

A Requirements Specification Template for Interactive Storytelling

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I'm a member of
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Before we get started I need to offer a disclaimer. I've given a talk at the Game Developers' Conference every single year since 1991. Most of my talks consist of blue-sky philosophical rambling about a variety of subjects. They're entertaining, but they're not of much practical value. This time I'm going to offer a talk that I think *is* of immediate practical value, which is great, but unfortunately I'm afraid it's going to be as dull as ditchwater. The slides that follow contain no pictures or videos – not a single one. It's all text and it's about a number of issues to do with planning an interactive story. I'm not saying it'll be as bad as lecture on how to use Microsoft Project, but there's a risk. It is dense, dense, dense with information. You have been warned. If your brain is already fried with all the meetings and sessions and alcohol and jet lag that comes with GDC, get out now and watch it on the GDC Vault when you've recovered.



Background

You go up to four people having a big argument. One of them is yelling “Wood! It has to be wood!” Another is shouting, “Wood’s useless! Reinforced concrete!” Another is saying “That’s too heavy, you idiot – it needs to be steel!” And the fourth says, “Do you know what that costs? Brick! It’s gotta be brick.” You ask them what they’re building and the first one says, “A tree house, of course.” And the second one says, “Tree house? We’re building a bomb-proof bunker.” The third one says, “No way. We’re building an office building.” And the fourth says, “I don’t know about you guys, but I’m building a tract home.”

That’s the game industry. Arguing furiously about how to do interactive storytelling without having defined exactly what we want to accomplish in the first place.

This lecture is the culmination of 16 years’ worth of ruminations about interactive storytelling. Back in 2007, I gave a lecture at the GDC called “Rethinking Challenges in Games and Stories,” and I ended by saying that designers should write a requirements spec for their interactive story before they start to write it.

I know this sounds odd – engineers write requirements specs for utilitarian objects. It’s unnatural to think of doing it for an artistic endeavor, and artists – at least the more woo-woo kind of artists – wouldn’t dream of doing anything so prosaic and left-brain.

But I feel that we need to, because much too often, we dive in to interactive storytelling without actually defining what we want to accomplish. We make mistakes and we get in a mess.

Faulty Underlying Assumptions

- **Player freedom and agency should be maximized.**
 - **Rebuttal: not necessary for players to enjoy the story; often sets ourselves up to fail!**
- **Interactive stories shouldn't be games.**
 - **Rebuttal: many stories are about overcoming obstacles; are they excluded? No.**
- **The player shouldn't have to think about any rules.**
 - **Rebuttal: in a role-playing context, the player must constrain his behavior to conform to his role, or face the consequences.**

In the last year I wrote a PhD thesis on the subject, which sort of summarizes and analyzes all my work in the context of work done by other game developers and scholars. At the end of the thesis, I rather foolishly said, “and somebody really ought to write a template and guide for creating these requirements specs.” At my thesis defense, which was back in November, my committee said, “yeah, and that’s you. You can have your PhD when you finish it.” So here I am, and here it comes: version 0.1 of the template.

Let me be clear: this is not a lecture on how to do interactive storytelling. This is lecture on how to think about what you *want* to do with interactive storytelling, so you can choose techniques that will meet your goals.

Here’s another disclaimer, too: this is all about single-player PvE interactive storytelling. Multiplayer is a whole other can of worms that I haven’t addressed yet; unless they are really dedicated role-players, multiplayer stories tend to lose coherence through out-of-character remarks. But that’s a subject for another day.

Before we get around to the template itself, I need to go through some background issues that got me to today. First, a few years ago I realized that interactive storytelling was being held back by some faulty assumptions that many of us held, and we can actually be much more productive if we drop these assumptions.

Problem of Internal Consistency

How do we maintain a coherent story when the player is out of our control? Constrain her actions? Or give up and let her ruin the story?

In addition to those faulty assumptions, I also identified a couple of problems, all the way back in 1995, and I've been sort of meditating on them ever since. One is the problem of internal consistency.

Problem of Narrative Flow

How do we guarantee a steady storytelling experience if the player has control over the pace of the plot? How do we prevent the player from obstructing the plot, evading the dramatic climax, or skipping the necessary precursor events required for the dramatic climax to be coherent?

The other problem I identified in 1995 is the Problem of Narrative Flow.

The Designer/Player Contract

The designer and the player both contribute to the player's experience. Both have a degree of responsibility for the quality of that experience.

The contract: The designer promises to provide a credible, coherent story *if and only if* the player promises to behave in credible, coherent ways.

With freedom comes responsibility: the player's responsibility for the story-like quality of her experience is directly proportional to the amount of freedom she has.

