

Interactive Fiction as "Story," "Game," "Storygame," "Novel," "World," "Literature," "Puzzle," "Problem," "Riddle," and "Machine"

Nick Montfort

Asking whether a new media artifact is a story or a game is like asking of a poem: "Which is it? Narrative or metrical?" This contrived question holds two dangers. Most obviously, it suggests that narrative and meter are somehow opposing forces in poetry, indeed, that they are exclusive. The further danger is its implicit presupposition, that these are the only two interesting aspects of a poem. We almost certainly would benefit from considering whether the poem is book-length or short, if it is schematically alliterative, what themes it treats, if it is in a traditional or invented form, and

what traditions it works in or against — but the first dichotomy, by distracting with its false opposition, disguises the other important aspects of the poem because it silently claims that there are only two important aspects.

Advocates of game studies and ludology have rallied against the simplistic consideration of computer games as stories, resisting what they refer as the "colonization" of the new field by literary studies as they build up their rebel fleet on the ice planet. Of course their project is not to banish discussion of story from computer game studies (how could it be, when half the articles in the premiere issue of the journal *Game Studies* take the issue of narrative as their central topic?) but to ensure that discussion is framed in terms of a new discipline, native to the computer game. Discourse about new media, at its best, no longer concerns itself with the mythical story/game dichotomy. Instead critics like Henry Jenkins are considering in detail the many ways that story is involved with, produced by, or reflected in games, and pointing out that aspects such as the simulated environment are often more important than the "story," even when we have determined what exactly that is (Game-Stories 2001). Janet Murray describes other, overlapping categories: "puzzle" and "contest," creating a Venn diagram with four circles instead of just

Response by Brenda Laurel

In my view, Nick Montfort's most important observation is that computer games are a new kind of animal that comes in lots of different sizes, colors, and subspecies. His observation that a computer game "is a potential narrative that may contain game elements" points to a reader-response-oriented view, that the narrative can be understood to be the player's construction of what happens in an interactive session.

Montfort asks why we use the word "game" as a default noun, when clearly many forms of interactive play are not games. It may be because "game" approximates the idea of "play," which, when used as a verb, often takes "game" as its object. But the central pleasure of play, as for the audience member of a

theatrical event or for the reader of fiction, depends upon the absence of serious consequences in real life. We can feel for Hamlet but we will not die with him.

What experts call "play patterns" in children's play are instructive in figuring out the structure of play with computers. "Games" are forms of rule-based play. Playing with pattern and rhythm (as with clapping and jumping games) may illuminate the underlying play pattern of games such as *Tetris* or *Breakout*. Equally attractive to kids is exploratory or "free" play, where the underlying play pattern often involves improvisational story making. Narrative construction as a play pattern provides an excellent starting place for understanding the pleasure that is particular to IF.

Montfort notes in his discussion of Buckles's

the usual "story" and "game" categories (Game-Stories 2001). Even in this view, however, the Venn diagram that Murray offers collapses apples and oranges into the same plane. Story, game, and puzzle are better viewed as aspects of new media — vectors in an n-dimensional space, some of which are orthogonal and some of which are not — rather than categories, even intersecting categories. Even this concept is lacking in some ways. What is important to realize is that while there are such things as "games" and "stories," many new media artifacts are neither of these, but employ elements from both. They employ elements from other forms and can be understood using other figures, too. What is important to distinguish about these different aspects and elements is which of them are essential to which well-defined categories of new media artifacts, and how they are or are not tied to one another.

Making broad claims about "new media" or even "computer games" can be problematic. There are new media forms that are reasonable categories: the massively multiplayer role-playing game, the first-person shooter, the hypertext novel, the chatterbot. Whatever the difficulties with definitions, we know a first-person shooter, like obscenity, when we see it. I focus here on one new media form, recognized by authors and interactors to be its own category: interactive fiction. Examples of interactive fiction, abbreviated as IF,

include *Adventure* and *Zork*; later literary efforts *A Mind Forever Voyaging*, *Trinity*, *Amnesia*, and *Mindwheel*; and more recent works such as *Curses* and *Photopia*. Rather than begin with a definition of IF, I'll go through a series of figures that can be used to understand the form — beginning with story and game, but not stopping there — and conclude by considering which of these figures are defining and which are important to the poetics of interactive fiction.

