Three Play Effects: Eliza, Tale-Spin, and SimCity

Noah Wardrip-Fruin *(nwf@ucsd@edu)*
University of California San Diego

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's* most famous script, *Doctor*, caused the software to parody the conversational patterns of non-directive therapists during an initial visit. While *Eliza/Doctor* can seem quite smart at first blush, each script for *Eliza* is actually just a set of linguistic tricks. Most of these tricks use keyword-driven "decomposition rules" to take the user's last statement, divide it into pieces, and selectively reuse portions to rephrase it as 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. Weizenbaum (1976) discusses users who 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."

This paper 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 paper looks where others haven't when exploring versions of this relationship: the area of play.

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.

On the other hand, a sort of inverse of the *Eliza* effect can be seen with James Meehan's 1976 *Tale-Spin*, the first major story generation program. *Tale-Spin* generates stories from rules for character behavior and a set of facts about the virtual world. When generating stories in interaction with an audience it asks questions to fill in details about locations, objects, relationships, and so on. 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.

Further, *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. 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. Janet Murray, Espen Aarseth, Jay David Bolter, and other critics have failed to see what makes *Tale-Spin* interesting, focusing instead on what its output looks like on the surface. Or, to put it another way, *Tale-Spin* fails to display its interesting internal processes in a manner that makes them visible to even the most careful of critics.

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.

An effect quite different from both of these can be seen in the case of Will Wright's 1989 game *SimCity*. The seed for this project was planted as Wright created a landscape editor for authoring his first game, an attack helicopter simulation. Working with the editor, he realized he was having more fun making virtual spaces than blowing them up. From this the idea for Wright's genre-defining *SimCity* was born.

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. As cities grow, areas respond differently. Some may be bustling while others empty out, or never attract interest. *SimCity* provides different map views that can help diagnose problems with abandoned areas. Players can try changing existing areas of the city (e.g., building additional roads) or create new areas with different characteristics. Observation and comparison offer insights, while answers are found by trying different approaches 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.

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 for 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 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.

Bibliography

Aarseth, Espen J. *Cybertext: Perspectives on Ergodic Literature.* Baltimore: Johns Hopkins University Press, 1997.

Bolter, Jay David. *Writing Space: The Computer, Hypertext, and the History of Writing.* New Jersey: Lawrence Erlbaum Associates, Inc, 1991.

Meehan, James R. PhD thesis. Yale University, 1976.

Murray, Janet H. *Hamlet on the Holodeck.* New York: The Free Press, 1997.

Weizenbaum, Joseph. *Computer Power and Human Reason: From Judgment to Calculation.* New York: W.H. Freeman, 1976.