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Narrative and the Split Condition of Digital Textuality

Abstract:
With computer games and avant-garde literary experiments, digital textuality has conquered both mass audiences and academic readers interested in theorizing digital art, but it has not yet reached the middle of the cultural spectrum, namely the educated public who reads primarily for pleasure, but is capable of artistic discrimination. This essay explores the possibility of curing this split condition by strengthening the narrativity of digital texts. After examining the conception of narrative that prevails at both ends of the spectrum, I investigate three types of interactive narrative that have been able to reach beyond the traditional audience of computer games and experimental literature: embedded stories, represented by *Myst* and mystery-solving games, emergent stories, represented by *The Sims*, and texts with a somewhat prescripted, but variable story, represented by *Façade*, Michael Mateas and Andrew Stern's project in interactive drama. For each type of text, I suggest how to make the structure more appealing to a reader who engages with the text out of narrative interest, and is more interested in *paidia*—free play—than in *ludus*—playing by strict rules for the sake of winning or losing.

Let me begin by explaining my title: what is the split condition of digital textuality? This new form of art and entertainment reaches both ends of the cultural spectrum. One end is the avant-garde, those regarded as the cool intellectual elite. The other end is the masses of computer game players. But digital texts have yet to reach the middle of the spectrum, namely the educated public who consumes texts for pleasure, not profit, but is also capable of artistic discrimination. In the domain of print literature, this audience reads authors like Günter Grass, Gabriel García Márquez, Toni Morrison, Philip Roth, Umberto Eco or Michel Tournier, all brilliant storytellers, rather than feeding on a lean diet of experimental postmodernism and l*a*n*g*u*a*g*e poetry, nor fattening itself on bestsellers and genre fiction like thrillers, romances and detective stories. To avoid the political connotations of "right wing" and "left wing" I will call the experimental end of the spectrum the North Pole, because it is so "cool," and also because it takes hardy explorers to venture into this territory, and the other end, the one frequented by the tourists of mass entertainment will be the Tropics, because it is so hot. As for the still sparsely populated area situated halfway between the North Pole and the Tropics, I will call it the Temperate Zone. In digital textuality, the North Pole is represented by hypertext fiction, code

poetry, visual poetry, experiments in computerized text generation, browser art, and theoretical fiction, while the Tropics are invaded by the millions of people who spend a large part of their lives playing computer games, especially first person shooters and MMORPGs. If we look at the major artistic media, namely print literature, drama, and movies, as well as music and visual arts, they all cover the North Pole, the Tropics and the Temperate Zone.[1] To me an artistic medium only becomes truly significant when it is able to conquer the center of the spectrum. This does not mean that I reject experimentalism and popular culture; on the contrary, I believe that the three zones cross-fertilize each other: the North Pole borrows ideas from the Tropics, the Tropics occasionally borrows from the North Pole (but this is much less frequent), and the Temperate Zone is criss-crossed by currents originating at both ends of the spectrum.

In literature, drama, and movies, the magic formula for reaching the tourists of the Tropics has been traditional narrative structures, the magic formula for reaching those in love with the North Pole has often been the rejection, or what Alan Liu would call the creative destruction, of these structures, and the magic formula for reaching the population of the Temperate Zone has been the renewal of narrative—a renewal that results from the successful incorporation of ideas from the North into the narrative patterns of the South. For instance, the automatic writing of Surrealism did not produce stories, but it created fantastic meeting of images that developed narratively into magical realism, perhaps the most important literary development of the second half of the twentieth century. Or to take another example, the New Novel's rejection of most of the immersive features of narrative—interest for what comes next, emotional attachment to the characters—has turned it into a dead-end branch in the tree of literary evolution, yet its self-reflexivity and metaleptic play with boundaries have invaded all levels of culture, from advertisements to movies of the middle ground. Narrative, with its universal human appeal, dominates the Tropical and Temperate Zones of print literature, drama, and film. The question I would like to ask here, is whether it can cure the split condition of digital textuality and create the audience that this new form of artistic expression currently lacks.

The concept of narrative has been adopted in digital textuality by two schools with radically different goals and different interpretations of the term.

The Expansionist School

Members of this school regard narrative as a mutable concept that differs from culture to culture and evolves through history, crucially affected by technological innovations. This position is epitomized by the title of one of the chapters

of George Landow's *Hypertext 3.0*, "Reconfiguring narrative." In this chapter, Landow suggests that in the digital age narrative could become something entirely different from what it has been in the oral, chirographic and print ages: "Hypertext, which challenges narrative and all literary form based on linearity, calls into question ideas of plot and story current since Aristotle" (218). The Aristotelian ideas that hypertext challenges are:

> (1) fixed sequence, (2) definite beginning and ending, (3) a story's "certain definite magnitude," and (4) the conception of unity and wholeness associated with all these other concepts. In hypertext fiction, therefore, *one can expect individual forms, such as plot, characterization, and setting, to change*, as will genres or literary kinds produced by congeries of these techniques. (218-9; my italics)

This passage raises (at least) two questions, one particular and one general. The particular question is whether one can have a story without a fixed sequence. A story is a temporal chain of events linked by relations of causality. Both time and causality are unidirectional and irreversible. If we alter the sequence, we get a different story, but within each story, the order of events cannot be changed. Or alternatively, we can have a variable sequence on the level of discourse, but as readers interpret the text narratively, they reconstruct a largely determinate sequence. (I say largely, because stories may include some temporally floating events.) The general question is a semantic one: how much change can "forms" such as plot, character and setting tolerate, and still be recognized as plot, character and setting.

