

Three play effects – Eliza, Tale-Spin, and SimCity

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<http://grandtextauto.gatech.edu/>
Grand Text Auto

<http://mitpress.mit.edu/0262083566>
Second Person

Eliza

In the mid-1960s Joseph Weizenbaum created a stunning piece of software. Years before HAL 9000's screen debut in *2001: A Space Odyssey*, this software, Eliza, made it possible to have a conversation with a computer.

Eliza ran on a computer less powerful than the one in my mobile phone, though at the time it was one of the most advanced at the Massachusetts Institute of Technology. Rather than being hooked up to a monitor and a mouse – or HAL's microphone, speaker, and camera – Eliza was experienced through something like a typewriter, allowing the computer to type to the user and the user to type back. Yet, in the midst of all this now-primitive technology, Eliza was able to produce remarkable results. People could type anything they wanted to Eliza, and the software would respond in different ways depending on the currently active script. Here is an example using Eliza's most famous script, "Doctor", which caused the software to parody the conversational patterns of non-directive therapists during an initial visit:

You are like my father in some ways.

WHAT RESEMBLANCE DO YOU SEE

You are not very aggressive but I think you don't want me to notice that.

WHAT MAKES YOU THINK I AM NOT VERY AGGRESSIVE

You don't argue with me.

WHY DO YOU THINK I DON'T ARGUE WITH YOU

You are afraid of me.

DOES IT PLEASE YOU TO BELIEVE I AM AFRAID OF YOU

My father is afraid of everybody.

WHAT ELSE COMES TO MIND WHEN YOU THINK OF YOUR FATHER

Bullies.

DOES THAT HAVE ANYTHING TO DO WITH THE FACT THAT YOUR BOYFRIEND
MADE YOU COME HERE

While Eliza/Doctor (speaking in all capitals) may seem quite smart above, each script for Eliza is actually just a set of linguistic tricks. One of the simplest tricks, seen repeatedly in this excerpt, is to take a word or phrase from the user's last statement and turn it back in the form of a question.

But when we interact with a piece of software we don't necessarily get a clear picture of how it actually operates internally. And many users of Eliza/Doctor initially developed very mistaken ideas about its internals. They assumed that, since the surface appearance of an interaction with the program could resemble something like a coherent dialogue, internally the software must be very complex. Some at first thought it must be something close to the fictional HAL: a computer program intelligent enough to understand and produce arbitrary human language. This happened so often, and was so striking, that computer science circles developed a specific term for this kind of misunderstanding: "the Eliza effect".

Play and the Eliza effect

This essay is a brief look at the Eliza effect, and at two previously-unnamed effects that can arise in the relationship between the surface appearance of a digital system and its internal operations. More specifically, this essay looks where others haven't when exploring versions of this relationship: the area of play.

Weizenbaum may have originally thought of his system as a plaything – he certainly characterized the Doctor script as a parody – but his attention was soon drawn to another aspect of users' interactions with Eliza. He came to focus on the conceptual mismatch that gives the Eliza effect its name, and specifically on how it could "induce powerful delusional thinking in quite normal people". He wrote a book dedicated to demonstrating that the internals of computers aren't magical and that we do ourselves a disservice when we assume that human beings are so mechanical that we could, or should, have our intelligence matched by computational machines (*Computer Power and Human Reason*, 1976).

Two decades later, Janet Murray revisited Eliza/Doctor in *Hamlet on the Holodeck* (1997). Here she makes a crucial turn for our purposes, seeing the project in terms of media. She views Eliza/Doctor as a dramatic character, Weizenbaum as a kind of playwright, and the source of the Eliza effect in such cases as "the human propensity to suspend disbelief in the presence of a persuasive dramatic presence". Here Murray makes visible what wasn't clear from Weizenbaum's and other previous accounts: that people enjoy Eliza. Initial interactions are often quite fun and engaging, and create the sense of open-ended possibilities with an interesting character.

But Murray doesn't go far into talking about ongoing interaction with Eliza/Doctor, just as Weizenbaum didn't. If they did, it would complicate their discussions. This is because, while the initial experience of Eliza/Doctor can create the surface impression of an incredibly complex internal system, sustained interaction with the system, the verbal back-and-forth, invites play ... and linguistic play with Eliza/Doctor quickly begins to destroy the illusion. In other words, precisely the open-ended textual interaction that helped foster the illusion of internal complexity and intelligence enables play that draws attention to the system's rote simplicity, its distance from human interaction. Before long, many exchanges begin to look like this:

You are going to repeat what I say in the form of a question.

WHAT MAKES YOU THINK I AM GOING TO REPEAT WHAT YOU SAY IN THE FORM OF A QUESTION

For those of us interested in designing computationally driven play experiences, especially those involving human characters, this presents a two-part problem. First, how can we represent something very complex – human beings – using tools that are inevitably quite simple by comparison: computational processes? Second, how can we engage audiences in playful interaction with these representations without the boom/bust of the Eliza effect?

