Resolutions to Some Problems in Interactive Storytelling

Volume 2

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Appendix A: Research Curriculum Vita

As a space-saving measure I have separated my various works into categories.

Books and Book Chapters

Rollings, A. & Adams, E., 2003. *Andrew Rollings and Ernest Adams on Game Design.* Berkeley, California: New Riders.

Adams, E., 2003. *Break Into the Game Industry: How to Get a Job Making Video Games*. Emeryville, California: McGraw-Hill/Osborne Media.

Adams, E. & Rollings, A., 2006. *Fundamentals of Game Design.* Upper Saddle River, New Jersey: Prentice Hall.

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Adams, E., 2009. *Fundamentals of Game Design, Second Edition*. Berkeley, California: New Riders.

Adams, E. & Dormans, J., 2012. *Game Mechanics: Advanced Game Design.* Berkeley, California: New Riders Games.

Lectures

The following list includes my lectures, delivered at a variety of conferences and institutions. I have not included my pedagogical lectures aimed at students and participants in my game design workshops.

1991. "The Problems and Promise of On-Line Games". In *Proceedings of the 1991 Computer Game Developers' Conference*, privately printed, Santa Clara, California, pp. 1–5.

1992. "Programming the CD-I Player". In *Proceedings of the 1992 Computer Game Developers' Conference*, privately printed, Santa Clara, California, pp. 1–9.

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1995a. "The Challenge of the Interactive Movie". Delivered at the Computer Game Developers' Conference, Santa Clara, California. Available at http://www.designersnotebook.com/Lectures/Challenge/challenge.htm. Retrieved 16 June 2010.

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1996. “In Praise of Sex and Violence”. Delivered at the Computer Game Developers’ Conference, Santa Clara, California.

1997. “The Secret of Eternal (Product) Life”. Delivered at the Computer Game Developers’ Conference, San Jose, California.

1998a. “Putting the Ghost in the Machine”. Delivered at the Computer Game Developers’ Conference, Long Beach, California.

1998b. “Some Practical Problems of Immortality”. Delivered at the Computer Game Developers’ Conference Road Trip, South San Francisco, California. Available at http://www.designersnotebook.com/Lectures/Immortality/immortality.htm. Retrieved July 18, 2010.

1999. “Innovation: Games that Changed the Industry”. Delivered at the Game Developers’ Conference, San Jose, California.

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2001b. “Interactivity versus Narrative: This Time, It’s War!”. Delivered at Digital Media World, London.

2001c. “Will Computer Games Ever be a Legitimate Art Form?” Delivered at the Game Developers’ Conference, San Jose, California, 24 March 2001. Available at http://www.designersnotebook.com/Lectures/ArtForm/artform.htm. Retrieved 25 June 2010.

2002a. “Problems with Justice in On-line Communities”. Delivered at the Academy of Converging Media, Berlin.

2002b. “Using Game Design to Teach Effectively”. Delivered at the University of Stockholm Department of Education, Stockholm, Sweden.

2002c. “The Construction of Ludic Spaces”. Delivered at Pixelspaces, Ars Electronica, Linz, Austria.

2002d. “Why We Shouldn’t Make Games”. Delivered at the Game Developers’ Conference, San Jose, California. Available at http://www.designersnotebook.com/Lectures/Why_We_Shouldn_t_Make_Games/why_we_shouldn_t_make_games.htm. Retrieved 15 July 2010.

2003a. “Exploring the Fringes: Interactive Entertainment for the 21st Century”. Delivered at the Game Developers’ Conference, San Jose, California.

2003b. “Transmitting Meaning in Interactive Contexts”. Delivered at COSIGN 2003: The 3rd Conference on Computational Semiotics for Games and New Media, University of Teesside, Middlesbrough, UK.

2003c. “Interactivity Versus Narrative: This Time It’s War!” Delivered at the International Digital Storytelling Conference, 23 October 2003, Seoul, South Korea.

2003d. “Mobile Game Design in the Near and Far Future”. Delivered at Mobile and Ubiquitous Multimedia 2003, University of Linköping, Norrköping, Sweden.

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2004b. “The Future of Computer Entertainment to 2050”. Delivered at the Advances in Computer Entertainment Conference, Singapore.

2005a. “Interactive Narratives Revisited: Ten Years of Research”. Delivered at the Game Developers’ Conference, San Francisco, California. Available at http://www.designersnotebook.com/Lectures/Interactive_Narratives_Revisit/interactive_narratives_revisit.htm. Retrieved 16 June 2010.

2005b. “Letting the Audience onto the Stage: The Potential of VR Drama”. Delivered at the Virtual Storytelling ‘05 Conference, Strasbourg, France.

2005c. “Emerging Issues in Game Design”. Delivered at the FuturePlay Conference, Michigan State University, East Lansing, Michigan, USA.

2005d. “Developing Backwards and in High Heels”. Delivered at the Women in Games Conference, University of Abertay Dundee, Dundee, UK.

2006a. “Reality, Simulation, and Play”. Delivered at the Age of Simulation Conference, Ars Electronica, Linz, Austria.

2006b. “A New Vision for Interactive Stories”. Delivered at the Game Developers’ Conference, San Francisco, California. Available at http://www.designersnotebook.com/Lectures/New_Vision/new_vision.htm. Retrieved 21 June 2010.

2006c. “Designing for Serious Fun”. Delivered at Apply Serious Games, London.

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2007b. “Rethinking Challenges in Games and Stories”. Delivered at the Game Developers’ Conference, San Francisco, California. Available at

http://www.designersnotebook.com/Lectures/Rethinking/rethinking.htm. Retrieved 22 June 2010.

2007c. "Teachers, Computers, Games, and Designers". Delivered at the International Expert Seminar on Video Games and Learning, Santiago, Chile. Retrieved July 19, 2010, from http://www.designersnotebook.com/Lectures/Teachers/teachers.htm

2008a. "What's Next for God Games?" Delivered at the Game Developers' Conference, San Francisco, California.

2008b. "Ten Commandments for Game Development Education". Delivered at the Game Developers' Conference, San Francisco, California. Available at http://www.designersnotebook.com/Lectures/Commandments/commandments.htm. Retrieved July 19, 2010.

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2011. "A Requirements Specification Template for Interactive Storytelling." Delivered at the Game Developers' Conference, San Francisco, California. Available at http://www.designersnotebook.com/public/storytelling_reqspec_slides.odp. Retrieved 23 November 2011.

Designer's Notebook Columns at *Gamasutra*

All of the following articles have been published at the *Gamasutra* game developers' web site (www.gamasutra.com). They are all available via links at http://www.designersnotebook.com/Columns.

November 28, 1997	Dr. Livingstone, I Presume?
December 5, 1997	Why "On-Line Community" is an Oxymoron, or, Flatfoots on the Infobeat!
January 16, 1998	Not Just Another Scary Face
February 13, 1998	Games for Girls? Eeeeewwww!
March 13, 1998	Bad Game Designer, No Twinkie!
April 24, 1998	Implementing God in the On-Line World
May 22, 1998	Gulliver and Game Design
June 19, 1998	Cartographic Cartwheels
July 17, 1998	In Memoriam: Danielle Berry
August 14, 1998	The Virtual Reality Gorilla-Rhino Test

October 16, 1998	A Symmetry Lesson
November 20, 1998	Creating Opponents For Wargames
December 11, 1998	How to Get Started in the Game Industry, Part 1
December 18, 1998	How to Get Started in the Game Industry, Part 2
January 15, 1999	*Interstate '76* and the Principle of Harmony
February 12, 1999	How to Be Weird
March 12, 1999	Let's Put the Magic Back in Magic
April 9, 1999	Shut Up And Design!
May 28, 1999	The Slippery Slope of Advertising
June 18, 1999	Tolkien, Beethoven, Vision
July 16, 1999	Simplification
August 20, 1999	Reflections on the Colorado School Massacre
September 24, 1999	Designing and Developing Sports Games
October 22, 1999	I Can't Keep Up!
November 9, 1999	It's Time to Bring Back Adventure Games
December 29, 1999	Three Problems for Interactive Storytellers
January 26, 2000	Letter from a Dungeon
February 29, 2000	Some Thoughts on Archaic Language
March 31, 2000	Bad Game Designer, No Twinkie! II
May 19, 2000	Death (and *Planescape: Torment*)
July 6, 2000	Breaking the Rules
August 1, 2000	Casual versus Core
September 15, 2000	Sex in Computer Games, part 1: Seduction
October 5, 2000	Sex in Computer Games, part 2: Explicit Sex
November 21, 2000	Sex in Computer Games, part 3: Dramatic Significance
December 22, 2000	Designing Need-Based AI for Virtual Gorillas
February 2, 2001	Dogma 2001: A Challenge to Game Designers
April 9, 2001	Brian Moriarty on Text RPGs and Skotos Tech
May 21, 2001	Replayability, part 1: Narrative
July 3, 2001	Replayability, part 2: Game Mechanics
August 8, 2001	My "Next" Games: Families, Psychology, and Murder
October 19, 2001	The Day the "Fun" Became Real
January 7, 2002	Balancing Games with Positive Feedback
February 8, 2002	Bad Game Designer, No Twinkie! III
May 31, 2002	Technology Inspires Creativity: Indie Game Jam Inverts Dogma 2001!
July 27, 2002	Stop Calling Games "Addictive"!
October 9, 2002	The Role of Architecture in Videogames
November 8, 2002	The Designer's Notebook Turns Five: A Look Back
January 27, 2003	What Kind of Designer Are You?
April 1, 2003	More Sex(es) in Computer Games
April 30, 2003	Defining the Physical Dimension of a Game Setting
May 23, 2003	Bad Game Designer, No Twinkie! IV
July 2, 2003	In the Beginning Was the Word
August 6, 2003	Tuning Puzzle Games for Non-Puzzle Gamers
August 27, 2003	Not Just Rappers and Athletes: Minorities in Video Games
October 22, 2003	Hardware Designers: Talk to Us!
December 2, 2003	Inside a Game Design Company

January 16, 2004	What Evil Lurks in the Hearts of NPCs?
February 20, 2004	Random Thoughts on Mobile Games
April 2, 2004	The Best of the Game Design Workshops
May 10, 2004	Designing with Gameplay Modes and Flowboards
June 11, 2004	Bad Game Designer, No Twinkie! V
July 9, 2004	Postmodernism and the Three Types of Immersion
August 6, 2004	Kicking Butt by the Numbers: Lanchester's Laws
September 15, 2004	A Perfect Short Game
October 18, 2004	The Perils of Bottom-Up Game Design
November 15, 2004	Dramatic Novelty in Games and Stories
December 22, 2004	How Many Endings Does a Game Need?
January 26, 2005	Educational Games Don't Have to Stink!
February 23, 2005	What's On the Designer's Bookshelf?
April 1, 2005	*The Act*—Emotion Control With Single-Knob Gameplay
April 29, 2005	A Few Remarks on Creative Play
June 3, 2005	Bad Game Designer, No Twinkie! VI
June 28, 2005	A Letter from the Cockpit
July 28, 2005	You Must Play *Façade*, Now!
August 26, 2005	The Bill of Players' Rights
October 3, 2005	The Unique Design Challenge of Pinball Simulations
November 28, 2005	The End of Copyright
January 30, 2006	Multi-Level Gameplay
March 2, 2006	Strange Agents are Profiling Our Games!
April 21, 2006	Cheer Up! Video Games are in Great Shape
June 1, 2006	Introducing Ken Perlin's Law
July 10, 2006	Bad Game Designer, No Twinkie! VII
August 7, 2006	Where's Our Merchant Ivory?
September 29, 2006	Revenge of the Highbrow Games
November 1, 2006	Employees Leaving? Deal With It!
December 22, 2006	PS3 vs. Wii—The Designer's Perspective
January 31, 2007	Asymmetric Peacefare
May 1, 2007	Why Action Games Suck (And What to Do About It)
June 6, 2007	Is It Time To Dump EA?
July 17, 2007	Why Design Documents Matter
September 4, 2007	Bad Game Designer, No Twinkie! VIII
November 26, 2007	Ten Years of Great Games
March 5, 2008	Damn All Gameplay Patents!
May 14, 2008	Difficulty Modes and Dynamic Difficulty Adjustment
August 19, 2008	The Tao of Game Design
October 9, 2008	Bad Game Designer, No Twinkie! IX
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January 27, 2009	Numbers, Emotions, and Behavior
April 14, 2009	The Genre That Would Not Die!
July 9, 2009	Sorting Out the Genre Muddle
September 29, 2009	How to Write Sports Commentary
December 7, 2009	Bad Game Designer, No Twinkie! X
April 8, 2010	Selling Hate and Humiliation
May 12, 2010	Preventing the Downward Spiral

August 25, 2010	Sandbox Storytelling
October 28, 2010	Don't March, Dance!
December 2, 2010	Bad Game Designer, No Twinkie! XI
April 13, 2011	Introducing *The Blitz Online*
June 14, 2011	Eight Ways to Make a Bad Tutorial
October 25, 2011	Passion versus Professionalism

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"Of Good Guys and Bad Guys, Generals and Gangsters". In *Gamedev.net.* December 14, 2000. Available at http://www.gamedev.net/reference/articles/article1257.asp. Retrieved 18 July 2010.

"Putting Madden in *Madden*: Memoirs of an EA Sports Video Producer". In *Gamasutra.* April 26, 2002. Available at http://www.gamasutra.com/view/feature/2994/putting_madden_in_madden_memoirs_.php. Retrieved 18 July 2010.

Ip, B. & Adams, E., "From Casual to Core: A Statistical Mechanism for Studying Gamer Dedication". In *Gamasutra.* June 6, 2002. Available at http://www.gamasutra.com/view/feature/2988/from_casual_to_core_a_statistical_.php. Retrieved 18 July 2010.

"My Perfect Game". In *GameSetWatch.* May 18, 2006. Available at http://www.gamesetwatch.com/2006/05/my_perfect_game_ernest_adams.php. Retrieved 18 July 2010.

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"Celebrating the Female Game Developers of Yesteryear". In *Next Generation*. August 12, 2007. Available at http://www.next-gen.biz/features/celebrating-female-game-devs-yesteryear. Retrieved 18 July 2010.

"50 Greatest Game Design Innovations". In *Next Generation*. November 1, 2007. Available at http://www.next-gen.biz/features/50-greatest-game-design-innovations. Retrieved 18 July 2010.

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"Will Computer Games Ever Be a Legitimate Art Form?" In *Journal of Media Practice*, volume 7, number 1, 2006.

"Design Considerations for Interactive Storytellers". In Bushoff, B. (ed.) *Developing Interactive Narrative Content* (a Sagas and Sagasnet Reader). Munich: High Text Verlag, 2005. 1-18.

"Getting into the Game: Skills and Careers in Game Development". In *Game Developer 2002 Game Career Guide*, Fall 2002.

"The Four Myths of Game Design". In *Game Developer* magazine, volume 7, number 12, December 2000.

"Immortality for Game Developers". In *Game Developer* magazine, volume 6, number 4, April 1999.

"Celluloid to Silicon: A Sermon for Newcomers from Hollywood" In *Proceedings of the 8th Computer Game Developers' Conference*, April 1994.

"Programming the CD-I Player". In *Proceedings of the 6th Computer Game Developers' Conference*, April 1992.

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"Relational Database Design: A Tutorial and Case Study for Egyptologists". Adams, Ernest W. and Strudwick, N., in *Informatique et Egyptologie 7* (Paris 1990).

"An On-Site Archaeological Database". Adams, Ernest W. and Foley, Mary Ellen, in *Wissenschaftliche Zeitschrift der Humboldt-Universität zu Berlin*, 37 (1988) 3.

Appendix B: The Challenge of the Interactive Movie

Ernest W. Adams

1995 Computer Game Developers' Conference

> *[This is an approximate transcript of the text of my lecture delivered on 23 April 1995 at the Computer Game Developers' Conference in Santa Clara, California. Unfortunately, it does not appear in the* Proceedings. *I present it in this form because the nature of the material does not lend itself to the traditional paper format. Also, because the lecture is informal and to some extent ad-libbed, this is not a verbatim document.]*

Lecture begins with the final five minutes of the film Casablanca. *The movie ends, and Rick and Louis walk off into the fog.*

Thank you, that will be all. My name is Ernest Adams; this is "The Challenge of the Interactive Movie." Before I begin, I need to issue some ritual disclaimers. My lectures tend to take the form of sermons, and sermons are personal statements of belief to some extent—full of warnings and exhortations, and filled, as Shakespeare would have said, with sound and fury and signifying nothing. But we'll hope it's a little bit better than that.

In any case, this is the gospel according to Saint Adams. What you're going to hear is not the opinion of my employers. It's not the opinion of the Computer Game Developer's Conference or the Computer Game Developers Association, domini, domini, etc.

Last year at this conference, I gave a lecture called "Celluloid to Silicon: A Sermon for the Newcomers From Hollywood." To some extent, this lecture is a continuation of last year's lecture. In that lecture, I examined the Hollywood metaphor from the developer's point of view: the computer game as movie. And I determined that it was pretty seriously flawed from the developer's point of view. The reason is that linear media—books and movies—do not require engineering, and interactive entertainment does require engineering. And engineering is awkward and unreliable. And unpredictable. And slow. And the linear media don't have to put up with nearly as much of that. Engineers' schedules are all guesswork, because engineering is problem-solving, and problem-solving knows no timetable. Software engineering is worse, because as a discipline it's only about 50 years old, and there are no standard ways of doing anything. And interactive entertainment software engineering is worst of all, because we have a Christmas deadline, and most other forms of engineering don't. Vice Presidents of Marketing and so on are constantly coming to us and telling us to pull the schedules in. These are a lot of things that the folks from the linear media, who are coming into our industry have to learn to deal with. If they don't know how to deal with them, they're going to learn their shirts. And more importantly, as far as I'm concerned, their employees are going to lose their jobs.

So this year, I wanted to kind of continue the investigation of the metaphor a little bit, but looking at it from the creative standpoint. I wanted to turn it around and look

not at the computer game as movie, but at the movie as computer game, the interactive movie.

Now, "interactive movie" is one of those marketing terms that is just absolutely irresistible. Everybody knows what a movie is, and everybody knows that interactivity is way cool. Therefore, if you make an interactive movie, it must be a way cool, easily understandable thing—except that it's not, really. And since we're constantly being asked to make interactive movies, I decided to try and think about what an interactive movie really is supposed to be. What are we doing when someone comes to us and says, "I want you to make an interactive movie"? How are we supposed to respond to that?

Well, the traditional way, the typical way to try to solve these sorts of problems is to look at examples out there in the field. See what's out there and see if you can learn what an interactive movie is from seeing things that have already been done.

I've got some here. *Wing Commander!* "The most complete interactive movie ever!" It says so right here on the box. As far as I can tell, this is a kind of space flight shoot-em-up, with little bits of video in between. OK, fair enough, that's an interactive movie.

And then we've got *Voyeur!* Now this doesn't actually say "interactive movie" on the box; what is says is "cinematic multimedia." But it's probably more or less the same thing. This looks to be lots of little bits of video going on at once; you watch the correct ones and you win the game. Spoiler warning ahead: you don't win the game by watching the sex scenes. They're entertaining, especially the ones with handcuffs, but they don't really advance the plot very much.

Night Trap! The much-maligned *Night Trap*. The thing that gives Congress fits. It's essentially in the same category—lots of simultaneous video. Watch the video at the right time, you win the game.

Under a Killing Moon! Interactive movie. This appears to be primarily a graphic adventure. It has video in it as well, but it's move around through the world and talk to people and pick up stuff and do things.

And then—this one's an oldie—there's *It Came From the Desert*, a Cinemaware interactive movie. All kinds of stuff going on in here. Top-down scrolling and shooting and driving and a lot of different kinds of things.

And finally, we've got *Critical Path*. *Critical Path* is a one-pass-through sort of game; it's kind of like *Dragon's Lair* with live actors. Step off the path and you get killed—what Chris Crawford calls "the game tree of death." And finally, of course, there's *Mr. Payback*, which is a movie in movie theaters, where there's actually buttons in the chair arm, and the audience votes on how they want the plot to go. I haven't seen it. The critics have not been kind, from what I've heard.

So here we've got all these great examples of interactive movies. And what can we learn from them? What do they have in common? Well, not a damn thing. You

know, there's shoot-em-ups and driving games and graphic adventures and all different kinds of weird stuff here. If you go out and look at the interactive movie genre, you can't learn very much about what an interactive movie is supposed to be. So there isn't any canonical interactive movie, really. I mean, if someone came to me with a million bucks, and they said, "I want you to make the canonical interactive movie," I would have to say, "Well, gee, you know, I can't. I'm sorry, I can't take your money." Except this industry being what it is, I would take their money. And when I was done, I'd hand them whatever it was I'd made, and I'd say, "OK, this is the canonical interactive movie." And who's to say I'm wrong? There seems to be a lot of variety in the medium.

Let's approach it from the kind of abstract point of view. Interactive movie. What are people going to want from an interactive movie? What do our customers expect out of an interactive movie? Well, if you're saying "movie," one of the things that means to people is *story*. Our customers are going to want some kind of a story. How do you know when you're going to have a good story? I mean, we have a lot of talks at the conference, we've had them at different times, about story and about writing characters and so on—and how you're supposed to have an A plot and a B plot, and they kind of go in inverse sine waves of one another and all that kind of thing. But we want good stories, so we have to learn about how to do good stories if we're gonna do stories. That's why we've had so many of those lectures here. But I think there's another way of judging stories, a more fundamental way.

When you read a book, you make a lot of judgments about the quality of the writing: you know, is it pedestrian? Does it flow well? Does it use words in a good way—the way I'm not using them right now—in a way that's going to really convey the scene to your mind? Is the dialogue believable? That kind of thing. When we judge movies, we also judge the acting, and whether the cinematography is imaginative, and so on. We make a lot of technical judgments about movies, about the makeup and lighting and sound. But there's a sort of fundamental judgment that we make about all these things, and that is: If you walk out of a movie, having seen it—or if you put down a book, having read it—and you say to yourself, "I don't think he would have done that" or "I don't think she would have reacted to that situation in that way," then we say that that story has a flaw. There's something wrong with it; it doesn't make sense. Essentially, what this means is that any story has got to be true to its own inner laws. It has to be coherent. It has to be credible. And at any point in the story, the conditions that obtain at that point in the story have got to be rationally derivable from everything that went beforehand. I don't mean to make it sound like this is a strictly logical deduction, but it's a question of it hanging together in a single coherent way.

Mysteries are an interesting example of this, because in a mystery, what happens is, you have a whole lot of different possible outcomes—and right up until the detective gets everybody in the room at the end and reveals which one is the correct one, they've all got to be coherent. Except that they can't be coherent, because it has to be revealed to you at some point that none of them work but one. It's an incredibly difficult task to create four or five logically coherent possible outcomes which are all sort of intertangled in such a way that only one of them is really the correct one.

Again, I don't want to suggest that this is pure logic, but I do think that it's a very powerful notion.

Casablanca is an excellent example. I don't know how many of you know about how *Casablanca* was filmed, but they weren't done writing it as they were filming it. They were filming along and filming along, and the writers, Julius and Philip Epstein, had gotten themselves into sort of a pickle, because they had these two men who both had very good emotional claims on this woman, and they didn't know who she was going to end up with. They didn't know what to do about it, and Ingrid Bergman was coming to them and saying, "Now look, I don't know how to play this character. I don't know who I'm going to end up with. What's going to happen?" And they said, "We don't know. Play her like a woman who doesn't know who she's going to end up with, because that's what she is." But in the meantime, you know, filming was going on, and time was running out, and money was running out, and they had to do something. And they were driving along Sunset Boulevard in an open convertible one day—it was a beautiful day and they weren't paying any attention (there were beautiful days in Hollywood in 1943)—and they'd been racking their brains about this for several days and worrying about it. All of a sudden, in one of those kind of amazing twin-telepathy things that happen sometimes, they turned and looked at each other and they simultaneously said, "Round up the usual suspects." And from that, they said, it just all fell into place.

Basically, once they had "round up the usual suspects," they could figure their way out of the whole rest of the mess, because stop and think about what's going to happen. A crime is going to be committed that is going to let Victor get away, or Victor and Ilse get away. Some crime. Well, what crime? Well, in a story of this magnitude, there really is only one crime, you know. It has to be murder; it's not going to be embezzlement or parking violations or something. Murder is *the* dramatic crime. OK, somebody's gonna get murdered, and Victor and Ilse are gonna get away. Who's gonna get murdered? Well, look around the cast. Who's got a really big target on his back? Major Strasser, nobody likes Major Strasser; besides, he's got lots of motive for keeping Victor and Ilse in town. So, OK, Major Strasser is gonna to get murdered; now who's gonna murder him? Well, there are actually several possibilities here.

Ilse could murder Major Strasser; she's got motive. But Ilse's really exhausted, she's emotionally wrung out. She's told Rick, "Look, you do the thinking for both of us. I can't deal with this anymore." So in order for Ilse to murder Major Strasser, you'd have to do a lot of setup in order to show that something has gotten her out of that state of emotional paralysis. That would take a lot of time and energy, and that was something that they didn't have. So weed out Ilse.

Victor could murder Major Strasser; he's got lots and lots of motive. The problem with Victor is, he's so damn noble. He's a war hero and a Resistance hero and so on, but look at the way he acts—we're not even convinced he could bring himself to shoot a Nazi. So we'd have to set up more stuff for that, too.

Then there's Rick. Rick, who fled the United States under mysterious circumstances. Rick, tough, cynical Rick, who said, "I stick my neck out for nobody," but then

rigged his own roulette wheel against himself in order to help a woman out of a jam. Rick is the obvious person to murder Major Strasser. Once that's done, of course, we still have the question of who Ilse is going to end up with, but at that point it's a little more straightforward. I mean, as Rick himself says, what kind of a life is she really going to have in Casablanca? Can we really imaging Ilse staying on with Rick and tending bar in his dive in Casablanca while her husband is continuing to do important Resistance work in London? That wouldn't end up really feeling right. And so, we decide that Ilse is going to go on with her husband, and Rick is going to go and join the French Foreign Legion, or whatever it was. It all kind of fits together, it makes sense. And it's not as if that's the only ending *Casablanca* could have. But it's an ending that derives naturally out of "round up the usual suspects" without doing a lot of extra work. It *just fits*, it's easy to create. Of course, I'm saying all this in hindsight, mind you. I mean, as you're watching the movie, you still don't know what's gonna happen. It's not as if the movie is predictable. But when it's done, the movie is satisfying. We agree that it makes sense. And that's the kind of thing I'm talking about with this business of internal coherency.

So what does all this have to do with interactivity? The answer is, *nothing*. Interactivity is about freedom. Interactivity is about giving your player things to do and letting your player do them. The whole point of interactive media is letting the player do something on his own. What that means is that a lot of times your player is gonna jump off the rails and go off and do completely weird, unanticipated stuff. That theory doesn't work very well with stories. I mean, let's take Superman. Now, Superman is a character who is congenitally incapable of ignoring a baby who's crying in a burning building. You know, if there's a baby crying in a burning building, Superman has got to go get that baby. He never says, "You know, I'm gonna let somebody else deal with this one this time." But what if my player is playing Superman? I'm being Superman in some sort of interactive game or an interactive movie. Here's the burning building. Do I run in and save the baby? Well, I have to if I'm Superman, but if I don't do it, then I've violated Superman's basic nature. There's this problem that arises, where the player may not be terribly interested in what you think is supposed to be *your* plot for them, or they may have something else that they want to do that doesn't fit. It's a tough one. How do you make sure that the player is going to do something that is coherent, that goes along with *your* plot, the thing that you have designed for them? That's something to think about. We'll leave it for the time being.

There's kind of another problem as well. I'll read you what I have in my notes. I kind of wrote these in a hurry. It says: "How to make sure everybody reaches climax at the same time?" What I actually mean by this is, remember in seventh grade English when they were teaching about stories, and they said there was an introduction and there was rising action and there was a climax and there was falling action and there was a conclusion and so on. Every story has a dramatic climax; you know, a moment when whatever it is that's gonna happen is gonna happen. In that story, everything that has got to be ready for that to happen, happens ahead of time. You have to put it all together and make sure that everything is ready there for it to take place. If you're the author, you know that that's going to happen in the linear story because

everybody's riding your train; they're all there, and you do whatever you want to do, so they get there and they do whatever it is that's going to happen.

But in the case of interactive media, there's somebody who's out of your control, and that's the player. How do you make sure that when the dramatic climax is ready to take place in your interactive story, your player is there and ready for it? Well, there are three traditional solutions to this problem in the interactive medium. A very simple one is, you just limit the interactivity. You say, "I'm sorry, you can't get off the rails." You either just cut down the interactivity so that they can't get off the rails, or you give them a lot of interactivity but it's all meaningless—they're not able to get away from the plot, the interactivity doesn't really affect anything. The third thing is—and this is how *Critical Path* works—you kill 'em. The player does something that's not part of your plot, BAM! They're dead.

I don't think these are tremendously acceptable options. I mean, reduced to the sort of minimal example, the game turns into "hit ENTER to see next screen." Besides, reducing interactivity is not really what we're supposed to be about here, is it? Is that what people are going to want from an interactive movie—very little interactivity?

The second classic solution is that you say, "Too bad. The player's not ready for the dramatic climax, tough." You know, the world goes on around them. And this makes for some really interesting adventure games, because in most of the adventure games, the world is kind of static, and it does things when the player does things, and that's all there is to it. But in some adventure games, the world goes on ahead. Night falls, and people come out of their shops and go home, and the muggers come out, and so on. It's interesting to watch things take place around you in one of these kinds of games. The difficulty with that is that you tend to lose a lot. Let's take the sort of absolutely canonical story, updated for California sensibilities, where the beautiful princess is going to go and rescue the handsome prince from the fearsome dragon. Here we've got the beautiful princess, and she's wandering around the castle. (Or, rather, *I'm* wandering around the castle; *I'll* just be the beautiful princess here.) I'm looking around, seeing what's in my castle. Why look, here's a suit of armor. How do you put these things on, anyway? Geez, there's a lot of stuff here—you know, the gauntlets and greaves, the helm and breastplate, and so on and so forth. It's complicated. Up pops a message on the screen: BAM! Sorry, you lose, the dragon ate the prince. Oh, OK. Well, back to the game. I know my way around the castle now, so I'll run to the armor, and I'll put on the armor, and I'll go out into the yard, and there's my horse—and how the hell do you get onto a horse while you're in a full suit of armor? OK, better look around the castle yard for a while to see what we've got here. Oh, there's a winch. Maybe I could use that to—BAM! The dragon ate the prince. OK, back to the beginning. Run to the armor, into the armor, out to the yard, winch myself up onto the horse, out of the castle gates and head out into...the enchanted forest. OK, so here we are, we're going through the enchanted forest, and we're fighting off the evil trees and so on, looking for the magic sword, looking for the magic sword—BAM! The dragon ate the prince. Back to the beginning. OK, into the armor, out to the yard, onto the horse, into the forest, out of the forest, head up into the mountains, gotta be a cave around here somewhere. BAM! The dragon ate the prince.

Gee. That's a lot of fun.

How many of you people, when you sit down to read a book, read page one; and then page one and page two; and then page one, page two, and page three?

There's a classic workaround to that problem, and it's called "save game." I talked about the process of appreciating and understanding a story. That process is a process of *suspension of disbelief*. For a brief period of time, I'm going to believe this pack of lies, this fiction. When something comes along that screws up your suspension of disbelief, you say that the story has a problem. Violations of its internal consistency, like I mentioned before, are a perfect example of that. So here I am, I'm fighting off the evil trees in the enchanted forest with my magic sword, and every five minutes I've got to stop and have a little interaction with my hard disk drive. Talk about destroying your suspension of disbelief. So I don't think that's really a terribly satisfactory answer either.

The third classic solution to this problem is the canonical adventure game solution, and that is that you make the plot advance with the player's advances. This *absolutely guarantees* that the player is gonna have everything they need when they get to the point at which the dramatic climax is gonna take place. They've got the magic sword and all the rest of it, they're there, they're ready. If they don't have the magic sword, there's no way they can get there; the plot simply doesn't go anywhere. It's easy. You just link up their actions to the advancement of the plot. The difficulty is that it's mechanistic. It turns the game into a series of puzzles to be solved, and once you've played two or three of these games, you can really see it. You know—nothing seems to be happening; I must be doing something wrong. When I do something right, then interesting things happen. When you go down to the movie theater, do they stop the movie and say, "OK, now you all have to do the crossword on page three of the program before we'll show the next reel"? Is that really what people want from interactive movies? I'm not sure that it really is.

In fact, John Fowles, the author of *The French Lieutenant's Woman*, has written something very interesting and cogent about interactive entertainment in *The French Lieutenant's Woman*. It was written in 1968, and I doubt if he'd even seen a computer at the time, and he wasn't really talking about interactive entertainment. But he was writing along, and he got to chapter 13, and he got himself into sort of a mess because he had in his plans: "Chapter 13—unveiling of Sarah's true state of mind." And he got to chapter 13 and he realized, "My God, Sarah is not the kind of character who would simply do this. Sarah is very enigmatic, and I can't just do that, so I'm going to have to do something else." What he did was, he stopped, and he started writing all about novels. In chapter 13, he just takes time out to write about novels. But he says something in here that I think is very interesting. He says: "...we wish to create worlds as real as, but other than, the world that is. Or was. This is why we cannot plan. We know a world is an organism, not a machine. We also know that a genuinely created world must be independent of its creator; a planned world (a world that fully reveals its planning) is a dead world. It is only when our characters and events begin to disobey us that they begin to live." He goes on a little bit later and says, talking about the novelist as a god (and we can talk about ourselves as games designers as gods): "...what has changed is that we are no longer the gods of

the Victorian image, omniscient and decreeing; but in the new theological image, with freedom our first principle, not authority." Now if that's true for novels, as he's writing about, then how much more true is it for us? That freedom is the basic underlying principle of interactive entertainment—giving the player something to do. So there's kind of another problem, this mechanistic world, this planned world. That doesn't feel like a terribly good solution to the problem of how you get the player to the dramatic climax at the right time.

Then there's a third problem, which is simpler; I just call it the problem of amnesia. And that is that the characters *in* a story belong in their world. They know what's going on in their world, they're part of their world. They know what's in all the drawers in their apartment. They know what's in all the shops in their town. They don't get up and wander around their apartment opening all the drawers to see what's in them; they don't have to wander all over town to see what's there. And in particular, they don't pick up everything they see and stick it into their pockets. But that's not true of the player in interactive entertainment, is it? The player in interactive entertainment has *no idea what is going on!* They have amnesia. The first thing they have to do is do all this exploration. Various games have been written to actually take advantage of this kind of thing. There was a game called *Amnesia*, and it started off with a player who had amnesia. There was another game, based on a series by Roger Zelazny, *The Chronicles of Amber*. The books were about a person who started with amnesia, and they made a computer game that started the same way. It was a pretty decent computer game. But if you go down to the bookstore and you ask, "Show me all the books that start with a person who has amnesia," there aren't really a lot of them, you know; it's not a really big genre. I don't think that's really the way to do things. We've got a problem here with that. We've got this person who has no idea what's going on, and they spend all this time fooling around, trying to figure out what's going on, when the characters in real books and real movies just charge ahead into their adventures and do whatever it is that they're gonna do. There are two classic genres of books and movies where characters *do* start off not knowing what's going on: that is, mysteries and heroic quests, where a lot of the book is about finding things out and solving them. And surprise, surprise, what are the vast majority of adventure games? They're mysteries and heroic quests.

So here we've got these three problems. We've got this problem of logical consistency, or at least internal consistency. We've got this problem of narrative flow, of getting the player to the dramatic climax, all prepared for the dramatic climax. And we've got this problem of amnesia.

At this point, you're probably expecting me to offer you some solutions to these problems. But I'm not going to. I told you that this was a sermon, but I neglected to tell you that it is a heretical sermon. I don't think these problems have solutions. In fact, I don't think there is any such thing as an interactive movie.

I think, in truth, interactivity and storytelling are in an inverse relationship to one another. I don't actually want to say that they're mutually exclusive, but I do think that the more you have of one, the less you're going to have of the other, and vice versa. Basically, what we've got here is a sort of a Heisenberg uncertainty situation going on. Also, I don't think these problems that I've described are problems to be

solved. They're not challenges to be overcome. I think what I have described here are actually fundamental characteristics of the nature of the different media. Interactivity is one way; storytelling is another way; and that's just the way they are.

This might all kind of sound like abstract philosophizing—you know, he's just sort of going off into the ozone; he's not really talking about how much the profit margin is and all the important things that go on in game development—but I think it's important. I think we need to think about it. I think these problems are very serious problems, and they deserve very serious attention. And so I want to try to explain why I think we need to give it a lot of thought. And to do that, I want to talk about interactivity itself.

If you go to Berkeley, and you drive up past the University of California there, and you go up Strawberry Canyon, and on the left you pass the football stadium, and then you pass the big atom-smashers, where the berkelium and lawrencium and californium were discovered, and the road starts to narrow and starts to wind, and you go on up and up, and you pass the Botanic Gardens on your right, and it begins to get steep, and you're going up and up and up, and eventually you come out on a plateau where there's a spectacular view of the whole Bay Area from the top of the Berkeley Hills—and there's a really ugly concrete building. And this is the Lawrence Hall of Science. Now, when I was 10 years old, I went to the Lawrence Hall of Science for the first time. I went in, and I looked around at all the exhibits, and I enjoyed myself. I had some extra time left, and I had noticed that there was this sign down at the admissions desk that said: "Computer Games: $2 an Hour." Well, "Computer Games: $2 an Hour," that sounded pretty interesting. I'd been given a book about computers by my parents when I was eight years old, and so I was pretty intrigued. But $2, man, that's two whole weeks' allowance. I'm not sure if this stuff is worth it. But, OK, I'll give it a try. So I paid my $2, and I went down into this little room, down in the basement of this ugly concrete building. And there were all these teletypes, ranged along the walls. It was fluorescent lighting overhead, and it was totally windowless, and there was linoleum on the floor. And I sat down at this teletype. You ever use a teletype? Let's see the hands.

All right! Looks like about 50%. Well, you remember, then. It's not really like an electric typewriter, is it? You know, it's got these big round buttons, and it stands up tall and goes *bzzz bzzz bzzz* when you push it, and there's this thing that goes along, *chuga chuga chuga chuga chuga*, and it comes to the end of a line, *ching WHAM!* It rattles and it vibrates and it smells like machine oil and ozone. So I sat down at this thing—it's got the yellow roll paper and this little cylinder that prints all in upper-case letters at 110 baud. I typed in XEQ-$ LUNAR, and I pressed the return key.

Half an hour later, I had landed on the moon.

And I had fought the Klingons in a massive space battle, with phasers and photon torpedoes and shields.

And I'd built a dragster, and I'd raced it, and I'd redesigned it and I'd raced it again. And I'd governed ancient Sumeria. I'd watched my population thrive in good years and die in bad years, and I'd known the despair of losing my harvest to the rats. I'd

done that in half an hour! Sitting there with my noisy, vibrating, smelly machine, in my windowless room with the fluorescent lighting overhead and the linoleum underfoot. And the *power* and the *potential* of this medium just shone out! This was the most amazing thing that I had ever seen, and I had to do it. And that's why I'm doing this. That's why this stuff is so important. It's because the power of the medium to take a person away to a wonderful place and let them do an amazing thing overcomes little obstacles like upper-case letters on yellow roll paper. Interactivity gives that power. Stories can take you away to a wonderful place, but they can't let you do an amazing thing. That's what makes this medium unique, and that's what makes it important.

There are a lot of people that don't really understand that. There was a guy who came to me a couple of years ago, and he was interested in developing some sort of computer game. This was when the Joseph Campbell documentary had recently aired, and there was a lot of interest in it and talk about it. He wanted to develop some sort of interactive entertainment or some sort of interactive experience based on that, the hero's journey and the power of myth. He had all this stuff written out about the kinds of things he wanted to explain and to show. We sat down and we talked about it, and he had lists of words, of concepts that he wanted to have in there. And I said, "Yes, but what is the player going to do?" And he took out his papers and said, "Oh, but I've got all this wonderful stuff, and it's going to be all about all this interesting stuff, and these are all these ideas that I want to express." And I said, "Yes, but *what is the player going to do?*" We eventually kind of had to give it up. He couldn't wrap his mind around the fact that the player is supposed *do* something, and that's where you start: thinking about what the player's going to do.

This is not an uncommon misconception. Last November, there was a television awards show on Turner called the Cybermania show. In the middle of the Cybermania show, which had various interesting things—for example, *Doom* was in the same category as *Myst*—there was about a two-and-a-half-minute thing about How Computer Games Are Made. It was one of those highly annoying quick-cut, flashy, MTV-style things for people with no more attention span than a gnat. And they had a list, a numeric list, of how a computer game gets made, and I want to read you the contents of this list. Number one: idea generation and brainstorming. Sounds good to start with. Number two: script writing. Number three: storyboarding. Number four: video shoot on blue screen. Number five: backgrounds get drawn. Number six: merger of video and backgrounds. Seventh and last: programming. "That," they found some moron to say, "is where they put the interactivity in."

NO!!! That is wrong! Interactivity is not something that you put *in*! It is not something that you tack *on*! Interactivity is what gives this medium its uniqueness and its power. Now, you can borrow a lot of things from the movies—you can borrow character, and you can borrow setting, and theme and music and dialogue, to some extent—but you cannot borrow *plot.* Plot is *not yours to control*. The plot is what the player is supposed to be doing. Your job is not to define what the player is going to see or hear; your job is to define what the player is going to do. And this is true not only from a philosophical standpoint, it's also true from an engineering standpoint. You can't shoot all the video and draw all the backgrounds first, and then

do a little programming at the end and have it work. You *have* to design them at the same time, and you *have* to start the programming first.

We are standing on the threshold of a whole new era of human enrichment. We're standing in the footsteps of the Cro-Magnon person who picked up the red ocher and first drew the bison on the cave walls, or the Sumerian who decided that the marks on the clay tablets were going to mean something, or Jane Austen, who invented the novel, or Louis Daguerre and his photographs, or Thomas Edison with the kinescope. We stand in the footsteps of those people. We're basically doing the same kind of thing that they did. *Don't you dare* treat interactivity as some kind of an afterthought!

Now, I know that the folks in Hollywood have got a lot of content that they would like to make a few more bucks out of. And that's OK. But some of them think that they can come into this industry, and they can just slap on a little bit of interactivity, and that's gonna be all right, you know. And what's gonna end up happening is that they're going to turn out a lot of really crappy product. Interactivity is hard to do well. It requires thought and attention. If that's the best that you can do, go back to making TV movies-of-the-week. Don't come into our industry and turn out a lot of really crappy product. This industry was destroyed 12 years ago by a bunch of ignorant greed-heads who came in and decided, "We'll just crank out millions and millions of copies of garbage, and everyone will buy it and be happy." And there was a huge crash, and a lot of people lost their jobs. I don't want to see that happen again. Don't *do* that again!

What is the challenge of the interactive movie? The challenge of the interactive movie is *not* to solve all those problems. The challenge of the interactive movie is not to be fooled, not to be led astray, not to waste huge quantities of time and energy and money worrying about what an interactive movie is supposed to be. The challenge of the interactive movie is to make fabulous entertainment *in spite* of the fact that the marketing department is going to stick the "interactive movie" label on whatever it is that you make.

Your job is ***not*** to *tell stories*; your job is to *build worlds in which stories can happen*.

Your job is to create playgrounds… for the mind.

Appendix C: Three Problems for Interactive Storytellers

By Ernest Adams
Gamasutra
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> *[This article reprises and expands slightly upon the ideas in "The Challenge of the Interactive Movie." (Adams 1995, B) I wrote this for* Gamasutra *because the lecture was not originally available in print form.]*

Last month's column on adventure games brought such a strong response, I thought I'd discuss an important related issue while I still have everyone's attention.