Judging by the use of the term by some authors of experimental digital texts, it seems that narrative can even do away with characters, plot and setting. For instance, the visual artist Pamela Jennings argues that the Aristotelian model of plot is "inadequate to the creation of computer-based interactive art" (349), and she proposes to replace it with other types of so-called narrative structures, such as iteration, serialism, open structures, and fuzzy logic. She is basically right to point out that the linearity of the Aristotelian plot model is difficult to reconcile with interactivity—this is indeed the number one problem of digital narrativity—but if iteration, serialism, open structures, and fuzzy logic are to be regarded as "narrative structures," the term narrative no longer means anything. Other digital artists who present their work as narrative are Mark Amerika and Talan Memmott. Amerika describes the World Wide Web as a "public-domain narrative environment" (9). By "narrative environment," Amerika does not mean the countless stories posted on the Internet, but rather, the stream of information that flows through cyberspace, waiting to be harnessed into a

"nomadic narrative that reinvents what it means to be an artist in a experientially designed cybernetic environment" (10). As for Talan Memmott, he sprinkles his "theoretical fiction" *Lexia to Perplexia* with the term bi-narrative, a phrase that he uses "to represent a degree of reciprocity in the conductivity between agents" (Memmott, Interview), but these agents seem to be packets of information, rather than individuated members of a fictional world that exists in time and space. Nothing really happens in the a-temporal webs of symbols, metaphors and theoretical statements of *Lexia to Perplexia*, and readers would be hard put to summarize the plot, describe the setting, and name the characters. For Jennings, Amerika and Memmott, "narrative" has become synonymous with avant-garde writing practice.

The Traditionalist School

This school conceives narrative as an invariant core of meaning, a core that distinguishes narrative from other types of discourse, and gives it a transcultural, transhistorical, and transmedial identity. Viewing interactivity as the most important of the properties of digital media,[2] representatives of this approach conceive their goal as the creation of narratives in which the user interacts intensively with a fictional world, often by controlling a character. But most of these scholars and developers are deeply conscious of the difficulty of this project and of the modesty of the results obtained so far. Lev Manovich speaks of interactive narrative as a "Holy Grail for new media" (blurb to Meadows), Brenda Laurel regards the "interactive story" as "a hypothetical beast in the mythology of computing, an elusive unicorn we can imagine but have yet to capture" (72), and Chris Crawford laments: "To date, not a single interactive storyworld that commands wide respect has been created" (259).

Many representatives of the traditionalist approach (for instance Crawford and Laurel) are game designers who became tired of the stereotyped plots and violent themes that dominate the videogame industry. Their dream is to develop games that people will play for the same reasons they read novels or attend movies: games which will create a genuine interest in the story, rather than treating plot as a mere pretext for the exercise of physical skills and for the adrenaline rush of competitive action. The traditionalist approach is also represented by the OZ projects in Interactive Drama directed by Joe Bates at Carnegie Mellon University in the nineties; by Bates's more recent *Zoesis* project, and by the Narrative Intelligence group led by Michel Mateas and Phoebe Sengers.[3]

The main danger of the traditionalist school is a limitation of its vision of narrative to the models provided by the great classics of literature, drama

and film. The temptation to regard digital narrative as a remediation of other media finds its expression in the title of Janet Murray's well-known book *Hamlet on the Holodeck* and also in her blueprint (needless to say, never realized) of an interactive version of the movie *Casablanca*. There is an adage that says: if it ain't broke, don't fix it. Shakespeare's *Hamlet* has nothing to gain by allowing the user to impersonate a character, just as Proust's *A la Recherche du Temps Perdu* cannot be improved by offering multiple choices to the user. Not all plots benefit from active user participation, and it is imperative for the traditional approach to learn how to customize narrative patterns to the properties of the medium.

My preference goes to the traditionalist approach because I regard narrative as a cognitive construct with an invariant nucleus of meaning. Here is my definition: *A narrative is the use of signs, or of a medium, that evokes in the mind of the recipient the image of a concrete world that evolves in time, partly because of random happenings, and partly because of the intentional actions of individuated intelligent agents.*

The mental construct constitutive of narrative—let's call it a story, while the material signs are the discourse—can take a variety of shapes, and it can manifest itself in a variety of ways. I call these different ways the modes of narrativity. Here are some examples of modes, some an established part of literary theory and others relatively new to narratologists because they depend on media other than written language:

Diegetic mode:	telling somebody that something happened, usually in the past. Novels, oral storytelling.
Mimetic mode:	enacting a story in the present by impersonating a character and mimicking action. Drama, movies.
Participatory mode:	creating a story in real time by playing a role in the story-world and selecting one's behavior. Children's games of make-believe, theater with audience participation.
Simulative mode:	creating a story in real time by designing (or using) an engine that will implement a sequence of events on the basis of its internal rules and the input to the system. Story-generating systems (i.e. *Brutus* by Selmer Bringsjord and David Ferucci).

Some of the modes listed above are mutually exclusive (i.e. diegetic and mimetic), while others can be combined: for instance, a computer game is both simulative and participatory, while children's games of make-believe and improv theater are participatory and mimetic.

Narrative at the North Pole

The aesthetics of the North Pole can be summarized by inverting the traditional slogan of Graphic User Interface: WYSIWYG, What You See is What You Get. The only truly distinctive property of the digital medium is the meta-property of algorithmic operation, and for the explorers of the North Pole, a digital literature that truly understands its medium is consequently one that foregrounds the normally hidden layer of the code. This means that literary, or artistic value does not reside in what appears on the screen, but in the virtuoso programming performance that underlies the text.

Let me illustrate the anti-WYSIWYG aesthetics with an example from the visual arts. The artist Warren Neidich has produced a number of abstract pictures which look like tangled lines of various colors. If the "paintings" had been produced by normal means, namely by brush applying color on canvas, they could have been done by a child of three, and nobody would regard them as significant artworks. But the pictures acquire an entirely new significance when we learn how they were created: lights were attached to the fingers and arms of people conversing in sign language, and the images, titled "conversation maps," are the visual trace of their gestures (Paul 51).