So in 2006 I gave a lecture here called "A New Vision for Interactive Stories," and I set out what I think is the solution to these problems. I'm not saying I know the one right way to do interactive storytelling, because there is no one right way. The right way to do it will vary depending on what you want to accomplish. But I have arrived at a schema that provides, at least to my own satisfaction, a way to think about the issues. [GO THROUGH SLIDE]

It's actually a little more complicated than this, because the player can violate multiple different things – the world, her own character, or the plot – and she can violate them either intentionally or unintentionally. It's the designer's job to prevent unintentional violations that will ruin the story-like quality of the game. In *Syberia 2*, for example, you could discover the gravestone of an NPC, but you are given dialog options as if you think the person is alive. You weren't supposed to find the gravestone until after the dialog took place. So in that case the player unintentionally violated the plot, producing an absurdity.

I'm not going to go into further details here – if you want to read more about it, in exhaustive detail, you can read my thesis after it's finished, which will probably be around June.

A notebook page with a dark cover and three metal rings on the left side. The word "Definitions" is written in a large, bold, black font in the center of the page.

Definitions

I know this is dull, but I'm afraid I also need to define a few critical terms, especially for those of you who aren't into the more abstruse points of interactive storytelling scholarship. To some of you this is going to sound like Creative Writing 101, but if we're not clear about these terms, we'll just get into a mess later.

Narrative

(Intentionally naïve definition)

**Narrative consists of *that which is narrated*,
i.e. non-interactive presentational content.**

This definition completely sidesteps the mountain of conflicting argument about the nature of narrative. I'm just not going to go there. Consequently, I do not use the term "interactive narrative," because under this formulation it's an oxymoron. I prefer "interactive storytelling," which connotes the active process of storytelling rather than the notion of a fixed text.

Plot

- All events in the story that are both:
 - Dramatically significant
 - (They either raise or lower dramatic tension)
 - Related by causality or subject matter to the majority of the other plot events.
 - (Red herrings are not causal but related by subject matter – the reader *thinks* they are causal.)
- In interactive storytelling, includes all *possible* events.
 - In a predetermined plot, the whole network.
 - In a computed plot, everything it can generate.
- The **plot line** is player's *actual* path through the plot.

It's a basic tenet of creative writing that the material in a story is there to serve one of three purposes: to set the scene, to illuminate character, or to advance the plot. If you're a Pulitzer prize winner you can ignore this and include all sorts of weird stuff in your story and get away with it, but if you're not then it's a good rule of thumb for a journeyman writer. A great deal of what I have to say concerns plot, so we need a definition. [GO THROUGH SLIDE]

Interactive Range (Freedom)

**Variety of activities available to the player,
as provided by the user interface.**

This is the totality of the kinds of things we can give the player to do: run, jump, buy, sell, shoot, protect, build, talk, or whatever. Remember that one of our faulty assumptions was that we should seek to maximize this – that someday we’ll have the “go anywhere and do anything” game engine. That is neither necessary nor realistic. But unless it’s *Progress Quest*, every game has some degree of interactive range and we need to think about what it’s going to be.

Note that a large interactive range does not necessarily imply that the player can influence the plot of the story. A player might be able to do a million things in a game universe and still be unable to affect future events in the story.

Agency

In general, the capacity to effect change;

More specifically, the ability to influence or change future events in the plot or to modify the plot line in a pre-determined plot.

This is a critical one. [GO THROUGH SLIDE] This is another quality of an interactive story that some commentators think we should try to maximize – as players, they want nearly unlimited influence over the plot. I think that's fine if it's what you want to do as a designer, but it's difficult and not all players insist upon it. In fact, I would go so far as to suggest that players who want maximum agency are actually in a minority. If you insist on being able to turn *Romeo and Juliet* into a comedy, or *Much Ado About Nothing* into a political satire, you're asking for a lot and I don't think all players want that much. Dramatic tension arises in part out of the fact that the protagonist's choices are *not* unlimited.

Interactive Storytelling

Interactive storytelling is a systematic process that makes a player feel as if he is *immersed in and contributing to a story.*

A story that a player interacts with by contributing actions to it, regardless of whether those actions affect the plot.

This also is controversial. [GO THROUGH SLIDE] Many people feel that it's not interactive storytelling if the plot doesn't change in response to the player's inputs – if the player has no agency. But whose interaction really matters here? I say it's an interactive story if the *player* interacts with the *story* – makes decisions and tries to overcome challenges. Even in a purely linear story like *Sonic the Hedgehog*, I'm interacting with it by meeting its challenges and choosing whether to hunt for hidden powerups or do a speedrun. The plot events of the story, even though they are immutable, affect *my* interaction as a player.

I acknowledge that this viewpoint is unusual. But remember, it's about the *player's* experience and the player's activity.