Interactive storytelling has been a subject of hot debate since computer games were first created. Many of the early game developers were programmers with no experience at writing fiction, so there was a real shortage of talent at creating things like character and pacing and plot. Since then professional writers have entered the industry, and the quality of our storytelling has improved somewhat.

Despite that, however, there's still a larger philosophical question looming over the subject: "What does it mean to say that a story is interactive?" It's a question that remains unanswered. You could argue that no answer is needed—adventure games tell stories, and they are interactive; therefore they constitute interactive storytelling, and no further discussion is required. The problem is that most adventure games tell rather poor stories. We've never yet seen an adventure game that was the caliber of works by Dickens or de Maupassant.

I believe that interactive storytelling suffers from three very serious problems, and they're clearly visible in adventure games today.

The Problem of Amnesia

This is the simplest and most obvious of the problems. In a normal, non-interactive story, the characters belong in the world of which they're a part. They understand that world. They know what's in all the drawers in their apartment and what's in all the shops in their town. When they first get up in the morning, they don't start their day by opening up every single closet to see what's in it, nor do they pick up every object they see and stick it in their pockets in case it might come in handy later.

But that's not true in adventure games, is it? When you play an adventure game, you have no idea what is going on. You have amnesia. Even if start the game in your own home, you have to explore it. You don't know what's going to happen to you, so for safety's sake, you pick up everything you see, and you end up carrying around a collection of objects that make you look like a demented bag lady. (Consider the original *Adventure*: a lamp, a birdcage, a wooden rod, an axe, some gold coins, a bottle of oil...)

A few games have actually been written to incorporate this problem into the plot. There was a game simply called *Amnesia*, published by Electronic Arts; and there was a game based on Roger Zelazny's series of fantasy novels, *The Chronicles of Amber*, which started with a character who had amnesia. But let's face it, this isn't a major genre of literature. There are very few novels about amnesiacs. In most stories, the characters just charge ahead and have their adventures, and it's up to the author to make sure they're carrying whatever they need to survive them (*if* they're going to survive them).

There *are* three types of stories in which the characters start empty-handed and ignorant, and have to figure things out on their own. One is the rookie-in-a-new-situation story—the new recruit who's just joined his ship in the Navy, or the gunslinger who's just been made sheriff of the western town. In these cases it makes sense that the protagonist has to do a lot of exploring before he can accomplish anything. The other two are mysteries and heroic quests—both situations that involve a lot of talking to strangers and examining unfamiliar objects.

It makes sense, then, that most adventure games are, in fact, mysteries, heroic quests, or new-kid-in-town scenarios. There's nothing particularly wrong with that, but it does mean that the genre is limited by the amnesia problem. We may be able to create interactive stories, but we can't create any kind of story we want.

The Problem of Internal Consistency

When we judge a work of fiction, we judge it on a number of things: are the descriptions clear? Is the dialog believable? Does the writing flow smoothly? And so on. But we also make a more fundamental sort of judgment as well. If you walk out of a movie, having seen it, or if you put down a book, having read it, and you say to yourself, "I don't think he would have done that" or "I don't think she would have reacted to that situation in that way," then we say that the story has a flaw. There's something wrong with it; it doesn't make sense. Any story must be true to its own inner laws. It has to be coherent. At any point in the story, the circumstances at that point have got to be consistent with everything that went beforehand.

Mysteries are an interesting example of this, because in a mystery, you have a lot of different possible explanations for the crime, and right up until the detective gets everybody in the room at the end and reveals which is the correct one, each explanation has got to seem plausible. But the rules of the genre require that only one of them may actually work; the rest must be logically impossible, and furthermore the author must have shown all the clues to the reader. It's a very difficult task to create four or five apparently consistent possible explanations, and introduce them to the reader in such a way that the clues are all there, but the reader is still surprised to learn which is really the correct one.

This requirement for internal consistency isn't a matter of pure logic, of course. I don't mean to suggest that at every point in a story the circumstances should be rigidly derivable, like a mathematical proof, from what came before. But if you look back at a story, it should be consistent. Stories shouldn't be predictable, but they should make sense in a satisfying manner.

So what does all this have to do with interactivity? The answer is, *nothing*. Interactivity is about freedom. Interactivity is about giving your player things to do and letting your player do them. The whole point of interactive media is letting the player do something on her own. What that means is that a lot of times your player is going to jump off the rails and go do completely weird, unanticipated stuff. That doesn't work very well in stories.

Consider Superman. Superman is a character who is congenitally incapable of ignoring a baby who's crying in a burning building. He never says, "You know, I'm gonna let somebody else deal with this for once." But what if our player is being Superman in a computer game? Here's the burning building. Do he run in and save the baby? Well, he has to if he's Superman, and if he doesn't do it, then he has violated Superman's basic nature. There's this conflict that arises between the player's desire to do as he chooses, and your desire to impose a plot and characterization on him. It's a tough one. How can you be sure that the player is going to do something that is coherent, that goes along with your story?

The Problem of Narrative Flow

As we all learned in junior high school English class, every story is supposed to have an introduction, rising action, a climax, falling action, and a conclusion. It's the business of the story's author to structure it in such a way that it builds to a dramatic climax—an action, confrontation, or other event which resolves the story's inner tension. One of the problems an author faces is making sure that all the characters involved are ready—psychologically and physically ready—for the dramatic climax to take place. If he doesn't, then we read the story and say, "Wait a minute—where'd that knife come from?" or "How did he know the villain would be hiding in the hall closet?"

With ordinary fiction, this is a challenge, but at least you as the author are fully in charge. The characters have to go where you tell them, to know what you want them to know, because they're all part of your picture. You set up the pieces, interlock them like parts of a jigsaw, and when the puzzle is complete the picture is formed; the dramatic climax takes place.

You can't do this in interactive stories. There's one character who's outside your control as an author, and that's the player. The player is doing whatever he wants, and taking as long or as little time about it as he likes. How do you make sure that when the dramatic climax takes place in your interactive story, your player is there and ready for it? This is the Problem of Narrative Flow.

There are three traditional solutions to this problem in adventure games. One very simple one is to limit the interactivity. You either cut down the interactivity so that the player can't get away from the plot, or you give them a lot of interactivity but you make it all meaningless—the interactivity doesn't really affect anything.

I don't think this one is an acceptable option. Reduced to the minimal case, the game turns into "Hit ENTER to see next screen." Limiting interactivity is not what we're supposed to be about here. A few games have actually done this, but they were

universally acknowledged to be bad games—certainly not the ideal example of interactive storytelling.

The second traditional solution is that you say, “Too bad. If the player’s not ready for the dramatic climax, that’s tough.” In this case, you can create a world that’s alive, that goes on around the player, regardless of what he’s doing. This makes for some really interesting adventure games. Night falls, and people come out of their shops and go home, and the muggers come out, and so on. It’s interesting to watch things take place around you in one of these kinds of games. The difficulty with them is that you tend to lose the game a lot. You end up having to start over all the time, because you weren’t ready for the dramatic climax when it occurred. But that’s no way to present a work of fiction! Nobody reads a book by reading page one; then starting over and reading page one and page two; then starting over again and reading page one, page two, and page three, and so on. It would drive you crazy.

There is of course a workaround to that problem, and it’s called “save game.” But saving the game utterly destroys my suspension of disbelief. If I’m fighting off the evil trees in the enchanted forest with my magic sword, I don’t want to stop every five minutes and have a little interaction with my hard disk drive. Saving the game makes it unnecessary to restart over and over, but at the expense of taking me out of the world I’m trying to belong to. I don’t think that’s a satisfactory answer either.

The third traditional solution to the Problem of Narrative Flow is the classic adventure game solution, and that is to make the plot advance along with the player’s advances. This *absolutely guarantees* that the player will have everything he needs when he gets to the dramatic climax. If he needs the magic sword, then he’ll have the magic sword, and if he doesn’t have the magic sword, there’s no way he can get to the dramatic climax; the plot simply doesn’t go anywhere. It’s easy. You just link up the player’s actions to the advancement of the plot.

The difficulty with this solution is that it’s mechanistic. It turns the game into a series of puzzles to be solved, and once you’ve played two or three of these games, you can really see it. If nothing seems to be happening, you must be doing something wrong. When you do something right, then interesting things happen. The flow is jerky, stop-start. You as the player can do what you like, but you don’t have the sense of being carried along by the story; in fact it’s quite clear that you’re not in the story, the story is an external mechanical object that only progresses when you do the right things. It’s rather like trying to operate a VCR with unlabeled buttons.

Conclusion

You might think at this point that I’m going to offer some solutions to these problems. But I don’t have any solutions, and I’m not certain that there are any solutions. I won’t go so far as to say that interactivity and storytelling are mutually exclusive, but I do believe that they exist in an inverse relationship to one another. The more you have of one, the less you’re going to have of the other.

In its richest form, storytelling—narrative—means the reader’s surrender to the author. The author takes the reader by the hand and leads him into the world of her imagination. The reader still has a role to play, but it’s a fairly passive role: to pay

attention, to understand, perhaps to think… but not to act. A good story hangs together the way a good jigsaw puzzle hangs together when you pick it up, every piece locked tightly in place next to its neighbor. But it ill tolerates any fiddling. Remove a few pieces, and it's likely to fall apart.

Interactivity is not like this. Interactivity is about freedom, power, self-expression. It's about entering a world and changing that world by your presence. In most games the world is static and dead until the player arrives; the player is the *only* thing that makes it move. Interactivity is almost the opposite of narrative; narrative flows under the direction of the author, while interactivity depends on the player for motive power.

This doesn't mean that I'm backing down from my call for the game industry to create more adventure games—far from it. But I recognize that adventure games, at least at present, tell only a limited kind of story: the mystery or quest. We can't yet make an adventure game about a troubled family or a young man's slow descent into madness. Adventure games have to sacrifice some of the best things about stories for the sake of interactivity.

I think adventure games should be just that: games about adventures. They should give the player a sense of achievement and accomplishment. They're about doing, making a difference. This does *not* mean that they have to be shooters or twitch games, only that the player and her actions are the most important things in the game. In computer gaming, you subordinate the player to the plot at your peril.

It's not our job to *tell* stories. It's our job to build worlds in which players can live a story of their own creation.

Appendix D: Eurostylin': An American Game Designer in Europe

Ernest W. Adams

2000 Game Developers' Conference

> *[This is an approximate transcript of my lecture at the Game Developers' Conference on March 12, 2000 in San Jose, California. When it was given, another American game designer for Bullfrog Productions, Chuck Clanton, joined me to present some of his observations on British and American humor. His material is not included in this transcript.]*

Introduction

Good morning. My name is Ernest Adams, and this is "Eurostylin': An American Game Designer in Europe."

Before I get started, a couple of disclaimers: what I'm about to say is entirely my own opinion, and not the opinion of Bullfrog Productions Ltd. Also I want to warn you that a slide containing full frontal nudity will be shown, so if that gives anyone problems, make your escape now.

Finally and most importantly, I warn you that this lecture isn't going to be exactly as described in the program. If you came in here expecting some sort of detailed how-to session on localization, you're not going to get one, and I wanted to tell you that now while there's still time to find another lecture.

By way of explanation, let me tell you how this lecture came about. I actually submitted two other speaking proposals for this year's conference. But then I learned that I was going to be transferred to Britain to be a full-time game designer at Bullfrog. "Oh, great," I thought. "I'll go over there and I'll learn all kinds of fascinating things about European games, and I can come back and tell the folks at the GDC all about it." So, almost as an afterthought, I put in one more speaking proposal, which was this one, and this was what the advisory board selected.

Unfortunately, when I got to Britain I found that I was incredibly busy starting up a new project and learning how to live in a new country, and I simply didn't have the time to buy and play all the European games and compare them to American games. What I'm going to give you instead is a disconnected series of reflections on European and American culture, and how I think they might affect game design.

I write a monthly column on game design for the *Gamasutra* webzine, and it generates a fair amount of E-mail, including E-mail from overseas, and some of it's pretty entertaining. This is actually one of my favorites:

> *... I think the average American must be DUMB AS A ROCK!!! You guys decided to stop teaching evolution in your schools in Kansas City, and now you want to put the Ten Commandments in the classrooms??!! My God, it's like going back to the DARK AGES!!! The rest of the world stopped relying*

on the Ten Commandments to form their culture when the RENAISSANCE came, FOUR HUNDRED YEARS AGO!!!

– <name withheld>, Brazil

I hasten to add that the capitalization and punctuation is all in the original. That's one of those letters that requires either a ten-page answer or none... guess which one the guy got.

Anyway, I save all the mail, and when I realized that I wasn't going to have time to buy and play a lot of games, I sent out a survey to some of the European professionals who had written to me. As I present my reflections on European and American culture, I'll illustrate them with quotes from some of the letters I got back. I've made minor corrections to the spelling and grammar where necessary, but I'm impressed that all these people could write to me in English—I certainly couldn't write to them in French, Swedish, etc.

Innovation versus Execution

The key question I asked was a simple one: "What do you think makes European games different from American ones? Consider anything and everything." First I'll talk about a couple of items that came up several times in the responses. Interestingly enough, the general consensus of opinion among my correspondents was that Americans make more technically proficient games, but Europeans make more innovative ones. Here's a sample quote:

While a European developer cares about story and dialog, Americans care about frame rate, Direct 3D compatibility, 3D sound, fast networking, great visual effects and trash metal hardcore music... Europe has a tendency to create "innovative games, badly presented."

– Mickaël Pointier, Eden Studios, France

Most people agreed that for sheer quality of presentation, American games are the best in the world. We have the biggest budgets, we have the best equipment, and we definitely have the most powerful marketing and advertising organizations. The Europeans think our special effects and explosions are really cool. However, they generally felt that we tend to stick to well-established genres, that we don't take risks, and that our storytelling is namby-pamby and limited by pressure from the religious right. More than one person told me that he thought European games were made with more "heart" and more "love"—that Americans make games that we know will sell, regardless of whether we actually like the game.

I think they're probably right about this, and for reasons that we all already know: big budgets mean that publishers are more conservative and less willing to take risks. The European business, being smaller and younger, still has the kind of creative freedom that we had five or ten years ago.

War and History

Memorial Day in the United States: you can picture the scene. The President lays a wreath at Arlington, some war heroes give speeches, there are a few parades, and everybody fires up the barbecue. That's not the way it is in Europe—at least in Britain. To start with, their Remembrance Day is on November 11th (what we call Veteran's Day, although most of us don't even get it as a holiday). November 11th is the day World War I ended, and they don't move it around for the convenience of people who want to have a three-day weekend.

On Remembrance Day, people wear poppies in their lapels, a reminder of the poppies that grew wild between the trenches in Flanders during the First World War. But it isn't just a few politicians or old soldiers who wear them. It's everyone: all ages, all social classes, all professions. Even the news readers on TV wear them. In America, Dan Rather would never wear some kind of a symbol while he was broadcasting, but in Britain, all the TV personalities do—newsreaders, talk show hosts, everyone. And not just for a day. Nor even for a week. For most of the month of November, people wear these poppies in remembrance of their war dead.

If you travel around the United States, you'll see a few war memorials here and there, but not very many. Of course there are the big ones in Washington, but you have to go there to see them. Otherwise, there aren't many to see.

In Britain, war memorials are everywhere. Every town, every village, will have one. In the town square, in civic buildings, and of course in churches. If they don't have a stone plaque, they have a beautifully-calligraphed book on display, with page after page after page, filled with the names of the dead. And in addition to the public memorials there are the private ones. Businesses and even railroad stations will have a memorial listing the names of their employees who were killed.

When you go over to the Continent it becomes even more poignant—the memorials start listing the names of civilians: hostages, shot by the occupying forces in reprisal for the activities of the Resistance.

The wounds of war are deep and painful, especially in a place where the war has actually taken place. America hasn't had a war on its mainland since 1865, the Civil War, and yet even so, the wounds of that war are still with us. The Confederate flag still flies over the South Carolina statehouse. My wife's grandmother was born around the turn of the century—she was far too young to remember the Civil War. But she heard about it from her parents and grandparents. Like a good many other southern ladies, she kept a dagger in the house as the defense of last resort for protecting herself from being raped by Yankee soldiers... and this was in the 1960's, a hundred years after the war was supposedly over.

Europe experienced two horrendous wars on its soil in the 20th century, and various smaller ones as well. The scars are still there. There are still people alive today who are suffering from what we would now call post-traumatic stress disorder, as a result of living through the Blitz. The Second World War was not that long ago. Only fifteen years before I was born, Auschwitz and Dachau were up and running. Fifteen years. That's less time than I've been a professional software developer.

What does all this mean for game design? Well, one of the consistent complaints I got was that Americans are ignorant about history and geography.

> *Geographical areas, different types of cultures and different ages are swept together in a cascade that I as a European find inconsistent and immature. Americans... tend to mix Vikings with Romans and to make it more spicy they throw in a few Mongols and a pink dragon for the fantasy touch.*
>
> *– Michael Stenmark, Hidden Dinosaur, Sweden*

Europeans are of course steeped in history; they're surrounded by it all the time; they learn it thoroughly and they take it seriously. As for geography, they have so many countries packed into so small a space that they can't help but learn it.

This is what I got, independently, from two different guys in Ireland:

> *Do your homework if you're going to tackle Irish history.*
>
> *– Shane Whelan, Ireland*
>
> *If you haven't done your homework it might turn out really nasty.*
>
> *– David Stafford, Ireland*

I think I know a veiled threat when I hear one...

Now, is the average European teenager filled with angst by two world wars? Of course not. But that teenager does know his history. If you screw it up, he's going to know. And of course, we don't only sell to teenagers any more.

This is a legitimate concern. If somebody in Europe make a game that mixed up the Korean War with the Vietnam War, or got the locations of Utah and Colorado backwards, we would certainly think that they were incompetent. If we want to sell in Europe we need to get right those details that matter to the Europeans.

Class and Accent

Now I'm going to talk about some observations about European culture generally. And I'm going to start with newspapers. In US, newspapers are divided by geographical region. We have hundreds of newspapers, but only three national ones: the *Wall St. Journal*, the *Christian Science Monitor* and *USA Today*, if you can call that a newspaper. The *New York Times* likes to pretend it's a national newspaper, but let's face it, nobody in Duluth wants to pay to read reviews of restaurants in New York City.

American newspapers take editorial stances, but they're not very significant. In recent years newspapers haven't played a major role in advancing a particular political agenda. For one thing, they're in such fierce competition both with one another and with other media that they can't afford to alienate too many readers, so they tend to have a moderate, centrist position. And in addition we have a strong tradition of objective journalism.

British newspapers are divided differently. Most major newspapers are national newspapers, not local. The *Guardian* for example, used to be the *Manchester Guardian*. What sets them apart is their political stance. The *Guardian* is liberal, the *Telegraph* is conservative, and the *Times* used to be ultraconservative until Rupert Murdoch took it over. He remade it to be more accessible; now it's just a little to the right of center.

But the other way that newspapers are divided up is by social class. Newspapers in Britain aim to appeal to a specific class of people. The *Times* is the highbrow, intellectual paper. It's famous for printing letters to the editor from pedants correcting obscure details. The *Sun*, at the opposite end of the scale, is written in language a ten-year-old could read. It prints a lot of sports and celebrity news, and its editorial position is nationalistic to the point of xenophobia. It is specifically aimed at the under-educated and underpaid.

American newspapers could not get away with this; it would be seen as divisive and un-American. We have to try and pretend that there are no social classes in America. American newspapers want to create the impression that they speak *to* everyone and *for* everyone.

Britain is famous for being class-conscious, and although it's not as true as it once was, it's still strongly present, even in odd ways. When the British comedian Stephen Fry was 17 years old, he went on a spending spree with someone else's credit card. He was a middle class kid, the son of an engineer, and as a child he went to a boarding school. He was eventually caught and did some jail time. While he was in jail, the other inmates told him it wasn't right for him to be there, that someone like him should not have been sent to jail. He protested that since he had done the crime, he ought to do the time, it was only fair, but they just shook their heads and said, no, we belong in jail, but not you, it's not right.

In Britain, another significant marker of class is accent. Britain has a delightful array of accents, probably more than there are in the United States, but each one carries with it implications about the class of the speaker. We're not that familiar with this in the US. We have a variety of accents in the US, but a lot of them aren't connected with a class, just a geographic region.

The one game that seems to have made an effort to use American accents meaningfully is *Starcraft*. *Starcraft* is very interesting, because uniquely among games, they have borrowed southern cultural motifs. Unfortunately, they did succumb to temptation and resort to the "dumb hick" stereotype from time to time, but they're clearly aware that there's more than one kind of southerner. General Duke really sounds like an elderly general—stalwart and gruff, a little tired; but definitely not a redneck. And Arcturus Mengsk has the accent of a southern aristocrat, which is completely appropriate for his role. Jim Raynor is more western than southern—as befits a man whose title once was Marshal—but he, too, fits nicely into the mix. My hat's off to Blizzard for exploiting this untapped vein of American culture in a way that goes beyond the Gomer Pyle stereotype.

But if accents carry a small amount of meaning in America, they carry much more in Britain. There's a very funny British TV show called *Dinnerladies*, about a group of women who work in a factory cafeteria. It's set in Manchester, which is in the north of England, and the north is the butt of a lot of jokes the way the south is in America. I once said to one of my co-workers at Bullfrog, "I've been listening to your accent, and I can tell that you're from the north, because you sound like the people on *Dinnerladies*." And she was mildly offended. I was just listening to the sound, but I think she felt I was making an insulting remark about her social class.

I'm just starting to learn the rules about England, but God help me when it comes to France, Germany, the Netherlands, Italy, and so on. I have no clue. My reason for bringing all this up is to issue this warning: When you're hiring voice talent to localize your game, it's not enough just to find someone who speaks the foreign language. You have to find someone who can *act the role*. If the person you get has an accent inappropriate for the role, you could be sending absolutely the wrong message and you would never know. Get a native to help you hire your foreign voice talent, and make sure that they have a clear understanding of the role they're supposed to play.

> *One of the things that does hack me off is the ubiquitous American accent/character... As European developers we are always told that we must make our characters as American as possible, because "Americans don't like or understand British/Welsh/Scots/European accents." I don't know if this is true, but it is strongly emphasised by US publishers.*
>
> *– Kim Blake, Particle Systems, UK*

Finally, one last point about accents: don't use Americans in medieval games. The American accent is by definition a post-Renaissance accent. It did not exist until the 18th century at the earliest. The American accent is completely out of place in a medieval setting, which is only one of many reasons why Kevin Costner made a lousy Robin Hood. Don't do it. Hire native British speakers—and no phonies either! I don't know who was responsible for that appalling so-called Scotsman in *Age of Empires II*, but I hope he's ashamed of himself.

Translation

> *It might become a major problem [for a US developer] if it doesn't target Europe in the first steps of the design. Due to the linguistic differences, localization can be a huge headache, not only translation, but cultural adaptation.*
>
> *– Fabrice Cambounet, Ubisoft, France*

There's another language translation issue that's quite significant, and can bite you if you don't understand it, and that is the question of pronouns. Modern American English only has one second-person pronoun, the word "you." It's used for both individuals and groups, except in the American south, where "y'all" is used for groups. But in French, and many other European languages, they actually has two

forms of the word “you.” In French *tu* is singular and is used for speaking to one person, and *vous* is plural and is used for speaking to groups.

If that were the only issue, translating from English to French would be fairly simple. However, there’s another rule which overrides the one about singular and plural, and complicates matters considerably. *Vous* is not only used for groups; it’s also used whenever you want to be polite or formal, either to an individual or a group. You use it with strangers, co-workers, superiors, or anybody you don’t know very well. *Tu* on the other hand, the singular “you,” is used with children, pets, family members, and close friends. It’s called the familiar, as opposed to the formal, form. If someone invites you to use the familiar, they’re doing you something of an honor; they’re offering you an intimacy that other people aren’t allowed.

In German it’s even more complicated, because there are additional forms, with significant social overtones. For a man to ask a woman to use the familiar with him could be extremely insulting, because unless they know each other very well, it’s tantamount to an indecent proposition. And among men there’s actually a little drinking ritual you can go through, called the “brother-making drink.” Once you’ve drunk the drink together, you’ve made the other man your brother, and you can each use the familiar pronoun.

Of course, as English-speakers we have no clue about all this stuff. When we’re writing dialog, we just put “you.” This is another thing you need to get right when you’re doing translation. When you hand over your script to the translators, it’s not enough just to give them the raw text to translate. They need to understand the social relationships among the speakers, so they can represent them correctly. You really need to sit down with your translators and discuss the characters in your game carefully with them. Incidentally, if you don’t speak the language, you yourself shouldn’t try to decide when to use the familiar or the formal. You’ll probably get it wrong, with unintentionally hilarious consequences. Explain the relationships to the translators, and let them decide.

This is only the tip of the iceberg, of course. The word “you” is just one tiny part of the huge and complex translation problem. Don’t just sent off a script to a translation service and plug whatever you get back into your game; you have to work closely with your translators.

Nudity and Sex

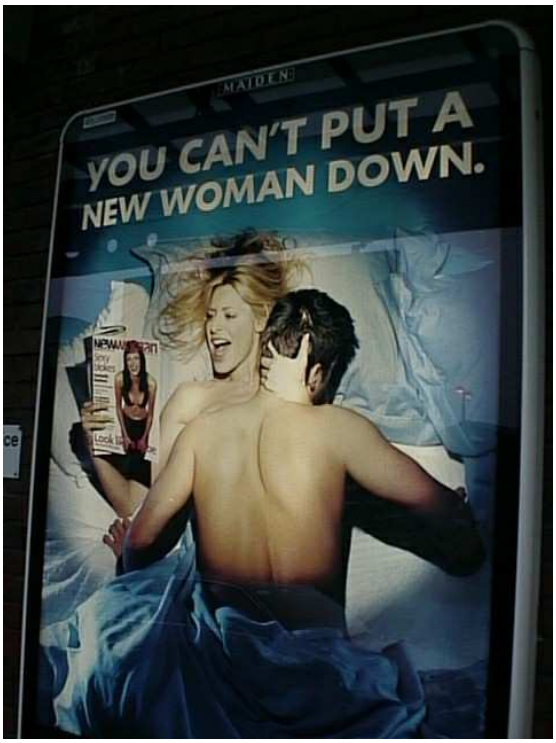
> *American guys are shocked by a nude breast, but will cover a whole screen with bloody explosions. A French game will try to avoid human killing, but will eventually display “crude” dialogs or scenes... that are often removed by a publisher who hopes to make the game sell well in the USA.*
>
> *– Mickaël Pointier, Eden Studios, France*

Traveling around Europe, I’ve noticed that—although it varies from country to country—the culture generally is a lot racier than what I was used to in America. Initially I assumed that the reason for all the nudity was a lack of feminist

consciousness-raising on the subject of exploitation of women in Europe. I assumed that Europe is fundamentally more sexist than America.

Later I realized that it's more complicated than that. I think Europe is more sexist than America in a lot of ways, but that's not the whole story. Nearly 300 years after the Puritans arrived, America continues to maintain a Puritan ethic with respect to its entertainment. We apply the virgin/whore dichotomy to our entertainment: it's either "racy" or it's clean as a whistle. We have little conception of nudity and sex as normal parts of life—in entertainment, it's either "hey, hey!" or it's just absent.

There's also a strong economic factor. Because showing one breast is a watershed for turning a money-losing PG movie into a moneymaking R movie, the movie industry include breasts gratuitously... and it's completely obvious that it's gratuitous. It seems to me that Europeans don't include nudity so much for the "leer" value. I've noticed that you see a lot more nudity on TV in Britain—a *lot* more. But it's not presented as "hey, look at the naked chick." They tend to include it wherever it's appropriate and in context for the story. After all, in the normal course of events, everyone is naked at least twice a day. Nicole Kidman said that when she appeared, very briefly, naked on stage in a play called "The Blue Room" in London, it was hardly even mentioned, but when it ran in New York, people never talked about anything else.



In addition I think the Europeans use nudity and sexuality much more for its humor value, and that takes some of the sense of exploitation out of it. Here's an example. This was a billboard in a railroad station in Britain. I don't think you'd see this in an American railroad station; I think there would be loud protests.

The bottom line, as it were, is that there's a meaningful distinction to be made between context-appropriate nudity and sexuality versus gratuitous titillation. American entertainment products tend not to make that distinction. Things are either "dirty" or they aren't.

If you want to use nudity or sexual themes in games in Europe, you're going to get in less trouble with the Powers that Be than you are in America—they don't have a large population of activist Puritans whose only joy in life comes from suppressing anything that suggests that people genuinely enjoy sleeping together. On the other hand, the *Duke Nukem* look-at-the-naked-chick mentality isn't going to do as much for you over

there than it is here. Gratuitous nudity doesn't sell products as well there because they can see plenty of non-gratuitous nudity as it is.

France

While we're on the subject of sex, let's talk about the French. I'd like to try and clear up some misconceptions about France. If there are any French people here, I want to make it clear that I don't mean to offend you, but I also have to warn you that you may learn some things that you might not like.

The French are the subject of a certain amount of derisive humor in the United States; they're often characterized as rude, rather weird, and inhospitable. For example, on the old *Saturday Night Live* TV show, when the Coneheads wanted to explain away their bizarre behavior, they told everyone that they were from France. Some of this is a carryover from British attitudes. The British are still really sore about the drubbing they took in 1066, when their country was conquered, their government overthrown, their laws replaced, even their language all changed around. Although they've beaten France on numerous battlefields since from Agincourt to Waterloo, the British have never been able to conquer France outright. So there's a long-running mutual antipathy there.

The perception of rudeness, however, is really only partially accurate, and it derives specifically from Paris. Every summer, hordes of English-speaking tourists descend on Paris, none of whom make any effort to speak French, and it's not surprising the French can be a bit testy about it. Given the choice, I'd rather be an American trying to get along in Paris than a Frenchman trying to get along in New York.

The other reason that the French seem weird is because they appear to be obsessed with preserving their own culture. There's a French organization that's responsible for preserving the French language, and they've been given the power to actually fine newspapers for using English. Whenever anything like this happens, of course, it makes big headlines in the English-speaking world as an example of French hostility and rejection of American culture.

I've been trading E-mail with a French colleague, Pascal Luban from Darkworks, about all this, and I've learned some interesting things. France is extremely centralized, in government, in education, in the arts, and so on. In France, if you're not in Paris, you're in the sticks. This means that their intellectual elite is very insular, and all this stuff about the preservation of French culture and the rejection of American culture actually comes from a small group, the Paris-centered academic elite.

> *No matter what the French self-proclaimed intellectual elite says about "crude" American culture, the vast majority of people accept it and love it. It is the same with games. Big hits in the US are also very popular over here.*
>
> *– Pascal Luban, Darkworks Studio, France*

Let me give you some information about the French film industry. The film business in France is heavily subsidized by the French government: tens of millions of dollars

in tax money go into making French films every year. In addition, they are guaranteed that 40% of all films broadcast on TV will be French-made films. However, last year in France, 63% of the box-office take went to American-made films. Now, some of that is undoubtedly due to the effectiveness of American marketing, and the number of films that America turns out. Still, if the French didn't like them, they wouldn't go. The French government can force the taxpayers to pay to make French films, but they can't force them go see them.

Think about what that really means. Can you imagine how we would feel if two-thirds of every dollar spent going to the movies in America was paid to see French films? That would be a huge impact on our culture, and so conversely America is obviously having a huge impact on *their* culture. If you want proof that the average Frenchman doesn't have a problem with American entertainment, there it is. Now of course, if you ask a French person "Which do you prefer, French things or American things?" they have their pride; they're going to say French things. But the numbers tell a different story.

The reason I bring all this up is that I'm afraid some American developers may be reluctant to translate their games into French because of this stereotype. My message to you is: go for it. You may want to make some concessions to French culture and sensibilities, but this supposed xenophobia about American culture is really confined to a small coterie of hand-wringing isolationists in Paris.

And, of course, French is not only spoken in France. I get a fair amount of E-mail from around the world in response to my monthly Gamasutra column, and a surprising amount of the E-mail from Canada comes from Quebec. Quebec is the most populous province in Canada, but I really think that may be where most of the gamers are, too.

Seriousness

You remember how the Disney version of *The Little Mermaid* ended? She married the prince, she didn't have to lose her voice, happy ending, lots of singing, etc. etc. But that's not how Hans Christian Andersen wrote the story.

> *When an American fantasist tries to make something fascinating out of what is for us ever-present history it either comes off as being false or sanitised... We prefer our fantasy harder, darker, with more weight, less feelgood. We are a lot more "serious" in a lot of ways.*
>
> *– Gavin Davenport, Infogrames, UK*

I don't have time to tell you the whole thing, but I'll mention some key points.

The little mermaid did love the prince, but she also had a hidden agenda. She had been told that if she married a human she would gain an immortal soul and go to heaven when she died, instead of just dissolving into sea-foam.

In order to make the potion that would turn the little mermaid's tail into legs, the witch had to use some of her own blood. In exchange, she demanded the little

mermaid's voice, which she obtained by the brutal expedient of cutting out her tongue. Unfortunately, the little mermaid's new feet did not work very well, and walking on them caused great pain, like walking across razor blades. She bore this with fortitude for the sake of the prince's love. But because she couldn't speak to him, he never realized how much she loved him, and so he married someone else.

When that happened, her chance to gain an immortal soul by marrying him was gone for ever, and she was doomed to die at dawn the next day. But to save her, her sisters sold their hair to the witch and obtained a magic knife. They told the little mermaid that if she stabbed the prince to death while he slept with his new bride, his blood could be used to reunite her legs back into a tail, and she could at least go back to being a mermaid, and not have to die the next day.

She couldn't bring herself to do it, however, so at dawn she threw herself overboard from the prince's boat, and died, and her body turned into sea foam. The end.

It's a little bit different story, isn't it?

Hans Christian Andersen actually tacked on a gratuitous *deus ex machina* to give the story a happier ending and a moral about the benefits of being a good child, but I won't bother you with it. Suffice it to say that she never married the prince and she really did die, although she did get her immortal soul after all.

The statue of the little mermaid in Copenhagen harbor is not a tribute to joy and life and love conquering all. It's a sad image of a girl trapped between two worlds and belonging to neither. One might even say trapped by her own ambition, because Hans Christian Andersen's story is a morality play about the price of seeking to rise above one's station.

This is absolutely counter to the American ethos. America is the land of opportunity, and the message from day one is that you can be anything you want to be here... with, of course, the implied converse that if you're poor, you must be some kind of a lazy, good-for-nothing loser. But in any case, we don't have any time for depressing messages about the price to be paid for success.

The tale of the little mermaid is a tale of blood and pain, loss and death. I think the difference between the Disney version and Hans Christian Andersen's version nicely sums up the difference between the European and the American soul.

Europe is an ancient place where stone reminders of a brutal and bloody past still dot the landscape. America is a teenager among nations, full of optimism, hope, promise, and potential... but also frequently naive and even juvenile at times. Our fascination with guns and the death penalty strikes me as fundamentally adolescent. Europe is an adult... still vigorous, but with her enthusiasm tempered by time and memories of sorrow. She is not as energetic as America, but she is, perhaps, wiser and more reflective.

Happy Endings/Sad Endings?

That said, however, I'm not actually sure that sad endings work in computer games. This may be one of the fundamental limitations of the computer game as a storytelling medium. A game is a contest, a competition. It has has obstacles, rules, and a victory condition. The obstacles prevent you from achieving the victory condition immediately; the rules provide a framework in which you can work to overcome the obstacles, and the victory condition is the overall goal of play.

A lot of games are broken up into missions or levels, and your reward for winning a particular level is to be shown another episode in a linear story. When you win a level or a mission, you get a bit more story, and the reward for winning all the levels is the conclusion of the story. The problem is that, upon obtaining the victory condition, our natural tendency is to feel pleasure, even exultation. We have exercised our wits, or our thumbs, to overcome the obstacles and achieve victory. That's a happy time. So, to feel sadness, or pathos, or depression, or even anger, is to some extent to spoil the experience.

I'll give you an example. Years ago, Infocom sold a text adventure called *Infidel*. The object of *Infidel* was to explore an ancient Egyptian pyramid and find buried treasure. But at the end of the game, when you had finally made it to the innermost chamber, the roof collapsed on you and you were killed. There was nothing you could do about this, and it was a real letdown. When that happened, I was angry. I had done what the game had asked of me; I had achieved all the possible points, and the game had punished me anyway.

When Infocom was asked about this, *Infidel*'s designer, Mike Berlyn, said that this was just his little bit of archaeological moralizing—it's wrong to be a greedy treasure-hunter. But damn it, I paid cash money for a game that (I felt) promised me the fantasy, the pleasures and joys and challenges of being a treasure-hunter. I didn't struggle all the way through the game just to hear somebody's finger-wagging sermon against pothunting. I wanted a big screen that says "You win, and you get rich and you live happily ever after."

When you win the Super Bowl, the commissioner of the NFL does not take away your allowance and lecture you about the evils of violent contact sports. No, he gives you a ring and a trophy and a big wad of cash.

Most stories of light entertainment—stories without any really complex emotional content—end up in one of three ways. They can have a happy ending, a sad ending, or an unresolved issue that tells you there's a sequel coming. The first Star Wars movie, *A New Hope*, was like this. It had a happy ending—the Death Star got blown up and everybody got medals—and an unresolved issue: Darth Vader got away. *Starcraft*, interestingly enough, managed to combine all three. The heroic Tassadar sacrificed his life to destroy the Overmind—happy and sad in the same event—but the Queen of Blades was still out there somewhere, leaving room for a sequel.

In short, I don't know that it's psychologically possible to create a good computer game with a purely sad ending. The outcome of a game is by definition success. And success, particularly in light entertainment, is incompatible with pathos. This is

another way in which *games are not stories*. Stories don't build up the reader's sense of pride and accomplishment, and therefore they don't create an expectation of reward. Games do.

It might be possible to create some kind of an interactive experience which is *not a game* so that you can have a sad ending, but in that case I think it needs to abandon the traditional game elements of obstacles and achievements. I think the non-game interactive experience is a research problem that's well worthy of exploration, but it's unlikely to happen inside the industry. My guess is that if it is studied it will be done in academic labs and among the interactive fiction hobbyists.

I've strayed rather a long way from the question of designing for the European market, but I think the point is germane. Europeans have a legitimate desire for darker themes and more elements of sorrow, loss, and pain. I agree with them that these are elements missing from most computer games. But I don't think that's the way a game can *end*.

Conclusion

This, however, is the way a lecture can end.

We are creative people. We need a constant influx of fresh new ideas. As things stand now, we rip each other off much too much, creating store shelves full of very similar games. If we really want to reach that fabled mass market, that's not going to cut the mustard any more.

Now for years, I've been haranguing you people to get a library card. The public library is the game designer's best friend—and incidentally, it's still more comprehensive and more trustworthy than the World Wide Web.

But I'm rapidly coming to the conclusion that a game designer's second best friend is a plane ticket. Plane tickets are a lot more expensive than library cards, but they offer something that library cards can't: direct, personal experience of real things.

Have you ever been at the beach at sunset? It's lonely; the last people are leaving, it's starting to get chilly, and the wind is whipping stinging sand against your ankles. A few gulls are crying out over the water. The ocean roars on... and the entire sky blazes with scarlet light.

But try to take a picture of it and you get nothing. A disappointing little piece of colored paper. It is at best "pretty." You cannot capture the essence of the experience. You have to be there.

You can read about Stonehenge or the Great Wall of China all you like. You can look at lots of pictures, and they will enable you to create a pale, mechanical imitation of the real thing. But until you go, and experience the place in its context—experience the people in their context—you will not understand with your heart. You can imagine, you can dream (and dreams are good), but you will not know the truth.

Get out of the office. Leave the computer behind. Buy a plane ticket and go.

Appendix E: Death (and *Planescape: Torment*)

By *Ernest Adams*
Gamasutra
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Goth culture, it seems to me, is a little wide of the mark. Eyeshadow and Anne Rice novels are all very well, but if you're seriously interested in death, I suggest working a shift at a city morgue on a Saturday night when the gunshot victims are coming in. Then you can experience the sordid truth under proper lighting conditions: the bodies are often still warm and the families are in the first stage of shocked disbelief that precedes the long misery ahead. Violent death has nothing to do with cool black clothes and spiky jewelry; it's mostly about anger and squalor, brutality and bad judgment. Still, despite their romanticized notions I think the Goths are mostly harmless. A bit of play-acting; a bit of self-dramatization; it offends their parents (which is probably part of the point) but it's inherently no more sinister than dressing up in a Star Trek outfit. Cults of death have appeared many times in human history, from the mummies of ancient Egypt to the buried pottery soldiers in China. Wearing purple fingernail polish is a comparatively mild expression of a very ancient impulse.

A couple of years ago I suggested in a lecture at the Game Developers' Conference that it was time for games to explore a larger range of human experience, and that includes sorrow and death. Death has been the subject of a certain amount of debate in game design circles, but most of the time we're talking about death in a purely symbolic sense. "You have three chances" is a phrase that has preceded every fairground game back to the Middle Ages and probably beyond, and in a computer game where you're playing a character, it's natural enough to view those chances as "lives" to be lost—failure is a metaphorical "death."

But my lecture wasn't about death in the metaphorical sense; I meant death in the literal sense, and particularly in ways that affect us emotionally. We think of death chiefly as inspiring grief, but in fact the emotions surrounding it are quite complex. In unhappy families there's often anger, guilt, and resentment; and in happy ones our feelings are not always unalloyed sorrow. Not too long ago I attended the funeral of the father of a woman close to me. The man had been nearly 100 when he died, and his passing was both painless and expected, and not least by him; he had planned the funeral himself. At the service the woman started to cry. "I'm not sad," she said, and I believed her. She was feeling something else, or several somethings—love, nostalgia, gratitude? I didn't ask.

It's not immediately obvious how one should include death, real death, in a computer game. 'You-have-three-chances' is so consistently characterized as "death" that your first obstacle is making it clear to the player that that's not what you mean. Probably the best way is through the death not of the main character, the player's character, but of other characters who appear in the game.

There was a great shift in adventure gaming when game designers stopped treating the main character as a generic Everyman (which they had initially done because they knew the player could in fact be anybody), and began to create main characters

who had a sex, a voice, an appearance, a background, and most importantly a personality of their own. The initial reluctance to do this was based on a concern about whether men would be willing to play female roles and vice versa. That question has been emphatically answered by Lara Croft, and it's no longer an issue. That's a good thing, because it's far easier to create a plot for a character to unravel if the character is a person with a history of her own.

However, despite the fact that we're now given someone with whom we're asked to identify—whether it's Sonic the Hedgehog or Duke Nukem—I think we care about that individual in a way that's fundamentally different from the way we care about other characters in the game. The main character is an extension of ourselves, a sort of prosthetic limb reaching into the game world. If he "dies" before the end of the game, it's irritating, frustrating perhaps, but we know in our hearts that this was not the way things were Supposed to Be, and we restart the game and resurrect the character without any real sense of loss.

When another character dies, however—a non-player character, to use role-playing terminology—we can't be sure that it wasn't the action of a cruel fate; that that character might have been destined to die no matter what we do about it. It has partly to do with the sense of control. In real life we love others differently from the way we love ourselves, precisely because they are not ourselves. In games we mourn the deaths of others differently from the way we mourn the death of ourselves, again, because they are not ourselves and we are not the masters of their destiny. To make death meaningful in a computer game, it is not the player who must die, but the player's friends.

Planescape: Torment is a game primarily about death. It's not my business to review games, and in any case it's a bit late for that, since *Torment* came out several months ago, but the game does so many things right that I think it's worth taking a look at if you haven't already. I didn't discover it on my own; it was specifically recommended to me by readers of some of my previous columns, for which I'm profoundly grateful.