Before addressing such questions, however, it is worth considering a different dilemma of digital authorship. While the Eliza effect produces a surface experience that can give the audience an initially inflated view of system internals, many digital works present surfaces that fail to give audiences the opportunity to even appreciate the complexity of internal systems that are present. Rather than the boom/bust of play that the Eliza effect describes, these systems fail to produce an initial boom.

The Tale-Spin effect

Like Eliza, Tale-Spin is a landmark of digital media. Created by James Meehan in 1976, Tale-Spin is the first major story generation program. It made the leap from assembling stories out of pre-defined bits (like the pages of a Choose Your Own

Adventure book) to generating stories via carefully crafted processes that operate at a fine level on story data. In Tale-Spin's case, the processes simulate character reasoning and behavior, while the data defines a virtual world inhabited by the characters. As a result, while altering one page of a Choose Your Own Adventure leaves most of its story material unchanged, altering one behavior rule or fact about the world can lead to wildly different Tale-Spin fictions.

Tale-Spin can generate fictions with or without audience interaction. When generating with interaction, Tale-Spin begins by asking the audience some questions to determine the initial state of the world, especially the characters present in the story. Storytelling begins from these initially established facts, with the audience consulted as new facts are needed to move the story forward. For example, once the characters are known and the world is established, Tale-Spin needs to know the identity of the main character:

THIS IS A STORY ABOUT ...

1: GEORGE BIRD 2: ARTHUR BEAR

After the audience chooses a character, Tale-Spin next needs to know the problem of this character that will serve as the impetus for the story:

HIS PROBLEM IS THAT HE IS ...

1: HUNGRY 2: TIRED 3: THIRSTY 4: HORNY

The opportunity for play, with Tale-Spin, lies in these audience choices – both in the telling of any one story and across multiple stories. When the audience makes its choices, Tale-Spin doesn't simply record these facts about the world; in addition, internal Tale-Spin mechanisms draw "inferences" from the facts. For example, if it is asserted that a character is thirsty, then the inference mechanisms result in the character knowing she is thirsty, forming the goal of not being thirsty, forming a plan for reaching her goal, etc.

Some uses of inferences are relatively straightforward. But other uses of Tale-Spin's inference mechanisms can be quite surprising. For example, Tale-Spin characters can use its inference mechanisms to "speculate" about the results of different courses of action. Meehan's *The Metanovel* (1976) describes a story involving such speculation, in which a hungry Arthur Bear asks George Bird to tell him the location of some honey. We learn that George believes that Arthur trusts him, and that Arthur will believe whatever he says. So George begins to use the Tale-Spin inference mechanisms to "imagine" other possible worlds in which Arthur believes there

is honey somewhere. George draws four inferences from this, and then he follows the inferences from each of those inferences, but he doesn't find what he's after. In none of the possible worlds about which he's speculated is he any happier or less happy than he is now. Seeing no advantage in the situation for himself, he decides, based on his fundamental personality, to answer. Specifically, he decides to lie.

This is a relatively complex piece of psychological action, and certainly tells us something about George as a character. But the surface output of a Tale-Spin story never contains any information about this kind of action. For example, here is a quote provided by Meehan from a similar moment in a Tale-Spin story:

Tom asked Wilma whether Wilma would tell Tom where there were some berries if Tom gave Wilma a worm. Wilma was inclined to lie to Tom.

All the psychological action that takes place inside Tale-Spin is, on the surface, lost in gaps like that between the above two sentences. No matter how creatively one plays with Tale-Spin, such hidden action cannot be deduced from its surface. This is probably why, though Tale-Spin is seen as a landmark in computer science circles, it is often treated with near ridicule in literary circles. Critics as astute as Janet Murray, Espen Aarseth, and Jay David Bolter have failed to see what makes Tale-Spin interesting, focusing instead on what its output looks like on the surface.

Of course, while we can call this a failure of these critics, it is probably more accurate to describe this as a failure of Tale-Spin itself. While Tale-Spin's author created complex and interesting internal processes, he failed to make that apparent on the work's surface. While playing with Tale-Spin actually involves setting an intricate world in motion, the audience experience is blunt and repetitive.

This situation is far from uncommon in digital media, perhaps particularly in the digital arts, where fascinating processes – drawing on inspirations ranging from John Cage to the cutting edge of computer science – are often encased in an opaque surface. In fact, this effect is at least as common as the Eliza effect, though I know of no term that describes it. Given this, I propose "the Tale-Spin effect" as a term for works that appear, on their surface, significantly less complex than they are internally.

The Tale-Spin effect, like the Eliza effect, is not only a description of audience experience – it is also a warning to authors of digital media. Just as play will unmask a simple process with more complex pretensions, so play with a fascinating system will lack all fascination if the system's operations are too-well hidden from the audience.

Luckily, the third effect I will discuss here is not a warning of this sort.

The SimCity effect

In the mid-1980s, Will Wright created a landscape editor for authoring his first game, an attack helicopter simulation. Working with the editor, he had a realization: "I was having more fun making the places than I was blowing them up". From this the idea for Wright's genre-defining SimCity was born.