Story

Even IF that clearly has puzzle-solving as its only pleasure — works that make fortune cookies seem florid — produce narratives as a result of sessions of interaction. Here is a concrete example of how IF is potential narrative, a space of possibility in which the user's inputs, parsed as actions, become part of a narrative text:

Orange River Chamber

You are in a splendid chamber thirty feet high. The walls are frozen rivers of orange stone. An awkward canyon and a good passage exit from east and west sides of the chamber.

A cheerful little bird is sitting here singing.

"storygame" concept that story cannot be pulled out of a work of interactive fiction, whereas it is spurious in the action game genre. In my research on gender and technology, however, I learned that narrative construction is a key element of pleasure for girls in the playing of action games. An action game is judged as "good" when the player can imaginatively "fill in" the characters, and "bad" when, to quote one interviewee, "the characters are so boring you can't even make up stories about them" (she was referring to *Mortal Kombat*). To take an example from the adventure genre, *Myst* has spawned several books that explore its main narrative and backstory. In IF that does not include such guide books, players construct the backstory — that is, notions about causality, relationship, and other

aspects of characters and situations that are not explicitly revealed. Players take pleasure in narrative construction.

Montfort's insistence on the creation of a complete world should be the first sentence in the IF author's bible. In the Aristotelean sense, the "world" is typically understood as the *material* of a play, whereas the plot is its *form*. In this view, a "world model" can be seen as a collection of interrelated materials with potential for formulation through the means of thought and character into plot (Laurel 1991, 50-51).

The Smalltalk "model-view-controller" metaphor also sheds light on the idea of a "world model," which corresponds to the "model" in Smalltalk. The "controller" may be seen as an individual player in

>TAKE BIRD

You catch the bird in the wicker cage.

This text is a minimal story, by Gerald Prince's (1973) definition, produced in a session of interaction with *Adventure*. The initial state has an adventurer in a cave chamber with a little bird. The adventurer types "TAKE BIRD" to take the bird. Then, as a result, the bird is in the wicker cage.

Game

Jesper Juul, after demonstrating that the case for story in computer games is overstated, adds that "many computer games contain narrative elements" (Juul 2001). Reversing this formulation works better for IF. It is a potential narrative that may contain game elements. Some interactive fiction works cannot be "won" and do not keep score: Emily Short's *Galatea* and Ian Finley's *Exhibition* are examples. They are not games by the definition Eric Zimmerman gives,¹ and only by liberally extending the concept of "symbolic reward" would they be games by Espen Aarseth's definition.² I prefer to define game as a contest (one of the categories Murray distinguished) — but a contest broadly defined, either played directly against one or more players or played individually in an attempt to break a record or achieve a superior score. Game

elements are used in interactive fiction to convey the extent of a work (a score of 20 out of 250 replaces being on page 20 of 250) and to provide what hypertext theorists and pop psychologists call "closure," but they are seldom used to actually structure a contest. Hence the popular way of referring to IF works, as "games," highlights an aspect of IF that is not fundamental, and suggests a figure that is not one of the more useful ones for understanding the form.

Storygame

Mary Ann Buckles, author of the first dissertation on interactive fiction, suggests a different concept, that of the "storygame," for understanding the form. Although Buckles writes that "in *Adventure*, the game is embedded in a story" (Buckles 1985, 32), her term suggests that rather than one element being embedded in the other, both are essential to the experience and are intertwined rather than nested. *Dungeons and Dragons* is a precomputer case of an experience that inextricably merges story and game — and performance as well.³ One cannot simply remove the story from *Dungeons and Dragons* the way that the narrative cut-scenes in *Ms. Pac-Man* can be lifted away. Nor can the aspects of contest be removed without changing the experience into something other than

his/her situated context, and the "view" constitutes the one story that results from that particular controller's vector into the model. To quote the Guardian of Forever (from *Star Trek*), "many such experiences are possible."