The same aesthetic principle applies to computer-generated poetry: the art resides in the productive formula, and in the sophistication of the programming, rather than in the output itself. As Jean-Pierre Balpe says of his computer-generated novel *Trajectoires*, "the code is part of the work." But since code is invisible, the appreciation of the work requires imagining what lies behind the screen. While the reader responses prompted by standard narrative texts range from "how moving," "how dramatic," to "I can't wait to see how it ends," or "what a surprise ending," the ambition of authors of the North Pole is to elicit reactions such as are "how cleverly designed" or "what a cool idea." These are the reactions typical of conceptual art.

Partly because of aesthetic choice, but also partly because of the aptitudes of the computer, the texts of the North Pole are much more adept at taking narrative apart than at telling coherent stories. Computers are still machines of limited intelligence, and the principal mechanism of automated text production is random combination. The shuffling and free recombining of fragments may work in poetry—think of Raymond Queneau's *Cent Mille Milliards Poèmes*—, because the meaning of poetry is more spatial than linear, more symbolic than literal, more suggestive than explicit, and overwhelmingly metaphorical. The reader can always imagine semantic connections. But aleatory processes cannot produce narrative meaning, except by letting the legendary 10000 monkeys hammer long enough on keyboards, because narrative is the exact opposite of

chance: the subject matter of stories is human experience, and human experience is a neverending attempt to neutralize the randomness of life through meaningful actions.

The mildest form of narrative deconstruction in digital literature is found in classical hypertext. We cannot really speak here of computerized, nor of randomized creation, because the author writes all the lexia and places all the links, and the linking of lexia should constitute a deliberate process of meaning creation. The ideal hypertext reader is one who constantly asks: why was this lexia linked to this other one? But when the textual network is densely connected, the designer loses control over the order of reading. Since narrativity is based on the fundamentally linear chains of temporal sequence and causal relations, the kaleidoscopic chunking of the text into recombinant fragments constitutes a major obstacle to the construction of narrative meaning. This chunking and shuffling prevents the author from controlling what information the reader possesses when he encounters a given fragment. Even if the reader is capable of mentally rearranging lexia into coherent narrative sequences, the very concept of hypertext prevents the powerful narrative effects of suspense, surprise and sudden turn, because these effects rely on a careful management of the disclosure of information over time. I am not saying that it is impossible to tell stories in hypertext format, but the construction of a stable narrative meaning out of elements presented in a variable order require a major cognitive investment, and this is the reason why hypertext fiction has not become mainstream.

A much more radical subversion of narrative coherence takes place when foreign elements are randomly inserted in a story. An example of this process is *The Newsreader* by Noah Wardrip-Fruin with David Durand, Brion Moss, and Elaine Froehlich. *The Newsreader* is a very clever and often funny program that takes the news stories posted daily on Yahoo!, and blends them together, in a process reminiscent of the cut-up technique of William Burroughs.[4] When the reader clicks on a highlighted word, the program generates another text, by replacing part of the text with words randomly borrowed from another story. It does so by preserving the grammaticality of the text, but without concern for semantic coherence. Does this result in meaning? To some extent yes: the absurdity of the resulting texts provides an ironic comment on current politics, the state of the world, and the incessant churning out of news by the media machine. By highlighting the juxtaposition of the trivial and the tragic in the stories posted daily on Yahoo!, *The Newsreader* also forces reflection on what is considered newsworthy in contemporary culture. But if the algorithm produces funny texts—its is an electronic version of the mad-lib party game—these texts appeal through their non-sense, and the meaning of the output resides on the metatextual much more than on the textual level.

The creative destruction of narrative does not necessarily rely on aleatory mechanisms, as my last example, *The Jew's Daughter*, by Judd Morrissey demonstrates. The text presents itself at first sight as a standard hypertext fiction, but there is only one link per screen. This means that the author retains strict control over the reading sequence. When the user mouses over a link, part of the screen replaces itself, but the new text is inserted without visible mark somewhere in the middle of the screen, leaving the rest of the page unchanged.[5] Only those gifted with perfect recall will be able to tell what is new and what is old. The only clue to the location of the new text is a nervous twitching of the affected area when the substitution takes place. Since it is impossible to return to the previous screen, the reader cannot compare the two fragments. This formula is designed to frustrate memory, and without memory, of course, the reader cannot construct a stable narrative world nor a consistent narrative action. To salvage some intelligibility, readers will interpret the replacement mechanism as an allegorical gesture. For instance, the text could signify the radical instability of meaning, the absence of a definitive story to tell, or it could be interpreted as a simulation of the dynamics of the writing process: the replacement could stand for false starts and for the technique of "cut-and-paste." As was the case with "The News Reader," but for different reasons, the text is only readable on the meta level.

Narrative in the Tropics

The association of stories with computer games is a common practice among computer game designers—for instance Will Wright of *The Sims*, the Miller brothers of *Myst*, or Chris Crawford—, but it is a rather controversial position in the game-studies community. For the Scandinavian school of ludology (Espen Aarseth, Markku Eskelinen, Jesper Juul and Gonzalo Frasca), games are games and stories are stories and these two types of cultural artifacts cannot hybridize, because they present radically distinct essences. For me it is like saying that stories are stories and operas are music and therefore an opera cannot have a narrative libretto. I believe it is possible to speak of the narrativity of computer games without reducing them to a form of novel or movie, because novels, movies and games exemplify different narrative modes: the diegetic mode for novels, the mimetic mode for movies, and a combination of the simulative and participatory mode for games. But I am not saying that all games, or all computer games, have a narrative basis. There are purely abstract games, such as chess, football, Go, and Tetris that do not fill the basic conditions of narrativity, namely offering an image of life by creating a concrete world