For those who haven't seen it, *Planescape: Torment* is a fantasy role-playing game from Black Isle Studios, a division of Interplay. It uses a revised version of BioWare's Infinity game engine found in *Baldur's Gate*, and is based on the Planescape universe from TSR. Unfortunately this means that it's also lumbered with TSR's Advanced Dungeons & Dragons role-playing system. AD&D was designed for pencil-and-paper gaming, and although it's adequate for that purpose, it's needlessly numbers-bound for the computer player (see "Let's Put the Magic Back in Magic" for my rant on that particular subject). Still, I find the system less intrusive than in *Baldur's Gate*, where I was constantly checking to see who had what statistics, and who had what capabilities and spells memorized. Although all these mechanisms are implemented in *Planescape: Torment*, the nature of the game seems to demand less tedious bookkeeping on the part of the player.

But what's most interesting about *Planescape: Torment*, and what most deserves our attention as designers, is its setting, its characters and its plot. The phrase "fantasy role-playing game," of course, immediately conjures up images of a group of

Tolkienesque characters marching through the forest in search of dragons. *Planescape* is blessedly free of these stereotypes—I've played for several hours now and there's not an elf or dwarf in sight, nor, for that matter, a forest. The designers of the Planescape universe have at long last abandoned Northern European mythology and devised something perhaps richer, definitely darker, and altogether fresher. If *Baldur's Gate* is a lager, *Planescape* is a homemade stout.

The story centers around a nameless, immortal character who is searching for his forgotten past. It uses the hackneyed "amnesia" device to explain why he doesn't seem to know anything about the world he lives in, but I have to say that it's handled at least as well in *Planescape: Torment* as in any book or game I've seen it in. Our hero is seeking the information that will explain, and then end, his immortality and allow him at last to die permanently. At least that's what I think he's looking for; motives and morals in *Planescape* are nothing if not ambiguous.

It's not only the main character who is concerned with death. The game starts in a mortuary, complete with undertakers' tools and embalming fluid. From there it moves through a grotesque city filled with zombies, ghouls, skeletons and other, less-familiar "death workers": Collectors and Dustmen, to name but two types. But this is not merely schlock horror; in fact it's seldom horrific at all, since it doesn't employ shock tactics. Despite the many dismembered and decaying bodies that appear early in the game, the dead are often portrayed sympathetically as pitiable victims with a certain dignity of their own.

Another reason I like the game is that it doesn't use a mock-medieval vocabulary. Instead it draws its language from a different well: 19th century English working-class slang. A number of the words are still in common British usage (e.g. "berk" [fool] and "barmy" [crazy]), but it may be rather difficult for Americans to follow. Still, there are several glossaries on the Web, and at least it's different, interesting, and creates a distinct sense of being in an alien culture.

The Planescape universe is far from new—according to a fan site I found, TSR first developed it in 1994, so it won't need any introduction to dedicated role-playing fans. So far as I know, though, *Planescape: Torment* is the first attempt to computerize it. It's a hugely rich world, definitely intended for adults, and filled with philosophical dilemmas. There's a great deal of writing in the game, some of it quite good. That doesn't mean it's boring by any means, and the game can be played in a mindless hack-and-slash fashion if you must, but it will give you plenty to think about if thinking is something you enjoy.

One note about the artwork: I don't have enough superlatives to describe it. I was pleasantly surprised by the beauty of *Baldur's Gate's* forests and canyons, but I am completely staggered by the imagination shown in *Planescape*'s City of Doors. It is so hugely varied that it is literally indescribable (although conduits and tubing seem to be a recurring theme)—as you might expect in a city that connects every place in the universe to every other place. You will simply have to see it for yourself.

If I have any complaint about the artwork it is that the women are rather underdressed and they seem to appear in fewer varieties than the men. I assume that

this attributable to the usual hormone problems on the animation team. However, in my opinion the spectacular backgrounds more than make up for it. Get the game and play it. If you're not into role-playing games, get one of the walkthroughs available on the Web so you don't have to fool around with puzzle-solving, and just read the text and look at the pictures.

If you want to see game design done well, *Planescape: Torment* is a game to learn from. Since it uses the AD&D model there's little that's new about the underlying mechanics, but as a world to explore I think it contains the most intense concentration of creativity I have seen in any computer game, past or present.

Appendix F: Will Computer Games Ever Be A Legitimate Art Form?

Ernest W. Adams

2001 Game Developers' Conference

[This is an approximate transcript of my lecture at the Game Developers' Conference on March 24, 2001 in San Jose, California.]

Introduction

Hello, everyone—my name is Ernest Adams, and this is "Will Computer Games Ever Be A Legitimate Art Form." This lecture was originally supposed to be a panel, but I decided that I had so much to say on the subject myself that if I tried to moderate it as a panel, I would simply hog the microphone for a whole hour.

For those of you who have been attending my lectures for a long time, you'll know that this is point at which I usually give a disclaimer that what you are about to hear is not the opinion of my employer. For the first time ever, I don't have to do that, because I'm now my own employer. Last summer I left Electronic Arts, and now I'm a freelance game design consultant. That means that I am finally able to speak freely about EA and their games, although since this lecture is about games that might be works of art, I don't have much reason to discuss any EA products.

When I first started giving lectures at the Game Developers' Conference I did the usual dry, boring, bullet-point slide shows. They usually contained a lot of facts, but not much thought. Then in 1994 I decided to change the way I lectured, and started giving a lot of thoughts, but not many facts. There's a polite name for this: blue sky. Well, I'm here to tell you that this lecture is going to be about as blue sky as you can get. You've got to know that if you attend a lecture that addresses the question "what is art?" already you're in big trouble.

I'm not going to tell you *how* to do anything in this lecture. If you're looking for advice or guidance, you're in the wrong place. I'm here not to show you a road to walk on, but to show you that the road we're already on is not necessarily the only road to walk.

Games and Movies

So I divide my lectures into those which came before 1994, boring lectures, and those which started in 1994 and continued, good lectures. And the very first good lecture I gave was called Celluloid to Silicon: A Sermon for the Newcomers from Hollywood. And in that lecture I vehemently attacked what I called the Hollywood metaphor—the notion that computer games are like movies, and more importantly that they can be made in the same way.

You have to understand the historical context. Hollywood was getting back into the industry, for about the third time, and this time it looked like they were serious. The arrival of the CD-ROM suddenly meant that they could put real content into their games. “Interactive movies” were all the rage. I was pretty sure they were going to screw it up, and waste a lot of money, and cost a lot of developers their jobs, because they didn’t understand anything about engineering. And I emphasized that engineering is what separates us from Hollywood and the movies: the absolute necessity of doing engineering makes our craft fundamentally different from theirs.

In the course of this lecture today, you’re going to hear me talk a lot about the movies and what interactive entertainment and film have in common. For those few of you who were actually around to hear my lecture in 1994, I need to emphasize right now that I haven’t backed off one bit from the position I took back then. The difference is that I am now going to talk not about the craft of moviemaking and the craft of game development, but the art of film and the art of games. I still believe the Hollywood metaphor is flawed insofar as it pertains to the actual process of constructing these products; and it’s flawed insofar as it fails to address the differences between linear and non-linear, or interactive and passive, entertainment. Those are both lectures for another time. But there are certain parallels between computer games and movies as expressive forms, and it’s those parallels that I’m referring to here.

I’m sorry for the long disclaimer; I just don’t want anyone who’s actually been paying attention to me for the last seven years accusing me of hypocrisy.

What Is Art and What Does It Do?

Types of Arts

If you look up the entry for “Art” in the Encyclopaedia Britannica, you’ll find that art is divided into a number of types. There are the literary arts, writing and drama, which are characterized by the presence of narrative. Film and television clearly belong to the literary arts. Then there are what are called the fine arts: sculpture and painting, music and dance. Then we have the decorative arts: wallpaper, fabrics, and things like that. Architecture, of course, is regarded by some as a form of art, and industrial design, but at this point we’re moving more and more away from “pure” art and into areas with more utilitarian considerations. Industrial design, for example, isn’t really art so much as it is an aesthetic applied to a utilitarian object. The boundaries between art and non-art are not hard and fast; it’s a very grey area.

Another characteristic of the literary arts is that the object you see is not the work of art itself; i.e. the paper and ink that make up the book are merely the delivery medium, not the work itself. Similarly with film, the strip of plastic is not the movie; rather, the images and sounds recorded on the strip of plastic are the movie. With games, the CD-ROM is not the game; it is the software and artwork recorded there which are the game. This is as opposed to, say, sculpture, in which the sculpted object itself *is* the artwork.

I believe that most of our more complicated products, if they're art at all, belong in the category of literary arts with movies and television because they do contain elements of narrative. There are some exceptions, however, which I'll mention later.

The Philosophy of Art

At this point I'll give a very brief look at the history of the philosophy of art, because it's worth knowing about if we're going to talk about games as an art form. For several hundred years it was thought that art was *representational;* that art existed to portray a person or scene or object. Obviously this notion applied only to visual arts such as painting and sculpture, and not to such things as music and dance. They were considered separate forms not covered by the philosophy. And to some extent it was thought that the more accurate the representation, the better the art. In other words, a sculpture or painting which looked exactly like its subject was better than one which did not.

In the twentieth century, however, this notion was entirely replaced by the idea of art as *expression.* People began to feel that art was not meant to depict existing objects accurately, but to serve as an expression of the artist's thought. This had a number of benefits. For one thing, it enabled music and dance to be included with the other forms of art, since they are of course highly expressive. And it allowed painters and sculptors to start creating works which were not visual reproductions of real things, but images as they saw them, and as they wished their viewers to see them. The notion of art as expression caused an explosion of new kinds of art and new ways of looking at things.

There are other theories in the philosophy of art as well. Some people believe that the function of art is to pass on cultural values from one generation to the next, to serve a sort of moral purpose. Others believe that art is essentially hedonism, that it exists to create aesthetic pleasure. But by far the dominant theory of art today is art-as-expression.

Art Lasts

Another characteristic that we can note about art, good art anyway, is that it lasts. There are Greek statues 2300 years old that we are still admiring today. There are Egyptian statues 5000 years old that we're still admiring. Now it's true that these things were created in stone, a highly durable medium, and so they naturally tend to last; but still, we wouldn't bother putting them in museums and looking at them if we didn't think they were worth looking at. There are plenty of other mundane objects that old that we don't bother to look at so closely. These ancient sculptures appeal to us not merely because they are old, but because we find them aesthetically interesting.

There are also some very old games. If you go to Egypt, you can see people playing games in the sand that have been played exactly the same way for thousands of years. That doesn't actually make them art, it just makes them very long-lived games. Still, it's interesting that games *can* last as long as great works of art, and I presume it's because they contain some appeal that lasts across the centuries, despite changes in culture, language, religion, and so on.

I think it highly unlikely that people will be playing *Escape from Monkey Island* a thousand years from now. However, I do think it's conceivable that people will be playing *Tetris* a thousand years from now. *Tetris* is so beautiful, so elegantly simple, that I believe it has an appeal that could last for centuries. *Tetris* doesn't belong to the literary arts, since it has no narrative, but to the visual arts. I think *Tetris* is a work of kinetic sculpture, and I could easily see it sitting in an art museum—especially if you took away the scoring mechanism, for reasons that I'll get to later.

Can Games Be Art?

Art Versus Popular Culture

I have long argued that what we do—what most of us do, anyway—is not art. It's popular culture. Art is purchased in art galleries by art connoisseurs, it is criticized by art critics, it is conserved in art museums. It is not cranked out by the millions and sold for $59.95 at Toys 'R' Us. But the fact that most of what we do is merely popular culture does not preclude the interactive medium from being an art form. It just means that we have an uphill battle to be recognized as one—just as the movies did, moving from the nickelodeon to the screen. Film is an art form, but that doesn't mean that every movie is a work of art. Some are and some aren't, just like games. Most movies are not art, but popular culture. And there's no question that the vast majority of games are not art either. *Monopoly* is not art; poker is not art; baseball is not art.

Art and Interactivity

So why aren't most games art? One possibility that springs to mind is that interactivity precludes art; that art is a form of communication between the artist and the viewer, and if the viewer starts to interfere, the message is lost. It's certainly true that interactivity interferes with narrative: narrative is about the control of the author, while interactivity is about the freedom of the player.

However, I don't believe that interactivity does necessarily preclude art. Chris Crawford, in his book *The Art of Computer Game Design*, wrote, "Real art through computer games is achievable, but it will never be achieved so long as we have no path to understanding. We need to establish our principles of aesthetics, a framework for criticism, and a model for development." I disagree with him about a model for development—I think *how* you create a work of art is irrelevant—but he's right on the money about the other things.

Up in San Francisco there's a curious science museum called the Exploratorium. This museum takes the notion seriously that its exhibits, while illustrating scientific principles, should also be aesthetically pleasing. They consider them to be works of art, and some of the people who build them are referred to as "artists-in-residence." The exhibits are beautiful as well as educational; and aesthetics plays a role in their design. These exhibits are necessarily interactive, and their interactivity does not detract from their status as works of art.

We're used to thinking of art as illustrating the human condition, or talking about large issues related to ourselves, but why shouldn't it illustrate scientific principles? Diane Ackerman is a poet who wrote a series of poems collected into a book called

The Planets. These poems weren't just moony emotional stuff; they accurately described the appearance of the planets, their behavior, their position in the solar system. The poems are no less beautiful for being scientifically accurate; in fact, to me as a fan of science, they're even *more* beautiful for being scientifically accurate.

The Messages of Art

This raises an interesting question about the limits on what art can say. Art is not pedagogy, obviously; its purpose is not to teach. But still it is capable of making quite complex statements. We know that literature, for example, has themes. The theme of a novel is a declarative sentence which sums up the message of the work. Themes can be trivial, like "Death causes grief," or they can be non-trivial, like "Death causes emotions other than grief."

Can games have themes? I believe that they can. Simulations certainly say things. *Sim City*, for example, says that a good transportation system is essential for economic prosperity. This is never stated explicitly; it's something that you find out in the course of playing the game. In fact, it is discovered through interactivity—if you didn't interact with the game, you would never find it out. Now of course, this is a simple economic statement. It's not very deep, and a work of art whose message was no more than "a good transportation system is essential for economic prosperity" would be considered pretty mundane. But it illustrates the point that games *are* capable of saying things.

There are also non-linguistic modes of expression. Sculpture, for example, does not necessarily have themes. You can't always distill the content of sculpture into a declarative sentence. But you might be able to distill it into an emotion: a non-linguistic expression of a feeling. And I don't see why games can't do the same thing.

The Effect of a Victory Condition

One of the key characteristics of many games is that they have victory conditions. I'm not entirely sure that this is compatible with art, although I haven't made up my mind on the subject yet. As soon as you establish a victory condition, give the player a goal, the player starts to work towards something. They concentrate their attention on achieving the goal. I'm not convinced that you can be having an art-appreciation experience if you're working towards a goal at the same time.

Interestingly enough, *Tetris* is a game with no victory condition. You cannot win at *Tetris*. And so even though you are working like crazy, your mind is not concentrating on the goal.

Some Other Characteristics of Art

Art Has Content

One of the things about art is that is must have content. This is why baseball and poker are not art: they have no content. Nothing is being expressed. Monopoly has almost no content: it has little houses and pieces that move around, but it's certainly not enough to be "art." When we say "There's an art to playing poker," what we really mean is that there is a craft to playing poker—that there is a right way and a

wrong way to do it, and that playing poker well requires a high degree of skill. But the act of playing poker is not an aesthetic act. It has no content. It's not expressive.

Art Has An Aesthetic

Another thing about art is that it is aesthetic, it has rules for determining beauty and ugliness. Now in the 20th century the idea that art was simply supposed to be beautiful was thrown out. But nevertheless, art is supposed to appeal to us in some way.

Art Contains Ideas

Art must have the capacity to express ideas. Film is an art form because it has an aesthetic, and it also has the capacity to make statements. Most games do not make statements, but then, neither do James Bond films. Most computer games are the interactive entertainment equivalent of James Bond novels and movies. The novel is an art form, but James Bond novels are not art. For a novel to be art it must be more than merely entertaining. For a painting to be art is must be more than merely decorative.

I want to mention two games that I think contained a lot of ideas. One was *Planescape: Torment,* from Interplay. This was a game about an immortal man who had lost his name and his memory. The game was about his quest to find out his name and to learn the reason for his immortality, possibly so that he could die permanently. Along the way he meets a strange collection of people all of whom seem to know him, but whom he does not know, and each one of them possesses part of the key to his past. Now this isn't great literature, it's not *Anna Karenina* or anything; in fact it's not substantially better than your average paperback fantasy novel. But it contained far more interesting ideas that most hack-and-slash RPG's, and I enjoyed *Planescape: Torment* a great deal. I found it aesthetically intriguing.

The other game was *Balance of Power,* by Chris Crawford. It came out around 1986, and I think it is one of the best computer games ever made. *Balance of Power* was a simulation of global politics. The Soviet Union and the USA are each struggling to maximize their geopolitical prestige at each other's expense, by supporting friendly governments and overthrowing or destabilizing unfriendly ones around the world. This game taught me all kinds of things about global politics that I didn't know, and in fact it was so good at it that the State Department began to use it to train diplomats. Now, like *Sim City,* this was a simulation, so the ideas it contained were not aesthetic ideas, but nevertheless they were interesting and new, and it's clear proof that games can contain ideas.

I actually had a rather odd emotional experience playing *Balance of Power,* because I once tried playing it from the Russian side. Of course we're used to playing games from the enemy side in wargames—you fly a World War II flight simulator and you can fly either the German or the Allied planes, but all it really means is that the performance characteristics of the planes are different. But playing *Balance of Power* from the Russian side, I got an immediate and visceral experience of what the Soviets were actually up against. The way the game is designed, the Americans have a lot of money but very few men under arms, while the Russians have very little money but tons of men under arms. What this means is that their mechanisms for

influencing world opinion are really quite limited and crude. It's easy for them to send in troops, but they can't afford to buy friends around the world by sending powdered milk to starving children and things like that. And the other thing I noticed is that all America's friends are extremely rich and powerful—Britain and France and Germany and so on—while all Russia's friends were extremely poor. And the experience of playing this game was quite strange. Here they were, surrounded by enemies and treaty organizations designed to hem them in. It really turned my world-view upside down, because I had never put myself in their shoes before, and I felt quite weird for a couple of hours afterwards.

Art Makes You Feel Things

And art should make you feel something. That's part of what art is about. And games unquestionably can make you feel things, but for them to be accepted as an art form, they have to make the effort. If movies had never moved beyond the nickelodeon, they would never have been accepted as an art form. But movies, even silent movies, were clearly an outgrowth of drama, of the stage, and the stage is a very ancient and well-understood art form. Computer games roots are not in movies or the stage; they're in gameplay, in board games and so on. And those are clearly not art forms, because they have so much less emphasis on the aesthetic, and because they don't usually make you feel things.

Art is Not Formulaic

Another important characteristic of good art is that it is not formulaic. The artist Salvador Dali began to be considered a bit of a fraud in his later years, because his work became formulaic; he ceased to innovate. I think that the Star Wars saga is beginning to lose whatever claim it may once have had to be a work of art, because it is increasingly formulaic, and it is increasingly driven by merchandising considerations.

Utility and Salability

All these characteristics of art—expressing ideas, making you feel things, not being formulaic and so on—outweigh considerations of utility. Art is not about being useful. And to some extent, they outweigh considerations of salability as well. Art does not involve merchandising. No one creates a work of art with a presumption that it's going to be turned into T-shirts and lunch boxes. A key point about art is this: *It's not about what the customer wants to buy. It's about what you have to say.* A work does not have to do all the things I mentioned above, but if it does none of them, the chances are it's not a work of art.

The Role of Fun

Now I said at the beginning of this lecture that it was going to be a sermon; I neglected to mention that it was a heretical sermon.

Back in February, I wrote a column for the Gamasutra webzine called "Dogma 2001: A Challenge to Game Designers." And this column was a deliberate take-off of the famous Dogme 95 movement in film. In my column, I proposed a set of outrageous rules for the game industry whose purpose was to divorce game design from technology, to encourage thinking about game design without reference to any

particular technology. They were rules like, “The design documents must not contain any reference to any hardware installed inside the target machine.” And I had other rules intended to discourage derivative game designs. For example, I said, “There shall be no knights, elves, dwarves or dragons in your game, full stop.” You may not do a first-person shooter, under Dogma 2001; it is a forbidden form. And finally I ended by saying that innovative gameplay was a moral imperative, and all other considerations were secondary.

Well, in the debate that followed, on the game developers’ message boards, I certainly saw that I had stimulated a lot of discussion, which was my main point. And I noticed, interestingly enough, that I was being just about 50% passionate vilified, by people who thought that I didn’t know anything about the game industry; and 50% passionately defended, mostly by naive newcomers who thought that this really presented an interesting challenge, and a call to change the kinds of games that were out there. And that told me that I had done the right thing. If I were being 100% vilified or 100% praised, then I would have failed, because my point was to get people talking about these issues.

But something I noticed in the discussions was that some people pointed out that there was no discussion of fun in Dogma 2001. And they asked, “Why isn’t fun mentioned? Why isn’t it the case that fun is the moral imperative, and everything else is secondary to that?”

Well—here comes the heresy—fun is not all that we’re about. I dispute that fun should be our highest goal. Now nobody wants to play a board game that isn’t fun. But we are *not* just computerized board games. Are books and movies only about light entertainment? Are they just “fun”? No, they are not.

If all we’re doing is making Schwartzenegger movies and teen sex comedies, then we’re not exploiting the full power of the medium! Picasso’s Guernica is not “fun.” Nobody goes to look at that painting for fun.

Britain, where I live, is a land filled with war memorials to the hundreds of thousands of people who died in the First and Second World Wars. And when I see one, I usually like to go up and look at it. I like to read the names on it, and think about what those people did. But I don’t do that for fun. I actually do it specifically to feel sorrow and regret. I do it to mourn those dead people. I do it to remind myself of the sacrifice that they made.

I once read a rather facile book which suggested that people’s reasons for choosing things to do could always be attributed to fun or learning or both. Ridiculous. I don’t look at war memorials to have fun, and I don’t look at them to learn something; I look at them to feel something.

We work so hard in this industry, we concentrate so exclusively, on capturing fun, that we’ve lost touch—or never even had touch—with any other emotions. It’s no wonder that so many works in our medium are as shallow and vapid as they are! Our games are the video equivalent of a theme park. A theme park is a place designed to maximize fun. But you know what? I’m an adult. I don’t spend a whole lot of time in theme parks any more. Sometimes I go look at war memorials instead. There are

times when what I would really rather do is to mourn the dead of a global conflagration, people who died so that I may live in freedom, than ride around and around in a make-believe airplane.

Now at this point some of you may be saying, "God almighty, what a depressing game designer. If that's the way you feel, get the hell out of the industry, there's no place for you here." Well, I've got news for you. If that's the way *you* feel, then you are condemned only to be a designer of theme parks. I've got a broader vision than that. I believe this medium is capable of more. You've learned how to inspire one single emotion and that's all you care about! If you were a writer, you could only ever write humor columns. If you were a film director, you could only ever make comedies.

Years ago my wife went with some friends to see the movie *Soldier of Orange.* I've never seen it, but she said that it was a very intense, very gripping movie. And after it was over, they all came out of the cinema rather shaken, and walked along in silence for a while. And finally my wife said, "That was an incredibly good movie. I am very glad I came. I don't ever want to see it again."

It's not really true that fun is all we do. We also do suspense, and sometimes horror, and—far more often than we should—frustration. But fun is an overrated value. And if we want to be considered an art form, looking beyond it is one of the first things we need to do.

What Does It Take For Us To Be An Art Form?

So what does it take for us to be an art form? Well, I think the answer is pretty simple. We have to act like other art forms. For games to be recognized as an art form they must do some of the things that other art forms do—that people expect of art forms. More importantly, *we* must begin to act as if we *believe* that we are an art form. We must treat our work as an art form and act as if we expect the public to do the same.

We Need An Aesthetic

We need an aesthetic, or a variety of them. If you look at the movies, they're not judged by a single aesthetic, but by several. They're judged by the cinematography, and the editing, and the quality of the acting, and the quality of the story, and so on. And like the movies, we need a way to judge the artistic merit of the elements that make up games. We have to judge the story, if there is one; we have to judge the acting, if there is any; we have to judge the seamlessness of the experience, which is equivalent to the editing in movies. We have to judge the degree to which all elements of the game work together in harmony, without any false notes. A lot of games used to have jarring transitions between the interactive and non-interactive segments of the game, but we've been getting better about that lately.

We might even find a way of judging gameplay itself according to an aesthetic: is it smooth, easy, natural? Again, the gameplay in *Tetris* is aesthetically pleasing. When you play a really good game you no longer even see the menu items on the screen, the buttons. They become second nature.

We Must Experiment

We must experiment, we must try new things, we must take risks.

Consider Impressionism in painting. It is now recognized as one of the greatest of movements in painting. It was famously excluded from the French Academy, and the first show of Impressionist paintings had to be set up in someone's house because nobody else would host it. But Impressionism was not a technology of painting. The paint and canvas were still the same as they always had been. Nor was Impressionism primarily about looking at new things. It did bring in some new subject matter, but mainly, Impressionism was *a new way of seeing.* It was about the fact that the eye is not a camera. That painting does not have to be representative.

What is our equivalent of Impressionism? Who among us is breaking new ground in gameplay, the way Impressionism broke new ground in painting?

We Must Challenge the Player

The greatest works of art, the ones that get displayed in museums and talked about forever, are those which took risks, which broke new ground. Art must break new ground or it is merely craft, decoration. Great art challenges the viewer. It demands that the viewer grow, expand his or her mind, see things that have not been seen before, think things that have not been thought before. Impressionism challenged the our understanding of what painting was for. The Romantic movement in music challenged the listener; it said that music can be about emotion, not merely melodic "prettiness."

That's not always easy in other media. But who knows more about posing challenges than we do? Challenging the player is exactly what we are about! People come to our works because they want to be challenged.

You may say that we pose a different kind of challenge, that our challenges are to achieve something, a victory condition, whereas great art challenges the viewer to see and hear things in a different way, not to achieve something but to obtain a new kind of understanding. Yet why can we not challenge the players to achieve not merely a victory condition, but a kind of understanding?

Sim City challenges the player to understand the relationship between efficient transportation and economic prosperity. Now, as I said, that's not an aesthetic understanding, but it isn't specifically a victory condition, either. I believe that we are capable of challenging players aesthetically as well as logically. We just have to put our minds to it. The trick for us is to devise new challenges, not variants on the same old ones. New genres of interactive entertainment.

Our Awards Must Change

The next thing that I believe must happen is that our awards must change. Nobody ever gets an art prize on the basis of the technical merit or the craftsmanship inherent in the artwork. If a sculptor gets an award for a sculpture, it's not for the quality of the welding. Now if the welding is bad, they might not get the award, but good welding alone is not enough.

People do give Oscars for the technical merits of movies, but you'll notice that it's always a much smaller ceremony, held in a hotel ballroom, not in a big, beautiful theater. It's not broadcast on TV. The only people who attend the technical Oscars are movie technicians, not glittering stars. The big public Oscars are about Art, not Craft.

But look at our game awards. They're all about craft. Best programming. Best sound. We don't give awards for best story or best acting. And sure enough those elements have traditionally been the weakest parts of games. "Best Graphics" as an award category is especially ambiguous. Some people think that best graphics are those which are rendered at the highest speed, or that use NURBS, or that most closely mimic visual reality. That's not good graphics, that's good graphic technology!

We need awards that honor aesthetic content, not merely technological prowess.

We Need Not Reviewers, But Critics

Awards are not enough. We also need critics to recognize artistic merit. We don't even have any critics. What we have are reviewers. And look at them! The majority of them are game-developer wannabes, gamers with a rudimentary knowledge of English barely sufficient to say something more useful than "sucks" or "rocks." *Real* critics bring to their profession not just a knowledge of the medium they are discussing, but wide reading and an understanding of aesthetics and the human condition.

Now, I know some of you at this point are saying, "That's ridiculous. Game reviewers don't need to be well-educated, they don't need to be deep thinkers, they just need to know what's fun." And you're right. That's all that game reviewers need. But interactive entertainment critics need to bring more: wisdom, maturity, judgment, understanding.

Now another objection I've heard to this argument is that there simply aren't any games out there that deserve this depth of thought. That if you took the intellect of the great art critics of the world and applied it to games, it would be totally wasted. But I think that's our own fault. I don't believe that that's a fundamental weakness in the medium. The fact that there aren't any games out there that deserve in-depth analysis is because we haven't made any, not because we cannot make any.

Now, I've read some academic movie criticism, and it was mostly boring and unreadable. And God knows I don't want our industry to get bogged down in the "movements" and "schisms" and petty infighting, not to mention sheer wankery, that is the bane of the art world. Pity the poor bastard who decides, at this point, that he wants to put paint on canvas. He's got 1000 years of history to live up to, and 10,000 critics, each with their own axe to grind, all looking over his shoulder. It's a wonder they try to paint at all; I know it would certainly scare me off.

But I don't think we have to worry about that yet. Right now we're so far from being art that it's not a problem for us. What I'm saying is that an art form requires not just reviewers, comparing one game to another, but critics who can discuss the meaning of a game in a larger context.

If you look at a movie like *2001: A Space Odyssey*, it had all the reviewers flummoxed, because none of their traditional metrics applied. No romance, no action, no suspense, no drama in the traditional sense of the word. Almost no acting at all. But the critics had a field day! Because *2001* was rich with ideas, it was crammed with them from one end to the other!

2001: A Space Odyssey is a great work of art. It meets all the necessary criteria. It has content, all right: over 3 hours of it. It says something—a great many things, in fact. It makes us feel something. *2001* was boring at points. It was deliberately boring. Stanley Kubrick said, "Space travel isn't whizzing around the universe; space travel is long and slow and boring, and I'm going to make you feel that." And that, my friends, is the definition of artistic courage.

2001 isn't formulaic; it did break new ground in all sorts of ways, some of them technological, although they weren't necessarily critical to its success as a work of art. It did challenge the viewer, very greatly. It brought us new ways of seeing any number of things: space travel itself, and computers, right up to man's place in the universe. It asked a lot of very interesting questions.

Where is our *2001: A Space Odyssey*? When is one of us going to make a game that was as brilliant and innovative as *2001* was a movie?

Conclusion

Ultimately, whether or not interactive entertainment can be a legitimate art form is up to us. We'll have to put out a lot of PR material, to let the public and the press know that we ourselves *believe* that what we do is an art form

We need to change our awards to recognize artistic merit and not merely technological prowess or craft.

We need to change the way we look at our games, so that they are criticized, and not merely reviewed.

We may even, God help us, have to go as far as the movies did and create a cult of personality around the game designer in the way that they have a cult of personality around the film director. This was tried once. Electronic Arts was founded with the notion that game developers should be promoted like, and treated like, rock musicians. They eventually abandoned that idea when the games got big enough that they were no longer being made by a group the size of a rock band, and when the fame they were getting started to cause designers to ask for more money.

I don't know that it's good idea, but it would probably make a difference. Art requires an artist. One of the absolute requirements of any work of art is that it be manmade. And I believe that for us to be taken seriously as an art form we have to move the people who make it back into the foreground again.

Dogme 95 declared that movies have gone too far in that direction, that they have overemphasized the idea of the film director as visionary, to the detriment of drama. But I don't think we've gone far enough. Every work of interactive entertainment

that wants to be considered worthy of being an art form must have its prime visionary's name on the front. Everybody in the industry knows who Sid Meier, and Brian Moriarty, and Peter Molyneux, and Will Wright are, but it's not enough for everyone in the industry to know these names; we need these names to become household words. We need for Sid Meier to become as well-known as Francis Ford Coppola or Gabriel Garcia Marquez.

But most of all, and before we do any of those other things, we have to start making interactive entertainment that is *worthy* of the kind of attention that art forms get. Somebody is going to have to stand up and say, "I'm going to create a computerized, interactive work of art. And it's not going to be an electronic theme park, and it's not going to be an interactive James Bond movie."

We have to take those risks. We have to break new ground. We have to devise an aesthetic. We have to challenge the player to arrive new forms of understanding.

The answer to the question that is the title of this lecture is emphatically YES—but only if we, ourselves, the creators, have the courage and the vision to do so.

Appendix G: Bad Game Designer, No Twinkie! III

By Ernest Adams
Gamasutra
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Well, it has been close to two years since the last "Bad Game Designer, No Twinkie!" column, so I think it's time for another one. I keep a collection of computer game misfeatures, design errors, and personal annoyances as I play, and it's now long enough to publish. Some of these are level-design errors or even programming weaknesses, but they're all things that a game designer has at least some influence on.

Adolescent Armageddon

"Conquer the world!" "The fate of humanity is at stake!" "Save the galaxy!" scream the boxes on the shelves down at the game software store. "No!" I'm tempted to scream back. "I don't want to! The galaxy can go stuff itself!"

Too many computer games are fulfillments of adolescent power-fantasies, and a meaningless apocalyptic scenario is a classic symptom. It's been quite a while since I was an adolescent, and I just don't believe them any more. Maybe that means I'm a boring old adult, no longer capable of grandiose visions… but let's face it, the people who run around yelling about conquering the world are nut cases. I think it's more accurate to say that I just don't care. I don't want to rule the world. I'm not terribly interested in saving the galaxy. It's too big and impersonal a task, and it's not credible that a single individual can do it anyway. Don't ask me to. I don't feel like it.

All stories require dramatic tension, and dramatic tension is created by establishing a situation that puts something, or someone, that the reader cares about at risk. Likewise, all games require a goal, something that the player is hoping to achieve, which creates what we might call "gameplay tension." The similarity of dramatic tension and gameplay tension is the reason that computer games so often have a storytelling element. But if you look at the great stories in literature, what's at risk is seldom something vast and incalculable like the fate of the world. Rather, it's the lives and happiness of individual people. There's more genuine tension in a novel by Charles Dickens - will David Copperfield survive the wicked machinations of Uriah Heep? - than there is in all the movies about earth-shattering asteroids ever filmed. And even those movies don't really try to engage our sympathy for the Earth as a whole. Rather, they engage our sympathy for the movie's main characters and their individual fates. Take *When Worlds Collide*, for example. They destroyed the Earth and everyone on it, but—whew!—our heroes got away safely. Thank goodness for that! Happy ending!

"But wait," I hear you cry in irritation. "Aren't you one of those Tolkien nuts? And isn't *The Lord of the Rings* about as apocalyptic as you can get?" Well, yes, I am, and yes, it is. But what sets The Lord of the Rings apart from most of its pale imitators is that it's not actually about how wonderful it is to save the world. It's

about what passes away irretrievably even when you succeed. It's a book about the tragedy of saving the world, the price to be paid for doing it.

I think the success of *The Sims* demonstrates pretty clearly that it's not necessary to rule the world, and a lot of people don't even want to. They're busy just trying to keep the dishes washed and the newspapers picked up. Millions of them are perfectly happy doing it, and Maxis is making a fortune out of fulfilling that particular, if peculiar, fantasy. We don't need for games to be about adolescent Armageddon. We only need for them to be about people that we care for, and in fact that allows us to make a much wider variety of games than "Save the world!" does.

Having to stand in (or select) exactly the right spot.

There's not a lot that needs to be said about this. If the designer has made a selectable region of the screen extremely small on purpose, it's just a trial-and-error time-waster, a boring puzzle. If the designer has done it by accident, it's a misfeature that should have been caught during testing. There's one problem with testers: they're such experienced gamers - and after a few hundred hours playing a game, so experienced with that particular game - that they may not catch design errors which would annoy the pants off mass-market, non-core players. As we make more and more games for the non-core market, we need testers who can think like a non-core gamer.

Bad pathfinding.

Pathfinding is the process of figuring out how to get a ground-based unit from here to there, avoiding obstacles on the way. Pathfinding can go wrong in a lot of ways, but the most frustrating is when a unit gets stuck behind something and can't figure out how to get around it. The original *Age of Empires* was notorious for its bad pathfinding until they released a patch for it. You'd tell a group of people to go somewhere, and they'd get stuck and wander haplessly around until you either gave them new orders or removed some trivial obstruction that a two-year-old could figure out how to get past. In addition to being frustrating, it destroys the player's suspension of disbelief and respect for the game.

Pathfinding is not a simple problem by any means - I used to program silicon layout and circuit routing tools for a living, so I know something about it. Game pathfinding is easier in some respects because soldiers don't create a short circuit if they cross another soldier's path on the battlefield. However, unlike routing chip traces, it can't be left to run overnight, either. When the player tells a soldier to go somewhere, that soldier needs to leave immediately, without visibly stopping to think about how he's going to get there.

Here are a few design rules of thumb about pathfinding:

It's not about what the troops can see, it's about what the player can see.
Typically, the player is looking at an aerial perspective of a region, and can clearly see the path she wants her troops to take. Even if those troops don't "know" the terrain, and can't "see" the best route from the ground, they should use the player's

degree of knowledge, not their own, to plan a route. Otherwise the player will be asking, “Why are you going that way?"

Foot soldiers should not be obstructed by their own side’s equipment. In the real world, if a group of foot soldiers are trying to get past a row of friendly tanks, they can do it, even if the tanks are lined up axle to axle. They’ll climb over, crawl under, or whatever. It may slow them down, but it won’t stop them. That’s one of the best features of the common infantryman - he may not have much armor or firepower, but he’s more versatile than any other unit. Don’t take that away from him by needlessly obstructing his pathfinding.

Groups of units should filter among obstacles similar in size to themselves, but should stay together when travelling around large obstacles. As a general rule, groups should stick together and follow roughly the same path, but not to the extent of all walking around the right-hand side of a tree. And how many times have you selected a group of soldiers, told them to go somewhere, and found that two out of the twenty of them are wandering off on some other weird route of their own? What’s happening is that the two are treating the other 18 as an obstacle rather than a group that they’re expected to remain part of. They’ve got a little too much independent thinking in their AI. You have to balance their freedom to improvise individual paths for themselves (filtering among trees or boulders) with their obligation to stick together (taking the same way around a hill or building).

Make it easy for the player to enter waypoints as part of her movement orders. This is your “escape clause” if your pathfinding has bugs. By entering waypoints, players can work around pathfinding problems. Obviously it’s preferable to get it right the first time, but solving the problem with waypoints at least lets the player go on playing instead of giving up in frustration. And waypoints are generally useful anyway

Whole books are written about pathfinding, so I’ll leave it there. Much of it is a question of testing and tuning. But do try to do it well; bad pathfinding will cause a player to dismiss your game as “stupid” more quickly than just about anything else.

Low-poly trees (and other models, too).

Oooh, you’ve got a 3D engine. We’re all very impressed. The problem is, you’ve got too many objects to display with it, so you’ve decided to make them all with very few polygons. Everything in your game world will be strangely chunky, with odd edges, and they’ll look nothing like their counterparts in the real world. Trees, for example, will look like peculiar umbrellas, with all their branches at the same height, and disturbing things will happen as the camera moves past their foliage.

Don’t do it. It’s ugly and tacky. Get your pixel artists to do nice sprites instead, and stick ’em on a single rectangle, if you don’t have enough polys to go around. Yes, they will pixellate as you get closer to them unless you MIP-map them, but so will the textures in your walls; we’re used to that. Remember how the creatures in Doom only had one sprite when they were lying dead on the floor? And when you went around to the other side of them they still were facing the same way, following you

like the eyes in one of those creepy paintings? And remember how that was OK, and we didn't really mind? The same is true for trees - even more so, in fact. Unless it's significant to the gameplay somehow, it doesn't really matter if a tree's orientation is always the same way with respect to the player no matter where he is. It's still better to have a nice-looking tree sprite than some weird blocky green umbrella thing.

Too few audio clips for a given situation.

I hate hearing the same damned audio clip over and over whenever a particular situation recurs in a game. It doesn't matter if it's just a confirming beep - in that case, it should always be the same sound, so it sends the same cue to the player - but if it's a person speaking, it gets annoying very fast. I was the audio/video producer for Madden NFL Football for many years, so I've been guilty of this one myself on occasion. We had a limited amount of recording time with Mr. Madden each year, so we couldn't record everything we wanted. The audio script for Madden NFL Football was typically about 75 pages long, and I would have written twice that much if I could.

If you're going to have voice clips associated with particular situations ("I'm hit!" and so on), then record a lot of them. My own rule of thumb is that there should never be fewer than five audio clips for any situation, even the rarest; and for common events there should be at least two dozen or so. You don't always have to record completely different sentences; sometimes the same sentence delivered with a slightly different emphasis will do. In the game, have the software keep a list of them and choose one at random to play when the situation calls for it, then mark it off the list. The next time the situation arises, choose at random from the remaining ones, and so on. When you've run through them all, reset the list except for the most recently played clip. That way the players will never hear the same clip twice in a row.

Birds that carry swords.

Argh! Our party is under attack by evil doom-chickens from the foul fowlyard of Kafoozalum! We're in danger of being pecked to death a la Tippi Hedren. We hack. We slash. We cast spells of Oven Roasting+3. Some of us get hurt in a vague, numerical sort of way that doesn't actually seem to involve blood or pain. Eventually we kill the last of the chickens (no evil creature is ever smart enough to run away, even when it's hopelessly outnumbered; an admirable sense of duty for a bird). Searching the bodies we find that, as with all evil creatures, even blind cave-dwelling slimeworms, they're carrying money and human weapons and armor around with them. How fortuitous! Evil doom-chicken #3 (second from the left, but otherwise indistinguishable from doom-chickens #1, 2, and 4) had a Great Big Nasty Sword of Serious Hurtfulness+5. Funny, I didn't notice that sword anywhere on its feathery person while it was still alive. If it was so heavily armed, why didn't it use it in the fight? Come to think of it, where was it keeping all this gold, too? In its gizzard? Eeeeew!

You get the idea.

Conclusion

Well, that's my catalog of complaints for another year or so. If you've been responsible for any of these mistakes, bad game designer! No Twinkie for you! And if you've got a few personal peeves and game design gaffes of your own, by all means send me some E-mail and tell me about them. It's time to start making a new list.

Appendix H: Why We Shouldn't Make Games

Ernest W. Adams

2002 Game Developers' Conference

> *This is an approximate transcript of my lecture at the Game Developers' Conference on March 22, 2002 in San Jose, California.*

Introduction

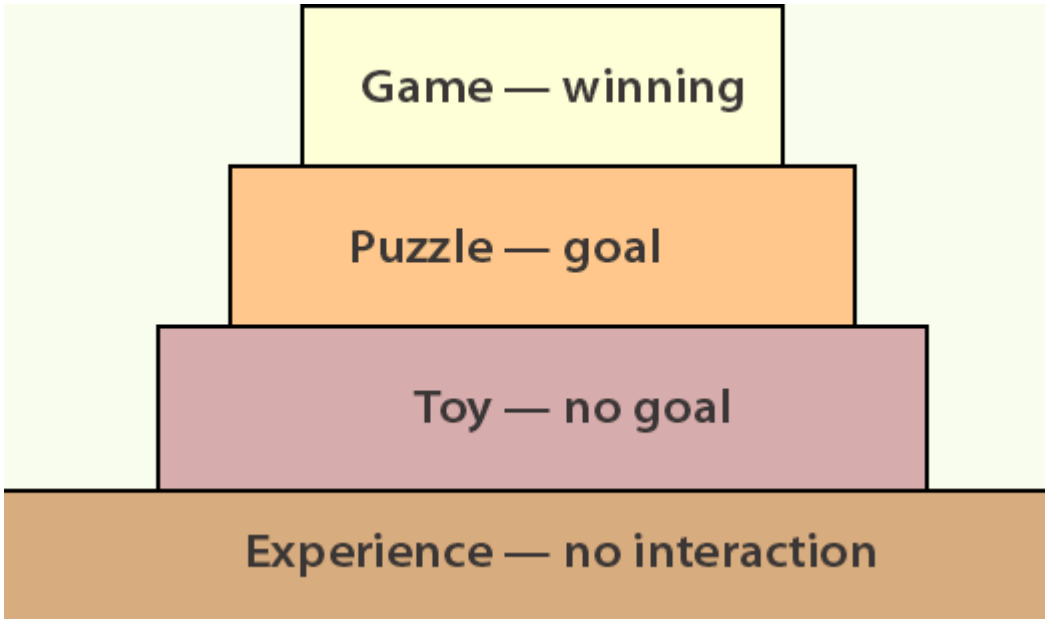
Good morning. I'm Ernest Adams, and this is "Why We Shouldn't Make Games." Now, I have a confession to make. I got you here under slightly false pretenses. In spite this lecture's deliberately provocative title, I don't actually mean to argue that we shouldn't make games. After all, I'm a freelance consulting game designer, and it isn't my intention to put myself out of business. So, two clarifications: First, what the title of this lecture really means is that I believe there are some good reasons to make products other than games, that is, products that are not games. Second, I mean that in a particular sense of the word "game" that I'll explain in a minute.