Montfort reminds us that "Aristotle held that a play could exist even without characters, but never without a plot." By character, Aristotle is generally interpreted to mean entities with moral qualities and predispositions, that formulate thought into action. His "play without character" refers to a representation of an action that lacks sufficient representation of the moral character and qualities of its agent(s) (Aristotle 1961). His point was that the essential nature of a play was to be the representation of an action rather than merely the

representation of characters. In the case of an IF world without "characters," it becomes obvious that the player would function as the sole character, contributing his own thought and action to the formulation of the potential of the world model into a "plot."

Montfort asserts that "a puzzle is a formal test of ingenuity." The idea of "ingenuity" may not be inclusive enough; puzzle-solving skills include cognitive skills such as pattern-recognition, pattern-matching, and mental rotation. Parenthetically, the skills I just mentioned are likely to involve brain-based gender biases. Much is made of the fact that *Tetris*, a game that seems to depend largely on mental rotation skills (at which males tend to be more facile), has a higher-than-normal female following. Anecdotal evidence suggests

Dungeons and Dragons. IF works *can*, similarly, involve story and game essentially — but neither quality is part of IF's foundation. The "story" that occurs emerges through interaction, and what is commonly thought of as "game" in the form is — when it is present — better understood through other figures.

Novel

Mindwheel and other Synapse titles were labeled "electronic novels." Some IF works (including those) typically take many hours of interaction to complete. Other works, such as those entered in the annual IF competition <<http://ifcomp.org/>>, are designed to be completed within two hours. Seeing those in the former category as "novels" and the latter sort as "short stories" is a sensible way to describe how much interaction time is required. It is not particularly the case, however, that aesthetic or poetic principles of the novel vis-à-vis the short story apply to these two sorts of works. It is not in fact obvious that IF is more closely tied to traditions of written prose than to other literary traditions.

World

IF accepts natural-language text from the interactor and produces text in reply, but the same can be said for the stand-alone chatterbot *Racter* or a database that

takes English-like queries. What distinguishes IF from these systems is that in addition to a "parser" there is another essential element of an IF work: a "world model." Aristotle held that a play could exist even without characters, but never without a plot (Aristotle 1961). In IF, it is the world (like the literary "setting") that is essential — characters and plot can be dispensed with, but a system is not IF unless it simulates a world, however erratically and in however limited a way.

Literature

Accepting the ideas of Russian Formalism, and specifically Victor Shklovsky's (1965) concept that the literary nature of a text comes from its "making strange" ordinary reality, it's evident that not just the textual output of IF but even the nature of many IF puzzles hinge on their literariness (Randall 1988). Although variation between the *sjuzet* and the *fabula* is not the main device used to accomplish this (it is employed at times — for instance, in Adam Cadre's *Photopia*) IF does use the technique of literary art "to make objects 'unfamiliar,' to make forms difficult, to increase the difficulty and length of perception because the process of perception is an aesthetic end in itself and must be prolonged" (Shklovsky 1965).

that successful female players conceptualize the *Tetris* problem as one of pattern-matching, a cognitive skill at which females tend to excel.

I agree wholeheartedly with Montfort's observation that "finding a way in which the puzzle-solving and reading aspects of IF work together instead of in opposition" is important. Puzzle-solving can replace language as a form of communication in the game (see, for example, *Secret Paths in the Forest*).

I question the notion of games as "contests." If that is so, then how do we define the quest? With what or whom is a quest a contest? Echoing the author's annoyance with binary choices in his opening paragraphs, I object to the idea of "contest" or "competition" and its unspoken alternative,

"collaboration." This false dichotomy is used to simplify everything from business ethics to gender differences.