populated by intelligent agents whose actions make this world evolve. But this condition is obviously fulfilled by computer games such as *Doom*, *Myst*, *The Sims*, *Morrowind*, *Max Payne* and *EverQuest*. I would term "narrative" any game that invites the player to engage in role-playing and make-believe, and to perform, as part of this game of make-believe, actions that lead to practical and inherently desirable goals, like rescuing princesses and saving the earth from evil aliens, as opposed to goals made desirable by conventions, such as kicking a ball in a net or aligning three tokens in a row. The player of a narrative game engages in an act of imagination, while the player of an abstract game like football, Tetris or tic-tac-toe just follows the rules. For a long time, narrativity was restricted to children's games of make-believe, such as playing house, cops and robbers or "who is afraid of the big bad wolf,"—games that were usually not played for the sake of winning. Roger Caillois, borrowing a term from Plato, calls these games *paidia*, as opposed to competitive games regulated by strict rules, which he called *ludus* (48). In contrast to games of make-believe, games that were played in a competitive spirit, such as board games and sports games, required some strategic thinking, but no imaginative activity. But the computer changed all that. If there is one significant contribution of digital technology to gaming, it is to have reconciled competition and make-believe, in short, to have introduced a narrative dimension that speaks to the imagination into games of physical skills and strategic thinking.

But the narrative potential of computer games is generally underdeveloped. As Chris Crawford observes, narrative is generally treated by game designers as "just another tacked-on feature" (69), like animation, sound effects and music, instead of forming the defining aspect of games. This is particularly true of first person shooters. Games like *Quake* or *Doom* are generally not played for the sake of the story, and the function of the narrative theme is to lure the player into the game, rather than to support gameplay in a strategic way. When hard-core players are engaged in the heat of the action, it does not really matter to them whether they play good guys or bad guys, humans protecting the earth or destroying angels trying to turn the world into apocalyptic chaos. Game designers—with of course some notable exceptions—have had so far little incentive to vary the narrative design of games, because sufficient novelty could be achieved in the domain of technology to sell their new products: better graphics, larger worlds, faster action, more realistic game physics, and the development of built-in cameras that make it possible to record the player's actions. As Andrew Darley has observed, narrative usually takes second seat to the spectacle of technology. But hardware improvement will eventually reach a ceiling, and the game industry will have to pay more attention to what Henry Jenkins calls "narrative architecture" (128) because it allows

far greater variety than strategic gameplay and the spectacle of technology. "Narrative architecture" is the design of a fictional world with a diversified geography composed of various locations. Each of these locations offers its own opportunities for experiences, adventures, discoveries, and meaningful action. As the player explores this geography, she meets different characters, receives different missions, forms different goals, and faces different dangers. If by narrative experience one means the pleasure of immersing oneself in a virtual world, of writing through one's actions the lifestory of fictional characters, and of participating in the collective history of the virtual world, then this experience is fully compatible with the ambition of game designers, which is to create rich worlds that offer players extensive opportunies to exercise their agency. We may see in the future complex characters that arouse emotions, clever dialogue that brings out laughter, situations that create ethical dilemmas, surprising turns in the plot, and we already have games with stunning visual settings that create artistic pleasure. When this happens, narrative will no longer be subordinated to gameplay,—the game will be played for the sake of experiencing its narrative design.

Narrative in the Temperate Zone

If we want to extend digital textuality to a new audience, it is imperative to have a clear idea of the likes and dislikes of our targeted users. At the risk of creating these users in my own image, here is how I envision their preferences.

The users of the Temperate Zone do not endorse a philosophy that seems to reign at both the North Pole and the Tropics: "No pain, no gain." For the players of the tropics, this philosophy means having to solve difficult problems, while for the explorers of the North Pole, this means having to struggle with texts that require tremendous mental effort, because they reject the traditional ways of making meaning. At the risk of being called intellectually lazy, the users of the Temperate Zone do not believe that processing difficulty is a guarantee of artistic value, and that what Barthes called "jouissance"—the intellectual thrill provided by avant-garde texts—is inherently superior to the pleasure of narrative. Yet the users of the Temperate Zone do share preferences with the lovers of the North Pole and the Tropics. Like the player of games, they love being immersed in a virtual world, enjoy exploring its geography and inventory, want to play an active role in this world, and appreciates the graphic appeal of the display. They do not like to read on the screen, except for short passages of text on the objects that furnish the virtual world, and they prefer mimetically enacted to diegetically narrated stories. But unlike the

player of games, they do not want to spend over 60 hours with the text, do not want to have to solve difficult problems nor to do research on the Internet to find out how to progress in the story, and they prefer *paidia*—free play with the objects of the virtual world—to competitive *ludus*. The story, for them, is a focus of attention and not a mere wireframe support for another type of gratification. They care for the characters as human beings, enjoy conversing with them, experience emotions through them, and unlike the game player who regards characters as either helpers or enemies, they appreciates complex personalities. Like the amateur of experimental texts, they are sensitive to the mechanisms that produce the text, and they are able to appreciate what lies below the surface, but they do not endorse a radical anti-WYSIWYG aesthetics. The justification for the code lies in the product on the screen, just like the justification for the complex metric and sound patterns of poetry lies in the musical quality they impart to language, and not merely in the challenge they pose to the poet. In other words, readers of the Temperate Zone do not regard programming virtuosity as a self-fulfilling activity and as a guarantee of aesthetic merit. They value artistic innovation, but they do not think that innovation requires the dismantling of narrative meaning, because developing stories that take advantage of the properties of the medium, especially of the property of interactivity, is in itself a major artistic innovation over print literature, drama and movies.

How can the user of the Temperate Zone be wooed? We can approach the issue from two sides: ask how texts of the North Pole can be made more user-friendly, and ask how games of the Tropics can be made more interesting from a narrative point of view. Here I will focus on the second possibility, by looking at some games that have been able to reach beyond the traditional audience of their genre.