Last year my lecture was called "Will Computer Games Ever Be A Legitimate Art Form?" I concluded that they would be, but that we need to take certain active steps to achieve that status. The legitimacy of an art form is a social condition that is granted or withheld by the general public, and obtaining it is partly a matter of managing public perception and public expectations. This year I want to talk not about games as art per se, but more generally about the nature of the interactive medium. It's a sort of rambling discussion of how we're perceived and how we perceive ourselves.

This is, as ever, going to be very blue sky.

What Do We in the Industry Think a Game Is?

The answer to that is certainly not new, but I like the way that Scott Kim organized it when he explained it, so I'm going to shamelessly borrow from him, right up to ripping off his PowerPoint slides.



Experience, toys, puzzles, and games. Image courtesy of Scott Kim.

The bedrock of any kind of entertainment is experience, which doesn't have to be interactive—screensavers, movies, E-Books. The Flying Toasters screen saver was a non-interactive experience.

With toys, you add interactivity to experience, but you still have no rules and no goal. *Sim City* is a sort of toy because, like playing with building blocks, you design your own goals. However, *Sim City* does have a loss condition, or failure mode. Building blocks have a sort of failure mode too, inherent in the law of gravity and the structural properties of the blocks.

With a puzzle, you add more rules, the kinds of moves you are allowed to make, and one special rule, the victory condition or goal. You can achieve this goal by any means within the rules.

With a game, the goal becomes more abstract: to defeat the other player. Rather than a single fixed goal as in a puzzle, there are often many ways to achieve this, as in chess. *Tetris* is sort of peculiar because it is a game with no victory condition. The only real goal is to play for longer than you played last time.

Each type of play builds on a previous type, i.e. a puzzle should first of all be a good toy: it should be easy and enjoyable to play with even without a goal. Some games are highly abstract, like checkers, and closely resemble a puzzle. Other games are highly representational, like *Half-Life*, and our enjoyment of them depends on our capacity to pretend. Playing representational games is about pretending, about Coleridge's "willing suspension of disbelief."

You'll notice this is a very reductionist characterization, as you would expect from people with an analytical, engineering-oriented perspective. Engineering is the hub of computer game development, and that has consequences. Engineering is no longer

the largest cost center in game development, but there was a time when it was, and that sense of importance has remained in our thinking about the way games are designed and built even though that's no longer where we spend most of the money. Engineering is *not* the hub of board game development or card game development, and that frees board and card game developers to think about the design of those games in a way that we, for all our technological splendor, seldom do. I'll talk about the effect that our engineering culture has on us later on.

We have this analytical understanding of what a game is because we are game developers: it's our job to build games.

What Does Our Society Think a Game Is?

So that's what we think games are. But what does our culture think they are? I'm indebted for these points to Matthew Southern, a lecturer the International Center for Digital Content at Liverpool John Moores University, who recently gave a lecture called "The Cultural Study of Games" at GDC-Europe.

Southern said that the word *game* connotes a temporary, artificial social construct. A game is an experience distinct from the real world and whose internal workings, events, ethos, and culture are disconnected from the real world. The military conducts war games. These are temporary, artificial, death-free wars. On the TV show *Law and Order*, the prosecutors are always asking suspects who are little too cocky or flippant, "Do you think this is some kind of game?" In short, games aren't important. But people find it kind of creepy when games either look too real, or when their consequences spill over into the real world. What's the final line in the movie *Sleuth*? "It was all a bloody game."

I believe that we get into political trouble with the anti-violence campaigners when two conditions occur simultaneously:

- The game is highly representative of the real world, i.e. realistic; and
- The ethics of the game are highly disjoint from the real world.

That's what disturbs people: real-world gameplay in a non-real-world ethical system. It blurs the boundary between the make-believe and the real. You hear a lot of people complaining about *Grand Theft Auto* and *Kingpin*, *Doom* and *Duke Nukem*. You don't hear a lot of people complaining about *Medal of Honor* or *Return to Castle Wolfenstein*. World War II is sort of fair game, and you can slaughter all the Nazis you like without bothering anybody.

Games are also associated with winning and losing, of course. Apart from sports, races, and other kinds of contests, the main place where you hear about winning and losing is in war. However, I feel that the function of this is not to add gravity to games, but to reduce the gravity of war. It doesn't elevate games to the status of war. Talking about winning and losing, and speaking of war as if it were analogous to a game has the function of trivializing war, reducing it to the status of a game. Characterizing war in game terms has the effect of distancing us from the sheer horror of it. It gives it a somewhat unreal quality, and obfuscates the fact that,

whatever the stated objectives may be, the actual process involves the mass butchery of human beings. We don't *kill people*, we *bomb targets*.

There's also a tendency to simplify war and see it in bipolar, game terms. WWII in particular is remembered very much in terms of the good guys and the bad guys. But at the beginning of the war, Hungary and Finland were allied with Germany, because they wanted protection from the Russians—and for good reason. Does that make them good guys or bad guys? At the end of the war, did Finland win or lose?

Connotations of the Word *Play*

So what do we do with games? We play them. The primary connotation is of childhood. Play nicely, play together, we play on the playground. Sometimes kids play too rough. We want them to play fair.

The adult connotations of play are a little different. We play poker; we play the ponies; we engage in sex play. We play professional baseball; we play musical instruments. Play also involves doing something freely and in an unrestrained, perhaps uncontrolled, manner. We play the fire hoses on the fire. If you have to push a long way on the clutch pedal before the clutch disengages, it could be because there's play in the linkage.

Most adult categories have other names, not all positive. Playing poker and the ponies is *gambling*. Gambling has strong negative associations. The gambling industry has tried to confuse the issue by calling what they do *gaming*. It's not the Nevada Gambling Commission, but the Nevada Gaming Commission. In fact, they may have done our industry harm by doing this. And of course gambling is very heavily regulated.

Playing baseball is engaging in a *sport*. Sports are related to athletics and have a legitimacy that goes back to the original Greek Olympics. Sports are necessarily a physical activity (though not in curling). Sports are hardly regulated at all. Baseball even has a special exemption from the rules against monopolies.

Playing a musical instrument also has the generally positive connotation of *performing* upon the instrument. Playing a musical instrument is expressive, but ephemeral. It does not leave anything behind. It can be recorded, but it is universally acknowledged that the live performance is the "real" performance while the recording is only an imitation. We also "play" records and CD's and tapes by extension from musical instruments and music boxes. Again, there's a connection with the ephemeral nature of gameplay: as soon as the music stops, it vanishes. It's gone.

Reading a book is just as ephemeral as playing a videotape. It creates nothing and leaves nothing behind but a memory. It exercises the imagination and it doesn't require a machine, but it's still not a "productive" or a "creative" process. But we commend reading where we don't commend watching TV. It has been very interesting to see the Harry Potter phenomenon. "Finally, a book that has got children reading again!" shouts the press, as if reading were intrinsically more meritorious

than other forms of entertainment. Let's face it, it's still escapist children's fiction, whether it's the Harry Potter books or Scooby-Doo, the animated cartoon.

Books have a very ancient legitimacy. They're connected with scholarship, with the law, with religion. They are the repositories of all human knowledge, at least for the next ten years. The first book Gutenberg printed was the *Bible*, the founding document of the civilization in which he lived. But the first TV show ever broadcast was the 1936 Olympic Games, something quite ephemeral. If a person has a big library of books, she's a scholar. If she has a big library of video tapes, she's a couch potato.

The concept of play doesn't intrinsically include a notion of permanence or construction. To specify those notions, we have to add adjectives: creative play or constructive play. Play is closely tied to the imagination and to our capacity to pretend, as I said above, and it's understood that both are temporary and insubstantial. So you can see that the concept of *playing* a game doesn't really do us any favors, if we want our medium to be taken seriously.

The Universal and the Specific

When I was 10 or 12 years old, my father got me started reading the plays of George Bernard Shaw. I really enjoyed them; they were witty and clever, and full of funny anachronistic asides to the audience. One of the unusual things about Shaw's plays is that they have extremely detailed descriptions of the sets and the characters. For example, the play *Arms and the Man* is set in the Balkans, in an area that formerly belonged to the Turkish Ottoman empire, but at the time of the play belongs to the Austro-Hungarian empire. The set is described as being "half rich Bulgarian, half cheap Viennese." And I'm sure that set designers have been tearing their hair out from that day to this as they try to figure out how to bring this effect across.

When I wrote a play myself, in a play-writing class, I imitated Shaw's way of describing the sets and characters. My professor told me very firmly to please leave the director something to do. But these were the first plays I had ever read, so I just assumed that this level of detail was standard. Imagine my disappointment when a couple of years later I picked up Shakespeare for the first time. Half the time the characters don't even get names: The Duke of Norfolk. What does he look like? What does he sound like? How does he behave? How are you supposed to know? No descriptions of the sets at all, and no stage directions apart from ENTER, EXIT, and THEY FIGHT.

Shaw was specific. Shakespeare was universal. I want to talk for a bit about what I see as a distinction in the media and popular culture between the universal and the specific. By this I mean universal stories and specific stories, universal themes and specific themes, and so on. It's difficult to explain without recourse to examples, so I'm going to give you several. I also need to emphasize that this is not a hard-and-fast dichotomy. Rather, it's a continuum.

The universal serves as a template for exploring an idea in depth, perhaps in a variety of ways and from a variety of angles.

Painting

Painting used to be highly representational, highly specific. Back when painting was the only way of creating an image, almost all paintings were representational. But now, God help you if you try to get an MFA by painting what you see! You're likely to be flunked. The modern art establishment insists upon extreme universality.

Music

Instrumental music is universal, vocal music is more specific. Why do people go to see operas when they can't understand the words? Because they are there for the universality of the music. It actually loses something if you *do* understand the words. Hearing someone sing "I'm so lonely" five times in a row rather diminishes the impact. Comic opera, however, like Gilbert and Sullivan, wouldn't be any fun at all if you didn't understand the language, and that's also true of Broadway shows.

Richard Wagner, with his music drama, tried to blend the two. He wanted extremely representational staging, but more importantly, he tried to write his singing as conversationally as possible, with none of the arias and set-pieces of conventional opera. He didn't call it opera, either, he called it "music drama."

Cinema

In dramatic terms, film has largely taken over from the stage in terms of representing the specific. Film is capable of displaying a world that is indistinguishable from reality, so most film is highly specific. Even when film is showing something outrageously improbable, like an invasion of aliens, it does so with a high degree of detail.

People had trouble with the casting of Denzel Washington and Keanu Reeves as brothers in the movie of *Much Ado About Nothing*. Denzel Washington is black, Keanu Reeves is white, and we don't expect to see a black man and a white man portrayed as brothers on film. It places great demands on our suspension of disbelief. It violates our expectations about the specificity of film. But the filmmakers thought it acceptable, because it was a filmed Shakespeare play, with a long tradition of experimentation and universality.

Stage

And of course that leads to the point that in the past 50 years or so, the stage has ceded the specific over to film, and has tended more and more to represent the universal. The stage doesn't do the specific as well as film does, so it has largely quit trying. Now we see bare sets, few or no props, and so on. Instead, live theater concentrates on the story and the characters without worrying so much about the realism of their portrayal.

Not long ago there was an all-Zulu production of *Macbeth* at Shakespeare's Globe in London, in the Zulu language, complete with full tribal dress. Before they were conquered, the Zulus had a complex, monarchical culture, and the story of *Macbeth* makes sense in that context. But you can't make a Schwartzenegger movie with Cissy Spacek in the title role. Schwartzenegger is too specific; the role is too closely tied to him. You'll notice that this universal/specific division also seems to come along the art/popular culture boundary. Popular culture is easy to grasp, art is

difficult to grasp. The specific—Arnie movies—are easy; the universal is more challenging. Shakespeare did not necessarily intend to be universal; it is we in modern times who have chosen to see him in that light. But what enables Shakespeare's universality is the absence of stifling detail.

Games

If we look at the greatest games of the past, it was their universality that made them great. *Asteroids, Space Invaders, Pac-Man, Quake Arena* are excellent examples of the universal. And of course, the absence of stifling detail in early games was partly due to technological limitations. They didn't look good, so they had to play well. I also think it's really interesting that *Asteroids* and *Tempest* and *Battlezone* were all done with vector graphics displays. And with vector graphics displays, you only draw what you have to draw. You can't afford to draw anything that isn't really needed. I think that's an interesting discipline to consider when we're creating a game: What would it be like if we had to make this game with a vector graphics display? That would train us to trim down the fat, reduce the game to its essentials.

I realize that this sounds like just another variant of the graphics-versus-gameplay argument, but it's more than that. Nor is it just a question of "keep it simple, stupid." Entertainment doesn't have to simple—goodness knows *The Lord of the Rings* isn't simple—but every detail should contribute something; it shouldn't just be there for its own sake.

When you're designing a game, or any other kind of software product for that matter, it's very easy to get bogged down in the minutia. We've all seen products that were bursting at the seams with features and details, but lacking in a coherent theme or a central organizing principle. As Brian Moriarty put it, it's not a question of knowing *what* you want to do, but *why*. There's a temptation to dump in detail early on, because details are fun and widgety and they appeal to our engineering-oriented, gadget-centered, and dare I even suggest, masculine gaming ethos.

I think it's incumbent upon us, as we design games and other forms of interactive entertainment, to try to start with the universal, and to add specificity and detail as needed.

Rigid Social Relations

Another problem with the game concept is that it establishes rigid social relations. Formal game theory is defined as the mathematical study of situations in which there is a conflict of interest. When we characterize types of games and gameplay, we usually divide them into several categories: solitaire, competitive, cooperative, and team-based. But these simplistic social relations don't take into account the intricate complexity of real human affairs. The "game" concept simplifies social relations.

Remember what Treebeard said in *The Lord of the Rings?* The hobbits asked him which side he was on, and he replied, "I don't know about sides. I'm not particularly on anybody's side, because nobody is particularly on *my* side, if you see what I mean." Again, this pigeonholing that's associated with games discourages us from exploring the full complexity of human relationships. That's something that we need

to try to move away from, characterizing people and their positions so rigidly in terms of “sides.”

Dramatic Tension and Gameplay Tension

Dramatic tension is the sense of incompleteness in a story. The story involves you somehow, gets you hooked, makes you care about what’s going on. All the classic schlock novel genres include the imminent danger of death: westerns, fantasy, spy novels, techno-thrillers, some mysteries. But most serious literature does not include the imminent danger of death. It’s too strong a flavor. People don’t go through life worrying about imminent death most of the time. Serious literature is about other concerns.

Dramatic tension does not have to involve risk, even non-physical risk. “What’s going to happen next?” is the question that underlies dramatic tension, but it doesn’t necessarily involve risk. Dramatic tension is usually explained using a sexual metaphor—and a rather masculine sexual metaphor at that—although they tend to paper this over when they’re teaching you about it in 7th grade. Remember how they used to talk about rising action, and the climax, and falling action, and the conclusion?

Gameplay tension is caused by the presence of a victory condition or a loss condition or both. Gameplay tension produces artificial emotional constructs—the desire to win and the fear of losing. It is this similarity between gameplay tension and dramatic tension that is the reason it’s so natural to try put stories into games, and to make stories out of games. Gameplay tension, like the dramatic tension of schlock fiction, tends to center around death, and like schlock fiction, it trivializes death. This is another reason we’re not doing ourselves any favors by making games.

I’m sure you all remember that six or seven years ago there was a great deal of excitement about “interactive movies,” and a lot of debate about how we can make them. Well, I think that problem has been solved, at least for one particular genre of movie: We know very well how to make interactive action flicks. But not all interactive entertainment has to follow this quasi-sexual model of tension and climax.

I happen to think that most massively-multiplayer online role-playing games at the moment are pretty lame. Because of their mindlessly automated nature and their historical basis in tabletop role-playing, they’ve given rise to a number of degenerate strategies, of which player-killing and camping—waiting around for monsters to respawn—are only the two most egregious. However, they do represent a major step forward in one respect, because MMORPGs are not games. MMORPGs don’t have an ending. The object is to offer continuing entertainment and enjoyment.

There are four classic reasons people play MMORPGs: social interaction, exploration, character growth, and combat. Social interaction has no goal, it’s simply pleasurable to do. Exploration has only a diffuse goal. The whole point about exploration is that you don’t know where you’re going or what you’ll find when you get there. After all, Columbus didn’t say, “I’m going to discover America,” he said, “I’m going to find a faster way to get trade goods back and forth to India.”

Character growth and the acquisition of goods has a generalized goal but one with no real end in sight. You seem to be able to go on leveling up indefinitely. Unfortunately, it's very numeric. This isn't character growth in the literary sense.

Combat, the fourth reason, has the most game-like quality. It's very immediate, and it immediately punishes failure.

The thing about MMORPGs is that you can do any of these things, in one degree or another, although they vary from product to product. I've long been interested in the problem of the inverse relationship between interactivity and narrative in traditional single-player games. MMORPGs sort of disentangle this problem.

Consider the options of a private in the infantry in World War II. They're extremely limited. He has very little free time. He has to obey orders. His life is a linear path, rule-bound.

Consider the options of a wealthy landowner in Chile during World War II. He has near total freedom within that environment. He can do whatever he feels like.

In between these two—the infantry grunt in the trenches and the wealthy landowner who's unaffected by the war—is somebody special: a secret agent, a commando, or better yet a member of the Resistance. They're bound by their mission, they're surrounded by danger, they have limited resources. Yet in spite of that, considerable freedom to innovate, to undertake the mission in whatever way seems best. The British SAS, and most commandos for that matter, are unusual as soldiers in that they're selected not for slavish obedience to orders, but for their ability to improvise. That's the kind of person our player needs to be.

Again, to quote the *Lord of the Rings*, we don't get to choose the time in which we live. All we can do is decide what to do with the time that we're given. And I think that, ultimately, is the game designer's challenge: we create the circumstances in which the player finds himself, but we must also give the player the freedom to react to those circumstances in whatever way he thinks best. Our player needs to be a sort of commando. There's nothing he can do about World War II as a whole, but he can do his best to find a way to achieve the mission that he's on, in whatever way seems best to him. The MMORPG is open-ended and it does this pretty well, but it only rewards certain kinds of success.

Limitations of Providing Goals

There's one other game that I'm very interested in learning more about, and that's *Rez*, from Sega. *Rez* is a sort of musical shooter, in which your shots blend with the music and become part of it. But what's really interesting about *Rez* is that it has an invincible mode that in effect turns the game into a musical instrument. Many games have invincible modes, but usually as cheats left over from the testing process, not as legitimate ways to play the game. In Rez, when you turn on the invincible mode, it stops being a game and starts being a musical instrument. That's very interesting and unusual.

Last year I talked about the possibility that working towards a goal, especially a fixed goal, might not be compatible with having an art appreciation experience. Games can also have flexible victory conditions. The board game *Careers* let you define your goal within certain parameters. You had to collect sixty points to win, but they belonged to one of three categories, love, money, or fame. At the beginning of the game, you defined how many of each you wanted to collect, as long as they added up to sixty. That let players define their goals for themselves

And games can have no victory condition at all. The Maxis sim games have no victory conditions, they just have failure modes. which put pressure on the player to act.

Teachers Hate Video Games

Another reason that the game concept hurts us is that it has engendered a mutual suspicion between academe and game developers. For our part, we certainly regard academics with suspicion. There are two reasons for this. One is our heritage as self-taught game designers building games for ourselves. A lot of us don't like the idea of being told by some eggheaded professor that they know what fun is and we don't.

Despite the billions of dollars that the industry makes and the millions of dollars that it requires to build a hit game, there's still a perception that you can do it in your basement, and a hell of a lot of people trying. And a few of them do meet with success, which tends to reinforce this notion. We're suspicious of ivory-tower elitists.

The second reason is our heritage in engineering. Our culture still harks back to the days when you spent 90% of the money on programming, and 10% on art—the days of the Atari 2600 and the Mattel Intellivision. Nowadays the engineering work is only a fraction of the total expenditure, but even so, the engineering is still the hub of the project. If you took all the pictures and all the sound out of a computer game, the game would still be there. You couldn't see it or hear it, but it would still be there running inside the computer. The dominance of engineering brings it it an engineer's mentality, a put-up-or-shut-up, show-me-the-numbers attitude that tends to pervade all game development.

The engineering mentality has crept into the marketing and sales and reviews of computer games too. When was the last time you heard of a really good movie whose advertising talked about the technical specifications of the gear that created the special effects? OK, you get some, like TV specials on "The Making of *Jurassic Park*," but then *Jurassic Park* wasn't actually a really good movie. It was an action flick that also happened to be a technological tour de force. We've trained our consumers to think like engineers, and to demand games on the basis of their technical specifications. We don't encourage them to ask for decent acting or a credible plot or subtle characterizations, and God help us if they ever start to!

Engineers don't have any time or respect for fuzzy studies. They don't care about "cultural this" and "social that." As a result, we don't have much interest in academic studies of computer gaming, except for advances in programming and artificial intelligence.

On the other side, the academy is suspicious of, and hostile towards us. Their students play games, but the policy makers at the top don't. At the risk of seeming ageist, the tenure system tends to guarantee that the people at the top of the educational establishment are older, and at the moment many of them are still from the pre-gaming generation. And games aren't respectable; they're distractions from homework. Yesterday at the Academic Summit I heard a professor at UC Irvine say that when she told a university committee about the research she was doing on games, she was firmly ordered never to work on games again.

These prejudices, on both sides, are harmful to us. As with other art forms, especially recent ones, it is only when they become the subject of study and thought that they begin to be treated seriously by the general public. Movies began to be taken seriously as an expressive medium when people began to study what you could do with them, when they moved out of the nickelodeon. There are no degrees offered in board game design. So far as I know, there are no degrees in toy design. These remain childish pursuits with no cultural significance except when there is an issue about how they influence children specifically.

There is a tremendous benefit to be had from the non-commercial study of interactive entertainment. It enables us to try new things, examine areas that have no known commercial potential thus far.

Some companies set up research and development departments inside their own shops. Pharmaceutical companies and electronics companies consist almost entirely of R&D departments. Well, I was at Electronic Arts for eight years, and if any company in our business has the resources to fund an R&D department, it's EA. But in all that time, I never saw the company make a serious commitment to the idea. It did some R&D every time a new piece of hardware came out, but other than that, Electronic Arts' approach to advancing the potential of the medium that it depends upon for its livelihood was never anything but by-guess-and-by-God.

Wise, enlightened corporations have always funded academic study because they know that it will benefit them in the long run. But it takes a wise, enlightened company to think about the long run these days. Few companies look beyond next year's product plan and this quarter's bottom line.

Academic study provides legitimacy. The two areas that reliably turn ridiculous science fiction fantasies like "space flight" into realities are academic research and military research. And in both cases, the motivation is something other than commercial sales.

Summary: Why We Shouldn't Make Games

Why shouldn't we make "games"?

First, because games aren't perceived as important. Art is important. Literature is important (even popular fiction). Music is important (even pop music). Who would have guessed back in 1964 that 40 years later the Beatles would be treated with the same kind of reverence that we reserve for authors and artists, that it would be *Sir* Paul McCartney. Film and even television are important.

Games aren't important... but what we do *is*. How can that be? We are now a powerful social and economic force, but we're not a powerful political force. How many other $6 billion industries can you name that are so universally reviled by lawmakers? The term *game* pigeonholes us with the public and with lawmakers, and that has political and social implications.

We lie along a continuum of popular culture that runs from books to toys. Nobody thinks books are only for kids, and any suggestion that we should censor books for the sake of children's mental well-being would be met by utter outrage. But nobody gives a second thought to censoring toys. They're not covered by the First Amendment, they're regulated by the Consumer Product Safety Commission. We're somewhere in between.

Second, because the whole "game" notion constrains how we think about entertaining people, and how others think about us. The game model imposes a limited and rigid model of human relations. We don't need the game concept, the thrill-of-victory/agony-of-defeat dichotomy, in order to create successful entertainment products. *The Sims*, and in fact the entire Maxis product line, are proof of that. So are MMORPGs. Restricting ourselves to making games is like restricting a composer to working in 4/4 time. You're never going to invent jazz that way.

Third, the "game" concept earns us only the distrust and even contempt of the academy. It's easy to say "more fool they," but we need them. We need to work together, both to better understand our own work and to obtain the cultural credit we need in order to preserve our own creative freedom.

Fourth, we need to shed the kiddie image. We can't stay in this children's ghetto forever, and that's where "game" puts us.

Finally, we shouldn't make games because we already know how to make games. I know I'm shooting myself in the foot to say this, but game design is not rocket science. There are certainly areas that are better understood than others... there's that whole vexed question of interactivity and storytelling, for example. But even so, we're doing pretty well at what we do. For example, I consider the first-person shooter, and most action games to be pretty much a solved problem. They're defined by the physical limits of the human eye and hand. There's still a lot of room for innovation in content, and details like artificial enemies, but the fundamental design principles are pretty well understood.

I firmly believe in doing things that you *don't* know how to do. The only way we obtain advancement, both technological and aesthetic, is by doing things that we don't know how to do. The Wright Brothers didn't know how to build an airplane. They just kept at it until they did know how. We spend a lot of time working on things that we don't know how to do technologically, but very little time working on things that we don't know how to do aesthetically, and even less time working on things that we don't know how to do in gameplay terms.

Conclusion

The interactive medium is so rich, so powerful, so flexible, that the variety of things that we can make cannot possibly be encompassed by the term *game*. We need a paradigm, a metaphor for what we make, that is disconnected from these connotations of childhood, artificiality, impermanence and irrelevance. I don't know what the name of that paradigm is. Some years after he founded the *Journal of Computer Game Design*, Chris Crawford changed its name to the *Journal of Interactive Entertainment Design* to reflect the broader meaning that those terms have; but *interactive entertainment* is a vague mouthful that doesn't really conjure up any particular idea.

We don't yet have a term like *film* or *television* or *Hollywood* that instantly denotes what we do and who we are. The word *game* is a straitjacket for our own creativity, a straitjacket that we cheerfully put on by ourselves. But the time has come to take it off. Go out there and create new kinds of products that are not games. And in a final, shameless moment of self-promotion—let me know if you need any help, because after all, I *am* a game design consultant. Or just a design consultant.

Appendix I: Transmitting Meaning in Interactive Contexts

Ernest W. Adams

2003 COSIGN Conference

This is an approximate transcript of my keynote address delivered at COSIGN 2003, the 3rd Conference on Computational Semiotics and New Media, on September 11, 2003 at the University of Teesside, Middlesbrough, UK.

Introduction

Hello. My name is Ernest Adams, and I'm a consulting game designer and writer. I've worked in the game industry for 14 years, 3 of them at a small developer, 8 of them at Electronic Arts, a large publisher, and 3 independently, so I've seen the industry from various angles. I also used to own and produce the Game Developers Conference with a group of partners, and I founded the International Game Developers' Association.

I need to warn you that this is not going to be an academically rigorous lecture. As a visitor from industry, I feel it's more my role to build bridges than to present formal arguments. I expect to raise questions rather than to provide answers.

I should also say that I no training whatsoever in semiotics. I've done a little reading and managed to pick up some of the lingo, but that's all. And I will probably use a lot of it wrongly.

I am going to deviate rather sharply from the abstract that you were given. The reason is that, the more I researched the subject, the more I realized how much work has already been done, and for me to go into this ground is to risk either a) telling you things that were old news ten years ago, or even worse b) proposing ideas that were refuted ten years ago.

Industrial Development Culture

Rather, what I'm going to do is stick to what I know, and try to introduce you to the culture and mindset of the game developer—in other words, to provide some insights into the *en*coding process that is involved in making computer games.

(Already, of course, we have a nice little postmodernist pun in that creating computer games does in fact involve coding, namely program coding, which, although I loathe postmodernism with every fiber of my being, I will endeavor to play on and make as ironical and self-referential as I can.)

Part of the gap between industry and the academy is a lack of understanding of each other's respective worlds. I've been encouraging the industry to reach out to the academy for some time now, and that's why I'm here. If, as a semiotician, an art critic, or a literary theorist, you belong to that philosophical camp that believes that the intentions of the author are irrelevant to your analysis, then none of this will be of any use to you. However, as a creative person, I feel that this information cannot be ignored.

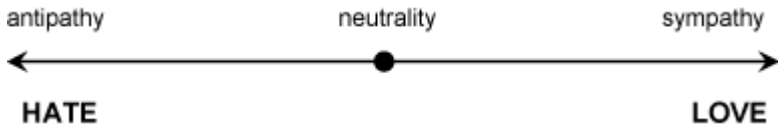
Philosophical Roots

I am a game designer, but first I was an engineer, and once upon a time, all game developers were engineers. We're technologists. The programmers, the audio people, the artists, even the writers are technologists. I used to have to write the voiceover scripts for *Madden NFL Football*, in such a way that sentence fragments could be assembled and played seamlessly in real time. That meant that I had to choose my words not only on the basis of their meaning, but on their phonetic content, and on the movements of the lips and tongue. These are not issues that Gabriel Garcia Marquez had to pay much attention to.

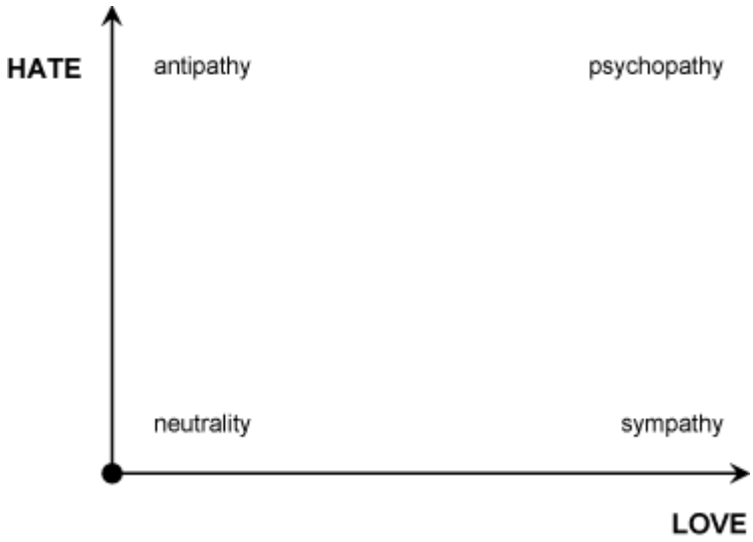
Our philosophical roots are in Immanuel Kant, John Locke, David Hume, Gottlob Frege, Bertrand Russell. They are not in Bergson, Sartre, Derrida, or Foucault. The philosophical center of our world is the Von Neumann stored-program digital computer, and that still influences everything else.

Computer programming is about formal logic. About rigor and precision. As with a deduction in a chain of proof, the tiniest error in a computer program can undo the whole thing. In other words, we are classicists, with classical, formal methods, and this influences every part of game development. For us a bit is either one or zero, and if it's not either one or zero, then there's something wrong with it and we replace that RAM chip with one that conforms.

You can see this in the way that we model human relationships—when we bother to model them at all. We normally characterize affinity relationships as a single-valued variable, with negative values indicating hate and positive values indicating love.



But a much more useful representation might be keeping hate and love as separate variables that are modified by different kinds of events or circumstances.



And of course the Greeks identified four different kinds of love!

Game developers, and indeed the entire IT industry, are the Victorians of our time. When you say the word "Victorian"—particularly to an American—what initially springs to mind is a rigidly stratified class structure, repressive notions of morality, imperialist expansionism, and women corseted to the point that they could not breathe properly.

This view, accurate though it is, has tended to obscure the great Victorian accomplishment, which was the Age of Steam. The Victorian period was a period of scientific and engineering innovation that was unparalleled in human history, and has found a modern reflection since the invention of the integrated circuit. Electrons are the new steam.

That period was dominated by the British and the Americans: the British with their vast empires to be crossed with their steamships and steam locomotives; the Americans with their vast nation to connect. The information age is similarly dominated by the Americans and the Japanese.

It's no surprise that this period has spawned an entire new branch of science fiction, "steampunk." The technological advances of those days must have seemed every bit as exciting in their time as ours do today. We engineers of the Information Age look back on the engineers of the Age of Steam with admiration and approval. Andy Grove, the CEO of Intel, is our Isambard Kingdom Brunel.

So we have a tremendous energetic enthusiasm for the benefits of electronics that nicely mirrors the Victorian enthusiasm for the benefits of steam. To use the language of media theory, we are technological determinists, and this is so deeply engrained in the culture of game development as to be axiomatic.

Recently it was announced that the PS3 might be 1000 times as fast as the PS2. This is accepted as a good thing without question… but what does it actually imply? Will

the computer games be 1000 times as entertaining? Will the quality of the stories be 1000 times as good? Will the artificial characters be 1000 times as smart? I doubt it.

Hardware designers design computer hardware in order to maximize processing power, because that is their area of interest and expertise, that's what they've been trained for. Even though they are designing a machine explicitly intended for playing games, for offering ludic experiences, they still think of it primarily as a data-processing device. There is a distinct disconnect between the intended purpose of the machine and its designers.

On the other side of the equation, the game designers are handed a new machine without ever being consulted about its capabilities. It is simply given to them, and their approach is, "Well, let's see what can be done with this thing." As a designer, I wish that somebody would invent an ASIC chip that did pathfinding. But nobody asks for my opinion. Computers were invented for calculating ballistics tables for artillery shells, and in essence that is what hardware designers still optimize them to do.

This is one respect in which we differ from the Victorians, because they were not using their steam engines to entertain with. But in spite of this we still possess that overweening Victorian self-confidence and enthusiasm.

We've got this colossal emphasis on appearances that overwhelms everything else. If book publishers published books the way game publishers published games, then every book would be a printed on 100% cotton rag paper and bound in Moroccan leather, and nobody would give a damn whether the the actual story was any good.

The Literary Comparison

So let's cross the C.P. Snow gap, and turn from the technology side of our craft to the humanities side. How do professional game developers feel about their creative works?

First a warning: It's important to be aware that the majority of computer games are non-narrative. They are simulations of real-world activities of one kind or another, such as sports or racing, and there really is no literary analogy to be made. *Beetle Adventure Racing* is just about driving Volkswagen beetles. If I catch you writing a Marxist or feminist or Freudian analysis of *Beetle Adventure Racing*, I'm going to smack you upside the head. To paraphrase Freud, sometimes a Volkswagen is just a Volkswagen.

Returning to games as literature: we are not postmodernists. We don't read Don DeLillo or draw any inspiration from him. Part of the reason that we reject postmodernism is that one of our holy grails is *immersiveness*. The kind of immersion that you are able to achieve with a really good book or a really good movie is very hard for us. It's hard for two reasons:

- Our graphic display technology was so poor until recently we haven't even been able to come close to what TV and the movies can do.

- Our artificial intelligence is so poor—we can't create genuinely lifelike characters. This is the single biggest problem facing the game industry.

Also the concept of self-reference is absolutely nothing new to us. People have been designing self-referential computer algorithms for decades—it's called recursion in programming—so it doesn't seem particularly amusing or clever.

It's so easy to write an immersive book that some authors find it funny to play head games with the reader, shocking them out of their immersion by reminding them that this is only a book, and so on. The *French Lieutenant's Woman* was a very good example of this. John Fowles stopped in the middle of the book and started talking about the fact that it was only a book. When they made it into a movie, they did an extraordinarily good job of representing this self-referential nature cinematically.

If you don't believe me that immersion is easy to create in a book, just look at Mills & Boon romances. We highbrow literary types might dismiss them as cheap trash, but nevertheless, millions of people slip into them very easily.

With video games, it's so damned hard to create a really immersive one—apart from purely mindless exercises like *Tetris*—that there's nothing to be gained by intentionally destroying the fiction. The player doesn't want to be told "It's only a game." He has a hard enough time forgetting that as it is.

That playful refusal to take yourself seriously that is characteristic of postmodernism is anathema to us. We already know what play is about, thank you very much, and we take ourselves extremely seriously.

We are not only not postmodernists, we're not even modernists. We have not yet had our Virginia Woolf, our James Joyce. That kind of experimentation is only now beginning to occur, and the reason it's beginning to occur is that video games are starting to be seen as an art form that is worthy of experimentation. It is *not* occurring in industry, however. Experimentation of this kind is firmly discouraged in the commercial game industry.

Could we be pre-modernists? Sir Walter Scott, Thackeray, Dickens, Trollope, Jane Austen? If only we could write one-one-hundredth as well as they could. Computer games are in some respects like Victorian novels: bold, simplistic themes; clearly-defined good guys and bad guys; ending in the triumph of righteousness. Like Victorian novels, many computer games are too long, and require perseverance and dedication to get through. Indeed, at times you must tolerate being sadly bored by the process if you want to make it to the end.

In fact our model is even older even than Victorian novels. Let's not forget that among the game industry's most influential authors is J.R.R. Tolkien, and he himself was inspired by the Icelandic Sagas, the Eddas, and the whole body of Nordic and Teutonic myth. Those, too, are our cultural forebears: the great northern European tale of adventure.

Duke Nukem would be entirely at home aboard a Viking longship. His blond hair, his contempt for women, his violent anarchy make him the very type of a berserker.

Duke Nukem is not a Roman, a conquerer, who comes to pacify, build and settle; he is a raider who comes to rape and plunder and leave. And what better mythic metaphor for *Quake Arena* could there be than Valhalla, a heavenly place where warriors go to slay and slay and slay, and each time they are killed they are resurrected so that they may continue to slay until the coming of Götterdämmerung, when the server goes down for the last time.

The game industry's fascination with the works of Joseph Campbell, the monomyth, the Heroic Quest, bears this out. The heroic quest is ideally suited as a narrative structure for a video game. It concentrates on a single person, and his interaction with others; it's about challenge, and struggle, and overcoming obstacles. But the heroic quest is a very limited form of literature. Campbell notwithstanding, it's hardly the apotheosis of storytelling. It does not admit of books like *The Grapes of Wrath*, or the works of Dickens. We can't do *The Grapes of Wrath.* We can't do Dickens. You can make *The Lord of the Rings* into a video game. Beowulf. Wagner's Ring cycle. You can't make *The Grapes of Wrath* into a video game—not yet. Not now, anyway.

Immersion and Romanticism

I have been using the term *immersion.* A related concept is Samuel Taylor Coleridge's *willing suspension of disbelief*. In the preface to his book *Lyrical Ballads*, which he wrote with Wordsworth, he created this notion as part of his plea to the reader to indulge in poetic faith, to allow your mind to accept tales of fantastical things, and to fill in the gaps left by the poet.

In 1995, the journalist Scott Rosenberg commented that the new generation of video game hardware, with its emphasis on photorealism, was producing not *willing* suspension of disbelief, but *coercive* suspension of disbelief. The game industry isn't going to let you fill in the gaps with your own mind; it's going to do its damndest to convince you that what you see is real. Again, that's all to do with the incredible difficulty of creating immersion in our medium. We work so hard on suspension of disbelief because it's so difficult to obtain. This is all part of taking ourselves seriously.

To quote the famous game designer Brian Moriarty:

> You know, the suspension of disbelief is fragile. It's hard to achieve it, and hard to maintain. One bit of unnecessary gore, one hip colloquialism, one reference to anything outside the imaginary world you've created is enough to destroy that world. These cheap effects are the most common indicators of a lack of vision or confidence. People who put this stuff into their games are not working hard enough.

Coleridge's introduction to the Lyrical Ballads was the opening salvo of the Romantic era. Nowadays we might even call it a manifesto.

So what does Romanticism have to do with game developers?

Well, I've already said that we're not postmodernists, we're not modernists, we're some kind of pre-modernists, but we don't know exactly what. We are certainly attracted towards romantic ideals. Not necessarily capital-R Romanticism in the tradition of Byron and Shelley. Rather, I'm talking about the small-R romantic aspirations of the lonely, geeky adolescent. Why do you think so many games are teenaged power fantasies? They're all made by a bunch of pale-skinned, narrow-chested male nerds who secretly dream of being Conan the Barbarian.

It's not just that that's all we know how to do; it's that that's all a lot of us *want* to do. Games are made by the same guys who go to action flicks. Or at least they were. It's not true any more, but those are their historical roots.

So our creations are highly romantic creations, full of blood and thunder and derring-do. But didn't I just five minutes ago say that we were classicists who were obsessed by logic and rigor and formalism? Yes, I did.

The game industry strives towards romantic ends by classical means.

This explains why it is so difficult. We are at our best when we produce classical games: *Tetris*, chess, Nine Men's Morris, etc. because our underlying philosophy, not to mention our underlying hardware, most closely supports that model. We run into trouble, and produce two-dimensional 1950's comic books, when we try to do anything more complicated. It's interesting to observe how many computer people love Tolkien, and yet Tolkien himself could not have engineered his way out of a wet paper bag. He was a little later than the Age of Steam, but he certainly saw many of its products around him in Warwickshire, and loathed them. The man was a Luddite, pure and simple. Yet we revere him all the same because we aspire to his romantic dream.

Video games are nerds' poetry. But it's all still Beowulf and Egil's Saga.

In literary theory, we draw a pretty clear distinction between fiction and non-fiction. A novel by Thackeray and a shop manual for a 1946 Dodge pickup truck have very little in common besides being written in English. The novel is about an imaginary world; the shop manual about a real vehicle. The novel is intended to be read linearly; the shop manual is intended to be consulted on a random-access basis. The novel entertains; the shop manual affords. And so on.

And yet as a game designer, I walk this tightrope every day. What I do is to write technical documents which enable the creation of fiction. Weird! Again, struggling by classical means to achieve romantic ends.

Games and Semiotics

I'd like to talk about the role that pretending plays in games. It is related to the fictitious world of the storyteller; Coleridge's concept of "suspension of disbelief" is even more vital to the game world than it is to the fictitious world of the novelist. The fictional world is a world that we observe and pretend to believe; the game world is a world that we observe and pretend to be a part of.

The Search for a Text

A game world is an artificial mental space which is entered by choosing to play. By beginning to pretend. Representational games include deliberate signifiers whose object is in the real world. Representational games require a lot of pretending.

Abstract games are self-contained, their signifiers do not related to objects in the real world. In an abstract game, relatively little pretending is necessary. Baseball is a highly abstract game. Self-contained, it includes no exterior references. This is by contrast with football, rugby, basketball, water polo, and so on, all of which are rape metaphors.

No two players experience the "text"—the game—in the same way. Now, the fact that interactivity throws something of a spanner into the works of semiotic analysis of conventional linear media is hardly going to be news to you people. Obviously this is one of the best-known problems with interactive media. It's not just that no two players decode an identical experience in the same way, as we have with books and movies. It's that the actual raw information presented isn't the same, and in fact the *same* player, playing the game again, can be presented with different information.

If we seek an invariant text, we have to look at the program code that creates the experience. That is identical from one player to another and from one playing to another. The program code is the embodiment of the rules of the game. It's the place where the interactivity comes from. It's the only tangible thing you can point to and say, "the developer made that."

Although the code is invariant, the variables certainly are not. Some of them are randomized; some vary depending on the player's input. What would it mean to have a text that the perceiver never actually sees? I'm dubious about regarding the program code as the text.

Games and Symbols

When examining any text, we can look at:

- The author's intentional use of symbols, e.g. water motifs in Virginia Woolf.
- The author's unintentional use of symbols—his unconscious or subconscious use.

This is of course the basis for Freudian analysis, feminist analysis, Marxist analysis —this presumption that there are influences on the author of which the author is himself or herself perhaps unaware, but which produce visible signs in the work.

Finally, it's possible to convey meaning not through the content itself but by the way in which the player interacts with the content—the non-symbolic transmission of meaning via interactivity.