More often — in business, life, and literature — the protagonist seeks *change*: material, mental, social, spiritual, or what-have-you. The desired change is often described as the satisfaction of some goal, but this definition proves too narrow in many plots, where the protagonist may know only that the status quo isn't good, and discovers only through the unfolding of the action what sort of change would be most positive. Realistically, change proceeds, not through simplistic competition or collaboration, but rather through the somewhat more complex action of identifying or constructing effective symbiotic relationships. This is as true in literature as it is in business and biology. This

Puzzle

A puzzle is a formal test of ingenuity. A jigsaw puzzle is, of course, a puzzle, as is a scrambled Rubik's Cube or a verbally posed logic problem or lateral thinking puzzle. The device of the puzzle is described as essential to IF by Graham Nelson, creator of the IF development system Inform and author of *Curses*: "Without puzzles, or problems, or mechanisms to allow the player to receive the text a little at a time . . . there is no interaction" (Nelson, 2001, 382). But IF has been devised without puzzles; conversation and exploration rather than puzzle-solving allow one to move further through these works while interacting. Undoubtedly, the puzzle provides the main effective way to engage the interactor deeply. Dealing with explicit puzzles, however, involves a mode of thought alien to ordinary reading; progress through the text of a novel is not arrested when the reader comes up with the wrong answer. As important as the puzzle has been, finding a way in which the puzzle-solving and reading aspects of IF work together instead of in opposition is also important.

Problem

The single academic article about *Zork* by its creators does not use the word "puzzle." The challenges in *Zork* are instead referred to by Lebling, Blank, and

Anderson (1979) as "problems." Problems are questions raised for solution; the term suggests that they are more likely to be posed as homework than for diversion, but this is a matter of connotation. Essentially puzzles and problems are the same. But if all puzzles or problems are games, we are left in the difficult situation in which " $2 + 2 = ?$ " is a game. That question is a puzzle, however uninteresting it may seem,⁴ but it rightly seems difficult to swallow as a game. It is more sensible to define games as contests and also allow the existence of puzzles and problems that are not games. Defined this way, a crossword puzzle is a puzzle, not a game; "Let's see who can finish the crossword puzzle first" is a game. Similarly, chess is a game; the knight's tour is a puzzle that uses the gaming equipment and rules for movement from the game of chess.

Whether called puzzles or problems, challenges do play an important role in almost all IF. However, the concept of "problem" helps no more than does "puzzle" in connecting these challenges to the narrative world presented in IF. It is this connection, and the establishment of systems that have meaning outside of their own closed workings, that is the excellence of the IF form.

view preserves the author's emphasis on establishing "systems which have meaning outside their own closed workings," but it adds a level of complexity and realism that I find lacking in the idea of "contest."

Similarly, the idea of "riddles" seems incomplete. Does merely not knowing the source of discomfort or disharmony qualify as a riddle? For example, "Something's rotten in the state of Denmark" — a riddle, or merely an itch that one must discover how to scratch?

Montfort observes that a mechanistic view of IF engenders negative responses. This is a really important point. The image of IF has been tainted by hypertexts passing themselves off as interactive fiction through the years. There is something deeply

unsatisfying about the lack of significance in one's actions as a player; that is, the player knows that he/she is merely selecting one of many preordained "pathways" and is therefore exercising no more agency than a rat running a maze. To the discerning player, branching architectures lack vitality in the same way as hypertexts.

The author's insistence on natural-language understanding and generation as definitional of IF holds authors to very high standards indeed, and may in fact put them in a straitjacket. There are workable and interesting alternatives to natural language, where players may express themselves with gestures or other non-verbal or paralinguistic actions, and their impact on the developing plot may similarly be nonverbal in

Riddle

The connection of a puzzle or problem to issues in the world (not only the world of the IF work but the world that we inhabit) of the sort that literature engages is best seen in the figure *riddle*. The riddle, as discussed here, is a didactic form of poetry, not a response-format light-bulb joke. A famous riddle that was said to confound Homer is: "Those we have caught we left behind, those that have eluded us we carry with us."⁵ There are many examples from Greek and Latin that remain current in our culture; the English tradition of the riddle begins, in writing, at the very beginning of written English literature, with the Anglo-Saxon riddles of the Exeter Book.