The Embedded Story

My first case is a game structure that Henry Jenkins calls the embedded narrative. This structure covers any attempt by the player to reconstitute events that took place in the past. It connects two narrative levels: the story to be discovered, and the story of their discovery. The prime example of this design is the detective story. The story of the murder follows a fixed internal sequence, while the story of the investigation is "written" by the actions of the detective, who may discover the facts in a wide variety of different orders, as he wanders across the virtual world in search for clues.

The best known example of this structure is *Myst*, one of the greatest hits in the history of video games. In *Myst* there is a hidden story to discover, the saga of the wizard Atrus and his evil sons Sirrus and Achenar, and this story reveals itself progressively, as the player visits the various regions of a richly diversified geography.

But the structure is not free of problems. In a traditional mystery story, the detective performs difficult tasks of problem-solving, but the reader does not *have* to put the story of the murder back together, though he can of course try to guess the solution. Since the actions of the detective are scripted by the author, this makes it possible for the author to control the process of discovery, and to manage effects of suspense, of which the reader is the beneficiary. But in an interactive environment, the user becomes the detective, and it falls to him to reconstruct the embedded story. If the user is granted too much freedom of movement, there is the danger that he may discover clues in a less than optimal order, and suspense will be lost. For instance, he could stumble right away on a tell-tale clue that gives away the solution. Or he may discover bits and pieces of the embedded story in a hopelessly scrambled order, a problem typical of hypertext fiction. To avoid these pitfalls, games can control the order in which the player discovers the embedded story, by imposing a more or less rigid linear progression through the space of the game world: you must visit area a, where you will find a certain clue; then you must visit area b, where you will find another clue. In *Myst*, for instance, the gameworld consists of a series of subworlds, and the user must solve often very difficult problems to pass from one subworld to the next and discover more of the story. This design is good for the dedicated game-player who plays for the satisfaction of problem-solving, but it is rather exasperating for our hypothetical user from the Temperate Zone, who plays for the story. The player of *Myst* spends hours in front of closed doors, turning dials, pulling levers, and looking for hidden buttons in the hope of being admitted into the next space. For the player of the Temperate Zone, who would rather read a novel than solve a cross-word puzzle, this is highly aggravating. The game critic Steven Poole eloquently captures this frustration: "It is as if you were reading a novel and being forced by some jocund imp at the end of each chapter to go and win a game of table tennis before being allowed to get back to the story" (109). Chris Crawford has an even better description for this interleaving of puzzle-solving and narrative: he calls it a "constipated story" (130) because it consists of a series of bottlenecks. How can we give a laxative to the constipated story? I suggest creating a design that invests in the player's interest in the embedded story, but does not throw "unnecessary obstacles" in the way of its discovery. Movement in the virtual world should be relatively free, discovery fairly easy, and the non-playing characters

should spontaneously provide useful information or tell parts of the story. Most importantly, the fictional world should be adaptable, so that when the player returns to a site he has already visited, something will have changed, and different narrative possibilities will open themselves. In other words, he will not encounter the same character who says the same things every time he visits the same spot, as is too often the case in computer games. If progression in the fictional world requires the solving of puzzles, the system should take pity on the player after a number of unsuccessful attempts, and send a helper character who gives hints or takes the player through the roadblock.

This design would no longer be a game in the *ludus* sense of the term, because, if we accept the definition of Bernard Suits, unnecessary obstacles are a constitutive features of games, and it would therefore lose all the hard-core players, but it could offer a rewarding interactive experience that taps into two time-tested sources of narrative pleasure: spatial immersion in a fictional world, and curiosity for its past history.

The Emergent Story

In contrast to the embedded story, the emergent story is not preplanned by the designer, but takes shape dynamically as a result of the interaction between the user and the system. The best-known example of an emergent system is *The Sims*, a game which has achieved reasonable success with users of the Temperate Zone because it relies on the quintessentially narrative theme of human relations. In an emergent system such as *The Sims*, the designer populates a world with agents and objects capable of diverse behaviors, also known as affordances, and the user creates stories by activating these behaviors, which affect other agents, alter the total state of the system, and through a feed-back loop, open new possibilities of action and reaction. *The Sims* is played by creating a family (or alternatively, by adopting a family with a past history) and by controlling its members. Every significant object and every character in the virtual world is a source of affordances; for instance, with a TV you can watch soaps or work out; with a computer you can play games or look for a job, and with another character you can flirt, argue, or try to have a baby. The possibilities of action evolve during the run of the program, as the members of the family acquire more commodities, as new characters enter the stage—for instance, visiting neighbors—and as affective relations change over time, both in the short run, as a result of the immediate effect of individual actions, and in the long run, as the result of the cumulative effect of behavioral patterns.

As is the case with any narrative, the motor that moves the lifestory of the Sims forward is the satisfaction of personal desires. The original version of *The Sims* offered two types of goals to the characters, and consequently to the player who controls them: the implicit long term or life goal of climbing the social ladder and of acquiring more and more commodities, and the short-term, day-to-day goals of satisfying social and emotional needs, as well as physical needs such as hunger, hygiene, bladder, sleep and comfort. While the long-term goal is an implicit motivation for the player, the short-term goals are explicitely represented on the menu of the character's desires by a bar showing their degree of satisfaction. This bar oscillates with time, since the short term goals must be fulfilled on a daily basis. The newest version of the game, *The Sims 2*, adds medium term goals of a more individual and discrete nature, such as writing a novel, seducing a neighbor, or getting a certain job. These goals give the game greater narrative texture than the permanent life goal of acquiring more wealth and the repetitive daily goals, because they are fully and definitely satisfiable. They consequently divide the ongoing lifestory of the characters into distinct episodes. When a medium-range goal is achieved, the system replaces it with another, and since every Sim character has many goals, the player can choose which one to pursue actively. Narrative interest is further enhanced in *The Sims 2* through a more complex inner world than in the original version: characters now have memories, fears, and personalized life goals ("aspirations"), but except for the aspirations, which are selected by the player at character creation time out of a fixed menu, these aspects of mental life are all determined by the system. The only thing that the player can do to affect the content of the characters' minds is to take physical actions that lead to certain mental and emotional states. For instance, kissing or arguing have obvious effects on the degree of love of the patient for the agent. The player's control over the evolution of the fictional world is further limited by events randomly thrown in by the system, such as the house catching fire, Death taking a character away, or neighbors dropping by unexpectedly, and the player must learn how to respond to these events. This combination of goal-fulfilling actions and random events makes *The Sims* into a believable simulation of life and a powerful story-generating system.