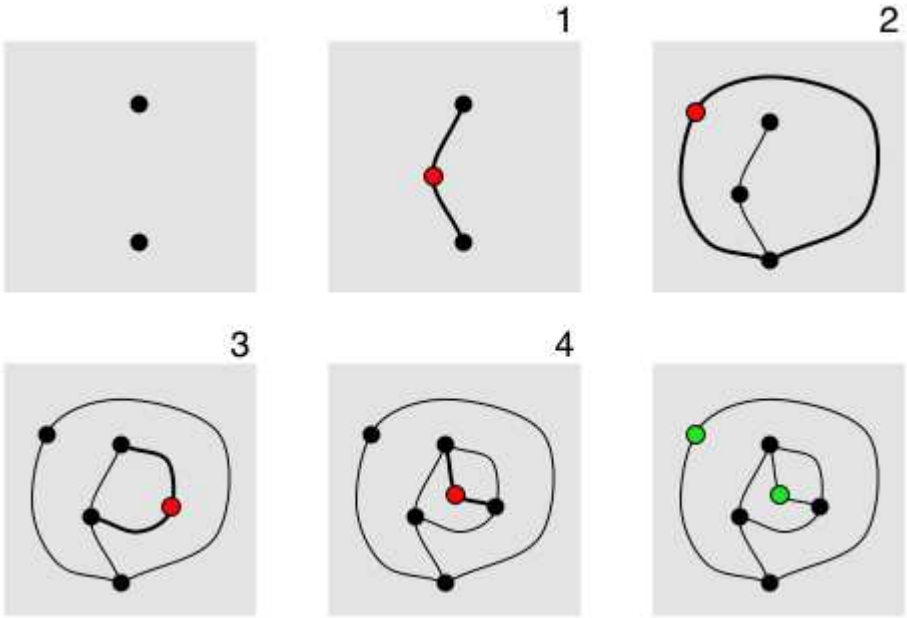
Can a game ever be symbol-free? Any type of striving for victory may be considered symbolically significant. We might argue that all zero-sum games are symbols. The

very existence of a game makes the game a signifier. In that case, however, I would consider the game to be a meta-symbol.

We therefore need to distinguish between the game and its content. I hold up a book: the book is a sign with numerous connotations. I open the book to reveal that it is empty: it contains no symbols at all. Therefore while the book may be a sign at a meta-level, it actually contains no signs. I believe it is possible for designers to create games that are symbol-free *to them*, i.e. they do not intend for the game to include any symbols.

The totally abstract game may be one such. Is tic-tac-toe a symbol-free game? Well, control of space may be considered symbolically meaningful. The symbols used to play tic-tac-toe may be thought symbolically meaningful, but they could be changed to abstract shapes. In the movie *WarGames*, the *entire* game of tic-tac-toe—every possible combination—is used to teach a computer the concept of futility.

The game Sprouts, invented by John Conway & Michael Paterson in 1967, is as close to a symbol-free game as I could find.



Sprouts. Image licensed under a Creative Commons Share-Alike 3.0 License from Wikipedia.

Adventure games are the the most available to conventional literary criticism and semiotic analysis. I'm going to pass over them quickly because, while they definitely present challenges, I don't feel they are as problematic as the others.

Non-Symbolic Transfers of Meaning

Let's consider non-symbolic transmission of meaning via activity. We are used to books having themes: unexpressed assertions which contain the message of the work. The theme of *All Quiet on the Western Front* might be "War sucks." You will not find the sentence "war sucks" anywhere in the book, but the message is there.

But in these case of literary themes, there is considerable room for argument. Because the actual printed text of the work doesn't explicitly state the theme, it's open to interpretation. For example, the science fiction novelist Robert Heinlein wrote a novel called *Starship Troopers* in which only people who have served in the military are allowed to vote. Most of the book is a quasi-Fascist fantasy. Or was he being ironic? It's difficult to tell. Since he was an American, I suspect he was serious, but there's room for doubt.

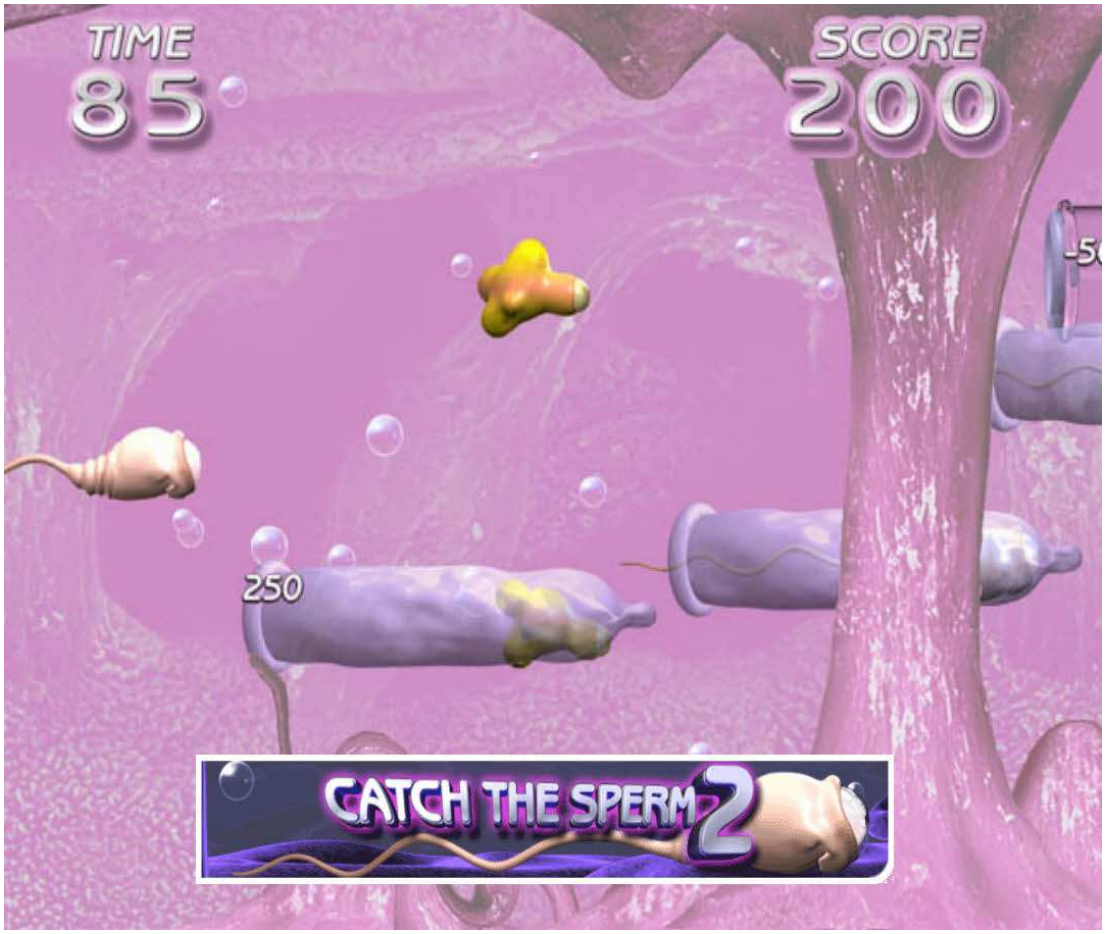
I don't know what semioticians' thinking is on this—whether the unstated theme of a work is open to semiotic analysis, since it's conveyed only at a meta-level. In the case of games, on the other hand, their rules are quite solid and real—the problem is that in computer games, you can't see them. There's no way to say "that is the rule" unless you examine the program code.

If we go back and look at pinball machines, the precursors to video games, one of their weaknesses as a moneymaking device was that they didn't get harder to play, the longer a given player stayed on one. The challenge that they offered was fixed. As a result, once a player became very good, he could play the game indefinitely on one coin, or until he made a mistake or gave up.

This was also true of *Pong*, the first video game console. It didn't get harder to play either. However, because it was a two-player zero-sum game, the length of the game was constrained somewhat: as soon as either player lost, the game was over. Nevertheless, two excellent players could, as with pinball, play indefinitely. These games did not convey much via their rules.

Eventually a new mechanism was invented: the game that gets harder and harder until eventually the player is certain to lose. *Space Invaders* was the first game to make use of this; *Tetris* is perhaps the best known. But in these cases, there is no symbolic loading. It's simply a means of bringing the game to an end, of forcing the player to put in more coins.

This mechanism generally began to be applied all sorts of video games. Eventually one came along in which it was used specifically as satire. *Missile Command* was a coin-op game released in 1980, the year that Ronald Reagan was elected. In *Missile Command*, the object was to defend cities from missiles falling from the sky, by shooting at them with anti-missile missiles—something like the Patriot missiles which have recently been used in the Middle East. However, eventually too many missiles come in at once for you too handle, you get overwhelmed, and your cities are destroyed. This was a coin-op game, but it was also a satire on Ronald Reagan's Star Wars plans. The message was that missile defense is illusory. You can not win.



Catch the Sperm *screen capture.*

Catch the Sperm uses a different rule to send a different message. *Catch the Sperm* is about AIDS; the player tries to catch swimming sperm, and viruses, using condoms. The key rule is that one single mistake is deadly. In *Catch the Sperm* you cannot win, but more importantly, one error at any time will cost you the game.

Missile Command and *Catch the Sperm* both send an explicit message through rules which are built into their program code. *SimCity* includes a more subtle message. One of the rules of *SimCity* is that an efficient transportation system is essential for economic prosperity. Nothing says this explicitly. But you come to that realization as you play the game.

In fact, *SimCity* has been the subject of a certain amount of political debate. Leftists are annoyed that it contains a built-in assumption that raising taxes is bad for business. Rightists are annoyed that it contains a built-in assumption that spending on social welfare projects makes people happy.

But there is no sign! These details are only detectable through secondary effects. How do you perform a semiotic analysis when you can't actually point to the signifier?

And then, just to make things even more complicated, there are games with emergent gameplay—ways of interacting with the game that the designers never anticipated. A good example is the rocket-jump in *Quake*, where you blast yourself into the air by means of your own rocket-launcher. This was not planned for by the designers.

Again, the fixed media don't have this problem. You can show up at the cinema and watch the whole movie through green goggles, or sound-distorting headphones, but the director would say that that was an abuse, that watching it without green goggles was privileged. But in gameplay, there's a feeling that anything is fair. If the system permits it, it's allowed. How can you study symbol and meaning in a medium in which the person who is supposed to be the *de*coder can modify the content?

The *America's Army* Paradox

This brings us to *America's Army.* Most multiplayer games implement a virtual objective reality by presenting the game world to all the players equally. They may not all be able to see the game world from the same perspective, but what they *do* see is identical. All the players in *Monopoly* see the same board. Nothing is hidden. In fact, the rules state explicitly that players may not conceal the amount of money they have, or the properties they own. This prevents them from secretly building monopolies.

The players of bridge only see their own hands, of course, but when they put their cards on the table, all players see the same cards. The game depends on everyone having an identical notion of the state of the game world: There is one, 52-card deck that is used, containing a standard set of cards.

Likewise, in the MMORPGs, *Ultima Online* and so on, the game's servers present the world to the players identically. Two players looking at the same monster or the same landscape, will *see* the same monster or the same landscape.

America's Army changes all that. The designers did not choose to treat it as a conventional war game in which there are "good guys" and "bad guys." Nor did they eliminate the moral question altogether, and simply divide the players into morally neutral "red teams" and "blue teams."

Instead, they decided to seek a way to make every player feel as if he is a good guy, and his enemy is a bad guy, by manipulating the graphics. *America's Army* uses the power of the computer to create the impression that each player is an American soldier, and all the players on the opposing side are generic terrorists. When I look in the mirror, I see an American soldier; when my opponent looks in the mirror, *he* sees an American soldier. When I look at him I see a terrorist; when he looks at me, *he* sees a terrorist.

So far, so good. It's entirely a matter of perception. The game does not have any third parties; anyone in the game must belong to one side or the other, so there is no privileged perspective from which to make judgments.

The paradox occurs at the interface between these two groups, when the bullets start flying. Every player sees himself to be carrying an American M-16 rifle. Every

player sees his enemy to be carrying an AK-47 rifle. The game promises that weapons are modeled accurately: accuracy, rate of fire, magazine size, etc. So when I see him firing, do I see him firing at a different rate of fire than he sees himself? It's a paradox. The same weapon might look different from different points of view, cannot have different performance characteristics depending on who is looking at it.

Semiotically speaking, this is a nightmare. Somewhere inside the program code there is an objective truth about this weapon, but the players have no access to that information. It defies analysis.

Conclusion

It seems to me that there's a great deal of work to be done, and perhaps some very substantial revision of what we think "meaning" means. The interactive medium not only calls into question such things as what a text actually is, which I'm sure is old ground, but even what a symbol is.

In a video game the subject becomes a part of the object; in a *multiplayer* game, each player contributes to the game, becomes a part of the game, both creator and consumer, encoder and decoder, simultaneously, while the so-called-designer retreats into the background, become more of an enabler. In effect, the author ceases to be an author and becomes simply a manufacturer of notebook paper.

In games such as AmberMUSH, gameplay becomes a form of live improvisational theater, with all distinctions between author and reader, text and perceiver, figure and ground, broken down. The rules in a MUSH are nothing more than social conventions enforced by collective peer pressure. The game becomes about as susceptible to conventional literary analysis as the overheard conversations at a cocktail party.

Returning to my own ground, I feel that the game industry needs new heroes. We cannot simply look for them in the traditional areas of aesthetic endeavor. Computer games have always required engineering and they always will require engineering. Engineering is as essential to the game developer as words are to the writer, as paint is to the painter.

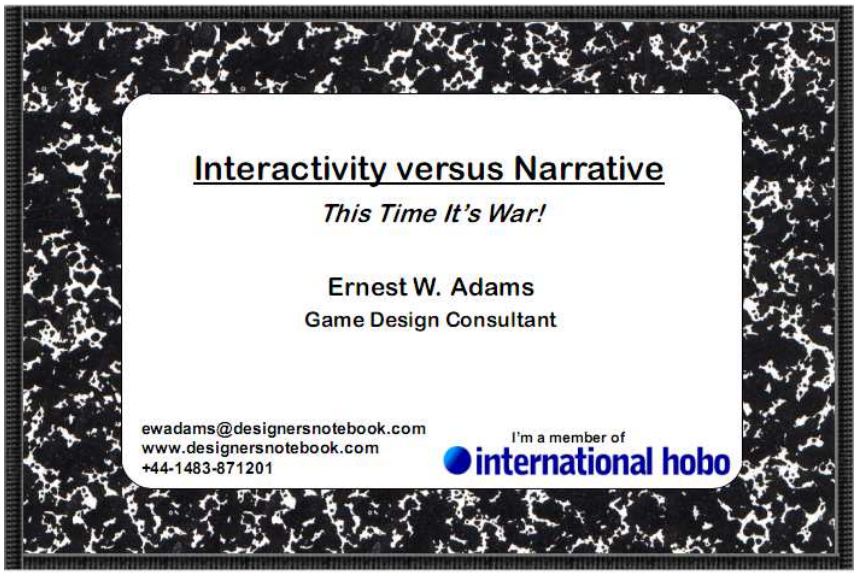
We need to seek heroes who are able to combine technological innovation with aesthetic sensibility, to cross the C.P. Snow gap between the sciences and the humanities. A hero who can touch our hearts even as he tests our minds.

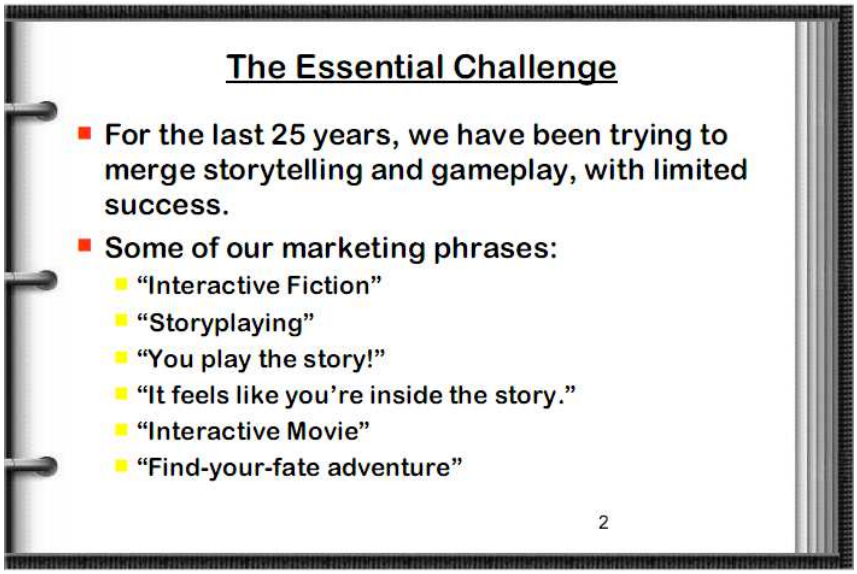
Appendix J: Interactivity Versus Narrative: This Time It's War!

Ernest W. Adams

International Digital Storytelling Conference

[I delivered this lecture at the International Digital Storytelling Conference in Seoul, South Korea, on October 23, 2003. I have also presented variants of it at a number of subsequent events. The lecture has never been published in text form. The language is somewhat simplified because the lecture was intended for a Korean audience.]





There is a Common, But Faulty Analogy

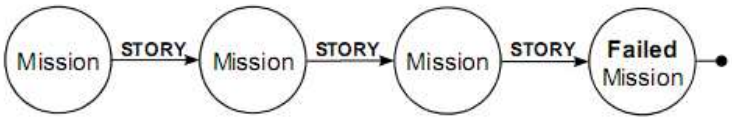
- Dramatic tension ("what happens next?") = Gameplay tension ("will I survive and win?")
  - They are not really the same.
- Games may have repetitious gameplay and still be fun.
  - *Risk,* poker, *Tetris*
- Games may have chance (random elements).
  - *Risk,* poker, *Tetris*
- Stories *must not* have repetition or chance.
  - Nothing should ever happen twice.
  - Everything must happen for a reason. 3

Traditional Approaches To the Problem

- Real stories require dramatic novelty.
  - The story is always going somewhere new.
- For games, we write real stories, then "add" interactivity to them.
- Traditional approaches
  - Linear story punctuated by periods of gameplay
  - Branching storylines
  - Independent strands offered as quests
  - Series of puzzles that advance the plot as they are solved
- All these work, but they all have limitations. 4

Linear Story Punctuated by Periods of Gameplay

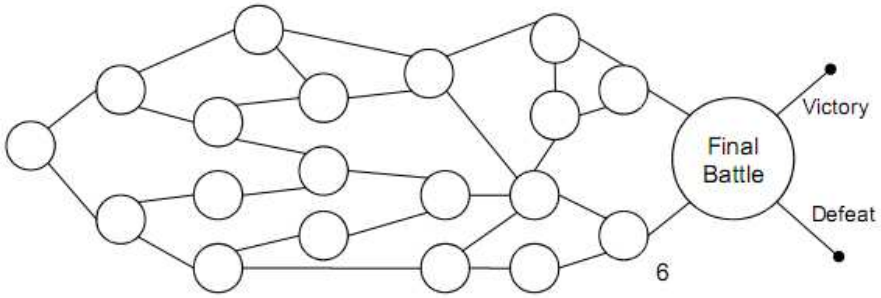
- Story and gameplay are separate.
- Player only sees more of the story by completing missions.
  - If you fail a mission, the story stops.
  - The story is really only a reward for achievement.
- *Starcraft* is a classic example.



5

Branching Storylines

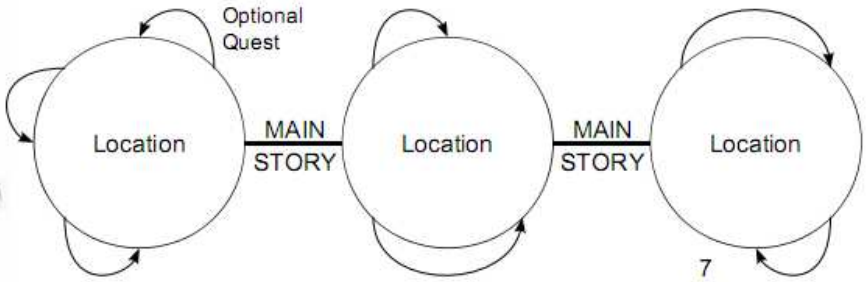
- Story and gameplay are separate.
- Player advances the story by completing missions.
- If you win, the story goes one way. If you lose it goes the other. Sometimes it does not matter.
  - However, the number of options must be limited.
- *Wing Commander* is the classic example.



6

Independent Strands Offered as Quests

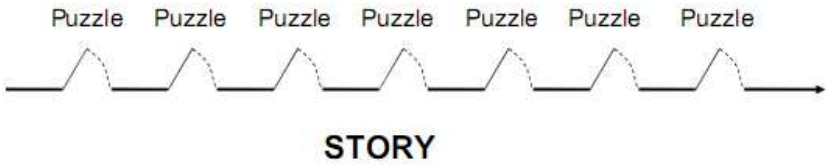
- One large story, many small ones.
- Small stories are optional quests.
  - Player can abandon a quest he is not interested in.
- Commonly used in role-playing games.
- *Baldur's Gate* is a good example.



7

Series of Puzzles that Advance the Plot

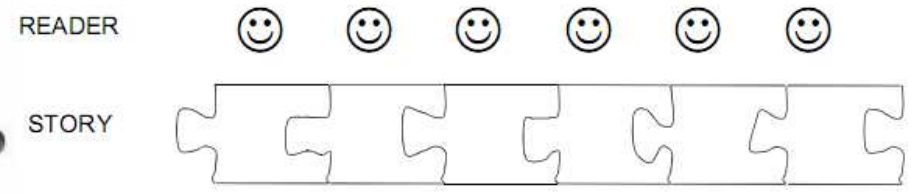
- Unlike the linear story punctuated by missions, in this case the puzzles are part of the story.
- This is the classic adventure game mechanism.
  - (Adventure games never have repetition or randomness.)
- LucasArts' *Monkey Island* games are a good example.



8

The Human Mental Response to Storytelling

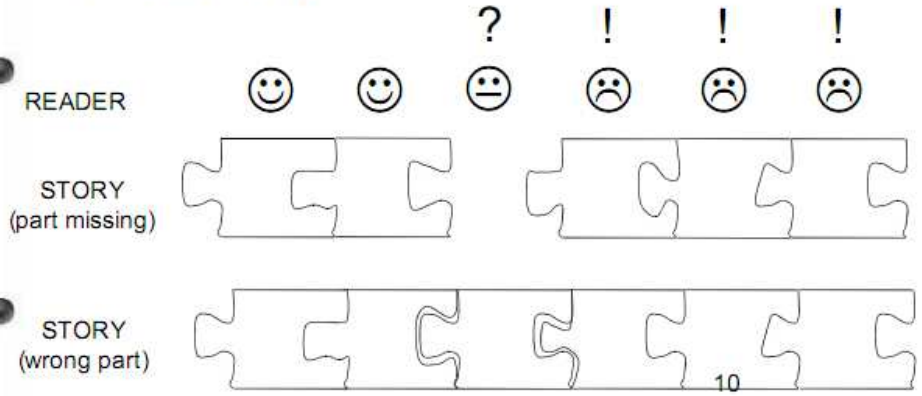
- An ordinary story is a linear jigsaw puzzle.
  - Everything must fit together.
- This is how the reader *understands* and *believes* what is happening.
- This is also how the reader feels *emotionally satisfied.*



9

The Story as a (Linear) Jigsaw Puzzle

- If a piece is missing, or the wrong piece is there, then the reader is confused or will not like the story.



10

The Movie *Casablanca*

- The script was not finished before they started filming the movie.
  - This is very unusual.
  - The writers were writing new scenes the day before they were filmed.
  - The writers did not know how it would end!
- The time is 1941, during World War II
  - America is not yet in the war.
- The place is Casablanca
  - It is technically unoccupied (Vichy) France.
  - The Germans have no official power, but great influence.

11

The Setting of *Casablanca*

- The town of Casablanca, French Morocco.
- The time: 1941, during World War II.
  - Casablanca is technically part of Vichy (unoccupied) France, but Germany has a powerful influence.
  - Many refugees from the war are trying to escape to Lisbon (truly neutral) and then on to America.
  - To leave they must have a visa or a "Letter of Transit" (a document allowing anyone to go).
  - The Chief of Police is corrupt. He sells visas for a lot of money.

12

The Major Characters in *Casablanca*

Ilsa Lund

Victor Laszlo

Resistance hero
Ilsa's husband

Rick Blaine

Runs a club in Casablanca
Ilsa's old lover

13

The Background of the Story

- Ilsa was married to Victor, a Resistance hero.
- Ilsa learned that Victor had been killed.
- Rick and Ilsa met and fell in love, in Paris.
- Ilsa learned that Victor was not dead after all.
- Ilsa returned to Victor, but the Germans were marching into Paris and there was no time to explain to Rick.
- Two years pass. Rick becomes bitter. He cares for nobody but himself. He moves to Casablanca.
- Victor and Ilsa meet Rick in Casablanca, trying to escape from the Germans.
- Ilsa and Rick realize they are still in love.
- Only Rick can help them… but will he?

14

The Minor Characters in *Casablanca*

French Chief of Police
Louis Renault
(corrupt, afraid of the Gestapo)

German head of the Gestapo
Major Strasser
(desperate to keep Laszlo
in Casablanca)

15

The Background of the Story

- **Chief of Police Louis Renault is corrupt.**
  - If there is a crime he does not want to investigate, he always says, "Round up [arrest] the usual suspects." This is treated as a sort of joke.
  - He does not like the Germans, but he is afraid of them. He will not give or sell Victor Laszlo a visa.
- **Major Strasser is from the Gestapo.**
  - He is trying to stop Victor Laszlo from leaving, but he needs an excuse to hold him.
  - He cannot simply kill him because it will cause a diplomatic incident.

16

Now the Writers Have a Big Problem!

- If Ilsa goes with Rick…
  - Rick can use his Letters of Transit to take Ilsa away.
  - Ilsa must leave her husband, a Resistance hero.
- If Ilsa goes with Victor…
  - Rick must give his Letters of Transit to them.
    - This means he cannot use one for himself.
  - Ilsa and Rick will never see each other again.
- Both men have very strong emotional claims on Ilsa.

17

How Do They Get Away?

- Captain Renault will not do anything to help.
- Major Strasser is determined to stop them.
- Something must happen to force the situation.
  - Victor dares not create an excuse to arrest him.
  - Ilsa is too exhausted to think for herself any longer.
  - Rick knows Ilsa loves him and wants to keep her.
- Someone must do something… but what?

18

Now we find out!

19

What Did the Writers Do?

- The writers could not decide.
- Then suddenly, they had an idea:

  "Round up the usual suspects!"
- From this, they could solve the jigsaw puzzle.
  - "Round up the usual suspects" means there will be a crime, but the criminal will escape.
  - What crime?
    - It must be murder. Murder is *the* dramatic crime.
  - Who will be killed?
    - Who do we all hate? We all hate Major Strasser.
    - If Major Strasser dies, then Victor can escape.

20

What Did the Writers Do?

- Who will kill Major Strasser?
  - Victor? No. That would destroy his heroic, noble status.
  - Ilsa? No. She is not a killer.
  - Captain Renault? No. He is too afraid of the Gestapo.
  - Rick? Yes. Because Rick understands that he must now fight.
- Who will Ilsa go with?
  - Rick? No. Because even though she loves him, the war is more important. And Rick is now a wanted criminal.
  - Victor? Yes. Because he needs her to help him in his work.
- It was possible to write a different story, but it would have required more scenes. There was no time and no money.

21

The Ending

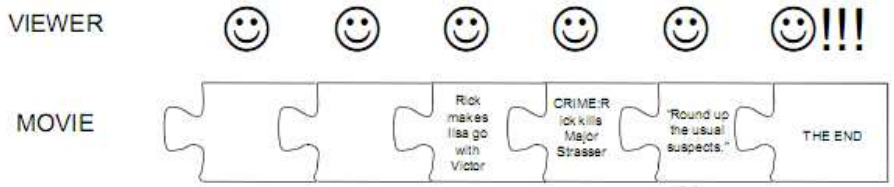
- Rick is redeemed from his life of selfishness.
  - He will give up his love for the sake of the war.
- He tells Ilsa that she must go with Victor.
  - "If that plane leaves the ground and you're not with him, you'll regret it. Maybe not today, maybe not tomorrow, but soon, and for the rest of your life."
- Victor and Ilsa get on the plane.
- Major Strasser arrives and tries to stop them.
- Rick kills Major Strasser. The plane leaves.
- Captain Renault thinks for a moment. Then he tells his men, "Round up the usual suspects."

-- the end --

22

Casablanca Is A Great Story

- The ending is *believeable* and *emotionally satisfying.*
- The pieces all fit together perfectly.
- It could have been different, but that would have required more filming.



23

What does this have to do with interactivity?

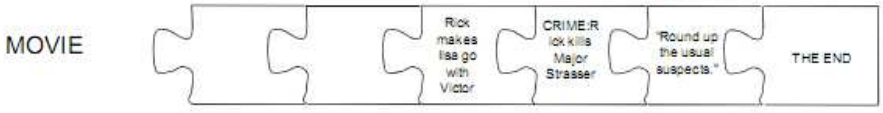
24

NOTHING!

25

Why *Casablanca* Cannot Be An Interactive Story

- *Casablanca* is a great movie, but the author must have total control of it.
  - Like a jigsaw puzzle, there is only one way that it works.
- But games are about giving the control to the *player*.
  - If the player can change *Casablanca*, the emotional power of the story is destroyed.



26

Emotional Limits of the Jigsaw Story

- If the player has freedom, he can make choices that feel emotionally *wrong.*
  - What if the player wants Ilsa to kill Victor and become the lover of Major Strasser? ☹ ☹ ☹
- Emotional limits of a single avatar character:
  - Like a first-person book, the player knows that the avatar is not supposed to die in the middle of the story.
  - To really make a player sad, kill his friends, not him.
- Emotional limits caused by replayability:
  - If something happens that the player does not like, he just reloads and tries again.
- Emotional power comes from the fact that there are things we *cannot* change.
  - Ilsa must *always* leave Rick and go with Victor.

27

Three Problems for Interactive Storytellers

- The Problem of Internal Consistency
- The Problem of Narrative Flow
- The Problem of Amnesia
  - "Amnesia" is a medical condition.
  - It means that you cannot remember who you are, where you live, or what happened to you in the past.

28

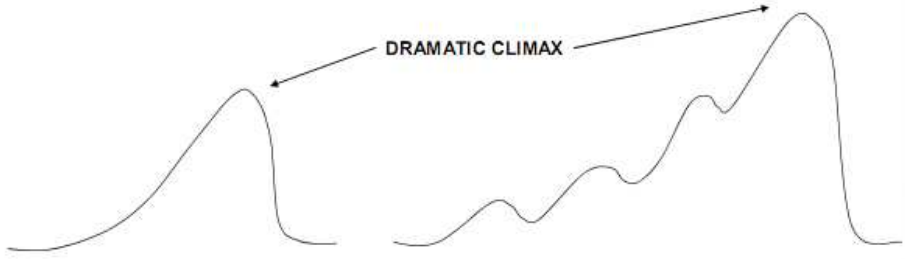
The Problem of Internal Consistency

- How do you make sure the player fits the jigsaw puzzle together correctly?
- Suppose the player's avatar is Superman.
  - Can Superman ignore someone who needs help?
    - No. Superman always helps. Otherwise he is not Superman.
  - What if the player *wants* to ignore someone who needs help?
    - Either the player changes the nature of Superman, or…
    - We take the player's freedom away.
- Do we want a "correct" jigsaw puzzle, or do we want the player to have freedom?

29

The Problem of Narrative Flow

- Every story has a dramatic climax.
  - Long stories have smaller ones as well.
- How can you be sure the player is ready for the dramatic climax when it happens?



30

Setting Up a Dramatic Climax

- In a book or a movie, the author has total control.
  - The author makes sure that all things, people, events, etc. are in the right situation for the dramatic climax.
- In a game, there is one character the designer does *not* control: the player!
  - The designer cannot *make* the player do things.
  - If the player has freedom, it is hard to make the narrative flow correctly, to make sure the dramatic climax will work.

31

The Dramatic Climax of *Casablanca*

- Everyone is at the airport. They are ready.

32

Solution #1 to the Problem of Narrative Flow

- Limit the interactivity somehow.
  - Disconnect the interactivity from the story.
    - Don't allow the player to change the story.
    - This happened in *Starcraft*.
  - Give the player interactivity, but it does nothing.
    - It only feels like it affects the story, but really it does not.
  - Kill the player if he leaves the story you made!
    - *Dragon's Lair* (old arcade game): Only one correct decision at each point. If you make the wrong choice, you die.
- Not really a good solution. The player *wants* interactivity! That is why he is playing!

33

Solution #2 to the Problem of Narrative Flow

- Allow the world to continue around the player.
  - This permits interesting worlds that feel alive.
  - Even if the player does nothing, the story goes on.
- If the player is not ready, he loses the game!
  - The game is really a time-challenge.
  - The player must achieve every task before the dramatic climax happens.
- Not a good solution. The player loses the game a lot, because he is not ready.
  - He has to start over again and again and again...

34

Solution #3 to the Problem of Narrative Flow

- Tie the movement of the story to the player's actions. This is the adventure game solution.
  - When the player does the right thing, the story goes forward.
  - When the player does the wrong thing, or nothing, the story just waits.
  - The dramatic climax only happens when the player has done everything necessary.
- This works, but it feels mechanical.
  - The story stops and starts all the time.

35

The Problem of Amnesia

- The people *in* a story live in their world.
  - They know what is in the world, how it works.
  - They do not have to explore it.
- The player comes into the world from outside.
  - The player does *not* know what is in the world.
  - He has amnesia: no memory of being here before.
  - The player must explore everything and talk to everyone in order to understand it.
- This is not normal for a story!
  - But even a story requires a careful introduction.
  - We must learn to make better ones.

36

Three Problems for Interactive Storytellers

- Here are the problems again:
  - The Problem of Internal Consistency
  - The Problem of Narrative Flow
  - The Problem of Amnesia
- What can we do about them?
- Unfortunately, not very much.
  - These problems are caused by the fundamental nature of narrative itself.

37

Interactivity and Narrative

- There is a tension between interactivity and narrative.
- Narrative is about the author's control.
  - The author must have authority.
  - The author takes you by the hand and leads you through the story.
- Interactivity is about the player's freedom.
  - The player chooses his own path through the story.

38

John Fowles on Computer Games

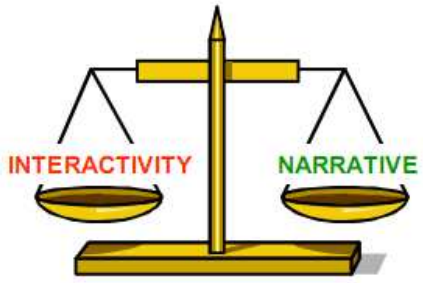
"We wish to create a world as real as, but other than, the world that is... This is why we cannot plan. We know a world is an organism, not a machine. We know that a genuinely created world must be independent of its creator; a planned world (a world that fully reveals its planning) is a dead world. It is only when our characters and events begin to disobey us that they begin to live... What has changed is that we are no longer the gods of the Victorian image, omniscient and decreeing, but in the new theological image, with freedom our first principle, not authority."

— *The French Lieutenant's Woman,* 1968

39

Is It Really a War?

- No.
  - Interactivity and narrative are not in *conflict.*
  - They are in an *inverse relationship.*
    - The more you have of one, the less you have of the other.
  - You must find the right *balance* between them.



40

One Possible Solution

- Interactivity and narrative work together to entertain the player.
  - Some games need no narrative, like *Tetris*.
  - A narrative with no game is a book or movie.
- Interactivity lets people do things they could not really do. I think this is why they play.
  - People play games to feel freedom and power.
- Narrative creates the situation and the world they play in, but does not determine the actions.

41

Think About These Two Kinds of People

Soldiers in the trenches in World War I.
They have a role to play in the war, but they have no freedom to decide what they will do or how.

(A rail-shooter: all you do is shoot)

A wealthy businessman in Peru during World War I.
He has total freedom to choose his actions, but he is too far from the war to affect it meaningfully.

(GTA if you just drive around)

42

We Need A Hero Between These Extremes

- A commando…
- A resistance fighter…
- A spy…

- Someone who is involved in an important situation, but has some freedom (but not total freedom) to choose his own actions.

Sidney Reilly
"Ace of Spies"

43

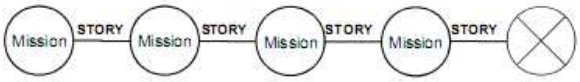
Our Role as Designers

- I believe that we should not try to tell stories.
  - If the player wants to hear a story, he can read a book or watch a movie.
- I believe it is our role to create worlds in which stories can happen.
- We create the context – the world – then we give the player freedom within that world.
  - Some games allow you to achieve a goal in many different ways. How you do it is up to you.
- MMORPGs like *Lineage* also do this.

44

My Dream for Interactive Narratives

- Games that separate interactivity and narrative are only temporary solutions. They are not true interactive narratives.



- In a true interactive narrative the story and the action are one thing, with no interruptions.
  - We can do this now in a limited way.
    - We can make interactive Schwartzenegger movies.
  - *Half-Life* is a good example. But it is too linear.

45

The Future of Digital Storytelling

- So far, we have concentrated on *fixed* narratives.
  - Even branching narratives are fixed.
  - These solutions work well if the story is mostly a reward.
- In the future we will create *variable* narratives that can change, yet remain dramatically coherent.
- A computerized version of a human Dungeon Master.
  - The Dungeon Master creates the world…
  - …but he also can *change* the world (and the story opportunities) in response to the player's actions and interests.
- This is called "Automated Storytelling."
  - It needs a lot of work on AI about stories and gameplay.
  - This is the biggest challenge in the entire field.

46

Work on Automated Storytelling

- The *Erasmatron*
  - Chris Crawford
  - www.erasmatazz.com
  - A story-generation system with parameterized "story fragments" that can be used with different characters. Each fragment has several responses.
- *Façade*
  - Michael Mateas and Andrew Stern
  - www.interactivestory.net
  - An AI-based "interactive drama" system that simulates human characters in a limited situation.

47

The End

48

Appendix K: Postmodernism and the Three Types of Immersion

By Ernest Adams
Gamasutra
July 9, 2004

Last month in this space, I published "Bad Game Designer, No Twinkie! V". Among the Twinkie Denial Conditions I listed was the practice of making references in in-game conversations to out-of-game objects. My example (as suggested by Gregg Tavares) was *Metal Gear Solid* (*MGS*).

After the column came out, a number of people wrote to me complaining that it was unfair to deny a Twinkie to Hideo Kojima, the designer of *MGS*, on this basis, because *MGS* is full of things like that; it is "postmodern" and intentionally self-referential. I see their point in one respect: it was a deliberate decision, not laziness or sloppiness on the part of the designer, as many Twinkie Denial Conditions are. But that doesn't mean I have to like it.

It has become popular in recent years (by which I mean the last 20 or so) to include winking references in books and movies to the fact that the thing you're watching or reading is only a book or a movie. This is the product of a certain flavor of modern literary theory, which holds that perfect communication is impossible, so there's no point in trying to put across a serious message. Instead, let's just have some fun. You can tell that "fun" is their aim because many definitions of postmodernism tend to include the word "playful" to describe this business of self-reference and winking at the audience.

I don't have any patience for this kind of self-indulgence. One of the worst annoyances of video gaming is the designers who want to show off how clever they are. Interrupting the players' immersion in order to remind them "Don't forget, it's only a game!" may be the designers being playful, but the game is supposed to provide gameplay for the players, not for the designers. Such cute gimmicks don't improve the players' experience; they harm it. It's a direct slap in the face. Imagine if Ridley Scott, for example, had done that right in the middle of the most suspenseful parts of *Alien*, or if Tom Clancy did it in the middle of *Patriot Games*. As the audience, we would be rightfully infuriated.

I'm not saying that it's bad in every single instance; sometimes, works can contain homage to other works that are genuinely amusing to see. At one point in LucasArts' *The Secret of Monkey Island*, Guybrush Threepwood, our hero, is asked his name. One of his options is to say, "My name is Bobbin Threadbare," the name of the hero of a completely different LucasArts game, *Loom*. If you choose this option, the person you're talking to retorts, "Oh yeah? Well, your mother was a duck!" (Bobbin's mother in *Loom* turned into a swan.) I laughed out loud. This was an inside joke, but a good one.

But there's a distinct difference between *The Secret of Monkey Island* and *MGS*. *Monkey Island* was a light comedy throughout; almost nothing about it was serious.

Ron Gilbert, its designer, could afford to be "playful" if he wanted, because the player was not deeply immersed in a life-or-death struggle. *MGS*, on the other hand, was about preventing a catastrophe. How are we supposed to care if the game is interrupting us all the time to tell us that it doesn't really matter?

I don't know enough about Japanese culture to say whether *MGS*'s self-referential nature was an attempt to be postmodern. But I do stand by my original assertion that it's out of place in a story of adventure. Satire is one thing-if *MGS* were a send-up like, say, *No One Lives Forever*, then I could see it. But it wasn't; it claimed to be serious.

Thinking through all this suddenly brought me to the realization that there are different forms of immersion. We talk a lot about immersion and suspension of disbelief in the game industry, but we seldom actually try to define it or to understand how it works. I think there are at least three kinds, and they are created and destroyed by different means.

Tactical Immersion

Tactical immersion is immersion in the moment-by-moment act of playing the game, and is typically found in fast action games. It's what people call being "in the zone" or "in the groove." It's physical and immediate. When you're tactically immersed in a game, your higher brain functions are largely shut down and you become a pair of eyes directly communicating with your fingers. It's an almost meditation-like state-the *Tetris* Trance.

Tactical immersion is produced by challenges simple enough to allow the player to solve them in a fraction of a second. Ask him to think for any longer than that, and you risk destroying the trance. Players who are deeply immersed in the tactics of a game aren't much concerned with its larger strategy (it seldom has any besides survival), and couldn't care less about its story. Sometimes a game has a larger strategy that you come to be aware of through repeated playing, and you can change your approach the next time you play, but for the most part the tactical nature of your immersion remains the same.

To create tactical immersion, you must offer your players a flawless user interface, one that responds rapidly, intuitively, and above all reliably. Players won't get into the groove if they're struggling with slow, awkward controls. Tactical immersion is usually destroyed by abrupt changes in the nature of the gameplay, a shift in the user interface, or a boss character who can't be defeated the same way that other enemies are.

Strategic Immersion

Strategic immersion, on the other hand, is a cerebral kind of involvement with the game. It's about seeking a path to victory, or at least to optimize a situation. The highest, most abstract form of strategic immersion is experienced by chess masters, who concentrate on finding the right move among a vast number of possibilities. When you're strategically immersed, you're observing, calculating, deducing. However, this doesn't have to mean that the game is turn-based, nor does it even

have to be about conflict. The player who intently studies patterns of traffic in *Sim City* in order to decide where to build a new road is strategically immersed in the game.

In order to achieve strategic immersion, a game must offer enjoyable mental challenges. What destroys strategic immersion is awkward or illogical gameplay. Units with bad path-finding, for example, break the player's sense of immersion, because they don't obey orders the way the player thinks they should. Too much randomness tends to destroy strategic immersion as well; if a game is heavily dependent on chance, the player will find it hard to formulate an effective strategy.

Players who are deeply involved in the strategy of the game are seldom that interested in the story. Chess players couldn't care less that the pieces are named for the members of a medieval court; the only thing that matters is where they are and how they move. Deeply strategic players often ignore the story entirely, thinking of it only as a distraction.

(One of my designer friends is a game master in a very long-running pencil-and-paper RPG. She constructs deep and rich stories for her players, but they don't care, which she finds frustrating. They're all, as she puts it, "a bunch of min-max-ing rules lawyers," intent on wringing the last ounce of mathematical advantage out of any situation, regardless of the storyline. She creates narratives to immerse them in; they immerse themselves in the strategy instead.)