Well-Formed Story

- **Qualities of a well-formed story:**
 - **Designer's contribution remains consistent**
 - **Experience preserves credibility within its own inner laws**
 - **Player derives entertainment through role-playing and contributing to the plot**
 - **Plot events occur at a rate sufficient to sustain dramatic tension**
 - **Few or no random or repetitive events**
 - **Dialog and character interactions usually play a significant role**

This is the goal of many interactive storytellers – to tell a story that feels right, that feels story-like. When I gave my lecture in 1995, we didn't have a term for it; *well-formed story* is Janet Murray's term. So here are what I believe are the qualities of a well-formed story. [GO THROUGH SLIDE]

Now, please note that an interactive storyteller is not obliged to meet them all. Players' demands and expectations about their interactive stories vary considerably, and it is up to you as a designer to choose which of these you want to implement.



Requirements

So, now, at last, I think we're ready for the requirements specification template. In the next few slides I'm going to go through the major headings of the template. Under each item, I list the questions you should ask yourself to decide what to write there.

Overall Importance of the Story

- How important is the story as part of the player's experience?
 - Non-existent, minimal ⇔ critical
- How important is it to preserve narrative immersion?
 - Irrelevant ⇔ the experience will be destroyed without it
- Do you want your story to convey a theme or message? How, and what is it?
 - Direct narration, experience of plot, procedural rhetoric, etc.

Procedural rhetoric is Ian Bogost's term for a message that is communicated to the player through algorithmic processes rather than explicit narration.

Function of Story

- **What role will the story play in the game?**
- **Incomplete list of non-exclusive options:**
 - Framing narrative only
 - Justification for activity
 - Unrelated mission briefings
 - Links episodes of gameplay (levels)
 - Continuing but intermittent part of the entertainment
 - Many player actions unrelated to story
 - Primary reason for playing
 - Most/all player actions related to story

Well-Formed-Ness

- How important is it to you?
- Are some aspects of well-formed-ness more important to others? State which you especially want to preserve:
 - Credibility
 - Consistency
 - Player enacting a character (role-playing)
 - Player contributing to the plot
 - (Actions are *part* of the story, not ancillary)
 - Few random, arbitrary events
 - Few repetitious events

Emotional Goals

- Will the story contribute?
- What is the overall emotional tone?
- What emotions do you want the story to elicit?
- Some options:
 - Suspense
 - Surprise
 - Pathos
 - Caring/nurturing
 - Affection
 - Constructive achievement
 - Triumph
 - Comedy
 - Irony

Form of the Story

- **Which of the many forms will you use?**
 - One-act (short story length)
 - Classic Aristotelian 3-act (play length)
 - Multi-chapter (book length)
 - Trilogy or other closed-ended series
 - Multiple independent plots, common world
 - *Star Trek: The Original Series*
 - Multiple interrelated plots, plus big arc
 - *Babylon-5*
 - Soap opera
 - Independent AND interrelated plots
 - No big arc, no ending

I realize I'm dating myself with my choice of examples!

Interactive Range

- Define in *general* terms:
 - How the player can affect the game world
 - Mechanisms of manipulation
 - Combat, finance, creation, social interaction
 - How the player can role-play the avatar
 - Mechanisms of character expression
 - Player-defined/customized avatar
 - Conversation (dialog trees, free speech, etc.)
 - Mood icons
 - Moral choices
- Which activities affect the plot (if any)?
- Are any activities *not* story-like?

Choosing the actions that we give the player to perform is one of the most profoundly important design decisions in interactive storytelling, because those actions become part of the story. At this point in the design process it's too early to define the action set precisely, but you should think about what broad categories of things you want the player to do, and how they contribute to the player's sense of immersion in a story.

[FIRST MAJOR ITEM] We're pretty good at physics and economics simulations. We're OK at offering creative play. We're not so good at political, social, or psychological simulations, which is unfortunate as the best stories are all about those things. Anyway, you need to think about it.

[SECOND MAJOR ITEM] You also need to think about how you will enable the player to role-play their avatar. Remember that stories are not only plot, some material exists to illustrate character, and these choices let the player do that.

Finally, think about which of these activities are likely to change the plot (for example, avatar movement alone usually doesn't, but combat often does), and if any of the activities you offer the player aren't really story-like and how to ameliorate the effect of this on the player's perception of the story. (Solving formal logic puzzles isn't usually story-like... not many characters in stories need to reverse-engineer machines, but we do it in adventure games all the time.)

Agency

- **Do you want agency? How much?**
 - Very high agency requires a computed plot.
- **What classes of action influence plot?**
 - **Player ability to meet challenges**
 - (Plot changes on success/failure/scoring)
 - **Player choices**
 - (Plot changes with player decisions)
- **When do effects become noticeable?**
 - Immediate
 - Deferred
 - Cumulative

[GO THROUGH SIDE]

Note that hybrids are possible – these are not mutually exclusive options.