The macro-level goal of climbing the social ladder makes the player's score relatively computable, as it must be in classic *ludus* games: for instance, it is always possible to compare the relative wealth of different Sims families. But this goal can be easily subverted into play for its own sake. The Sims is indeed the best example of *paidia* in the video game industry. While the *ludus* player will accept the macro-goal implicit to the game, and choose the most efficient solutions to progress toward this goal, the *paidia* player will set her own goals, and will often select impractical behaviors for their potential to lead to more interesting

dramatic situations.[6] Most people play *The Sims* out of genuine narrative interest, whether they are trying to create specific scenarios, or are simply curious to find out how things will turn out for their characters. The game design exploits this narrative interest by offering the option of a "story mode," through which players create comic strips by taking snapshot of the screen and adding their own text. The stories created in this way are not the same as the stories created during the game, but players have been known to manipulate the game, in order to get the snapshots that will fit into the plot they have in mind.

All in all, *The Sims* may be the closest we have to a remedy for the split condition. But it is far from providing a general and definitive cure. There is a prejudice against computer games in the educated public that will prevent many people from using the system. But even if this prejudice did not exist, there are also internal reasons why texts patterned after *The Sims* will not instantly conquer the Temperate Zone. Here are some of the problems with the current design.

First of all, *The Sims* and its putative successors are very good at producing comedy, and this is no small achievement, but I don't see how such a system could be used to produce serious drama, because drama require a control of emotions which can only be achieved through a top-down design. The repertory of neighborhoods of *The Sims 2* includes one town, Veronaville, that is divided by the same type of family feuds that underlies the tragic love story of Romeo and Juliet, but the effect is one of parody and comic detachment, not of empathy for the characters. To put it bluntly: most players find it fun to make their Sims suffer and they don't feel empathy for them. We will need other algorithms to cover the full range of human experience.

Second, a large portion of the time spent with *The Sims* consists of performing the chores of daily life, such as taking a shower, eating snacks out of the fridge, or going to the bathroom. This may be fun for a while, but the novelty quickly wears out. Narrative is about the extraordinary, not about routine events. Many novels describe repetitive or trivial gestures, but they only do so to fix the setting and create an atmosphere. When the story starts developing, there is no need to describe these gestures over and over again. In *The Sims*, by contrast, you cannot escape the routine. Imagine that one of your Sims falls in love with the neighbor and invite her to a party the next day. Rather than fast forwarding to the party, as a novel would do, the player will have to make the character live his life minute by tedious minute, eating snacks, taking showers and going to bed. There is admittedly a "fast" mode, but even this fast mode is painfully slow for the player eager to find out "how things turned out" in the courting of the neighbor. To increase narrative interest, the game should enable the player to manipulate the clock, in order to jump to the more dramatic moments.

More generally, I think that the user does not have enough control over the plot. She cannot, for instance, put new desires into her Sims: she must wait until the system does it for her. Nor can she construct elaborate plans to fulfill these desires—for instance plans involving lie and deceit, which are one of the main ingredients of well-plotted stories. The reasoning power of the fox of the fable, who satisfies his hunger by flattering a crow and getting her to sing and drop a cheese, is presently far beyond the intelligence of any Sim character.

The most important problem to resolve for emergent systems of the future is to find the right balance between computer-generated and user-controlled events. With too many computer-generated events interactivity is reduced to trivial detail, such as sending your Sims to the bathroom before an accident happens; but with too much user control over the plot, users will be deprived of some of the main sources of narrative pleasure, namely suspense, curiosity and surprise. Some users want to be authors, others prefer to be readers, and the best solution may be to make the balance of control adjustable. The users who want lots of control over the plot would be able to hold the strings of several characters, and to program both their actions and states of mind, for instance by freely selecting their fears and desires, while the users who prefer to watch the plot unfold would manipulate only one character, and this manipulation would be restricted to physical actions, leaving it to the system to compute the physical and mental effects of these actions.

The Pre-Scripted, but Variable Story: Interactive Drama

What would it take for an interactive narrative to produce drama rather than comedy, this is to say, to create an emotional involvement of the user in the fate of the characters, rather than curiosity and ironic detachment? Aristotle associated tragedy with a fixed plot pattern made of an exposition, complication, crisis and denouement, and all the texts that reach a truly dramatic intensity follow this pattern to some extent, because it allows a strict control of the spectator's emotions. Aristotelian dramaturgy has indeed become something of a Bible among Hollywood scriptwriters. This means that digital texts aiming at a dramatic effect will have to rely on a pre-scripted, top-down design. But in order to take advantage of the interactive nature of the medium, they should allow the bottom-up input of the user to introduce variations in the script. This combination of top-down design and bottom-up emergence is the most difficult problem to solve for interactive narrative.