Many works of IF simply contain riddles which must be solved in order to progress, but it is more useful to consider not the explicit presence of riddles in IF but the riddle as a figure for how IF works. The best examples of IF do what the best riddles do: they create a provocative system of thought that one is invited to enter, explore, and understand — demonstrating one's understanding, at last, by explicitly offering a solution.

A puzzle in the mainframe *Zork* (which appears in the commercial *Zork I*)⁶ provides an example that is not spectacular but is concise enough to relate here: in a coal mine there is a machine, similar in appearance to a washing machine. *Zork* simulates a world in which

magic and technology coexist, where the adventurer's goal is to acquire all possible treasures. Nearby there is a heap of coal. The treasure here must be not located, but manufactured. By placing the coal in the machine and turning it on (this procedure requires a bit of figuring out), the coal is converted under pressure into a diamond. The puzzle requires some awareness of the properties of carbon, and also requires that the interactor understand that the system of this world is one in which engineers have, in many cases, provided useful devices in appropriate places.

A good scientist might happen upon the solution experimentally by placing different items in the machine and turning it on. What gives this puzzle the qualities of a riddle, if not the excellence of the best riddles, is that it is consistent with the logic of the world in which it occurs. More elaborate and poignant puzzles, tied in riddle-like ways to the worlds in which they occur and to the world outside, achieve more provocative and profound results. The riddle, unifying the literary and puzzle-solving aspects of IF, is the central figure in this form's poesis.

Machine

A work of IF is not an "electronic document." It is a program, parsing input and generating output based on rules. One reason that IF has been overlooked by

nature. I held up Purple Moon's *Secret Paths* adventures as one example, but there are many others. I would think that we might see more creativity result from a definition which replaced "natural language" with any workable semiotic system. Regardless of this quibble, the author makes the crucial point that the program and player must have a highly nuanced shared language.

From Janet Murray's Online Response

IF is a riddle most of all because it is a conversation. It is not a conversation with an imaginary character, a chatterbot like Eliza, although it may include characters. It is a conversation with the author of the imaginary world, who is challenging the interactor to solve the

puzzle, to figure out what the author has in mind, to debug their own interactive processes, repeating the sequences until the desired ending is reached. In the early online games there was no way of saving one's position or undoing moves. The space could be traversed at will, assuming there were not locked doors, but time was relentless and irreversible. As in a conversation with another person, you could not unring a bell; as in an obsessive or superstitious ritual, the only way to get it right was to do it in exactly the acceptable order, no matter how many repetitions it might take to get it right. An interactor learning an IF environment had to memorize the sequences (or record them on paper) and say them back in the right order to please the god of this magical world. Meanwhile, the

hypertext theorists is that IF is not hypertext by most of the conflicting definitions that are offered; the view of it as a network of linked text is particularly strained and hides important aspects of IF. A broad category that recognizes the nature of IF and other new media artifacts as programs, such as Espen Aarseth's (1997) *cybertext*, offers many critical benefits. It helps one understand that certain frustrations with IF are due to difficulty with or unwillingness to *operate a machine* in order to generate text, and certain pleasures of IF come from engaging in this text/machine operation, or from reading that takes place in the context of operation.

Defining Interactive Fiction

A work of interactive fiction is a program that simulates a world, understands natural-language text input from an interactor and provides a textual reply based on events in the world. This definition includes everything that is commonly held by IF authors and interactors to be IF, excludes new media artifacts that are similar but not commonly held to be IF, and sheds light on the elements that are truly essential to the form:

Simulation of a world

Natural-language understanding

Natural-language generation

author is taunting or encouraging the interactor, and in either case making clear his or her own cleverness. Like the poser of the riddle, the author of an interactive fiction exists only as a conversational partner. Like the person to whom a riddle is posed, the interactor is in a contest, drawn in by a desire to "match wits," with the riddle-poser, to test the operation of their own cognitive processes against the trickery of the master.