Narrative Immersion

Narrative immersion in games is much the same as it is in books or movies. A player gets immersed in a narrative when he or she starts to care about the characters and wants to know how the story is going to end. The player who is immersed in the narrative can tolerate a certain amount of bad strategic and tactical gameplay. Few games have stories good enough to excuse really bad play, but people who are hooked and want to know how it ends will usually overlook, say, a slightly awkward interface or a feeble AI.

What creates narrative immersion is good storytelling, and what destroys it is bad storytelling: clumsy dialog, stupid characters, unrealistic plots. The skills needed to create narrative immersion are quite different from those needed to create strategic and tactical immersion, which is why smart studios hire professional writers to create their storylines rather than leaving them to the designers.

So here's what I think was going on with *MGS*. Kojima was assuming that the player had a strong desire to beat the game, regardless of whether he or she liked the story or not. Kojima thought he could afford to play postmodernist tricks because the player would be strategically or tactically immersed in the game, and destroying his or her narrative immersion wouldn't really do any harm-supposedly. Unfortunately, not all players are motivated by a desire to win for its own sake. Some play in order to find out how the story comes out, so to them, the self-referential nature of *MGS* could only be irritating. Different players prefer different kinds of immersion.

As far as I'm concerned, the bottom line on this kind of stuff is, don't do it unless you know you can get away with it, and the joke is really worth the cost. As Brian Moriarty put it, "[suspension of disbelief] is hard to achieve and hard to maintain... One reference to anything outside the imaginary world you've created is enough to destroy that world." Part of what sold *MGS* was its strong storyline, so there was a good chance that these gimmicks would annoy some of the audience—as indeed they did.

Appendix L: Dramatic Novelty in Games and Stories

By Ernest Adams
Gamasutra
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A few years back, the BBC aired a TV science fiction comedy called *Red Dwarf*, about a slobby space-technician named Lister, a hologram simulation of his nerdy roommate (Rimmer), an android, and a strangely-evolved cat, all stranded in deep space. It was very funny and the first few series were strikingly original. The following is an excerpt from series 4, episode 6, entitled "Meltdown." It introduces this month's subject better than I could myself:

> RIMMER: So there we were at 2:30 in the morning; I was beginning to wish I had never come to cadet training school. To the south lay water—there was no way we could cross that. To the east and west two armies squeezed us in a pincer. The only way was north; I had to go for it and pray the gods were smiling on me. I picked up the dice and threw two sixes. Caldecott couldn't believe it. My go again; another two sixes!
>
> [some time later]
>
> RIMMER: So a six and a three and he came back with a three and a two.
>
> LISTER: Rimmer, can't you tell the story is not gripping me? I'm in a state of non-grippedness, I am completely smegging ungripped. Shut the smeg up.
>
> RIMMER: Don't you want to hear the *Risk* story?
>
> LISTER: That's what I've been saying for the last fifteen minutes.
>
> RIMMER: But I thought that was because I hadn't got to the really interesting bit.
>
> LISTER: What really interesting bit?
>
> RIMMER: Ah well, that was about two hours later, after he'd thrown a three and a two and I'd thrown a four and a one. I picked up the dice...
>
> LISTER: Hang on Rimmer, hang on... the really interesting bit is exactly the same as the dull bit.
>
> RIMMER: You don't know what I did with the dice though, do you? For all you know, I could have jammed them up his nostrils, head-butted him on the nose and they could have blasted out of his ears. That would've been quite interesting.
>
> LISTER: OK, Rimmer. What did you do with the dice?
>
> RIMMER: I threw a five and a two.

LISTER: And that's the really interesting bit?

RIMMER: Well, it was interesting to me, it got me into Irkutsk.

Two lines in this exchange actually say something quite meaningful about games and stories. Lister says, "the really interesting bit is exactly the same as the dull bit" and later Rimmer says, "well, it was interesting to me, it got me into Irkutsk." Lister is bored to tears with Rimmer's endless story about *Risk*, and of course to an outside observer, *Risk* is a dreadfully repetitious game. Rimmer finds it interesting because he was personally involved.

The subject of this month's column is dramatic novelty in the context of games and stories. I have a longstanding interest in the problems of interactive narrative, and I have recently begun to do some thinking about just exactly how stories and games entertain us—how they produce enjoyment in our minds. The exchange above is directly on point.

As I have written before, part of the basis for interactive narrative is an equation—or an analogy, if you prefer—that we make between dramatic tension ("what's going to happen next?") as it is found in stories, and gameplay tension ("am I going to overcome this challenge?") as it is found in games. In a story, it is up to the author to provide a resolution of the dramatic tension. In a game, the resolution of gameplay tension is an action taken by the player to overcome a challenge created by the game designer. Sometimes the player succeeds; sometimes he fails and has to try again.

If we, as game designers, think of ourselves as creating interactive narratives (and many of us do not, of course), then we are either explicitly or implicitly buying into this analogy: the notion that gameplay tension is like dramatic tension and perhaps interchangeable with it. However, as Rimmer's Risk story illustrates, this doesn't always work. Risk is a terrible basis for a story. For one thing, it has no characters apart from the players themselves, and the players' personal qualities as human beings have almost nothing to do with the course of events in the game. Worse, however, is the fact that those events are all alike. Conquering one country in Risk is just like conquering any other country. Because it's a board game for the general public (as opposed to hardcore board gamers), it has simple, easy-to-learn rules, and that makes it repetitious. This repetition is bearable—even exciting—to the players of the game because they are personally involved and every move affects their progress towards victory or defeat.

The reader of a story, on the other hand, is entertained by *ongoing novelty*. A story should never contain two identical events. Rather, things should happen that the reader didn't anticipate. Characters should express their personalities through their words and actions. This can happen in a big way (melodrama) or in a subtle way (drama). Even if a story takes place between only two characters in one room, it can still contain novelty, as the characters converse and reveal things about themselves, their pasts, and their relationships with each other and third parties. (See the J.D. Salinger short story, "Uncle Wiggly in Connecticut," for a classic example.) Many stage plays, especially modern ones in which there is little change of scenery, work on exactly this principle.

In games, sometimes you get behind and have to work to get ahead again. Backgammon is a perfect example: your men get knocked onto the bar, and you have to get them back on the board. This is part of the gameplay, part of the struggle to defeat the other player, and the lead can change hands many times before the game ends. But characters in stories almost never have to go back and do something over. They are occasionally thwarted in their plans, but normally they don't just try the same plan again later. Instead, the characters in a story try a different approach to the problem, and that provides further novelty to the reader. In backgammon, however, you're not allowed to try a different approach. There's only one way to get your men back on the board, so that's what you have to do.

From time to time I come across fantasy fiction on the Web that consists of the "dramatized" progress of a pencil-and-paper role-playing game. These, too, are seldom good stories. They're often written by people who can't write well, but the bigger problem is that they are accounts of events that occurred by chance—die-rolling, to be specific. As a result, these events often feel haphazard and incoherent. "We set off to slay the dragon, but on the way half the party were killed in a surprise attack by trolls. We had to drag their bodies back to town to get them reincarnated before setting out again." This is perfectly realistic RPG gameplay, but it's poor storytelling unless the troll attack teaches us something meaningful about the characters. Otherwise it's just a random incident, irrelevant to the main plot.

In a good story, *nothing* happens by chance and nothing is irrelevant. Even if something seems irrelevant to the reader, the author should have had a reason for including it. That is the nature of authorship. Stories are not created by die-rolling, but by design. Their novelty is constructed by the author to keep the reader interested and the story going forward.

These two characteristics of many games, repetition and randomness, make for poor stories. It's worth noting that the classic adventure game avoids both. It avoids repetition because its challenges are usually mental, not physical (you don't have to try things again and again), and because they are usually symbolic rather than numeric (you're trying to solve a series of unique puzzles, not to rack up points or money). It avoids randomness, again because its challenges are non-numeric, and random setbacks are tiresome and irrelevant in the context of storytelling. If the player receives a setback in an adventure game, it must be for a reason—a deliberately constructed reason, just like a setback in a story. This is why the classic adventure game comes closest to interactive narrative of any game genre we have yet invented.

Although it may sound odd, I think rail-shooters like *Half-Life* are actually our next-most storylike genre after adventure games. They're not terribly sophisticated stories—characterization is almost nonexistent—but their rail-like nature keeps them moving forward. It's seldom necessary to go backwards in a rail-shooter, and the layout of the challenges is pre-determined, not random. They're the videogame equivalent of an action flick—which is why action flicks such as *Die Hard* make pretty decent videogames. (Of course many people, especially women, find action flicks tediously repetitive too: run, shoot, punch, do it again. Action flicks are stories, but rarely deep ones.)

In summary, I believe one of the keys to interactive narrative is to provide a continuous sense of forward progress—or at least, no sense of completely retrograde progress—and a feeling that everything that happens in the game world happens for a reason related to the storyline, not happenstance or accident. To provide true dramatic novelty, a videogame designer must abstain from two of the tools in our traditional gameplay toolbox, repetitious play and randomness.

Appendix M: Interactive Narratives Revisited: Ten Years of Research

Ernest W. Adams

2005 Game Developers' Conference

> *This is an approximate transcript of the text of my lecture, delivered at the Game Developers' Conference on March 9, 2005 . I present it in this form because the nature of the material does not lend itself to the traditional paper format. Also, because the lecture is informal and to some extent ad-libbed, this is not a verbatim document.*

Introduction

Good afternoon. This lecture is "Interactive Narratives Revisited: Ten Years of Research." I'm Ernest Adams.

I'm going to begin by giving you the background of this lecture. Ten years ago at this conference I gave a lecture called "The Challenge of the Interactive Movie." At that time there was a great deal of excitement about interactive movies. The CD-ROM had recently been invented and there was room for a lot more content in our games, so the notion of making an interactive movie seemed obvious. Interactivity is cool, movies are cool, therefore interactive movies must *a fortiori* be cool squared. Everybody was talking about convergence, and Trip Hawkins was running around yelling about the New Hollywood, which was going to make his new machine, the 3DO Multiplayer, a colossal worldwide smash megahit.

Ahem. Yes. Well, we'll try not to dwell on that too much.

Looking back at the situation at that time, text adventures had already died as a commercial genre, but graphical adventure games were still the biggest, richest, best-looking games around. They had held this position, thanks largely to the work of Sierra On-line, for most of a decade.

Some of the hottest games of that period were either adventure games or contained large story elements. I'll give you a few examples as a reminder:

- *The 11th Hour* (Virgin Interactive Entertainment, 1995)
- *Full Throttle* (Lucasarts, 1995)
- *Phantasmagoria* (Sierra On-Line, 1995)
- *Wing Commander III: Heart of the Tiger* (Electronic Arts, 1994)
- *Night Trap* (SEGA Corporation, 1992)
- *Voyeur* (Philips Interactive Media, 1993)
- *Under a Killing Moon* (Access Software, 1994)

If anybody needs convincing about the seriousness of this "interactive movie" stuff at the time, note that *Wing Commander III* featured Mark Hamill and Malcolm

Macdowell, and *Under a Killing Moon* included no less than James Earl Jones, Margot Kidder, and Brian Keith.

One of the conclusions I arrived at, looking at the variety of games that were being called “interactive movies” at the time, was that it’s impossible to tell what an interactive movie is supposed to be by looking at representative samples. So many different kinds of things got called “interactive movies” at the time that they had practically nothing in common.

My lecture contained a critique of the whole concept of interactive movies, and in fact I ended up saying that I didn’t believe there was any such thing as an interactive movie at all, a remark which produced prolonged cheering in my largely techie bad-attitude game developer audience. The challenge of the interactive movie, I concluded, was to make decent computer games in spite of the fact that the marketing department will insist on sticking this idiotic label on your box.

So I abandoned interactive movies as a design concept, because I couldn’t figure out what they were supposed to be, and looked at interactive narratives from an abstract, theoretical point of view. In that lecture, I identified three key problems that I felt made it difficult to create interactive narratives. So the idea behind this lecture is to look back and see how things have changed since I named those problems… to see if, perhaps, any of them have been solved.

Before I go any further, though, I need to issue a disclaimer. When I proposed this talk to the selection committee, it was my intention to try and read all the papers on interactive narrative that have been published over the last ten years. Well, five or even three years ago, that would have been easy. Since then, there has been an explosion in research, and I simply haven’t been able to keep up with it all. For example, I know that Chris Crawford has written a new book on the subject, and I haven’t even gotten around to it yet.

So I’m sorry to say that this talk is not as comprehensive as I would have liked it to be. It’s necessarily going to be a personal and somewhat haphazard look back. I haven’t had the time to research it in the detail that I would like.

Three Problems for Interactive Storytellers

These were the problems as I identified them at the time:

The Problem of Internal Consistency: How do we make sure a story is logically, emotionally, and narratively coherent when the player is out of our control? What if the player is controlling Superman as his avatar, but wants to do something very unlike Superman: killing people at random, for example? Or, using another example, how could you possibly let a player modify the plot of *Casablanca* without destroying its emotional power? *Casablanca* ends the way it must end; if you could simply go back and change it, Rick’s heroic sacrifice becomes meaningless.

The Problem of Narrative Flow: How do we make sure the player is prepared for the dramatic climax of the story when it arrives?

The Problem of Amnesia: What do we do about the fact that story characters understand the world they live in, but the player is amnesiac about that world? Why does the player have to spend time at the beginning of every game exploring what is supposed to be his own natural environment?

I also identified a number of possible solutions to some of these problems, but I decided that most of them weren't very satisfactory.

The Problem of Internal Consistency, solution 1a: Don't give the avatar enough depth such that the player *can* violate his nature. In other words, don't let the player play Superman. Only let the player control someone without a personality. **Objection:** this is hardly good storytelling! Bland, neutral protagonists are not a hallmark of great literature.

The Problem of Internal Consistency, solution 1b: Create a story so bland that there are no emotions or activities that can *be* inconsistent. **Objection:** Ditto. It's not good storytelling.

The Problem of Internal Consistency, solution 2: Don't give the player any actions to perform that will allow her to violate the avatar's nature. In short, limit the interactivity. **Objection:** this is hardly good gameplay! Placing limits on the player so that she cannot interfere with our nice story is not what players come to games for.

The Problem of Narrative Flow, solution 1: Limit the player's interactivity so she can't really get off the path. Tell a linear story, or force the player by some means or other to stay on the right path. **Objection:** Again, limited interactivity are not what games are for, and I argued that players don't like being chivvied along a fixed path.

The Problem of Narrative Flow, solution 2: Let time go on around the player, and if she's not ready for the dramatic climax when it comes, too bad. **Objection:** This turns all such games into a race against time. The player loses repeatedly and has to reload all the time.

The Problem of Narrative Flow, solution 3: Tie advances in the plot to advancement by the player. This is the classic adventure game approach. The game only moves forward as the player does, so the player is guaranteed to be ready for the dramatic climax when it arrives. **Objection:** This feels mechanical. You can tell that nothing is happening unless you make it happen. There's no sense of urgency.

The Problem of Amnesia, solution 1: Make games in which the protagonist character has amnesia. **Objection:** This is not a major genre of literature. The number of books and movies about a character who has amnesia is vanishingly small. This solution is at best a poor workaround.

The Problem of Amnesia, solution 2: Tell stories of a type in which it is reasonable that the protagonist does not know what is going on. Two classic types are *heroic quests* and *mysteries.* Not surprisingly, many games, especially adventure games, fall into these categories. **Objection:** Although this solution works, it limits the kinds of stories we can tell rather sharply.

So because none of these solutions really work well, I came to the conclusion that there's an inverse relationship between interactivity and narrative. The more control you exercise as the author, the less freedom you give the player, and vice versa. You can't really maximize both. At best you can seek to strike a satisfactory balance between them.

I ended that lecture with what might almost be considered an anti-narrative manifesto. I gave a pean of praise to the wonders of interactivity, and then I concluded:

"**It's not our job to *tell* stories. It's our job to create worlds *in which stories can happen.* To build playgrounds for the mind."**

The Road We've Travelled

So that was the state of things in 1995, as I saw them. I now want to take a look at some of the things we've done since then, starting with the game industry itself.

The most obvious change is that stories have begun to creep into other genres, and in fact those genres are enlivened and enriched by them.

Role-Playing Games

RPGs have had stories for a long time, but the earliest ones weren't very good. They started with randomly-generated dungeons and completely trivial storylines, and the introduction of richer stories has been smooth and gradual. The *Final Fantasy* series is well-respected for its stories, although in my opinion, *Planescape: Torment* is probably the best example to date in terms of the quality of the writing.

Shooting Games

Since 1995 we've invented the rail-shooter: *Metal Gear Solid*, *Half-life*, and so on. In some respects these are the most successful because they map the linear story onto the physical space. However, the type of story they're able to tell is quite restricted. It's consistent and flows properly, but it is necessarily about, well, shooting things. To paraphrase another saying, if all you have is a BFG9000, then everything looks like a cacodemon.

Action Games

One of our most important achievements has been to invented the action-adventure, a genre somewhere between the mindless frenzy of the traditional action game, and the slow, deliberate puzzle-solving of the traditional adventure game. *Indiana Jones and the Infernal Machine* is an early example of an action-adventure, abandoning the classic point-and-click approach of the earlier LucasArts *Indiana Jones* games.

Like RPGs, action games started with completely trivial stories, but have gradually been including more and more story material. This is partly due to the growth of storage space on our mediums, and also partly due to a desire to appeal to larger markets. Old-time hardcore gamers still button through the story aspects as fast as

they can so they can get straight into the killin', and many of them decry or sneer at the introduction of stories in action games. They also complain that action games are getting too easy. But old-time hardcore gamers are a dwindling percentage of the overall market. As time goes on, they will be reduced to a niche.

Strategy Games

We have begun to add stories to strategy games to bind the missions together, with varying success. *Warcraft III* also introduced hero characters, and where you have characters you tend to have stories. This represents a cross-genre merging with role-playing games.

Vehicle Simulators

Interstate 76 was a vehicle simulator with a story. The story was intentionally corny, but effective.

In all these cases, story has remained secondary to gameplay. The story provides motivation and reward, but it is not the main thing the player is there for.

Adventure Games

And then of course there are the traditional adventure games—the ones that used to be the biggest, richest games on the market. Few of the major publishers build them any more. It's not as if they're dead, as many people claim. It's just that the market for them didn't grow at the same rate as the market for all the other genres, so as a percentage of the total, they're pretty small. It was the invention of the 3D accelerator card that caused this huge growth in the other genres. The 3D accelerator means we can provide more adrenaline, and entertainment through adrenaline is easier to achieve than entertainment through either logical challenges (puzzles), or narrative experience.

So, as we can see from these games, story is compelling—that's why we've begun introducing it into strategy games and vehicle simulators. We have a desire to use stories in our games; it makes them feel richer. But for the most part it remains a backdrop. It's not the main point of the game.

What About the Problems?

And what about the three problems I described back in 1995? Well, for the most part, we've avoided facing them.

The Problem of Amnesia

We're still making games with a lead character who has amnesia, to try and cover up the problem. We're also still mostly making mysteries and heroic quests. That's all well and good—it gets around the problem—but we're never going to fulfill the potential of this medium if we limit ourselves to those two genres of literature.

However, I have realized since then that even real stories need an introduction of some kind, even if it requires the reader to work a bit to understand what's going on. Really well-crafted novels or movies have very subtle introductions in which the introductory material is so cleverly woven into the plot that you don't notice that you are being introduced to the characters and situations.

We have to learn how to craft better introductions. Dumping a lot of expository material on the reader or the player is bad practice in any medium. We need to put the player in environments or situations where they cannot, or don't feel a need, to pick up everything they see. I think if we spent more time crafting good introductions, rather than just treating it as a nuisance to be dealt with shortly before shipping the game, we wouldn't have such a problem with player amnesia.

The Problem of Narrative Flow

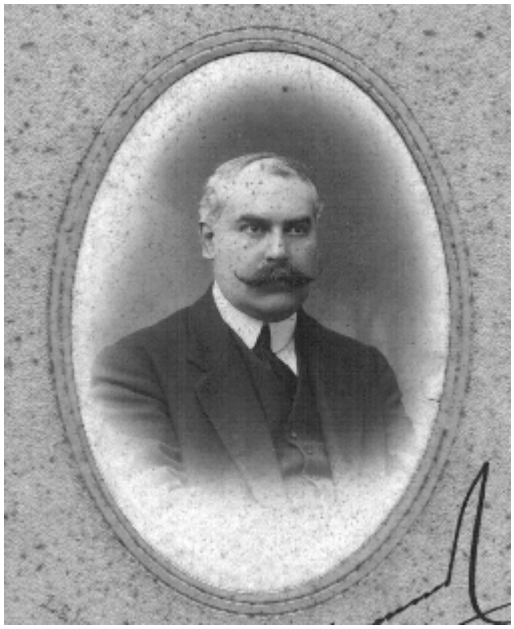
Narrative flow is still a problem for us: how do we make sure the player is ready for the dramatic climax when the dramatic climax occurs? For the most part, we're still using Solution 3: advance the plot in synch with the player's advances. And it still feels mechanistic, especially when the player arrives "just too late" to prevent something, and no matter how fast they play the game, they're always "just too late."

To some extent we have also switched to Solution 1, by making the games more linear. Adventure games are now more linear than they once were. Rail-shooters are of course linear. What we do is map physical space onto the plot—onto time itself—and then force the player to traverse the physical space. And the shape of that space has become more linear than it used to be.

The Problem of Internal Coherency

With respect to the Problem of Internal Consistency, we have arrived at a sort of compromise. Let's consider two types of people:

Soldiers in the trenches during World War I.



A wealthy Peruvian businessman during World War I.

On the left we have soldiers in the trenches during World War I. They have a role to play in the war, but no freedom to decide what they will do or how. Their experience is not unlike playing a rail-shooter: all they can do is shoot, and advance if it is safe to do so.

On the right we have a wealthy businessman in Peru during World War I. He has complete freedom to choose his actions: the war does not constrain him in any way. On the other hand, he has no power to influence the war, either. His experience is analogous to the sandbox mode of *Grand Theft Auto III*: you can do what you like, but what you do doesn't have any effect on the story.

One group of people is totally constrained by their circumstances—the story they're in. The other person is completely unconstrained, but he's not in the story at all.

In between these two types of people is someone rather special. Someone like a commando, a resistance fighter, or a spy. Someone who is involved in an important situation, but has some freedom (but not total freedom) to choose his own actions.

Sidney Reilly, "Ace of Spies"

These kinds of people make good compromise heroes for storytelling games, because they have a certain amount of freedom, but not unlimited freedom, to influence the situation they're in.

Another thing that I think we have realized is that players don't really want to violate a character's essential nature anyway—at least, not if they're seriously involved in the story. Sure, if you get to be Superman, the first thing you're going to do is see if you can kill a lot of people; but if you really want to experience the story, then it won't bother you that Superman isn't allowed to do these things.

The Resurgence of Linearity

I said earlier that I think we've gone back, somewhat, to telling linear stories. There are multiple ways of approaching the issue of branching stories—you can create fully-branching storylines, with (possibly) multiple endings; you can create stories that branch less often, and tends to remain within a few distinct plot lines; or you can have what Charles Cecil calls "multilinear" stories, in which the main plot has particular nodes that the player *must* pass through, but there is a certain amount of freedom in between these nodes.

The game industry has largely abandoned the notion its efforts to create fully branching, or even partially-branching interactive narratives. They're too expensive to make, and it's not certain that players want or need them anyway. And they still present design and development difficulties. Unfortunately, it's easy to create stories with logical inconsistencies in them if you have a complicated branching plot.

In short, I think the industry hasn't solved the three problems for interactive storytellers so much as sought workarounds for them. Rather than face them head on, we've improved the quality of our storytelling by, in large part, abandoning our efforts to be interactive about it. We have gone, unapologetically, back to basically

linear stories. Interactivity earns you progress through the story, but it doesn't have much effect on the outcome.

Why We've Had So Much Trouble

I now want to take a look at why, I believe, we have had so much trouble with these problems. It begins with what I believe is a failed analogy between narrative and gameplay.

"Conflict" versus Dramatic Tension

Hollywood screenwriters use the term "conflict" to refer to the essential problem of a story. In this formulation, there are three kinds of conflict: interpersonal conflict, conflict between a person and their environment, or simply internal conflicts among a person's emotions or desires.

Unfortunately, games are often seen in terms of "conflict" also—whether it's immediate and direct, as in a war game, or more theoretically, as in a conflict of interests between players in an economic simulation. In formal game theory, a "game" is defined as a situation in which there is a conflict of interests.

The fact that we use the same words for both encourages us to think that they are analogous, and this leads us into error. I think the Hollywood formulation is too limited. Maybe it works for movies, but I don't think it works for all literature. I prefer to use a term that I learned in junior high school English class, *dramatic tension*. Dramatic tension is more general than "conflict" and it avoids this spurious emphasis on the opposition of forces. There is no "conflict" in wondering whether that cute guy is going to ask you to the prom or not, but there is dramatic tension.

Gameplay Tension

At the same time, there clearly is such a thing as gameplay tension as well. Gameplay tension arises from the player's immersion in the game, his commitment to advancement, his desire to win. There is gameplay tension in wondering whether the roulette ball is going to drop in slot 17 or not. Even in chess, a game of perfect information with no element of chance, the gameplay tension arises from wondering what your opponent is planning to do, and wondering whether she is smart enough to figure out what *you're* planning to do.

The Disanalogies

Both dramatic and gameplay tension involve a concern for the future, worrying about the unexpected. But there are significant disanologies.

First is the *repetition disanology.* Gameplay tolerates repetition, and narrative does not. When you are playing a game, you are willing to tolerate a certain amount of repetition—often quite a lot, in a game like *Risk*—because you have a vested interest in each maneuver, even if it is identical to an earlier maneuver. In a story, however, no event should ever occur twice, unless there's some extremely good reason for it, and even then, it would be very unusual.

The second disanalogy between gameplay tension and dramatic tension is the *randomness disanalogy*. Gameplay tolerates random chance, and narrative does not. If you're playing backgammon, you're about to lose, and you happen to throw double-sixes and thereby win the game, that's perfectly acceptable: it's the action of chance. However, if you wrote the same scene in a story, the reader would consider it a *deus ex machina*. It's not acceptable for the hero of a story to be saved by luck. Everything in a story should happen for a reason.

This is why traditional adventure games work, better than any other genre of computer game, as stories. If they're well designed, adventure games contain neither repetition nor randomness. Every puzzle is different from every other puzzle, and every puzzle has a logical, non-random solution. Rail-shooters have this quality too. By forcing you down a rail, the game can guarantee that you never run into the same situation twice.

These two disanalogies lie at the heart of the matter. We expect different things from narratives than we do from gameplay. Narratives are *not* a simple recounting of events. They elide irrelevancies like getting dressed, using the toilet, and eating. Games elide some of these irrelevancies also, and a lot more besides. But narratives also elide *backtracking*, *false starts*, and *dead ends.* Games do *not* elide these elements; they are part of gameplay. They are essential to gameplay tension, and this is part of the reason that the analogy is faulty.

In his *Gamasutra* article, "Formal Abstract Design Tools," Doug Church makes a reference to the "story" of a hockey game. Although my respect for Church is boundless, I think he's got the wrong end of the stick here. If you relate the events of a hockey game, it would be a bad story, including every blocked shot and every player who falls down and then gets up again. Most of those events, while exciting in a game context, are boring and irrelevant in a story context.

The central point here is that stories require *dramatic novelty*. Things must change constantly, and they must never repeat. In games, there can be periods of stagnation, when nobody gains any ground, and there can be circumstances in which you end up in exactly the same situation that you were in once before. Games remain exciting in spite of these things because gameplay tension is not the same as dramatic tension. This, I think, is part of the reason that we've had so much trouble merging storytelling and gameplay: because they're not as similar as we think they are.

I would even venture a hypothesis—and I have no, none, zero evidence for this—that the part of our brain that we use process stories is in fact different from the part of our brain that we use to play games.

The Academy Earns a B-minus

I now want to take a look at what has been happening in the academic world in the last ten years. The single biggest difference between 1995 and now has been the groundswell of academic research. Games have gone from being beneath its attention to the hot new medium in about three years flat. Game education and research programs are starting up at academic institutions all over the country and indeed the world. Much of this work is straightforward teaching of game design and

development as training for industry, and that's valuable because it means we will have to do less on-the-job training.

With respect to interactive narratives specifically, however, the situation is a fearsome muddle. There's a lack of a common vocabulary; a lack of a common approach. And there are turf wars. Literary theorists of narrative—"narratologists" believe that narrative is rightly their turf, so it's up to them to decide what *interactive* narrative will be. Theorists of gameplay—"ludologists"—believe that interactive entertainment is *their* turf, and only they can properly decide what interactive narrative will be. These two camps are somewhat divided between the United States and Europe, with the narratologists in the USA and the ludologists in Europe. Regardless of where they are, they're not progressing as much as I would like.

The academy's ability to progress is limited by several different things, which I'll look at next.

Politics

A certain amount of academic literary debate is mired in political and meta-political issues. A good deal of literary criticism is written from a particular political perspective: Marxism, feminism, post-colonialism (the study of works written in post-colonial nations, e.g.. African and Southeast Asia), and so on. Among the meta-political issues is the question of Structuralism (a presumption that the world is organized according to some objectively identifiable principles) versus post-Structuralism (a presumption that the world is a social construct with different ideologies competing for control).

None of this is terribly useful for developing interactive narratives. Although analytical, it tends towards criticism rather than creation, and it's largely about non-interactive narratives in any case. When debates about interactive narrative get bogged down in political issues, they go nowhere.

Quality

In creating literary theories, academics don't take into account the quality of the storytelling. And that's quite appropriate: they're not allowed to. Quality is subjective, and theorists of literature are trying to arrive at objective rules that apply to all narratives without regard for quality. If you incorporate a subjective element into the theory, then it opens everything up to question.

That's OK for them but not for us. We need to create *good* stories. We're entertainers and our primary concern is to leave people feeling entertained. Whatever theory of interactive narrative we use, it has to produce not any old story, but stories that our players believe in and want to be a part of. Academic theorists of of narrative aren't usually worried about credibility or entertainment value. But adding interactivity and gameplay to a story introduces elements which disturb the credibility and the quality of the story—as I described above in my three problems. So because they're not allowed to concern themselves with quality, the academy isn't able to address my concerns.

Postmodernism

Finally, many academic theorists are approaching the issue from a postmodernist perspective in which nearly anything can be a story. Some people see narrative in everything. There's currently a vogue for applying narratological principles to almost anything; it's the buzzword du jour. Steve Jobs has been heard to make remarks in the press about how it's important to define the next generation of user interfaces for the Macintosh in storytelling terms. One has to wonder exactly what this means: "Once upon a time there was a happy little file that lived all by itself in a pretty folder in the middle of a huge hard drive?" This is not helpful.

Jacques Derrida, the inventor of deconstructionism, was once asked, "What is a text?" And he replied that anything can be a text. Well, if anything can be a text, and narrative can be applied as a metaphor to anything, then any effort to formulate an intellectually sound theory—in such a way that it can't be refuted, in other words—ends up being hopelessly vague.

We have a similar problem with defining "gameplay" in our industry. There are so many different kinds of gameplay that it's almost impossible to define it in terms that are genuinely useful. Sid Meier, for example, famously defined it as "a series of interesting choices." Dino Dini has defined it as "interaction that entertains." Both these definitions are hard to argue with, but too vague to be useful in ordinary practice. For teaching purposes, I use a definition which I know to be incomplete, but which gives people something to build on. My definition is that gameplay consists of the challenges the player is confronted with plus the actions she is allowed to take to overcome those challenges. I know this definition isn't complete because it doesn't include creative play, or the role of imagination in gameplay. However, it gives people something to start with.

So, to the extent that a given professor or school remains mired in a philosophical search for ideal, irrefutable definitions, its work is unlikely to be useful to us. I'm interested in the creation of good fiction, not in navel-gazing about the meanings of terms.

Now For the Good News

This is not to say that *all* the academy's work has been useless. There are several academics whose work has been directly helpful to us in the game industry, where interactive narrative is concerned. Janet Murray, of Georgia Tech, of course, the author of *Hamlet on the Holodeck*. Henry Jenkins of MIT has done some work on issues to do with the use of time and space in interactive storytelling, among many other things; he's also one of our most fearless defenders when the Congressional attack dogs are on the prowl. Joseph Bates led a very important project called Project Oz at Carnegie-Mellon University. Project Oz is now closed down, but some important work has come out of it. I'll talk about that later.

Most of these people have been working not on purely abstract theories of narrative, but examining existing computer games, trying to analyze them, and looking for ways to make them better. In some cases, they're trying to actually build running software that could be useful in games.

In addition the academy is doing plenty of valuable work that is unrelated to interactive narrative—AI, human-computer interaction, augmented reality and VR, animation techniques, and so on.

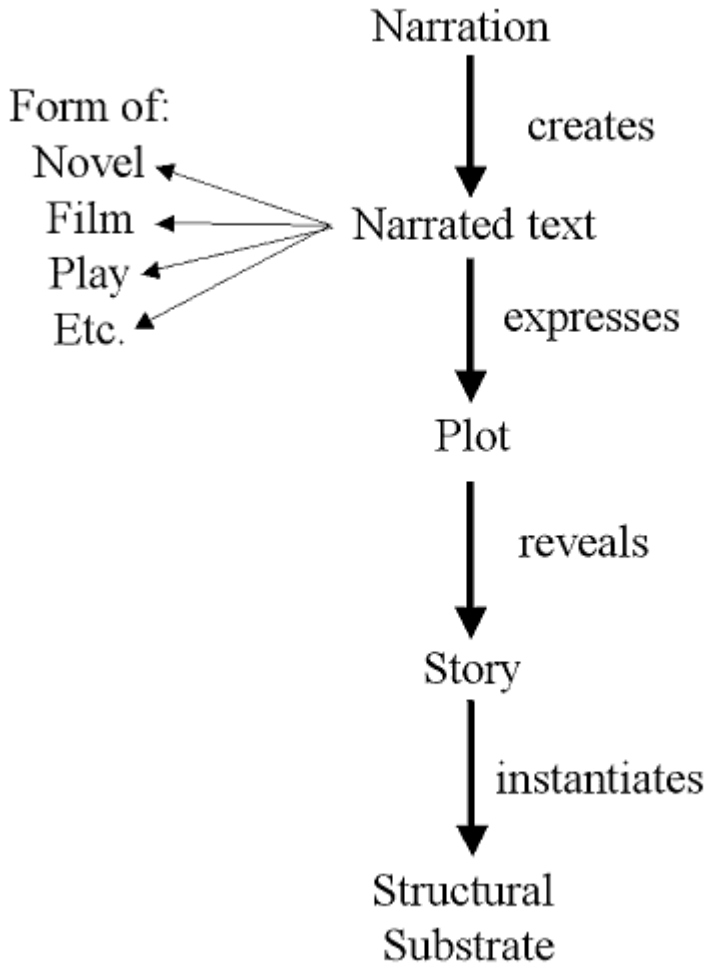
Lindley's Paper

I want to talk for a minute about an extremely useful paper I recently read by a guy name Craig Lindley. Lindley lives on an island in the Baltic Sea off the coast of Sweden, in an ancient medieval town. His paper is called "Story and Narrative Structures in Computer Games," and it's a very interesting survey which proposes some new ways of thinking about these things.

Lindley's paper discussed the concept of Structuralism in narrative theory, the idea that narratives have a generative substructure that can be identified. Note that this is different from the political Structuralism that I referred to earlier, although there are some related ideas. Structuralism is not a new idea, and not new to me either, but he explained it in a very lucid way.

Back in the 1920s, a researcher named Vladimir Propp wrote a pioneering work called *Morphology of the Folktale.* In it he presents an analysis of the structural generative system underlying a genre of Russian folk tales. Lindley writes, "Within this system, a typical folktale is built around seven types of character. The names of the characters containing these functions differs from tale to tale, but the type of actions they perform are always the same." Propp determined that these characters can have 31 different types of plot functions in the traditional Russian folktale. This is an example of narrative Structuralism, and a number of other people followed suit. Joseph Campbell's work on the hero's journey is classic Structuralism.

To describe how structuralism works, Lindley included a diagram in his paper, which I am going to shamelessly steal from him.



Layers of meaning in narrative texts. Figure courtesy of Craig Lindley.

His diagram requires a slightly different use of terminology. The ***story*** is **a raw sequence of events in *correct* chronological order**. The ***plot*** is ***those events with certain elisions, emphasis and de-emphasis, and perhaps re-ordered for dramatic purposes***. As Lindley puts it, "Its [the plot's] function is to emphasize or de-emphasize certain story-events, to interpret some and to leave others to inference, to show or to tell, to comment or to remain silent, to focus on this or that aspect of an event or character." The ***narrative*** **instantiates the plot in a particular text**.

He goes on to say, "The reason for separating the story as a different level of meaning from the narratives that express it is the fact *that the same story may be expressed in many different narratives, either within the same medium or across different media."* [Emphasis mine.]

Now all of a sudden, we've got something we can work with! For those of us who are trying to create automated story-generation systems, I think this is a very useful

way of thinking about it. We might be able to build a storytelling system that uses templates to generate stories (in Lindley's sense of a sequence of events), then uses heuristics and other rules to turn the story into a plot, and finally some kind of language-generation mechanism to narrate the plot into words.

It's not as if narrative Structuralism is something new—in fact, modern-day narratologists consider it old-fashioned for the purposes of analysis, and in the world of literary theory, it has largely been replaced by post-Structuralism and postmodernism. One of the critiques of Structuralism is that it privileges the point of view of the analyst: you cannot yourself stand outside the system that you are investigating. But in our case, we do have a privileged point of view: as game designers, we are creating the system in the first place. Structuralism, even if it's out of fashion, is something that we in the game industry should give serious thought to as we try to create generative systems.

This ties directly into my next topic.

Embedded versus Emergent

At the 2000 Game Developers' Conference, Marc LeBlanc gave a lecture called "Emergent Complexity, Emergent Narrative." He introduced the idea that narrative can emerge from complex automated systems rather than from pre-written blocks of material. He made a distinction between what he called "embedded" and "emergent" narrative. Embedded narrative is pre-constructed, and the player encounters and experiences it in the course of gameplay. Emergent narrative arises out of the process of playing.

This is not a completely new idea; people have been saying that the experience of playing *is* the story of a game for a long time. However, LeBlanc provided us with an elegant formulation.

As I read this, I came to an important realization that two of my Three Problems for Interactive Storytellers—Internal Consistency and Narrative Flow—are problems caused by embedded narrative. The *Casablanca* problem is essentially a problem of embedded narrative: the whole story *as told* fits together so tightly that any fiddling with it would make it fall apart. But if it were emergent, it wouldn't have a fixed structure of any kind. It would be about Ilsa and Victor showing up in Casablanca, and the characters would have to work out for themselves what was going to happen. That might work—but it also might not produce as emotionally satisfying a conclusion as the one that was deliberately constructed for the movie.

That "playgrounds for the mind" phrase from my lecture ten years ago, was, in effect, anticipating emergent narratives.

Emergent narratives, which can avoid the problems I described, offer exciting possibilities for the future of interactive narrative. However, here are a lot of open questions about them.

Tricky Issues for Emergent Narratives

It is a basic principle of game design that players like to be told what to do. They always need something that they're supposed to be working towards. This is true in all genres, not just narrative ones. Because emergent narratives lack embedded blocks of narrative material, they tend to be less specific about what the player ought to be doing. I think it's important to realize that a "sandbox mode" in a game is not really the same as an emergent narrative. Sandbox modes let you do what you like with no repercussions (generally). In an interactive narrative, your actions should have narrative consequences.

During his lecture, LeBlanc pointed out several other problems as well:

> **Emergent properties don't necessarily support the fantasy you're trying to create.** One of the characteristics of emergence is that it's difficult to predict. The very complexity that gives rise to emergence also means that events will occur that you, as the designer, did not specifically intend. Those events may not be consistent with the fantasy-experience you are trying to create for your player.
>
> **Sometimes you get absurd fantasies.** Worse yet, you may get results that are narratively absurd—non-credible plot lines and so on. The system doesn't know it's trying to tell a story, so it has no idea if the story it tells is any good.
>
> Because they're based on mathematical models, you get some familiar problems: **degenerate strategies, unintended feedback loops, and so on.**

Some people have characterized the pencil-and-paper role-playing game, *Dungeons and Dragons*, as a system for generating emergent stories. Unfortunately, most of the stories that D&D generates are poor. Like other games, it includes large quantities of randomness and repetition. To turn a D&D campaign into a decent narrative, a human is needed to convert the raw sequence of events into a credible plot, then to narrate the plot into an enjoyable text.

The MMOG Approach

Many people have argued that online games are the answer to interactive storytelling. Among other things they enable players to experience emotions that it's difficult to inspire in the single-player context. For example, I've long pointed out that most videogames inspire only two emotions, "Yahoo!" and "Damn!", along with perhaps frustration. Massively-multiplayer online games can inspire envy, jealousy, grief, ambition, greed, and even lust if you use them for cybersex. They can do this because they involve interactions with other real people rather than simply with a simulation or an embedded story.

However, the ability to inspire emotion is not the same thing as the ability to narrate successfully. As I said earlier, one of the problems for interactive narrative is the author's lack of control over the player. MMOGs don't just have one player who's out of your control; they have tens of thousands.

In practice, it has proven difficult to create story-like gameplay for individual online players. If a story-like activity (a quest, for example) is available to all players, then the outcome of the quest is always posted on on-line bulletin boards and well-known to all the players in advance. And in any case, undertaking a quest that has already been undertaken by thousands of other people robs it of most of its meaning. A real hero is a unique individual facing unique circumstances. You cannot meaningfully be a hero among thousands of other heroes, at least in the literary sense of the term.

Large-scale events, rather than individual quests, work somewhat better. You can cause the population of an MMOG to experience a war, a plague, a drought, or some other cataclysmic event that affects all of them. Stressful circumstances tend to produce stories, and where each player was and how she reacted to the event may be different. However, they aren't guaranteed to produce a story-like experience for every player.

It seems clear to me that MMOGs do in fact live up to my stated goal from 1995: they are worlds in which stories can happen. The question is, are those stories any good? One reason that I'm not very fond of MMOGs is the fact that they're full of other players who tend to ruin the fantasy for me. If I take the game's marketing at face value and try to immerse myself in its fantasy world, the next thing that happens is a guy named Lord Biggus Dickus comes along and kills me for no reason. A short and disappointing story, to say the least. Of course there are games in which player-killing is not permitted; there may even be games in which you cannot call yourself Lord Biggus Dickus; but the fundamental problem is still there. MMOGs are not actually fantasy worlds at all. Fantasy worlds are inhabited by characters who behave according to the conventions of the fantasy. MMOGs are real worlds that just happen to have no physical manifestation, and they are inhabited by real people, who are, unfortunately, under no constraints to behave in a story-like manner.

It's my belief that MMOGs are not really *the* answer regarding interactive narrative. They're *an* answer, and that answer is perfectly acceptable to the thousands of people who play them. But they're clearly not the be-all and end-all. They don't satisfy my desire to experience an interactive narrative, nor that of a lot of people.

What Do Players *Want?*

Lindley makes the point that we have to ask what players really want, and in fact that question has a variety of different answers. He takes a look at several different taxonomies of player types in MUD and live-action RPGs, by Bartle, Yee, and others, and arrives at his own taxonomy.

> Audience—a player who is content to be told a story; this player doesn't mind linear stories and watches the cut-scenes.
>
> Performer—a player who seeks to act out a character in a game world, creating that character's performance there.
>
> Immersionist—a who seeks to identify with a given character and immerse herself fully in the world.