Wright realized that interacting with his terrain editor was more interesting than interacting with its outputs. In a way this is quite similar to the insight offered by the Tale-Spin effect: let the audience play with the most interesting parts of the system.

SimCity, of course, unlike a terrain editor, doesn't simply wait for a user to do something. Time begins passing the moment a new city is founded. A status bar tells the player what's needed next – starting with basic needs like a residential zone and a power plant and, if play succeeds for any period, ramping up to railroads, police stations, stadiums, and so on. A budding city planner can lay out spaces, but it's up to the city's virtual inhabitants to occupy them, build and rebuild, and pay the taxes that allow the city to continue to grow.

As cities grow, areas respond differently. Some may be bustling while others empty out, or never attract much interest at all. SimCity provides different map views that can help diagnose problems with abandoned areas. Is it too much pollution? Too much crime? Too much traffic? Players can try changing existing areas of the city (eg building additional roads) or create new areas with different characteristics. Observation and comparison offer insights. Why is this commercial area fully developed, while that one lies fallow? The answer is always found by trying something different and considering the results.

In other words, the process of play with SimCity is one of learning to understand the system's operations. Conversely, as Wright explains, the challenge of game design is to create a surface experience that will make it possible for audiences to build up an appropriate model of the system internals.

<http://www.gamestudies.org/0102/pearce/>
A conversation with Will Wright

Here, again, we lack a term for an experience. I propose "the SimCity effect" for this important phenomenon: a system that, through play, brings the player to an accurate understanding of the system's internal operations. Of course, the SimCity effect is named in cases where the system is complex, but the phenomenon can be observed generally. Pong works as well as it does because it effectively communicates at the surface level its quite simple internal operations.

What is exciting about the SimCity effect, and about Wright's work generally, is that it helps us get at the new possibilities opened up by working with computational media. Pong is very similar to games we play without computers, but SimCity is a more complex system than even the most die-hard Avalon Hill fan would want to play as a tabletop game. This ability to work with computational processes, to create complex computational systems, is the opportunity that digital media affords – and the SimCity effect points the way toward creating experiences of this sort that succeed for audiences.

Final thoughts

Two questions were left dangling at the end of this essay's discussion of Eliza. First, how can we represent human complexity using computational processes that are inevitably quite simple by comparison? Second, how can we structure play with these representations without the boom/bust of the Eliza effect?

A quick answer to these questions can also be drawn from the work of Will Wright, in the form of the best-selling computer game of all time: The Sims. This is not only the most successful game of all time, it is also a representation of human beings and their lives that successfully invites and structures play. It doesn't attempt the freeform textual dialogue of Eliza/Doctor, but rather has its proto-characters speak gibberish while iconic representations of conversational topics appear above their heads. In this way, and in many others, it builds on the power of the SimCity effect: providing the audience with a surface representation and opportunities for interaction that are at the same level of complexity as the internal system operations. It doesn't over-promise like Eliza/Doctor, and, unlike Tale-Spin, it translates the interesting complexity of its systems into audience experience.

Of course, many of us would like to play games which actually have linguistic content – in which characters actually say things in human language. Here it is useful to consider another aspect of systems: their appropriateness to what they represent. When playing an RPG such as Oblivion, we talk with other characters by activating them, hearing or reading lines they speak, and then choosing our own lines or topics of dialogue from a textual menu. This does a good job regarding the SimCity effect (the underlying system is just as simple as the surface representation) but this system is rather ill-suited to representing human characters. Each interaction with this system, each moment of play governed by it, is an abject failure compared with the smooth and compelling exploration of space provided by such games.

Given the mismatch between human complexity and most dialogue systems, how could we find a better solution? One answer, of course, is to follow Wright's lead and keep pushing forward on the complexity of the systems. But this is not a viable solution for most game designers. Perhaps better guidance could come from

another designer: Jordan Mechner. His "Prince of Persia: The Sands of Time" deals elegantly with the limitations of its dialogue system by never making it available for direct interaction. Instead, the audience plays with the systems that work well when governed by the SimCity effect, such as acrobatic movement through the game's compelling visual spaces. Well-drawn characters exist, and speak dialogue, but their dialogue is driven by play with other systems. The main non-player character, Farah – and the player character himself – speak dialogue related to their current positions in space, progress on solving puzzles, and how these translate into forward movement in the story.

Of course, such approaches will never produce the excitement we can feel during the initial moments of play under the Eliza effect. But such experiences can remain compelling over long periods of play, and result in characters more engaging and well-drawn because they are not founded on quickly crumbling illusions.

Meanwhile, we can continue to explore more complex models for representing human lives in the territory opened up by The Sims. Or, like the notable recent independent game *Façade*, we can combine more complex internal models with greater attention to the crafting of audience expectations that Janet Murray calls "scripting the interactor". Or, as I do in my own practice, we can explore the potential for systems that enable textual play with literary language about human relationships, rather than restricting ourselves to play with iconic graphical representations. In other words, the potential for future experimentation – informed by knowledge of our past – looks bright indeed.

<http://www.interactivestory.net/>
Façade

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