In interactive drama, the user impersonates a member of the fictional world, and she interacts with system-controlled characters through an AI-based

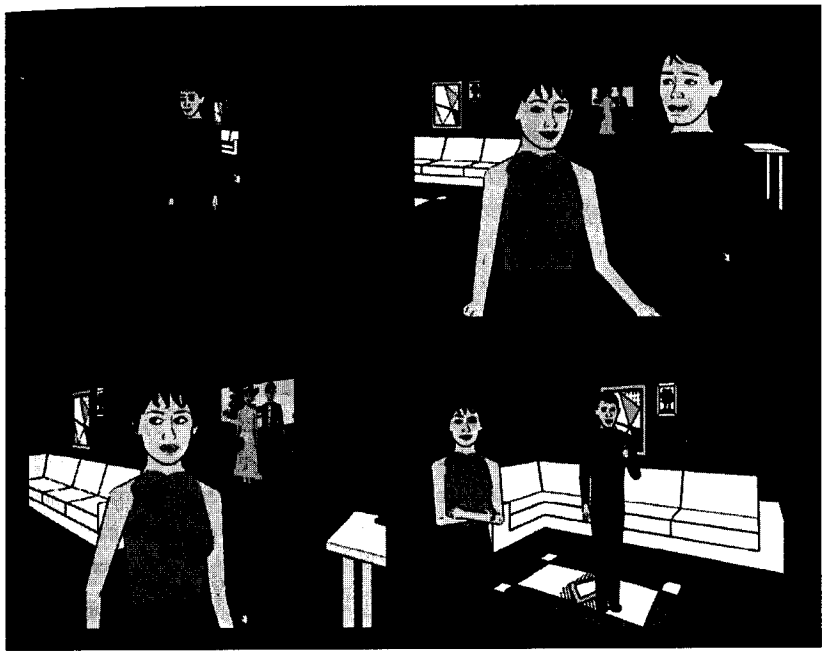

Fig. 1. Screenshots from *Façade*.

dialogue system. To allow the plot to develop according to a relatively pre-defined script, the user should play the role of an active observer, rather than being cast as the main protagonist. Since a top-down design allows only a limited number of variations, interactive drama will be exhausted after a small number of visits. This limited replayability places the genre halfway between the two types of design discussed above. A text relying on an embedded story is not replayable, because the user's motivation is the discovery of a fixed scenario, while an emergent systems should be almost infinitely replayable, because stories are created in real time, by activating a rich repertory of possible behaviors that allow numerous, but not random combinations.

I will conclude this chapter with a discussion of what could very well be the only working example of Interactive Drama in existence today, *Façade* by Michael Mateas and Andrew Stern. *Façade* was explicitly designed by its authors to close the digital gap. As the authors write, "We are interested in interactive experiences that appeal to the adult, non-computer-geek, movie-and-theater-going public" ("*Façade*: An Experiment" 29). Here is how Mateas and Stern described the text:

> In *Façade*, you, the player, using your own name and gender, play the character of a long-time friend of Grace and Trip, an attractive and materially successful couple in their early thirties. During an evening get-together at their apartment that quickly turns ugly, you become entangled in the high-conflict dissolution of Grace and Trip's marriage. No one is safe as the accusations fly, sides are taken and irreversible decisions are forced to be made. By the end of this intense one-act play you will have changed the course of Grace and Trip's lives—motivating you to replay the drama to find out how your interaction could make things turn out differently the next time. (3)

Combining serious subject matter and cartoon-style images (cf. screen shots in fig. 1), *Façade* brings Grace and Trip to life through spoken dialogue, facial expressions, and body language. The principal mode of interaction is typing text, but the player can also use the arrow keys and the mouse to perform actions such as moving around the apartment, inspecting the scene from various angles and from various distances, picking up or dropping objects, and even kissing Grace or Trip on the lips.

While the text permits many variations, it is not a plot with clearly distinct and predefined endings, but rather a compromise between a fixed story and an emergent system. Different runs enact different conversational events in combinations far too numerous to be foreseen by the authors, but all of the runs follow the same basic pattern:

Exposition:	Grace and Trip welcome the visitor to their apartment, and engage in small talk with their guest.
Crisis:	The small talk degenerates into an argument between Grace and Trip that exposes the disastrous state of their marriage.
Denouement:	The visitor is asked to leave.

Variation takes place less on the level of external events than on the level of the interactor's assessment of the situation: who, between Grace and Trip, is the most responsible for the deterioration of their marriage, and what will happen after the visitor leaves? In some runs Grace and Trip tell the visitor that "everything will be all right" as they ask her to leave, while in other runs the visitor leaves under the impression that the marriage has been irremediably broken. Each run actualizes 30% of the total material available, and each selection proposes a slightly different portrait of Grace and Trip, depending on what is revealed of their past life, and on who tells the story. For instance, in some runs Grace presents herself as a frustrated artist who was forced by Trip to give up

painting for a lucrative career as a magazine designer; in other runs, Trip describes her as a careerist who poses as an artist but possessed neither the necessary talent nor the dedication to become a painter.

The system uses pre-written dialogue modules which vary depending on the user's input. For each situation, the system maintains a list of "discourse acts" that constitute appropriate conversational responses: acts such as agree, disagree, thank, criticize, hug, comfort, or judge. The input of the user is parsed by the system and mapped onto one of the currently available discourse acts. For instance, if Grace asks the user "How are you," and the user replies "I feel terrible," the system understands that the user expressed unhappiness, and it will make Grace respond with commiserating words and a sad expression. When the system cannot parse the text, it ignores the input and selects one of the discourse acts appropriate to the current situation. The user cannot derail the smooth run of the system, but because the AI module that drives the text is rather limited, the system will often respond incoherently to her input.

A major problem for the user is placing a word in the conversation. At the beginning Grace and Trip try to be polite, and ask many questions that give the visitor a chance to express herself. The system pauses until the player responds. But as the story develops, Trip and Grace become more and more focused on each other, and less and less on the visitor. They exchange their barbs in such rapid fire that by the time the visitor has finished typing a line and hit the return key (at which point the input can be processed by the system), Grace and Trip have produced three or four lines of dialogue, and the user's line is no longer relevant. But this incoherence does not lead to a serious loss of credibility, because the problem is minimized by the narrative theme and by the personalities of Grace and Trip. Thematically, *Façade* is about a conversation that degenerates into an argument. In a fight, you feel free to interrupt your opponent, ignore his arguments, make false accusations, or leave questions unanswered. If Grace and Trip fail to respond adequately to the user's input, it is because they are so blinded by their own anger at each other that they become unable to carry a normal conversation. Here we can say that the narrative theme has been masterfully selected to cover up the limitations of the system. This is known among computer programmers as "graceful degradation."