Interestingly, Toby Gard, the inventor of Lara Croft, makes a distinction between two types of player characters:

> The *avatar*, which he sees as a sort of neutral puppet for the player to manipulate; it has an appearance but not much personality of its own. Gard says, "The Avatar is simply a visual representation of the player's presence within the game world."
>
> The *actor*, a more fleshed out character who strikes a balance between the needs of the story and the needs of the player. Gard says, "The Actor is a character distinct from the player, with its own personality, characteristics, and, to some extent, mind."

So we might expect Lindley's performer players to prefer Gard's Avatar characters, while his immersionists might prefer Gard's Actor characters, just because those are the respective degrees of characterization and control that they want.

I can suggest an even simpler taxonomy: there are those who press the tab button to interrupt the cut-scenes, and those who don't! In any case it seems as if stories serve at least two functions in games: story-as-motivation and reward, and story-as-experience. These are fundamentally different. In the former, the story serves the gameplay. In the latter, the gameplay serves the story—or, some would argue, *is* the story. In short, it looks as if we're not going to arrive at one right way to create interactive narratives, because what players want from narrative in their games varies so widely.

A Few Disturbing Tendencies

Having arrived at the conclusion that there's no one right way to make interactive narratives, I now want to look at what I see as a few disturbing tendencies in the way we're approaching the issue these days. I believe we're in some danger of getting stuck in a rut.

Too Much Emphasis on the Aristotelian Three-Act Restorative Structure

For years we've told students, based on Aristotle, that stories must have a beginning, a middle, and an end. This is fine as far as it goes, and it satisfies audience expectations, but I think we emphasize it so much that we risk giving the impression that it's the only right way to write a story. Some of our greatest literature explicitly eschews this structure. *The Grapes of Wrath,* by John Steinbeck, for example, has a beginning but not an end, at least, in the sense that the end provides any resolution of the problem. *A Hundred Years of Solitude*, by Gabriel Garcia Marquez, does not have a central "conflict" or single point of dramatic tension. It's a long, meandering narrative through the lives of a large number of people. In the seafaring novels of Patrick O'Brian, the author often sets up the preliminary conditions for a key event, then skips the event itself entirely, and simply tells you it succeeded or failed afterwards.

This raises a point that someone mentioned at my workshop on narrative game design. She said, “So I guess we’re creating novels, aren’t we?” I had never really thought about it: are narrative games analogous to novels, short stories, myths, folktales, or what? This whole process would be an awful lot easier if modern, sophisticated storytelling hadn’t been invented. If we’re content to tell folktales for ever, then we don’t have to work very hard, but on the other hand we’re not exploring the medium very thoroughly either. Storytelling has moved on since then. People like James Joyce, Virginia Woolf, Stanley Kubrick and Peter Weir have raised the bar pretty darn high for us.

But I think that’s a good thing. We need something to aim for. And I think we risk trivializing ourselves if we insist on the traditional three-act structure.

Too Much Emphasis on Joseph Campbell

This is something I’ve been guilty of myself, because the book I wrote with Andrew Rollings contains a long summary of the hero’s journey, and that’s something that I intend to correct when it goes into a second edition. I’m going to leave it in, because Campbell’s work is undoubtedly valuable, but I’m going to de-emphasize it somewhat.

It’s important to remember that Campbell’s work is *de*scriptive and not *pre*scriptive. He never said, “This is the correct way to write a story.” Campbell talks specifically about heroic quests, and heroic quests are well-suited to videogames because, as I’ve already stated, the avoid the problem of amnesia, and they tend to map progress through the quest onto progress through physical space, which easy for us to model. But heroic quests are not the only kind of story by a long shot.

Paint-by-Numbers Approach to Emotional Manipulation

I’m all in favor of games that explore emotion more thoroughly than they currently do. Goodness knows that we could do with some more emotional sophistication in our games at the moment. But there is an unfortunate tendency these days to see this as a simple process of tacking on particular scenes or events in order to produce a particular emotional effect. When this is done in a ham-fisted way, it absolutely annoys the hell out of me, because it’s so obvious. “Oh, look! They’ve just gratuitously killed the protagonist’s wife, and he’s all broken up about it. Well! I’m really rooting for him now.”

Whenever I see this, it tells me that the author doesn’t really have a serious commitment to his plot and characters. They’re just mechanical parts to be moved around in an effort to manipulate the audience; they’re not people to be understood and cherished. Sophisticated characters are capable of having complex responses to subtle situations, and I think that’s a goal worth working towards.

Trivial Themes or Messages

It’s kind of a new idea for game stories to have any message at all, apart from maybe, “Skill and perseverance will triumph in the end!” We’re starting to explore the possibility that games may have a theme, but unfortunately in the vast majority of

cases these themes are pretty darn trivial. “Be yourself,” “Love conquers all,” and so on.

I would like to see some more difficult and complex themes explored, some ideas like, “For evil to triumph all that is necessary is for good men to do nothing,” or “Man creates the gods he needs,” or even “The hand that rocks the cradle rocks the world.” If you’re going to spend ten million dollars developing a game, you might as well have something worth saying.

Some Stakes in the Ground About Quality

Having listed these concerns, I now want to put a few stakes in the ground about quality. I said earlier that it’s not good enough for us to be able to create any interactive narrative; we have to make good ones, and I have a few criteria that I’d like to discuss. I’ve got no more right to do this than anybody else apart from the fact that I have the microphone, so you can consider this a very personal view.

1. **Introduction through exposition is inferior.** This is both obvious and self-explanatory.

2. **A character in an interactive narrative should carry no more junk around with him than the same character would carry in a non-interactive narrative.** The basic adventure game situation: players carry ridiculous amounts of stuff for the purpose of the story. That’s not a good enough excuse. Rewrite the story.

3. **Dei ex machini are no more acceptable in interactive narratives than they are in ordinary ones.** Again, obvious and self-explanatory.

4. **Player-avatar identification is not an acceptable excuse for shallow protagonists.** It is not necessary to create a shallow avatar just to help the player identify with him. Real authors manage to write books in the first person whose protagonists are both appealing and richly characterized at the same time.

5. **No non-player character should ever say the same sentence twice unless either it is an expostulation, e.g. “Oh my God!”, or he is explicitly asked to repeat himself.** Obvious and self-explanatory. Nothing kills suspension of disbelief faster than repeated dialog.

6. **No story event (other than player action) may ever occur the same way twice.** Dramatic novelty is a fundamental requirement of a good story. No story should contain two of the same event. However, because we don’t have control over the player, a little flexibility is required here. Player-initiated events, e.g. repeatedly trying to open a locked door without the key, may produce repeated results: the door doesn’t open.

7. **Any NPC response to a player action that would not be credible in a conventional narrative is also not credible in an interactive narrative.** You don't get a free ride just because your NPC AI isn't up to the job.

8. **Every interactive narrative with pretensions to Art or Literature must have a theme or message.** Obvious and self-explanatory.

9. **If an interactive narrative has multiple endings, each possible ending must reflect player actions and decisions in a way that is meaningful to the player.** That is to say, a story must have a moral; mutiple-ending stories must have multiple morals.

10. **The bottom line is: Interactivity is not an excuse for bad writing!** That's what all of the foregoing really amount to.

Options For the Future

I now want to take a look at what some people are doing on the cutting edge of interactive narrative research. There are several groups trying completely different things.

The Erasmatron

This is a long-term project by the famous game designer Chris Crawford. It has been through several iterations and has now been patented; he's a bit vague about the details. Crawford is a master of simulation engines and algorithm-directed play, and as far as I can tell the Erasmatron is a sort of story simulation engine in which story fragments, or substories, may be parameterized and used to generate a story-like experience. But I've never seen the thing in operation myself.

For details visit www.erasmatazz.com.

Zoesis

Zoesis is a company that grew out of Project Oz at Carnegie-Mellon. One of the founders is the aforementioned Joe Bates. These guys are sort of doing an end run around the commercial game industry; they're concentrating on creating believable characters for businesses, specifically websites. According to their own website, they're creating characters for companies like McDonald's and Heinz.

See www.zoesis.com.

Extempo

This is another company that was formed as a result of academic research. It was founded by Barbara Hayes-Roth, a Senior Research Scientist at Stanford, who first presented her work here at the Game Developers' Conference, just ten years ago. They're working on smart interactive characters called "intelligent agents." They have managed to commercialize this to create training agents for businesses and

websites. Extempo either builds things directly as a service, or offers an authoring toolkit that enables businesses to build their own.

The Value of Drama

This work on artificial characters is not always directly on point with respect to interactive narratives, but it is nevertheless valuable, because in the future interactive narratives will require ever-more intelligent interactive characters. Some people are working not on narratives per se, but on drama, or at least dramatic situations. Let's take a look at drama for a minute.

Drama is of course very ancient; we can trace it back to the ancient Greek plays and beyond. There's a continuous chain that runs from Aeschylus to us. Drama starts with plays; plays connect to improvisational theater; improv theater connects to live-action role-playing; LARP connects to tabletop role-playing games; tabletop RPGs connect to computerized RPGs. At each step we get farther from Aeschylus, and his influence is weakened. Nevertheless, there's an essential relationship there.

One of the interesting things about drama is that it all takes place on one stage. Of course, that stage can be re-set between scenes to represent many different places. But one-act plays are different: the stage remains the same throughout the experience. What this means is that dialog alone must carry the story. The drama cannot map space onto time the way we do in adventure games. Rather, it maps conversation (or action) onto time: if people stop moving or talking, the play stops.

Dialog is an area that we haven't really done much work on in the last ten years, apart from simply including more audio. The standard dialog tree sentence-selection mechanism in games is just about the same as always has been. Of course, natural language parsing and natural language generation are two of the very hard problems in artificial intelligence research, but in the long run I believe they will be two of the most fruitful for us. Ultimately, stories are about characters and their interactions, and at the moment, this is one of the areas in which we are weakest. If we want to be able to do what Aeschylus did—tell stories about real people, but set in a confined space—we need to study interactive drama. And two people are in fact doing this.

Façade

Façade is a project being undertaken by Michael Mateas, now at Georgia Tech and formerly of Project Oz, and Andrew Stern, who worked on the *Dogz*, *Catz*, and *Babyz* artificial-life projects at p.f. Magic. It's a good example of an interactive one-act play. You play a character who is the friend of a couple whose marriage is breaking up, and you're visiting them in their apartment. It's mostly dialog. You can type whole English sentences to them, and they will respond, talking to you and to each other. How you interact with them affects how they interact with each other. The whole thing takes about twenty minutes to go through, and it has different endings based on what you do and say.

Façade tries to do about six very hard things at once. In addition to parsing English, it's trying to create realistic conversations, simulate emotional states in a decaying

relationship, and show emotion through body language and facial expressions at the same time. It's very ambitious, and I'm really glad to see them putting so much effort into it.

For more information about *Façade*, visit www.interactivestory.net.

My Vision of Interactive Narratives

My own vision for interactive narratives is even more ambitious than *Façade*. I would like to create an artificially intelligent dungeon master.

If you have played a tabletop role-playing game, you know that a good dungeon master makes all the difference. A good dungeon master sets up the situation and adapts it to the characters in the party, then, in effect, creates a story on the fly as the players play. Most importantly, however, a good dungeon master can react to changing situations, and adjust the story as necessary to account for them. He can create new non-player characters and weave them in seamlessly, so it seems to the players as if they have always been there.

An AI dungeon master would be able to do the same. It would be capable of generating story-like experiences on a continuing basis. It would knows the rules of good storytelling, and simply would not generate a bad story. It would know the rules of characterization, and be familiar enough with human psychology to be able to generate credible human-like responses.

Conclusion

You might think from all this that I'm implacably hostile to interactive narratives. Actually, just the opposite is true. It is the hard problems that are the most interesting, the most exciting ones, and often the ones most worth solving.

Personally, I think embedded stories will continue to exist and to work well for players who don't insist on having too much freedom. Embedded stories are cheap to write and they allow us to bring all our creative powers to the fore. At the moment, human beings can craft far better narrative experiences than any automated storytelling system. We understand stories. We know what makes them good and bad; we know how to make people laugh and cry. Players who like the experience of being part of a story will continue to enjoy them.

Emergent narrative is the great challenge of the future—the Star Trek Holodeck. Somehow we will have to encode the principles of storytelling into a machine that can generate narratives. And they must be credible, coherent, and above all entertaining narratives. It's going to be a long, hard, enormously fun job.

We may actually get the physics of the Holodeck figured out before we get the software written for it.

Appendix N: You Must Play *Façade*, Now!

By Ernest Adams
Gamasutra
July 28, 2005

A new video game called *Façade* has just been released to the public. I'll say this right up front: *Façade* is one of the most important games ever created, possibly the most important game of the last ten years. More important than *The Sims*; more important than *Grand Theft Auto*; far more important than *Half-Life*. If you are a game designer, or you want to be a game designer, you must play this game. It runs on the PC, and it's free. It was developed by Michael Mateas, an AI professor at Georgia Tech, and Andrew Stern, the man behind the *Dogz*, *Catz*, and *Petz* series from p.f. Magic a few years ago. You can download it at www.interactivestory.net. You'll need a Bittorrent client and some patience; it's 800MB.

Mateas wrote his Ph.D. thesis on *Façade*, and he and Stern have written several other articles as well, so there is quite a lot of published material about it already. I have deliberately avoided reading any of it, however, because I wanted to experience *Façade* as a gamer, not as a game developer. I don't know for sure what they were trying to do; I only know what they did do and how I feel about it, which is deeply impressed. *Façade* isn't a game in the formal sense of the word. It's a one-act interactive drama. That genre doesn't get much attention these days—we're more concerned with storytelling in general—but interactive drama is vital to the future of the medium, and *Façade* is a big step forward in that field.

One of the things that makes theater different from movies is the physically limited size of the stage. Another is that theater is live and immediate. On a stage you can't show an earthquake destroying all of Los Angeles, but you can show people who are affected by that earthquake, and what it means for them personally. In theater it is the actors who carry the story, and the story is conveyed to the audience primarily through dialog. That's unusual for video games. Games rely on action to carry the story, and the plot is most often about big impersonal issues like saving the world. *Façade* is a drama, so it takes place on a stage: a small and rather spartan apartment. Its central issue is not saving the world, but saving a marriage.

As the player in *Facade*, you are an old friend of a married couple whom you haven't seen for a while. Their names are Trip and Grace, and you've been invited over to their place for a drink one evening. You see them in the first person, and you can move around with the arrow keys and talk to them by typing on the keyboard. They speak back to you, and to each other, in recorded audio. (I should add for the benefit of younger readers that *Façade* would probably get an R rating for language, and it hasn't been rated by the ESRB.) You can also use the mouse cursor to pat them comfortingly, hug them, and kiss them. That's about it. But that's all you need.

Like the early adventure games, *Façade* doesn't make any assumptions about your character, or assign you any role other than that of an old friend. At the beginning of the story you choose your name, and that implies what sex you are, but you have no

personality except what you bring with you. This leaves you free to act any way you like. You're not playing a part written for you by someone else.

It quickly becomes apparent, even before you get in the door, that Trip and Grace's relationship is in trouble. It's a façade, as the name suggests. They're young, they're affluent, and they're deeply unhappy with each other. They're hoping that by talking to you, they might arrive at some kind of understanding about what's wrong between them. Your conversation has a direct effect on their feelings about each other, and about you as well. There are several possible outcomes, and I doubt if I've seen them all. In one, they make up and resolve to try again; in another, one of them walks out; in yet another, I made Trip so mad he kicked me out of the apartment.

Façade doesn't give you a goal, which is why it's not a game. You can try to save their marriage, or you can try to split them up, or anything else you feel like. There's no way to win or lose, no value judgments about the quality of your play. By avoiding the "game" paradigm *Façade* also avoids a lot of baggage that games bring with them: connotations of strategy and competition, and the sense that it doesn't really matter. But although *Façade* isn't a game, it's also not a sandbox like The Sims, where the people speak in Simlish and it's fun to find new ways to kill them. (The Sims' website suggests that if you're low on money, you can murder a few sims in order to sell off their tombstones. That hardly encourages the player to empathize with his characters.) The characters in *Façade* speak of real pain in real words. You play not for the sake of a final score, but for the sake of something more important: Trip and Grace's happiness. By the end of the evening, something that you say or do may have changed their lives radically. That, too, is a new thing for videogames. Videogames have hitherto mostly been about changing things, not changing people.

All that is revolutionary enough by itself, but *Façade* also impresses me because it's so technically ambitious. Mateas and Stern describe it as a demonstration project, a testbed for new AI ideas and technologies. It tries to accomplish about five incredibly difficult things at once, and perhaps even more that I haven't yet noticed. These are the things that I saw the game doing:

- **Natural language parsing and conversational interaction.** It has been a long time since typing English on a keyboard was the standard way of interacting with a computer game. Even when it was, what you typed were usually simple commands like GO NORTH and TAKE FLASHLIGHT. *Façade* accepts English input and tries to interpret it as a meaningful part of an ordinary human conversation. This is a gigantic challenge.

  Conversation systems are not new. The best-known early one was Eliza, created by Joseph Weizenbaum in 1966. Eliza was a very simple program that was intended to parody a non-directive psychotherapist. All it really did was parrot variants of your own sentences back at you or request further information, sometimes recognizing a few keywords. Another famous conversation system, SHRDLU, was developed by Terry Winograd at Stanford. It was capable of discussing a collection of blocks that could be manipulated by a robot arm. You could say things like, "Are there any blocks which are wider than the one you are holding," and it would reply, YES, THE

GREEN CUBE. It also remembered past events and could correct the user if he was wrong about something.

SHRDLU could only discuss things in a very limited context: the blocks world. Eliza had no context at all, and no real intelligence apart from recognizing keywords hard-coded into it. *Façade* is significantly more complex than either; it has to hold a three-way conversation on a wide variety of possible topics that affect a marriage: work, friends, parents, children, money, love, sex, and even interior decorating. It's not perfect by any means; at times the conversation engine "loses the plot," so to speak—it fails to understand your input and produces a *non sequitur*. Nevertheless, it's an important step forward.

- **Natural language generation.** Video games often sound stilted because their dialog is written as whole sentences, or long soliloquies by one character. *Façade* doesn't make this error. Trip and Grace's conversation is full of hesitations, sentence fragments and interruptions; it sounds like real people talking, not spoken exposition. *Façade* produces pre-recorded utterances based on an internal mechanism, but it's not assembling individual words to create new sentences from scratch. Rather, it's choosing a line of dialog that's most appropriate for the current situation. I did the same when I wrote the play-by-play commentary in *Madden NFL Football*, but in football the situation is considerably more straightforward than a deteriorating marriage! *Façade* also manages to avoid repetition, a classic weakness of many games that instantly destroys immersion. In *Façade* a character never says the same thing twice in any one play-through of the drama.

  One area where the audio design fell down somewhat is in the "name insertion" technique, where the name you chose for yourself is inserted into the dialog. Trip and Grace say your name far too often, and its inflection and volume often don't match the rest of the sentence in which it is used. But this is a minor quibble; it doesn't reflect on the game's real achievements.

- **Emotional modeling.** *The Sims*' emotional modeling is based on needs (food, sleep, and so on) plus some attributes that govern a character's affinity for another character (neatness, outgoingness, and so on). Because *The Sims* has to handle any character the player can create, it naturally needs a general mechanism for emotional relations, which consequently produces somewhat general results. *Façade*, on the other hand, is about two people who already know each other. Their relations are influenced by English-language sentences that they speak to each other, and by those spoken to them by a third party, you. Your physical actions, such as touching or walking away, also affect both Trip and Grace's emotions. I have no idea how sophisticated their emotional modeling really is, but I thought I was able to detect anger, depression, frustration, jealousy, shock, bitterness, relief, embarrassment, gratitude, pleasure, and perhaps a dawning self-awareness. Much of my reading of these emotions comes from the actors' tones of voice, so I may be giving it too much credit. Still, it's reasonable to assume that the language

generator chooses a recorded sentence whose tone matches the character's underlying emotional state. Also, unlike many games that simulate emotion, Trip and Grace's feelings have some inertia—they don't swing wildly from one emotion to another. If they become angry, they stay that way for a while.

- **Facial expressions.** *Façade* uses flat-shaded 3D graphics, so no matter at what angle you see Trip and Grace, they look like very simple comic-book characters. However, their eyes, eyebrows, and lips are outlined in sharp detail, so you can see them clearly even from across the room. They reflect the character's feelings with some precision.

- **Body language.** Trip and Grace both stand up the whole time (as far as I have seen), and they tend to wander around as you talk to them. Their walking and gestural movements aren't very realistic, which I attribute to *Façade* being a small, self-funded project. What's interesting, though, is the way their body language reflects their moods. They'll turn away from each other when angry, and fold their arms when upset, a classic defensive posture. Both of them tilt their heads appropriately too: down when unhappy, up when happy, to one side when puzzled. You see this kind of thing done in pre-rendered video all the time, under the guidance of a skilled animator; but in *Façade* it's all being simulated in real time. I couldn't tell if there are individual differences between the two characters; they both seemed to use the same postures.

So is the plot of *Façade* embedded—pre-written—or is it emergent? Have I been taken in by nothing more than a vast branching storyline? Obviously some parts of it are scripted, literally, because all the conversation is recorded material. Trip and Grace can never say anything other than what Mateas and Stern have given them to say. But *Façade* is trying to interpret and react to whatever the player types, and the player can type anything at any time. You can't do that with a branching storyline. At the end of the day I think it doesn't really matter how *Façade* does what it does. It's entertainment. As a designer, of course I'm curious about what's behind the curtain, but as a player, all I want to do is believe in it.

At the beginning of this article I was careful to say that *Façade* was "important," but not that it was fun. Like theatrical drama, it goes beyond fun, in fun's traditional sense of "a good time." Nobody goes to see *Who's Afraid of Virginia Woolf* or *Death of a Salesman* for a good time. We see them to be entertained, to be moved, to appreciate a dramatic situation for its own sake. I don't really like either Trip or Grace, and whatever chemistry they once had has clearly evaporated, but I do sense their isolation and frustration, and it makes me want to help them.

Façade is not without its weaknesses, it is after all a demonstration project rather than a commercial product. The acting is not stellar, and the art and animation are pretty minimal. None of that matters, however. *Façade* is important for what it tries to do and for what it shows that we can do with this amazing medium of ours. It doesn't seek to replace anything; in the future there will still be plenty of games with the familiar themes of construction, exploration, and conquest. Rather, it shows us that there are still new ways to play waiting to be invented. The future of interactive

entertainment will be even bigger and more manifold than it is now. *Façade* leads the way.

Appendix O: A New Vision for Interactive Stories

Ernest W. Adams

2006 Game Developers' Conference

This is an approximate transcript of the text of my lecture at the Game Developers' Conference on March 24, 2006. I present it in this form because the nature of the material does not lend itself to the traditional paper format. Also, because the lecture is informal and to some extent ad-libbed, this is not a verbatim document.

Part I: The New Vision

Introduction

Hello and welcome. This is "A New Vision for Interactive Stories," and I'm Ernest Adams.

I need to begin with a disclaimer. I realize that there is hubris in introducing anything as a vision, and that there is a risk in introducing anything as "new." I haven't read every work on interactive narrative that has ever been written, so many of these ideas may have been heard before in other places. Rather, what's new about what I'm going to say is that it's new to *me*. In the course of the last year I have changed my thinking about some of these ideas rather sharply.

I'm going to start by introducing a few old friends: Aristotle, Joseph Campbell, and Robert McKee—the unholy troika of storytelling authority. There has been a tendency in recent years for people in the game business who are interested in interactive storytelling to rush out to gurus about storytelling and to adopt their methods rather slavishly, and I don't think that's a good idea. I don't think that Aristotle necessarily works for what we're doing. His notion that every story has a beginning, middle, and end? No. We might have multiple endings, which is not something that Aristotle talks about. We definitely have multiple middles. The player can save and reload in the middle of a story and create a new middle, if he wants to. We might even have multiple beginnings, if the game is randomized every time you play it.

The kind of structure that Aristotle talks about is not necessarily appropriate for what we're doing, if we're talking about genuinely interactive narratives in which the player's actions change what's going on in the plot. The three-act structure that Aristotle was talking about—setup, confrontation, resolution—was designed for *plays*. He was talking about drama on the stage, and it works for movies too, because movies are about the same length as plays. But it has nothing to do with an entertainment form that can last 40 hours, like a big video game. Nor does it have anything to do with an entertainment form that can last indefinitely, like a soap opera.

Now there's a great deal of interest in Joseph Campbell, and I do think that the Hero's Journey is useful for the kinds of games that have a hero, a linear story, and a journey. But Campbell is descriptive and not prescriptive. He was a folklorist, not a creative writing teacher. Campbell never said the Hero's Journey was the right way to create stories. All he said was, this is the way a lot of stories about heroes get written. But a lot of stories are not about heroes. "The Tale of Ichabod Crane" is not about a hero. It certainly isn't a Hero's Journey.

As for Robert McKee, he has a lot of interesting and useful things to say about creating emotion, but I'm not terribly impressed with his stuff about structure, because again, he's not talking about interactivity. He's talking about screenplays. Robert McKee assumes that his audience is writing for the movies. I've never seen him claim that he knows what he's doing with interactive entertainment.

In McKee's workshop, he discusses *Casablanca* extensively, and he explains why it is such an excellent story—which is quite true. And eleven years ago I gave a lecture at GDC in which I also discussed *Casablanca* as a positive example of storytelling. But in that lecture, I said that its incredible strength as a story, its tightly-knit fabric, is what makes it unsuited to interactive entertainment. It ill tolerates any fiddling.

I think if everyone slavishly followed the templates that have been devised around these three men and their philosophies, then much of the world's great literature would simply never have been created. Not all of the great stories of the world follow these templates, and I don't feel as if we are under any obligation to do the same. Unless you are intentionally writing a linear story that fits into the format that they are talking about, set them aside.

Three Traditional Assumptions; or, How We Got Into This Mess

I've been thinking about this stuff for a long time, and sometimes it just seems as if my head is full of molasses. There are all sorts of complicated interlocking issues; here are all sorts of models from which to borrow. There are books, plays, and movies in the non-interactive media; there is the huge plethora of existing games, from *Dragon's Lair*'s game tree of death to the near-total freedom of *The Sims.* Both are computer games and both are interactive narratives according to some definitions. Then there's all the material that has been written *about* games, and the colossal quantity of material that has been written about writing itself. How am I supposed to get any synthesis out of all this stuff? A great deal of it is contradictory. It's just really hard to think through, and it has been painful and awkward to make any sense of.

In the course of that time I have made a number of assumptions. I'm going to talk about these assumptions and how they have influenced my thinking. But they aren't just mine; I think these are assumptions that a lot of my colleagues share.

"Our goal is to create a sandbox that allows maximum freedom to the player."

The earliest computerized interactive stories were text adventures. They used typed input commands. They told the player that he was in such-and-such a place, and presented him with an input prompt. But they didn't list the commands that were

available. The text adventures pretended that the player could do anything. Of course the player realized, five minutes in, that that was false; he couldn't really do anything, because the machine didn't understand very much. But the immediate reaction of anybody who played the original *Adventure* was, "OK, well, you *should* be able to do anything," and, for those of us with an optimistic attitude, "Someday, we *will* be able to do anything." I adopted this assumption without really thinking about it, and think a lot of people did.

"Interactive Stories Shouldn't be Games"

Our second assumption was that we should abandon the "game" concept in the context of interactive storytelling. And in fact, four years ago, I gave a lecture here called "Why We Shouldn't Make Games." I said that we shouldn't make games for a couple of reasons. One had to do with cultural credibility. The term "game" implies light, fun, meaningless, and temporary entertainment. If something doesn't matter, it's "only a game", not an art form. Stories are more important than games. Games are made by nobodies like us, while stories are made by de Maupassant, Chekhov, Virginia Woolf, and J.D. Salinger. So to broaden our medium and gain cultural credibility, I made this assumption that whatever interactive stories will be, they won't be games.

There was also a reason to do with mechanics: The whole thing about winning and losing, the struggle for achievement, all seems wrong in the context of a story. We also made a false analogy between gameplay tension and dramatic tension, assuming that they were the same kind of thing when they're not. I addressed that last year, so I won't go into it again this year.

So that was another basic assumption: Interactive stories should not be games, or they won't be games once we get them figured out.

"The Player Shouldn't Have to Think About Any Rules"

The third assumption arises from something that we have taught the players over the years. In an ordinary board game you have to obey rules, and to obey them you have to know what they are. This is a conscious process. There is a list of permitted and prohibited actions, and you are aware of the rules at all times. But video games hide the rules. This is great, because it contributes enormously to player immersion. The game knows the rules, so you don't have to. The permitted actions are implemented by the user interface, and the prohibited actions are simply not available. So we have trained our players to believe that if a thing is possible, it must be permissible. If they're not supposed to do a thing, it shouldn't be available.

So I want you to keep these assumptions in the back of your mind, because I'll be coming back to them later.

Façade and Its Critics

Now I want to talk about *Façade*. *Façade* came out earlier this year. Very briefly, it's an interactive drama in which you play the role of an old friend of a couple, Trip and Grace, whose marriage is on the verge of a breakdown. You've gone over to their place for drinks, not having seen them in a long time. You can walk around

their apartment, touch Trip and Grace using the mouse, and above all, talk to them by typing in text. They understand you—most of the time—and they talk back, using spoken English.

It was made by Michael Mateas and Andrew Stern, using their own money, and it's available free at www.interactivestory.net. (Incidentally, for those of you who remember what this means, *Façade* is the first, and so far the only, Dogma 2001 game.)

I think *Façade* is one of the most important computer games of all time, and *the* most important game of the last ten years. It is an interactive drama about a specific situation, and the story is a combination of emergent *and* embedded material. Parts of it are pre-scripted, because Trip and Grace's responses are recorded audio. There is no stated goal, but there are several possible outcomes depending on how you behave. If you come in and you're very aggressive or obnoxious, they'll just kick you out. But you can also cause them to reconcile or to break up.

As you play *Façade*, occasionally it produces absurd results. *Façade* allows you to keep a transcript of everything that is said, and here is one of the transcripts that I found on the Web. The player's name is Audrey:

> (Audrey [the player's character] knocks on the front door.)
>
> (Trip opens the front door.)
>
> TRIP: Audrey!!
>
> AUDREY: Trip, I've been shot!
>
> TRIP: Hi, it's so great to see you!
>
> AUDREY: Help me!
>
> TRIP: Uh, well, come on in… Uh, I'll… I'll go get Grace.
>
> AUDREY: There was a man with a gun.
>
> TRIP and GRACE: (Unintelligible arguing)
>
> AUDREY: HELP! I'm going to die.
>
> GRACE: Hi! How are you? I'm so happy to see you after so long!
>
> AUDREY: For God's sake, I'm bleeding… (etc.)

Obviously, Trip and Grace don't understand what the player is talking about. People make fun of *Façade* because it doesn't react correctly to every possible input, and my first reaction on reading this was the same: the AI is just not up to the job. But after a while I began to realize that there's actually something more interesting going

on here. I'll come back to this too. I realize I've pushed a couple of things onto the stack already, but I promise I'll wrap it all together by the end.

Ken Perlin's Law

Last November, I went to the Virtual Storytelling Conference in Strasbourg, and one of the keynote speakers was a guy named Ken Perlin. If you don't know who Ken Perlin is, he's a professor at the Media Research Lab at New York University. He's one of these guys like Chris Hecker, who's both terrifyingly intelligent *and* seemingly blessed with boundless energy. Chris Hecker is sort of what you get if you cross Albert Einstein with Tigger, and so is Ken Perlin.

Ken was talking about some of the various things that he's done, and almost as a throwaway remark, he said something that really brought me up short. Now, Ken is too modest to have called it a law and named it after himself, but I think it deserves it, so I'm going to do it for him. Ken Perlin's Law is this:

> **The cost of an event in an interactive story must be directly proportional to its improbability.**

And at first I thought, what's he talking about? Adventure games don't have an internal economy, they don't keep track of costs. And in role-playing games, improbable events are just good or bad die rolls, there's no cost element. And what unit would this so-called cost be measured in?

But the more I thought about it, the more I began to realize how much sense it makes. The unit of cost of improbable events is their *credibility*. In fact every story, interactive or non-interactive, book, movie, television, or computer game, has a credibility budget. Ken did not say that the unit is credibility; he wasn't specific about the cost. That's my addition, so if you think it's completely bogus, blame me, not him.

A story can only tolerate a limited amount of improbability before the credibility budget is exhausted, and the story is ruined. In the case of non-interactive narrative, the author controls and spends the credibility budget, and when the author blows it, she ruins her story. In the case of interactive stories, however, the designer and the player both spend on the credibility budget. If the designer blows it, then he's lost the player. But if the player blows it, then he's lost the designer. He's done something so improbable that the designer didn't budget for it.

The example Ken used was, suppose you're playing along in an interactive story that's set in the modern day, without any magic or anything, and the player decides that he wants to materialize a chicken out of thin air. Ken said, this should be a very, very expensive operation. In my terminology, it blows the credibility budget. And the designer is entitled to decide that you simply can't materialize chickens in his world, because the credibility budget doesn't stretch that far.

In papers on interactive narrative it's very common to see grand statements of the form "the designer and the player collaborate to create the storylike experience" without any explanation of what the hell that really means or how it's supposed to

take place. I don't know what the hell it really means either, but I think this business of both the designer and the player making withdrawals from the same credibility budget when they do something improbable, is central to this idea of collaboration between player and designer. It's where the rubber meets the road on the Problem of Internal Consistency, which is one of the three problems for interactive storytellers that I introduced at this conference 11 years ago.

I'm not just talking about this stuff in an abstract, theoretical sense. I'm talking about design and coding. I think it's quite possible to build a quantity, a resource, into a game that is an amount of credibility, and to track it. In fact, I think a story-generation system, if we ever create such a thing, *must* keep a credibility budget. If it doesn't, it's going to generate nonsense.

The New Vision: Storytelling Games as Role-Playing Games

So what does it mean if a storytelling game has some kind of an internal economy?

In his book [*Chris Crawford on Interactive Storytelling*], Chris Crawford makes a brief reference to scoring systems for drama. He uses it like a classic game score, to reward the player for doing that the author wants him to do. His example is giving somebody who is playing Juliet a higher score for committing suicide at the end, because that's more dramatic, than just for walking away from Romeo's body. If the player, as Juliet, says, "Eh—teenage guys are a dime a dozen," she doesn't get the bonus points. But if she says, "Oh, happy dagger, this is thy sheath; there rust and let me die"—extra points for killing yourself.

It's an interesting thought, but that's as far as Crawford takes it. It's like a Wikipedia stub in his book, it needs further elaboration before we can judge it. But thinking about what Ken had said—the idea that interactive stories can and perhaps should have an internal economy—it struck me like a flash of lightning, what the implication of this really is.

You have to understand—I've tended to think of interactive stories in terms of adventure games (which lack an internal economy), because they're the ones with the deepest characters and the richest plots. They're the ones that seem the most story-like and the least game-like. They don't have a lot of numbers. They don't give the player an artificial goal to shoot for, and they're not about winning and losing, and so on. And that's kind of where my head has been at.

This realization was: *Façade is a role-playing game.* It's not a dungeon crawl, but it is a role-playing game.

Now I've been running away from role-playing games even faster than I've been running away from games in general. Computer RPGs are the ideal example of what a story-like experience is not. They have all these numbers. They're full of repetitive combat, and buying and selling weapons. As I've said before, in a computer RPG, you're not a hero, you're an itinerant second-hand arms dealer. They have this whole leveling-up mechanism that occupies most of the player's attention, rather than the plot, which is usually fairly thin.

But that's not role-playing. That's *Dungeons & Dragons*.

D&D is only a subset of role-playing. And it's very well-suited to computers precisely because it has all these numbers. But as we all know, D&D, as played on the computer, doesn't actually have a lot of role-playing in it. *Façade* isn't D&D, but it's still a role-playing game because it's about playing a role in a specific situation.

So, does the fact that *Façade* is unable to respond to certain inputs make it a failure? No. When people make fun of it, they're assuming *Façade* should try to be universal. But Mateas and Stern never claimed it would be universal. Now I'm not here to defend *Façade;* Mateas and Stern are big boys, and they're more than capable of doing that themselves. What I am saying, however, is that those criticisms are off the mark.

Role-playing does not mean total freedom. Role-playing games still have rules and a magic circle. Going into *Façade* and saying, "I've been shot!" is *just bad role-playing*. It's like going into D&D and saying, "Hey, did you catch the space shuttle launch on TV last night?" The world of *Façade* has no guns in it, just as the world of D&D has no space shuttle in it. So it's no wonder that Trip and Grace don't understand when you say "I've been shot." It's not that it's bad AI. It's that guns are outside of the game world.

The Traditional Assumptions Violated

This realization of mine—that storytelling games are role-playing games—violates the traditional assumptions I described earlier:

> "**The goal is ultimate player freedom."** Maybe that's not tenable in role-playing.
>
> "**Interactive stories shouldn't be games,"** or that when we get them right, they won't be games. Maybe games bring a beneficial structure. Maybe they require the player to behave in ways that are consistent with the storyworld. What if I play a war game as a pacifist, or a business game as a communist? I will lose. When you play a game you must accept the premise of the game, and there is no reason why an interactive story has to be workable for a player who refuses to accept its premise.
>
> "**If you can do it, it must be allowed."** That's not tenable in social contexts. It's OK for actions involving physical activity, and we can place limits on the user interface to restrict player actions in a physical context. It's problematic when the action is speech, because we can't impose limits on what players can say. We've become very well aware of this in MMOGs, because a lot of players come into MMOGs bringing with them the same kind of expectations that they have about single-player games, namely, "If I can do it, I'm allowed to do it." And in fact, MMOGs have had to impose explicit rules that players obey voluntarily, restricting their speech. MMOGs violate the "If you can do it, it must be allowed" assumption.

Interactive narratives are role-playing games simply because they are about playing a role. That is the new vision.

Some of you may be saying, “Big deal, I got there years ago” or “Role-playing? What the hell kind of a breakthrough is that?” But to me, it finally enabled me to get through the molasses in my head, to put all this stuff into a conceptual framework that I was able to work with. And along the way it forced me to abandon these cherished notions, these wonderful dreams I had about interactive storytelling, that had actually been holding me back. I had to let go of the utopian universal sandbox. The notion that an interactive story should be free from any internal economy. Ken Perlin helped me to see the value of including one. The idea that the player had no obligations to the story. We’ve been treating the player like a reader of a book. Like a person we know nothing about, who doesn’t owe us anything. He should be able to do what he likes. And that’s wrong. Because he’s collaborating with us to create the interactive experience. And that means he’s spending our credibility budget.

Once I accepted that, then a lot of other stuff dropped into place. For one thing, it provides a solution to what I call “the screwing-around problem.” Screwing around is a style of play. It’s free-form, chaotic, and largely unbounded by rules. It’s an outgrowth of the ultimate freedom assumption, and the “if you can do it, it must be allowed” assumption. It is in fact a classic masculine style of play, that has driven every little girl, who ever had a brother whom she was trying to include in her story-like game, mad with frustration. Because she wants to create a coherent experience with characters playing roles, and her little brother wants to screw around.

It’s no surprise that *Grand Theft Auto* is lauded to the heavens by the largely male group that play it: is the ultimate enabler of masculine screwing around. Driving like a maniac, performing random acts of violence, and having meaningless mechanical sex. I can’t think of a clearer example of screwing around than that. But while you’re screwing around in GTA, the story is stopped! It’s compartmented to prevent the player from damaging it. While you’re screwing around in GTA, you cannot affect the plot of the story. They keep it separate, to let you screw around in one place and have the plot someplace else.

So showing up at Trip and Grace’s door in *Façade* and saying you’ve been shot, when the game has no internal conception of being shot, is also screwing around. Role-playing places limits on screwing around.

The Laws We May Impose

One of the problems with interactive storytelling is that it lacks a requirements specification, and I think a lot of the confusion and disagreement arises from that. What are we actually obliged to provide to the player? Must an interactive story enable the player to do anything whatsoever, including screwing around? I would say no. Apart from the problem of having the resources to present “anything” (text adventures can, but not anything else), a story engine cannot handle the implications of absolutely any event. And the interesting thing is, *a human storyteller can’t either*. If any of you have been Dungeon Masters, I’m sure that you, too, have been driven mad by your party screwing around.

What limitations may we place, then? Well, I think there are three: The physical, the social, and the dramatic laws of our storyworld.

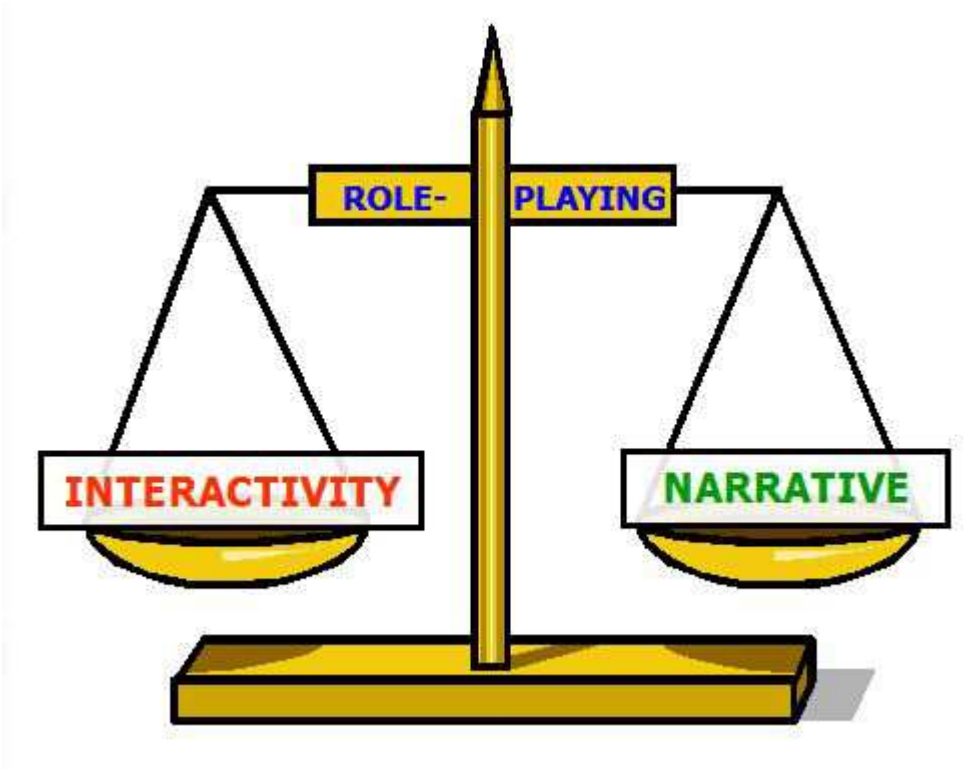
- **The physical laws:** The player must act in conformance to the laws of physics of his world. We may absolutely prohibit (or rather, decline to implement) actions that violate them.

- **The social laws:** The player must act in conformance to the social laws of his world. If she violates those norms, the game is entitled to misunderstand her, to ostracise her, to lock her up as mentally ill, or to execute her—just as the real social world does.

- **The dramatic laws:** The player must act in conformance with the role that he as agreed to play. He must accept the premise of the game, or our obligation to provide him with a coherent story is at an end. If the player screws around, all bets are off, and it's not our fault. Requiring that the player actually play a role within the context of the story enables us to place expectations upon his performance.

In other words, we can mediate the eternal tension between interactivity and narrative, between the designer's desire and obligation to construct a coherent story and the player's desire for freedom, through their common agreement that the player will be playing a role. If we try to create interactive stories with the assumption that every interactive story must be the ultimate sandbox that can handle any possible thing the player wants to do, we are setting ourselves up to fail!

We are allowed to say, "No materializing chickens!" And we're also allowed to say, "No pretending to have been shot, when there are no guns in the game world." That is the understanding that dawned upon me this year. We have obligations to the player, but the player has obligations to us, through his participation as a role-player.



I have been using this image for a long time to illustrate the tension between the player's desire for interactive freedom and the designer's desire for narrative coherency. But only recently did I realize that role-playing is the fulcrum of the balance, and add that text to the picture.

