something fundamentally alien to the computer landscape. Art and Science, soft guys and bard guys, those who dream and those who write code-these form the thesis and antithesis of the computer dialectic.

But art is lawful. This view turns the dialectic on its head. It is no accident that Aristotle, the originator of poetics, was also the progenitor of Western science. When we examine human-computer experience with the same rigor and logic, we can derive a set of principles, a poetics of interactive form — that can far surpass the piecemeal science which is currently the heart of human computer interaction design.

Mimesis

The root of the similarity between computer-based environments and art is the notion of mimesis: a representation whose object may be either real or imaginary. Computers blow a third dimension into the concept by adding interactivity — the idea that users can become co-creators, collaborating at the deepest levels in the shaping of a mimetic whole.

We are familiar with the idea of the computer as a medium-emulator. We paint with virtual brushes and make music with Macintoshes. We know that computers can mimic, expand, and

augment the concrete tools of art. But we are less aware of the profoundly mimetic nature of the technology which allows us, not only to emulate existing media, but to create wholly new ones. And in order to do that, we have to decide what we're trying to create. Most of us begin by looking to the technology for answers. There it sits, the ultimate shape-shifter. What does one do with a shimmering blob of unlimited potential?

Big Ideas

I got my first answer to that question from Alan Kay when I was working for him at the Atari Research lab. He said that the way to know where you're going is to generate the right Big Idea. This Big Idea must be powerful enough to capture all of your imagination, good enough to satiate you completely if you ever reach it. It must be impossible to reach from where you are now. When you've got the right Big Idea, then all that you think about and all that you do will align itself toward it, like magnetic particles, and you won't ever have to worry about doing anything irrelevant again.

The computer landscape is dotted with Big Ideas, like vortices, magnetizing thoughts and expressions. Some of them are quite familiar. Long ago and far away, in the land of punch cards and batch processes, there was the paradigm of conversationality. It was huge and impossible. Eventually it led to the command-line, tit-for-tat interface that we now find so un-hip, but which exponentially increased the user's experience of interactivity.

Sketchpad and Smalltalk were signposts to another Big Idea — the representation of manipulable objects. The object paradigm posits that we can emulate the physical properties of things — shape and mass and containerness — and that these virtual objects can provide a powerful metaphorical context for doing things with computers. Desktops, icons, files and folders all materialized in this magnetic field.

Virtual Reality

The Big Idea of the moment is undoubtedly the notion of virtual reality. From Mad King Ludwig's grottos to Disneyland to computer games, virtual realities have been lurking in our culture for a very long time. Now, at the intersection of fantasy (Vinge's True Names, Gibson's Neuromancer) and technology (the NASA VIEW system, Lanier's Reality Built for Two), the paradigm has finally coalesced. John Walker at Autodesk describes it as diving through the screen into the world inside the computer. Finally, no more iconic representations, no more metaphorical indirection. We can treat the virtual world just like it's real. Alternate reality in a box. So what are we going to do when we get there?

In the NASA system, you can zoom through a model of the space shuttle or climb inside a robot. The Autodesk team envisions CAD workers working around inside their own designs. In Lanier's version, two people can virtually inhabit the same virtual space and play virtual ball. The entertainment industry will undoubtedly bring us countless sports simulations and virtual travelogues. But I keep seeing this image, like something out of a sad surrealist movie — a bunch of figures wandering around in a lonely masquerade, occasionally tossing a ball. After the first techno-rush, you're going to want to talk to somebody. And maybe not just somebody hooked into another terminal. A virtual somebody, Marilyn Monroe, Einstein, Captain James T. Kirk. I predict that, just as with computer games, we'll rip through the repertoire of imitations of games and physical activities, improving the technology and planting little signposts of convention, and then we'll start to hunger for more complex interactions.

The IF Paradigm

And that's where this all hooks back into the theatrical metaphor. In the Poetics, Aristotle observed that humans are hard-wired to learn, that they enjoy it tremendously, and that their favorite way of doing it is through imitation, acting things out. This is the impulse behind both theatre and computer games. The Big Idea is a vision of an experience where I can play make-believe, and where the world automatically pushes back. It's like cowboys and indians or theatrical improvisation, only better -because half of my brain doesn't have to be concentrating on making an interesting plot. I just get to be in this other world, first-person, acting as myself or Captain Kirk or some other character altogether, and I get to see what would happen IF.

The heart of the Interactive Fantasy paradigm, is the ability to produce robust dramatic interaction through manipulation of the same formal and structural dynamics that are present in any good play. The system would behave very much like a human playwright who is operating with a bizarre constraint: one of the characters is a real guy, wandering around in your study, injecting lines and doing things that you have to work into your script. By embodying dramatic rules and heuristics in a computer-based system, dramatic action could be formulated in real time, shaping the responses of the virtual world and characters according to the choices and actions of the user.

The impulse to create an "interactive fantasy machine" is only the most recent manifestation of the age-old desire to make our fantasies palpable -our insatiable need to exercise our imagination, judgement, and spirit in worlds, situations, and personae that are different from those of our everyday lives. Perhaps the most important feature of human intelligence is the ability to internalize the process of trial and error. When a person considers how to climb a tree, imagination serves as a laboratory for virtual experiments in physics, biomechanics, and kinesiology. In matters of justice, art, or philosophy, imagination is the laboratory of the spirit.

It is not enough to imitate life. Drama presents a methodology for designing worlds that are predisposed to enable significant and arresting kinds of actions — where characters make choices with clear causal connections to outcomes, where larger forces like ethics, fate, or serendipity form constellations of meaning that are only rarely afforded by the real world. Dramatically constructed worlds are controlled experiments, where the irrelevant is pruned away and the bare bones of human choice and situation are revealed through significant action. The predispositions of such worlds are embodied in the traits of their characters and the array of situations and forces embedded in their contexts. If we can make such worlds interactive, where a user's choices and actions can flow through the dramatic lens, then we will enable an exercise of the imagination, intellect, and spirit that is of an entirely new order.