<http://www.electronicbookreview.com/thread/firstperson/murray1>

Understanding Interactive Fiction

By definition, IF is neither a "story" or a "game," but, as all IF developers know, a "world" combined with a parser and instructions for generating text based on events in the world. The riddle is central to understanding how the IF world functions as both literature and puzzle. Interestingly, the riddle is a part of the literary tradition of poetry, not that tradition of the novel more often associated with IF. This means that despite the common nomenclature of IF works as "games," the IF program as a "story" file, and the work of IF as an electronic "novel," none of these three figures are of central importance to IF.

It's time to look beyond "story" and "game" for those other figures that are essential to different sorts of new media artifacts, and to recognize that views of "story" and "game" as simple overarching categories can be counterproductive. Rather than only race back and forth between narratology and game studies for further insights into the "story" and "game" of IF, for instance, it makes sense for those seeking to understand IF and those trying to improve their authorship in the form to consider the aspects of world, language understanding, and riddle by looking to architecture, artificial intelligence, and poetry.⁷

Montfort Responds

To see IF as "new media," and to add "play" and "conversation" to the ten perspectives I originally mentioned, offers thirteen ways of looking at interactive fiction, perhaps enough for a clear vision of sorts. The thirteen ways Wallace Stevens offered are, after all, also one way; they build on and speak to each other.

<http://www.electronicbookreview.com/thread/firstperson/montfortr2>

Notes

1. Games have an explicit rule system, according to Zimmerman, and they have a definite result or outcome. This definition was described by him in the "Aesthetics of Game Design" panel at Computers and Video Games Come of Age, and in the "Game-Stories: Simulation, Narrative, Addiction," panel at SIGGRAPH 2001. This distinguishes games and more general play activity very well, which is what the definition evidently was created to do, but it does not distinguish between games and puzzles as well as I would like, or indeed at all.

2. Games provide "symbolic rewards," in Aarseth's formulation, which may be in the form of higher scores or in some other form. This would possibly allow for a Furby or Tamagotchi to be a game, because growth and good behavior of these creatures might be a reward, but it would rule out slot machines and vending machines, which dispense real, rather than symbolic, rewards. This was described by Aarseth in a talk to a Comparative Media Studies seminar at MIT in February 2001.

3. I have not mentioned performance until now because the term seems to have little direct relevance to interactive fiction and has not dominated the discourse around computer games the way that "story" and "game" have. However, the performing arts are rich in figures that may help in understanding interactive fiction — too rich to treat well in a short essay like this. See particularly Laurel 1986, 74–81, which treats *Zork* in dramatic terms; *Mindwheel* author Robert Pinsky also emphasized the applicability of the dramatic perspective to IF poetics in his MIT Media Lab Colloquium in February 1997.

4. " $2 + 2 = ?$ " may actually be a slightly interesting puzzle. On a planet in which the inhabitants have two fingers on each of their two hands, the answer is likely to be "10," since such creatures would probably use base 4 arithmetic.

5. The answer gives the title to W. S. Merwin's third book of poetry, *The Lice*. I am indebted to Will Hochman for pointing out how this riddle is an excellent figure for how the most puzzling aspects of literature are those that stay with us.

6. *Zork* was modified, split into three works which contain some new material, and published as *Zork I–III*. This trilogy was sold for a wide variety of personal computers by Infocom, a company founded by the *Zork* creators and fellow students and researchers from MIT. *Zork I–III* have been made available for free download by Activision, which acquired Infocom in 1986: <<http://www.csd.uwo.ca/Infocom/download.html>>.

7. I continue the discussion of the nature of IF, describe the history of the form, and approach some of the major IF works critically in my book *Twisty Little Passages* (The MIT Press, 2003).

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