One way of giving the visitor more initiative without overburdening the parser would be to extend the possibilities of physical actions, and make the system more responsive to them. Physical actions are much less ambiguous than verbal input because the user can perform them with a mouse click, rather than using a phrase that the parser can understand. For instance, if you want to leave, it is much more efficient to do so by walking to the door and clicking on the handle (provided a behavior is associated with it) than by saying "Good bye,"

"I want to go," or "I've had enough," all phrases that may not be in the parser's repertory. In the current version of *Façade*, the possibilities of physical action are still underdeveloped. For instance, kissing Grace or Trip on the lips elicits no more than a pleasantly surprised or offended look, and the ejection of the visitor if the action is repeated. Here the program is missing some interesting opportunities for narrative development: the kiss could for instance introduce a whispering between the user and the other character, the hinting of an affair; or the system could respond differently, depending on whether the kiss involves same-sex or different sex partners.

It would be wrong to say: "But a system like Façade could not be used to produce the story of *Oedipus Rex* or *Hamlet* or *Little Red Riding Hood*." The art of interactive narrative consists of thinking with the medium, which means adapting the plot to the features of the system. Mateas and Stern have hit the right plot with their story of a domestic fight that tolerates incoherence and often ignores the player's contributions. But some features are more restrictive than others, and the viability of a system of interactive narrative will consequently depend on the variety of plots that it can accommodate. What remains to be seen is how much diversity the idea of interactive drama tolerates.

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I have presented three tentative, and partial ways to refocus interest on the story in an interactive environment. Can these three designs be combined for a fuller narrative experience? In a sense no, because each of them presupposes a different type of user involvement. In the embedded story, the user is cast as a member of the virtual world, but he has no impact on the story. I call this involvement internal-exploratory ("Beyond Myth and Metaphor"). In the emergent system, the user is not a member of the virtual world, but by manipulating the characters she has an enormous influence on the story. Her participation is external-ontological. In the dialogue system of interactive drama, finally, the user plays a role within the fictional world, and she has limited influence on the story. Her involvement is internal and mildly ontological. It would be a very poor design strategy for a digital text to switch midway from one of these mode of participation to another. Still, some combination of the features of the three types of design is not entirely impossible. For instance, a game could combine the emergent character of *The Sims* with an internal participation. In this type of game, the user would identify with a single character, rather than holding the strings of an entire family. The idea of the embedded story could be reconciled with a more flexible script. Take the case of *Façade*: there is a fixed embedded story to discover, namely the private life of Grace and Trip before the arrival of the visitor; but this story, rather than being investigated for its own sake, spills

into the present and determines the current behavior of the couple. Or take the idea of a dialogue system controlled by an AI module. It would not be feasible in a God game like *The Sims*, because the player is not a member of the fictional world, but it is very compatible with a design based on an embedded story if the conversation is limited to the characters of the embedding story. And finally, as *Façade* demonstrate, interactive drama can easily integrate the kind of interaction that we find in *The Sims*: clicking on an object to activate its behaviors. The full potential of interactive drama will only be reached when it combines dialogue with simulated physical actions.

There is no simple cure for the split condition. I can write a prescription, but like most doctors I don't know how to manufacture the medicine, and therefore I cannot guarantee that the Temperate Zone will some day be conquered. Here's my prescription:

1. The user should participate and interact out of interest for the story, not for the sake of solving problems or beating opponents. In contrast to the standard game player, she will prefer a less efficient action over a more practical way to achieve a goal, when this action leads to more interesting narrative possibilites.
2. Narrative development should not be entirely dependent on non-interactive cut scenes. The user's activities should be part of the story, and move the plot forward, rather than being nothing more than means to get more of the story.
3. The actions available to the user should be more diverse than the standard repertory of computer games: moving through the fictional world, solving problems to get past roadblocks, and fighting enemies.
4. At least some actions should be dependent on the user's construction of the mind of other characters. Decisions should be based in part on such factors as who knows what and who wants what, who likes whom and who does not. Stories are about people, people are scheming social animals, and to attract the population of the Temperate Zone into an interactive digital environment it will take a mode of participation that involves a network of human relations.

Notes

1. The coverage of drama is perhaps the least extensive because the cinema has taken over the Tropics, but in Shakespeare's day it did reach all types of audiences.

2. As opposed to expansionists and authors of the North Pole, who have produced many non-interactive texts: Flash poetry that plays like a film, or computer-generated texts that limit the role of the user to clicking the button that activates the generative process.
3. One of the flagship Web sites of the traditionalist approach is the Web site maintained by Mateas and Stern: "Façade: An Experiment."
4. Another digital work that uses the computer to produce textual blends inspired by Burroughs' technique of the cut-up is Jim Andrews' and Pauline Masurel's *Blue Hyacinth.*
5. This technique is also used by Loss Pequeño Glazier in *White Faced Bromeliands on 20 Hectars* and by Andrews and Masurel in the above mentioned *Blue Hyacinth.* In *Blue Hyacinth*, however, the replaced text is color coded, so that the reader can follow the transformation generated by mouse-over.
6. The standard example of a less efficient problem-solving action leading to a more interesting plot is the decision by the wolf, in "Little Red Riding Hood," to wait until the heroine reaches the house of the grandmother to eat her, rather than doing so during their first meeting in the forest. From the point of view of the wolf this decision makes no sense, because he is taking the risk that Little Red Riding Hood will never find the grandmother's house, or that another wolf will eat her in the meantime, but the plan is certainly motivated from a narrative point of view. A ludus player would eat the little girl in the forest, while a paidia player would go for the masquerade of the wolf at the grandmother's house.

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