Your answers to these questions have implications for replayability. If the plot changes based on the ability to meet challenges, the player can only see alternate plot lines by replaying the game and doing better, or worse, than she did before.

Deferred plot changes mean that the player has to go back a long way to undo the effect of a decision if he doesn't like it. There were a couple of these in *The Hitchhiker's Guide to the Galaxy*, in which a decision you made at the very beginning had an effect on the plot near the very end of the story.

Plot Structure

- **Will there be one plot line, or more?**
- **Some options:**
 - **Linear**
 - **Manifold (predetermined)**
 - **Branching plots – no inevitable events**
 - **Foldback plots – some inevitable events**
 - **Beware the combinatorial explosion**
 - **Manifold (computed)**
 - **Plots generated by algorithmic processes**
 - **Hybrids**
 - **All of the foregoing may be combined or used at different periods in the story.**

Linear plot. This is the classic storytelling form. The player can contribute actions to the plot, but cannot alter the content of the plot or future events (the player has no agency). Often the player's actions serve to advance the plot; it stalls or ends prematurely if he fails at a challenge. The plot line and the plot are one.

Manifold plot (predetermined). Branching and foldback (multilinear) plots are predetermined manifold plots, typically implemented as directed acyclic graphs. If you choose this approach you will have to define the structure of the graph and decide what causes the player's plot line to branch at various points in the graph. The player's agency consists of making choices that cause the plot line to take one direction or another.

Once again, note that I'm not asking you to actually design the structure here, only to decide which **kinds** of structures you are going to want to use.

Manifold plot (computed). A computed plot is not predetermined by the designer, but arises out of the internal mechanics of the game. As the designer you must create a story-generation system that produces well-formed stories algorithmically. This will require heuristics or other mechanisms that prevent the system from generating absurdities. These systems offer the player maximum agency but are difficult to make.

Hybrids. It is not necessary to confine yourself to one of these structures. It is possible to build an interactive storytelling system that combines them.

Beginnings (Initial Conditions)

- **How many ways can your story begin?**
 - Singular
 - Classic storytelling
 - Dual (choose a side)
 - Plural (choose a character or starting point)
 - Infinite (completely randomized world)
- **How will you introduce the world?**
 - Narrative (scrolling text, movie, etc.)
 - Let the player explore and find clues
 - Mentor character or tutorial level
 - Dreaded “amnesia” device (No Twinkie!)

Endings

- **How many endings do you want?**
- **Do you want to leave room for a sequel?**
- **Some options:**
 - **Single (maximum emotional power)**
 - Classic storytelling
 - **Dual (win or lose, good or bad ending)**
 - Classic gameplay
 - **Plural (variety of specific endings)**
 - What determines which one the player gets?
 - **Infinite (computed results)**
 - “Final score” – based on numbers
 - Many results similar to each other.

Note that if you offer more than one ending most players will regard one of them as the “good” or “right” ending.

One problem with infinite numbers of endings is that most of them will be alike, which lacks emotional punch.

Plot Advancement Mechanisms

- **Which mechanism(s) will you use?**
 - **The passage of time**
 - Literally real-time; or
 - Plot advances by itself if a timer runs out
 - **Avatar movement**
 - (The story as a journey)
 - **Player achievements**
 - (The story as a series of challenges)
 - **Player choices or other interactions**
 - **Results of computational processes**
 - (In computed manifold plots)
- **Hybrids allowed!**

Avatar Considerations

- **What degree of specificity do you want?**
 - None (Gordon Freeman)
 - Some (Lara Croft)
 - Lots (April Ryan)
- **How do you want the player to relate to the avatar?**
 - Avatar is a role to be enacted.
 - Avatar is just a means for influencing the world, an extension of the player.
 - Avatar is a separate person in his own right; player is friend/guide.

The player's relationship to the avatar can vary considerably:

- The avatar is a role to be enacted. The player inhabits the character and brings it to life. The avatar says what the player says.
- The avatar is a tool for influencing the game world and/or plot. The player has little emotional connection to the avatar as a person; it is merely an appendage of the player in the game world. The user interface affords few opportunities to role-play the avatar as a character.
- The avatar is a character separate from, but guided and influenced by the player. The player's control over the avatar may be indirect rather than direct. The avatar may speak to the player as if the player were another person present, or as if the avatar were talking to herself. This approach is commonly found in point-and-click adventure games.

This is the end of the template.



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storytelling_reqspec_template_0_1.odt](http://www.designersnotebook.com/public/storytelling_reqspec_template_0_1.odt)

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storytelling_reqspec_slides.odp](http://www.designersnotebook.com/public/storytelling_reqspec_slides.odp)

The slides and the template itself are located here.



What have I forgotten or got wrong?

This is only version 0.1 of the requirements specification template. I would be very glad to hear from anyone who has comments, suggestions, or constructive criticism to offer.

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