Part II: Practical Approaches

Now, how do we actually build it? The second half of this lecture will be about pragmatic issues.

Branching Trees

We're all familiar with branching narratives—the whole issue of branching tree structures and the combinatorial explosion. And the smaller the granularity of decision-making, that is, the more frequently you make decisions in the game, the faster the tree explodes. And the larger the number of options at any given decision point, the more branches there are available, which makes it explode also.

In game design, we ordinarily consider that both of these are a good thing: small granularity, frequent decision-making, is good; and offering the player many options is also good.

But I don't think the cost implications of the combinatorial explosion is the real weakness of the structure. That's a financial problem, but not a philosophical

problem. The designers of text adventures don't have to worry about it as much as designers of graphical adventures, because they don't have to create so much content.

But there are some philosophical weaknesses to the branching tree structure as well:

Philosophical Weakness 1: One is that time is hard-coded into the tree. Situations must occur in a particular sequence that's built in. All cause-and-effect relationships that can occur in the course of the game's story are fixed in the tree's structure. That's OK because it guarantees that related events will occur in their proper sequence. You won't get absurd results like effects happening before their cause. But unrelated events are *also* hard-coded into the tree. So they have to occur in the sequence the tree dictates, even though there's no reason that they couldn't occur in a different sequence. If you want to allow for events to occur in a different order, you have to have more branches in the tree.

Philosophical Weakness 2: The second weakness is that the consequences of all actions by any character (player or NPC) are hard-coded into the tree as well. The game treats decisions as things that move the plot along a tree, not as things that affect characters. And indeed, the early games were extremely plot-oriented, and not very character-oriented. So if someone lives, you follow one huge branch of the tree, and if someone dies, a different huge branch, one that contains no further reference to him. You have to have whole separate subtrees, one with and one without anyone who can die in the course of the game. Every critical decision divides the tree into these huge branches, because otherwise you would get absurd results. A person who has died must never reappear in the story, and that requires a separate storyline. So what the industry has done is to abandon branching trees and say, we'll just make rail-shooters and linear narratives instead.

Social Simulators

But in the research community, what some people have done is to go to the opposite extreme and say, OK, no more hard-coded plots, no more branching trees. All interactive storytelling must be emergent. Plots must arise by themselves as a property of the algorithms that define the relationships among people. So what we have to do is create the perfect social simulation engine, that can enable us to define characters with any degree of complexity, and that will take the relationships among these characters and generate a story from them.

OK, right. Perfect social simulation engine that automatically generates credible, coherent, and interesting plots. No problem there, then.

I think this is simultaneously barking up the wrong tree while throwing the baby out with the bathwater, if you'll excuse the expression. As I mentioned last year, in his GDC lecture in 2000, Marc Leblanc pointed out a number of problems with purely emergent narratives, and I won't go over them again. To them, I would add that conventionally trained writers are not used to doing their work in Microsoft Excel. They're even less used to doing it in code.

A pure social simulator treats life as a bunch of characters just bouncing off each other in a sort of Brownian motion. But that's not all there is to life. Life is also full of external events that intrude and place pressure on the people. Dramatic events. Plot-like events. Story-like events.

So, there's another question for our requirements spec. Must we simulate the personality of every character in detail at every moment? Well, I don't think so. First, not every character; second, not at every moment.

Where did we get this notion that every character in an interactive story must be a fully-realized human being at all times? Was it from watching Captain Picard on the holodeck? Do you think he really expected to be able to have a meaningful relationship with every single character in one of his Dixon Hill holonovels? I don't think he did.

In other media, there are loads of minor characters who don't have any emotional depth at all. Doormen, hot dog vendors, taxi drivers, receptionists… books and movies are full of people with whom the hero has one or two little interactions and then the character goes away and isn't seen again. Authors don't crank up the full power of their character-creation skills to include these people, and we don't need to crank up the full power of a character personality and social behavior simulator just to take a delivery from the Fedex guy.

And if you insist on falling in love with the Fedex guy, and the story is not about your relationship with Fedex guy, then your love is going to be disappointingly unrequited, and that's not the game's fault. I know that in the real world, bartenders are real human beings and they ache and yearn and shop just like the rest of us, but in the context of fiction, a bartender is just a bartender.

Nor do we need to implement the full power of social simulation at every moment. In other media, when characters other than the protagonist are off-stage, they aren't doing anything. And the author is not trying to keep track of everything that everyone is doing at every moment. It really is a stage. The reader's attention is a stage, and the characters who are not on the stage are just sitting around in the wings reading the newspaper.

In fact, I believe the notion of the ultimate social simulator that can handle any interaction between people is every bit as much of a pipe dream as the ultimate player freedom sandbox that can incorporate any player action into an interactive story. I think trying to devise the ultimate social simulator is again setting ourselves up to fail. It's asking us to do vastly more than the greatest storyteller of all time—Tolstoy, Homer, choose your favorite—ever had to do.

A Hybrid Solution

I think there's a hybrid solution that doesn't lock conventionally trained writers out of the process.

The early games, with branching tree structures, subordinated all character to the plot. The result was predictably shallow characters. This, in effect, produced the

linear or near-linear adventure games we know today. We have long assumed that player decisions should drive the plot and that the other characters in the game world are rather static. This is how all the classic adventure games worked.

Social simulation engines, by contrast, subordinate all plot to the characters. Everything becomes about character interaction, whether or not anything interesting is happening. This in effect produces a kind of dramatic sandbox, a simulation of personality interactions, without any forward movement.

I believe they must be balanced so that each influences the other. The approach I prefer assumes that situations drive character transformation, and this produces a loop: situations stress people, people act to change the situation.

Somebody is already putting it to work.

King of Dragon Pass

King of Dragon Pass is a management and strategy game with a strong role-playing element. It was one of the winners at the Independent Games Festival in the year 2000. In the game, you're looking after a clan of people that is governed by a council of elders called the Ring. The kind of advice you get from the Ring depends on who's on it. From time to time you can send members of the Ring as emissaries off to conduct negotiations with other clans. The outcome of those negotiations depends in part on who you send.

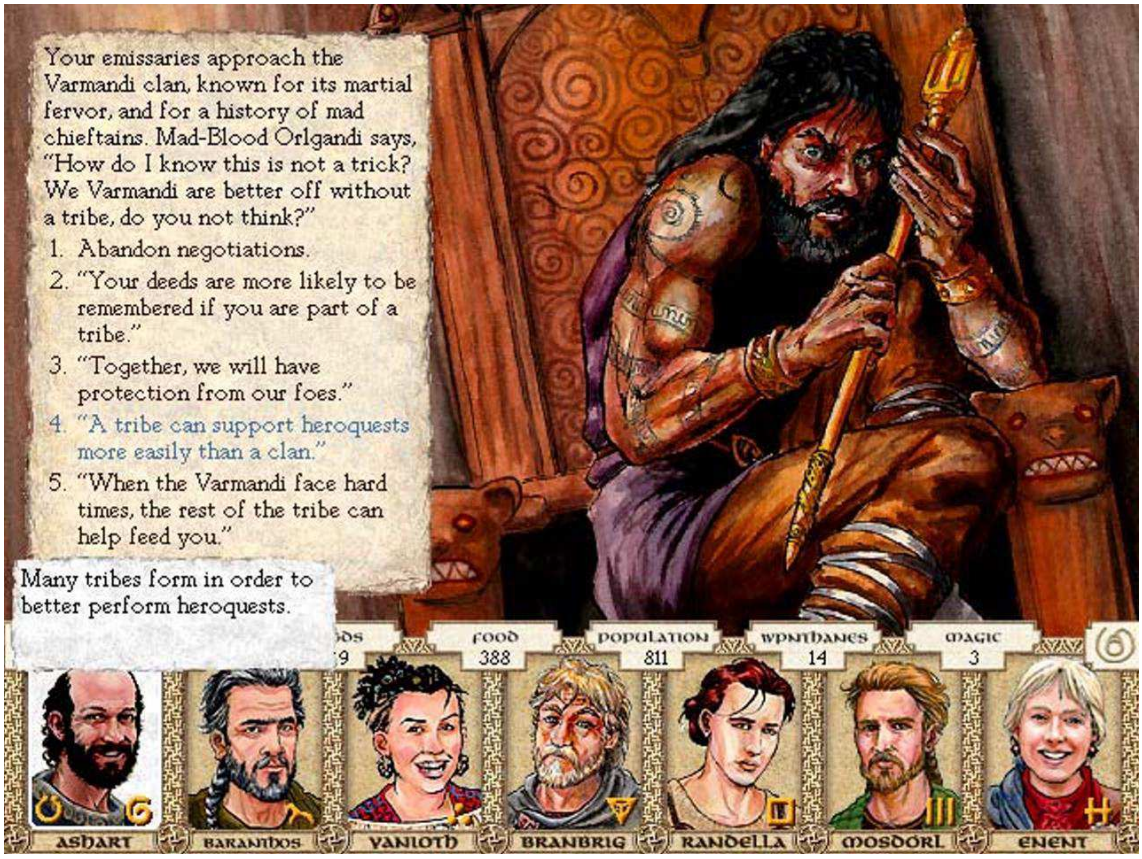
In other words—and I've talked to David Dunham, one of the authors, and he confirms this—situations are functions, and people are the parameters to the functions. You put different people in to a situation, you get out different results. And these can chain onwards to produce new situations. For you programmers, the characters are pass-by-reference parameters, not pass-by-value, so the functions, that is the situations, not only change the state of the plot, they change the people as well.

```
function murder (victim,
killers, relatives);

murder
(King, Claudius &
Gertrude, Hamlet);
```

This helps the combinatorial explosion problem because the characters are not hard-coded into the plot. If a character dies, you don't have to have a huge branch of the plot to deal with it. That character is simply not around to serve as a parameter to any future situations.

The situations are character-agnostic. So instead of "What should Hamlet do about Claudius and Gertrude having conspired to murder his father?" it becomes: "What should a young man do when his father's ghost tells him that his mother and uncle have conspired to murder his father?" The outcome depends on the characters involved! How he feels about his mother, how he feels about his uncle, and how he feels about ghosts. If the father was a tyrant, maybe it's all for the best. If the young man is completely terrified of the mother and the uncle, maybe he'll run away. And if the young man is really conflicted, you get three hours of waffling followed by a bloodbath.



A diplomatic event in King of Dragon Pass*, with the current members of the Ring shown at the bottom.*

Again, I'm not just speaking theoretically. *King of Dragon Pass* contains a proprietary interpreted language designed specifically for this purpose. It literally codes up situations in which characters may be placed, and the game contains hundreds of them.

Now, other RPGs also include character-agnostic situations, because they don't know in advance who's in the player's party. But the situations are almost always about clobbering something, so it doesn't really matter who's in the party. They aren't social situations, they're clobbering situations. So regardless of who you take into the party, the bad guy ends up dead. In other words, conventional RPGs could do this, but they don't live up to their potential for it. That's not the way most of them are designed.

This mechanism avoids a number of the weaknesses of the branching tree. The combinatorial explosion can be reduced because not all the actions influence every other action. Some situations arise in consequence of others (the main story arc), but others arise independently. Decisions and events can affect the future not by hard-coded chains of cause and effect, but by affecting the qualities of the characters involved—that is, the attributes that describe them.

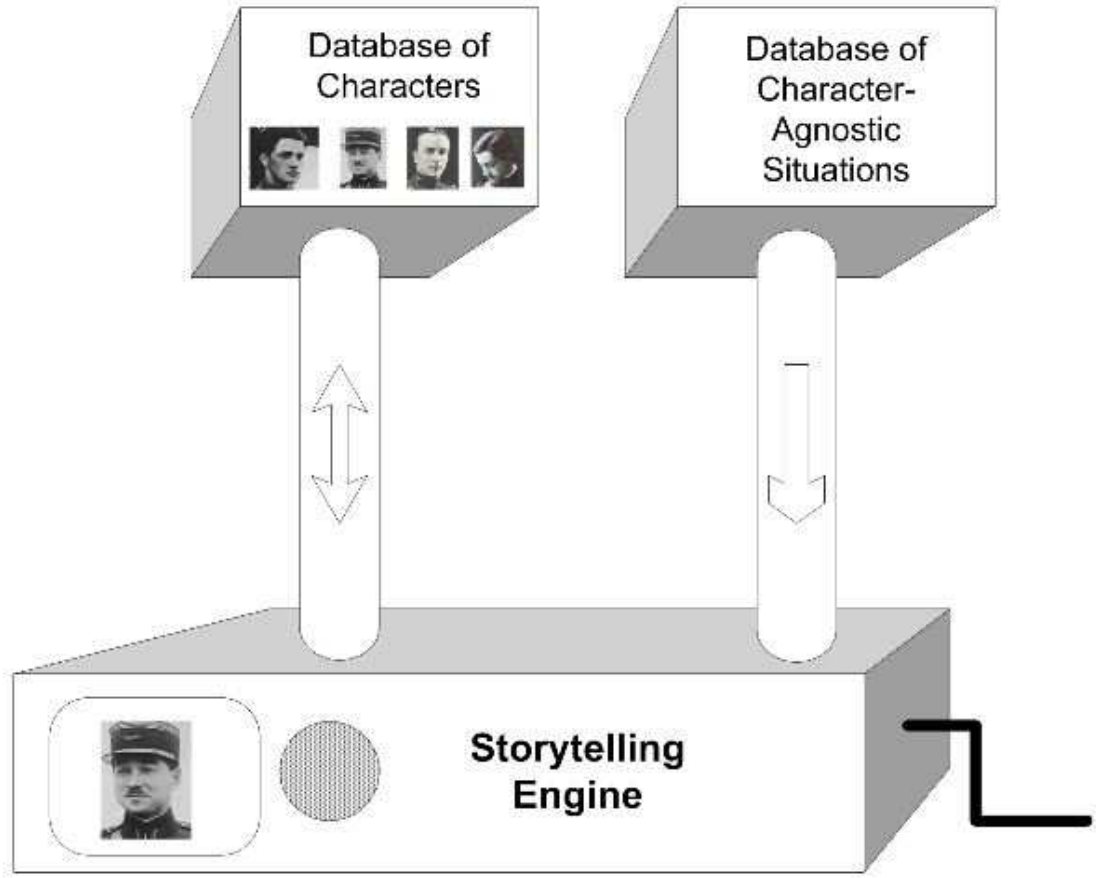
So some future possibilities get closed off not because the player has gone down a particular branch of the tree, but because the character of the individuals involved doesn't permit it. So suppose you have a set of situations you have created that can occur in the context of a marriage. Those situations simply will not happen to characters who are unmarried. If you put an unmarried person in as a parameter to one of those situations, the function will return a null result. But you don't have to have one branch of a plot tree for married people and a different branch for unmarried ones.

Against the Flying Circus

There's another game using this mechanism as well. I'm an consultant to a business incubator named the Environment for Lucrative Virtual Interaction in Oulu, Finland, and there's a startup company there that I'm advising called Tuonela Productions. They are working on a game called *Against the Flying Circus*, which borrows directly from *King of Dragon Pass*. *King of Dragon* pass was mostly a management simulation about looking after your clan, and there are a lot of numbers in it that the player can see, about how many cows and sheep you have, and so on.

Against the Flying Circus is about commanding a squadron of Allied pilots during World War I, going up against Baron von Richtofen and his squadron, the Flying Circus. But it's not about flying the planes. It's about being the commander, and it concentrates on the human face of the war. Each of your pilots is an individual, and as the commander, you have to decide who to send out on which missions, and to balance the needs of the war with the current state of your squadron: which pilots are best, which ones are tired or injured, which ones need more practice, and so on.

But in addition to their missions and their state of physical health, each of these pilots has a personal life. So they can go into town, get drunk, land in jail, and not be available to fly later missions. They can fall in love, they can get bad news from home, they can fall out with another pilot over a gambling debt, and so on. All these things affect their concentration and their ability to fly, and of course, sometimes they don't come back from a mission. Then you get rookie replacements, and the story carries on without them.



The structure of the Against the Flying Circus storytelling system

And these really are the challenges that a squadron commander would face. You have to decide how to manage these guys, how to maintain good relations with the townspeople, how to make sure that your men are in good condition and mentally sharp, and of course try to achieve your missions for the war, all at the same time.

In this structure, unrelated events—Bob gets a promotion while Jeremy gets a Dear John letter from his girlfriend—can occur in any order, without having to be hard-coded into a tree-structured plot, which makes the game more replayable. But it's still going to feel very story-like, because the situations that arise are meaningful and dramatic. I think this game has considerable potential to raise the bar on the emotional depth of video games, because you develop a personal relationship with every one of these guys, and any one of them can die on any mission. Now, that potential is already in existing computer role-playing games, but most of them are so tied up with combat stats that they don't take advantage of it. The human element is left behind in most commercial role-playing games.

What I like about *Against the Flying Circus* is that, unlike a pure social simulator, it still gives conventionally-trained writers an important role. They can think up the situations that might arise, and they can think about how different kinds of characters would react to those situations, and in addition, how the situations would change those people. This is what conventionally-trained writers are good at, and that's what

we need more of in this industry. And then they can work with somebody to turn the situations into functions and the characters into data structures.

I believe this hybrid of human-created, embedded, but character-agnostic, situations *and* emergent individual characters who act within those situations as their own personalities determine, is an exciting new avenue to explore. I think the hybrid is better than either of the approaches at the opposite ends of the scale.

Summary

I believe that credibility is the currency of all narrative, interactive or otherwise. I think that role-playing mediates the tension between interactivity and narrative. And I think that treating interactive narratives as role-playing creates a contract between the designer and the player, such that:

> The designer promises to provide a credible, coherent story if and only if…
>
> The player promises to behave in credible, coherent ways.

...and if they don't, all bets are off.

Furthermore, I think that the combination of human-designed, embedded, but character-agnostic situations, plus a character simulator, offers:

> More flexibility than hard-coded narratives and characters.
>
> More interesting dramatic possibilities than a pure social simulator.

… and it merits further study.

No other form of interactive entertainment tries to be all things to all players. Why should interactive stories take on that burden? I think, in fact, that we—or at least I—have been staggering under the burden of these assumptions of this colossal thing that we are expecting to try to deliver: this ultimate sandbox, this experience whose premise the player doesn't have to accept. It's time to stop apologizing for not working miracles, and get on with the job.

Appendix P: Introducing Ken Perlin's Law

By Ernest Adams
Gamasutra
June 1, 2006

"So who's Ken Perlin?" I hear you cry. Ken Perlin is somebody you ought to know about and pay attention to. He's a professor of computer science at the New York University's Media Research Lab. He's also the winner of an Academy Award—yes, a real Oscar—for his work on procedural texturing algorithms. (Beat that, Clooney!) Ken is simultaneously blessed with staggering intelligence and seemingly boundless energy. He works on an incredible range of really cool stuff, from a collaborative integrated development environment intended to help teach programming to schoolgirls, to a machine for projecting 3D images into the air with no screen (like R2-D2's projection of Princess Leia near the beginning of Star Wars), to a fast but effective facial expression animation toolkit. Best of all, he puts a bunch of this stuff on his web page as Java applets so you can play with it yourself; have a look at http://mrl.nyu.edu/~perlin/.

"OK, so what's his law?" you ask. That takes a little more time to explain. But I should say that while Ken Perlin came up with the idea, I'm the one who's calling it a law and naming it after him. He's too modest to do it for himself, but I think it's really important and he should get the credit for it.

For a long time now, we game designers have assumed that player freedom is a good thing, especially in the context of fictitious game worlds where the player can move around and explore. This assumption goes all the way back to the original text-based adventure game, *Adventure* (or *Colossal Cave*). *Adventure* was different from other computer games of its day because it didn't print a list of commands for the player to choose from. Instead, it simply put a prompt on the screen and said, "type anything you want to." It pretended that you could do anything. Of course, after five minutes of play you realized that this was an illusion; the game didn't really understand that many commands. But, among those of us who are optimistic about the potential of computer games, it created a fond hope, a utopian dream: Someday we *will* create a game in which you can do anything! And this dream has been at the back of game designers' minds from that day to this.

This is partly why the *Grand Theft Auto* series has been so highly praised. Never before has a game offered the player so much freedom. The game world reacts appropriately to just about anything the player tries to do. If you steal a taxi, you can be a taxi driver and earn money legitimately, taking people around town. If you steal an ambulance, you can earn money by taking people to the hospital. You can listen to different radio stations in the car, play basketball in the right places, and so on. Of course, the range of player actions permitted in *Grand Theft Auto* is restricted to certain domains, mostly to do with violence and vehicles. You can't earn any money being a street mime, and you can't set up and run a homeless shelter. The game world doesn't include the necessary actions or mechanics to support these activities. Still, the range of things the games will let you do is unprecedented, and it created tremendous excitement among both players and game designers.

So we have a well-established assumption that player freedom is good, but it brings with it a problem. For a long time now, I've been struggling with a conundrum of interactive storytelling that I dubbed "The Problem of Internal Consistency" in a lecture I gave at the Game Developers' Conference in 1995. I also wrote about it in an earlier Designer's Notebook column, "Three Problems for Interactive Storytellers," back in 1999. The essence of the Problem of Internal Consistency is this: how do we balance the player's desire for freedom with the designer's desire to tell a consistent, coherent story? What do we do when the player wants to do something that doesn't work with the plot that we've laid out? Refuse him permission to do it, and take away his freedom? Or allow him to do it, and destroy our story? I never came up with a good answer for it.

So last November, I went to a conference called Virtual Storytelling '05 in Strasbourg, France. It was a small enough conference that every session was plenary —you didn't have to choose between sessions, so as long as you showed up, you were bound to hear everything. Ken Perlin was one of the speakers, and in the middle of his lecture, he made an almost throwaway remark that really brought me up short. This was what he said, the thing that I think is so important:

Ken Perlin's Law: *The cost of an event in an interactive story should be directly proportional to its improbability.*

Now, I'm used to thinking about interactive stories in terms of traditional puzzle-based adventure games, and they don't usually have an internal economy. They often don't keep track of any numbers at all. So when I first heard this, I thought, "What's he talking about? Interactive stories don't have any notion of costs built into them." Even in role-playing games, improbable events are just the product of particularly good or bad die-rolls. There's no cost element associated with them; it's just luck.

But the more I thought about it, the more sense it made, and the whole concept started to break up the logjam in my head about the Problem of Internal Consistency. What is the unit of cost of an improbable event in a story? Its *credibility*. That's what gets spent when something improbable happens. And in fact, every story, interactive or non-interactive, book, movie, television, or computer game, has a *credibility budget*. The story itself can only tolerate a certain amount of improbability before the credibility budget is exhausted, and the story is ruined. In the case of non-interactive, conventional narrative, the author controls and spends the credibility budget, and when the author blows it, she ruins her story and destroys her reader's immersion. But in the case of interactive narrative, both the designer and the player spend from the same credibility budget. If the designer blows it, then he ruins the story for the player. But if the player blows it, he ruins the story too. He has done something so improbable that the designer didn't budget for it.

Now, Ken didn't say that the unit of cost of improbable events in a story is credibility. That's my own addition to his idea, and if you think it's nonsense, you should blame me for that, not him. But it makes a lot of sense to me.

Ken went on to give an example of what he meant by the cost of improbable events. He said, suppose you're playing along in an interactive story set in the modern day,

without any magic or strange powers, and you decide that you want to materialize a chicken out of thin air. Ken said, if the game allows this at all, it should be a very, very, very expensive operation. And in my terminology, materializing a chicken completely blows the credibility budget. I think the designer is entitled to decide that you simply can't materialize chickens in his world, because the credibility budget doesn't stretch that far.

In papers on interactive narrative you often see grand statements of the form "the designer and the player collaborate to create the storylike experience" without any explanation of what the hell that really means or how it's supposed to take place, especially given that the designer and the player usually never meet. And I don't know what the hell it really means either, but I think this business of both the designer and the player making withdrawals from the same credibility budget is central to the idea. It's where the rubber meets the road on the Problem of Internal Consistency. Essentially, we are entitled to limit the player's freedom when that freedom would destroy the story.

(Interestingly, in spite of all the freedom that the *Grand Theft Auto* games offer, you can't actually ruin the story. It's compartmented off to prevent you from damaging it. If you try to kill characters or destroy vehicles that the plot needs later on, you just won't find them. They don't come into the game world until they're required.)

I'm not just talking about this stuff in a purely abstract, theoretical sense. I'm talking about design and coding. I think it's possible to build a quantity, a resource called credibility, into a game, and to track expenditures against it. When the player does outrageously improbable things, credibility is diminished, and perhaps he can't do any more improbable things for a while until it builds back up again over time. And if the game is using an algorithm to generate story-events automatically, then I think it, too, should be limited by the size of the credibility budget, and not permit improbable events to occur more often than is credible. Naturally, any such system would have to have a concept of a *credibility price* built into it, and that price would have to be set by the designer. But that's what we already do in RPGs every time we establish the probability of certain events occurring according to die-rolls. The credibility price of an event will require human judgment to set, but there's nothing wrong with that; I'm all for humans taking a major role in constructing our stories, even if they are automated and interactive.

Of course, we've always been able to limit the player's freedom, and we always have —though mostly for technical reasons rather than storytelling ones. The issue is really how we justify it when maximum freedom is one of our most deeply-cherished goals. As long as we don't mind the player ruining the story, it doesn't much matter; but as designers it's our job to provide credible stories *and* freedom at the same time. I think Ken Perlin's Law gives us the tool we need to balance those conflicting demands. Thanks, Ken!

Appendix Q: Rethinking Challenges in Games and Stories

Ernest W. Adams

2007 Game Developers' Conference

This is an approximate transcript of the text of my lecture at the 2007 GDC on March 9, 2007. I present it in this form because the nature of the material does not lend itself to the traditional paper format. Also, because the lecture is informal and to some extent ad-libbed, this is not a verbatim document.

Introduction

I'm bad at a lot of video games. I realize that by admitting this, I've probably destroyed my credibility with some of you, and those people should go ahead and leave. But the truth is, a lot of games are simply too hard for me and I'm not ashamed to admit it. The problem is produced by a combination of factors. First, I don't have all the hand-eye coordination in the world. I'm clumsy to begin with, and I'm getting older, and now need reading glasses, and so on. Second, I don't have that much time to play any more. I can't afford to spend hours trying to beat one particular boss. And third, the nature of the challenges in the games that I'm bad at are such that I don't even enjoy trying. There are certain things I'm prepared to take time over, and others that I'm not.

In the course of the last year I took the book on game design that I wrote with Andrew Rollings—*Andrew Rollings and Ernest Adams on Game Design*—and I expanded it significantly. In the process of doing that, I realized that I needed to pay more attention to the issue of difficulty. This lecture is the product of my thinking. It's divided into three parts.

The first part is a theory of difficulty that I want to present. It's very pragmatic, and I think that it has direct applications in level design and game balancing.

The second part is some blue-sky thinking I've been doing about challenge-free play; that is, play without gameplay.

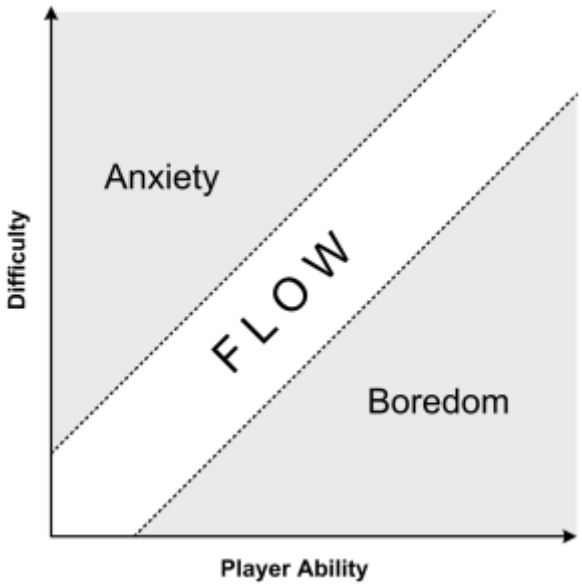
The third part is about the effect that challenges have on interactive storytelling, and particularly their emotional effects.

A Theory of Difficulty

Over the last year I revised the book that I wrote with Andrew Rollings, *Andrew Rollings and Ernest Adams on Game Design,* and in the process I realized that I needed to think some more about the nature of difficulty in video games. The question that faced me was, how can we get from the difficulty that we, as designers, think that we build into a challenge to the difficulty that the player perceives in

overcoming that challenge? What factors go into that player's perception, and how are they related to one another?

Csikszentmihalyi's Theory of Flow



First I want to introduce a concept called *flow*, devised, or discovered, by a psychologist named Mihalyi Csikszentmihalyi. [The name is pronounced, approximately, "me-HI chick-SENT-me-hi."] Flow is a pleasurable state of high productivity which can occur either during work or play. When a person's ability to perform a task balances the difficulty of the task that they have to do, then they enter the flow state. When the task is too easy, they become bored. When the task is too hard, they become anxious. When it's just right, they experience flow. I'm we've all felt this when we're playing games. We call it "being in the groove," or "being in the zone." You're really cruising, you're doing well. It's a marvelous feeling.

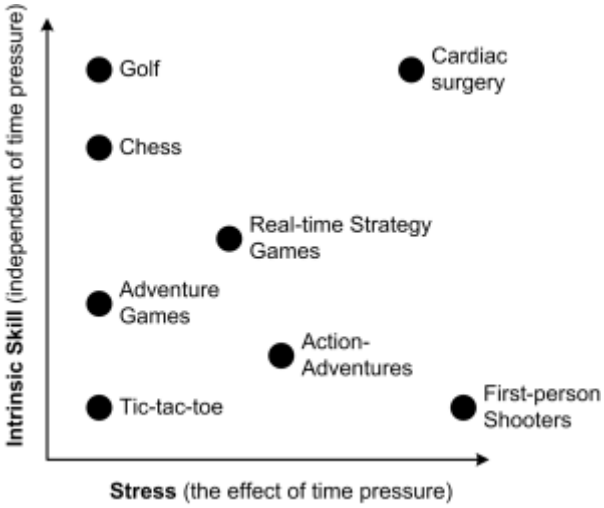
I believe that this is what we want to achieve for our players, or rather, for our players to achieve for themselves: to enter the flow state. Now, I realize that there are some old-time hardcore game designers who think that the point of game design is to make games as hard as possible, because they equate difficulty with fun. But I think the industry has moved on from that—at least, I hope so—and I believe that our goal is to get players into a state where they are enjoying the game enormously simply because they are doing well at it. Not because it's too easy (because if it's too easy, they become bored), but simply because it matches their abilities. In effect, what we want to do is get them to the right level of *perceived* difficulty. How do we determine the perceived difficulty of a challenge?

Six Factors

In thinking about it, I concluded that there were six factors to take into consideration: four that we can control and measure, and two that we have no control over. Here they are, and I'll discuss them in more detail in a moment:

- **Intrinsic Skill Required** to meet a challenge, irrespective of time pressure.
- **Stress,** that is, the level of time pressure placed upon the challenge. I separated time pressure from intrinsic skill required because you can usually add or subject time pressure from just about any challenge.
- **Power Provided** by the game to help the player meet the challenge. This takes the form of weapons, powerups, available moves, and so on.

- **In-Game Experience,** that is, the length of time the player has been playing our game when he encounters the challenge in question. We could actually keep an internal timer that measures how long a player has been playing. We don't usually do that, but we do know that if a player is at level 10 of a game, we have a general feeling for how long they have been playing.



The other two that we can't control or measure are:

- **Native Talent** the player brings to the game.
- **Prior Experience** at playing similar sorts of games.

Absolute Difficulty

Looking further into this, I asked: How do we measure the *absolute difficulty* of a given challenge? I concluded that the absolute difficulty consists of two factors: intrinsic skill required and stress. Intrinsic skill required is measured relative to the trivial case, or a baseline case, for the given challenge, again, independently of time pressure. The metrics for every task are going to be different. I'm not trying to claim that you can turn this into a universal formula that enables you to compare the difficulty of heterogeneous tasks to one another. Different tasks will have different kinds of metrics, so, for example, measuring the difficulty of hitting a target with an arrow will be different from measuring the difficulty of solving a logic puzzle such as Sudoku. In hitting a target with an arrow, the factors that contribute to the intrinsic skill required are such things as the distance to the target and the size of the target, whereas with Sudoku, it's how many of the boxes are already filled in.

Then there is the stress, the effect of time pressure on the player. Stress is a factor that discourages logical thinking and planning. The player's play becomes much more tactical, much more reactive rather than proactive when he is under large amounts of stress.

When you put these intrinsic skill required and stress together, if you want to maintain a fixed level of absolute difficulty for a given type of challenge, then the more you have of one, the less you should have of the other and vice versa. If you raise them both, the absolute difficulty goes up.

Here's a graph showing the intrinsic skill required versus stress for a variety of types of games. At the extreme left are games of the lowest stress, and all the way up the left hand side we have turn-based games, from tic-tac-toe to golf. Golf requires a

very high degree of intrinsic skill, but it's not a high-stress game in the sense that you have to take your shot quickly or someone is going to come and shoot you.

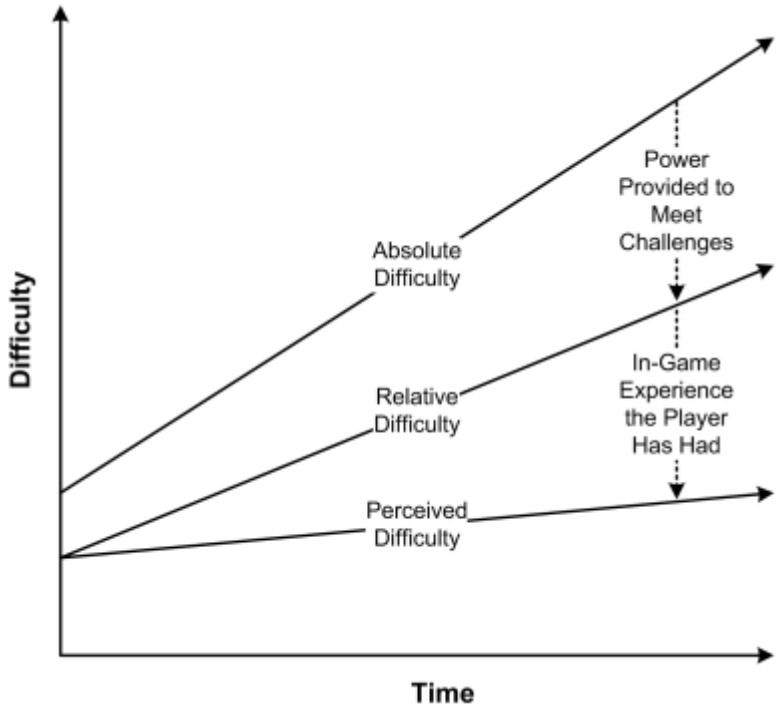
Moving farther out we have action-adventures, which place more stress on the player, real-time strategy games, which require somewhat more intrinsic skill but aren't quite as fast-paced as action-adventures, and first-person shooters, which are very high on the stress side but don't actually require a large amount of intrinsic skill. That is, if you had all the time in the world to aim your shots in an FPS, they wouldn't be very hard. But the stress level is so high in games like *Quake Arena* that that is the source of most of its difficulty. Finally, I've added a real-world example, cardiac surgery, which isn't as frenzied as a first person shooter (although it does have severe overall time limitations), but which does require an extremely high level of intrinsic skill as well.

Managing Player Perceptions

So absolute difficulty is measured with respect to a trivial case or baseline case, e.g. hitting a target 50 feet away is more difficult than hitting a target one foot away, or in more familiar game terms, defeating a level 5 troll is harder than defeating a level 1 troll.

Then you can include another factor, power provided, and get the *relative difficulty* of the challenge. This is done by taking the absolute difficulty and subtracting the amount of power provided by the game to the player to help with the task. If you make the player a level 5 knight, then obviously they are considerably more powerful than a level 1 knight is. So a level 5 knight can defeat a level 5 troll almost as easily as a level 1 knight can defeat a level 1 troll. Naturally, role-playing games do this all the time. As the levels up, he gets harder and harder monsters to fight, and you always try to keep the strength of the monsters just a little above the power of the player.

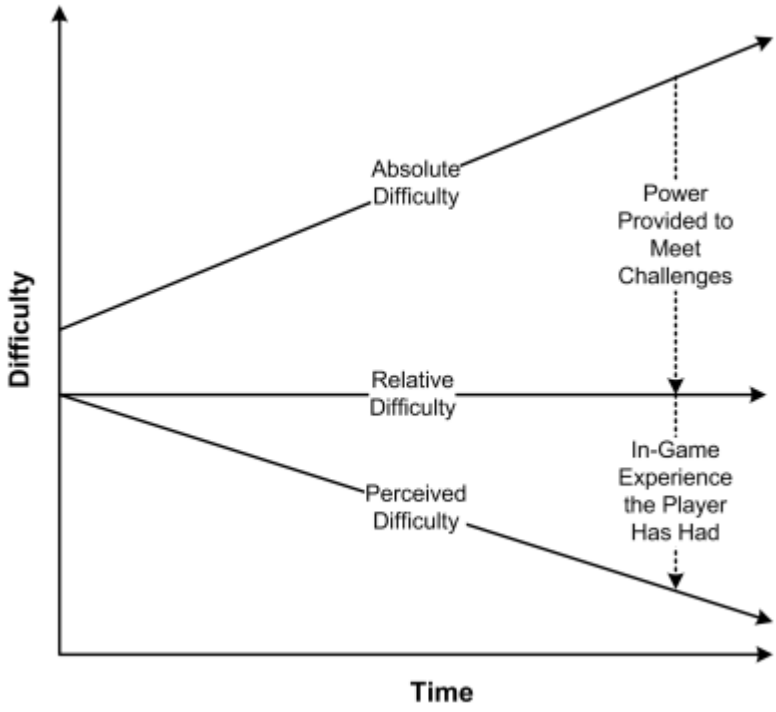
Finally, include one more factor, in-game experience, and you get the *perceived difficulty* of the task. In-game experience goes up as the player continues to play.



So here's how these factors interact. Absolute difficulty goes up very rapidly. Typically, in something like a role-playing game, if the player is level 1 and gets into a level 3 area, the game is already impossible. In practical terms she simply cannot succeed, so the difficulty goes to infinity. But the game provides the player with growing power to meet its challenges as their difficulty goes up, so the relative difficulty line is a less steep curve. Then, as he gets more experience as well, we create the perceived difficulty, which is what we're really concerned with.

Notice that at the beginning of the game, relative and perceived difficulty are the same because the player has zero experience.

So although absolute difficulty goes up at an insane rate, the perceived difficulty goes up at a much more gentle rate, and that's what we want. We don't want to have terrible spikes in the player's perception of how hard the game is; they complain about that. Players will stop playing if the perceived difficulty of a game goes up much too fast. You need to manage the rate at which the absolute difficulty goes up along with the amount of power that you provide to help meet them. And you need to space them out appropriately so the growing difficulty is also compensated for by the player's growing experience.



If you provide too much, power, look what happens. If you say, "I'm going to make sure that the power provided always exactly matches the absolute difficulty of the challenge in question," that is, it is exactly as easy for a level 5 knight to defeat a level 5 troll as it is for a level 1 knight to defeat a level 1 troll, so relative difficulty remains flat, then the perceived difficulty actually goes down. The player's experience is growing all the time as well, so if it's no harder to beat a level 5 troll as

it was a level 1 troll, then the player will begin to be bored. They will move out of the flow state.

So, putting all this together, you get the following equation:

perceived difficulty = (intrinsic skill required + stress)—(power provided + in-game experience)

...plus or minus the other two imponderables, native talent and prior experience, which you just don't know about.

You can compensate for player talent and prior experience to some extent by offering the player multiple difficulty levels to play at, and I strongly believe you should do this. I consider that a commandment of game design: You should always include multiple difficulty levels in a game if you can, although I recognize that not all games are suited for it. But you should if you can, because it makes your game more accessible to a wider range of people with different levels of talent and experience. And I would add another commandment that someone suggested to me recently: *easy mode means EASY, dammit.* Easy mode should be so easy that you can win the game by bashing the controller with your forehead. It's no problem to make a game hard, but we can and should work to make games easier. And once again, old-time designers who were mostly interested in making hard games used to say, "But the player will win too soon!" To which I respond, "And that is a problem for you why? Is your ego going to be bruised if they get through your game too soon? If it's too easy on easy mode, then they can put it on a harder mode."

Putting it all together, I think this is a useful way of thinking about difficulty in games, and as we design, we should try to keep all these factors in mind. When a challenge appears to be too hard, what is the reason? Because the game doesn't provide enough power to meet it, or because the player hasn't had enough of a chance to learn how to defeat it? I feel these are valuable concepts in the process of game balancing and level design.

Beyond Challenges

For a long time, I've been saying that, just as Impressionism was a new way of seeing that raised the question of what painting was about and what it could do, so we need new ways of playing that explore the question of what interactive entertainment is about and what it can do. I'm not just talking about sandbox modes in existing games. Sandbox modes are fine, and I think we should have them, but in a lot of sandbox modes the designer just punts. He says, "OK, if you won't play by the rules of the regular game, then all bets are off. Have fun if you can, but don't count on me to help you. I've turned off all the challenges, and you're free to screw around as much as you like, but you're on your own."

But what about if we devoted the same amount of energy to creating challenge-free play spaces as we devoted to creating challenging ones? Spaces that are just as much fun to visit, but whose fun arises from another source than challenge and

achievement? This already happens to some degree in MMOGs. Players find things to do that don't have much to do with the game's primary challenges.

Ways that Games Entertain

Let's take a look at some of the ways that games entertain:

- **Gameplay.** This is always at the top of the list. I define gameplay as the challenges that a game offers, plus the actions that it provides in order for the player to meet those challenges. If an interactive entertainment product calls itself a game, then it should entertain through gameplay. But there are many other sources of entertainment that, as designers, we should keep in mind:
- **Aesthetics.** The visual and auditory style of the experience.
- **Storytelling,** if you choose to include it. Characters to care about and a plot to become involved in.
- **Risk and reward.** Gambling games rely almost entirely on risk and reward. If you stop and think about it, most gambling games are really stupid: roulette, blackjack, the lottery. Almost all their entertainment value comes from risk and reward.
- **Novelty,** new things to see and do.
- **Learning,** gaining understanding and mastery. Raph Koster thinks that learning is a huge part of the source of entertainment in play.
- **Creativity.** The ability to build stuff and say, "Look, I made that."
- **Role-playing,** being somebody else, putting on a mask and acting a part.
- **Immersion.** Going someplace else, entering an alternate reality.
- **Socializing.** Interacting with other people.

So gameplay is at the top of this list, but it's far from the only way in which games entertain. There's a lot of other stuff that we could concentrate on more if we chose to.

Games as Systems

There is a common tendency on the part of some designers and theoreticians to think of games primarily as *systems*—this is the approach taken, for example, in Salen and Zimmerman's *Rules of Play*. Salen and Zimmerman's work analyzes games in a fairly formal sense, hence the emphasis on rules in the title. Rules are systems. The core mechanics are composed of systems; they are the algorithmic implementation of the rules. Raph Koster also tends to think and write this way. Many game designers who used to be, or are still, programmers, think this way.

The question is, what are they systems for doing? Saying that a game is a system doesn't really tell you much; the more important issue is what the system does to create the player's experience. The systems in most games exist for the purposes of offering gameplay. But suppose that we create new systems that offer all the other sources of entertainment that I mentioned? Again, MMOGs do this to some degree; they include systems for encouraging socializing and systems for encouraging role-playing (not that the players bother, so far as I can tell).

Some designers consider the graphics and the sound, the environment, to be mere window-dressing hung upon the underlying system, and the system is all that really matters. A few even go so far as to regard graphics as nothing more than a necessary evil imposed by the marketing department. This is of course the old graphics versus gameplay argument, and it's now largely a dead issue; any game designer with any brains knows that you have to have a suitable proportion of both, and to execute both well.

But what if we had graphics *without* gameplay? I don't mean in the sense of the dreadful "interactive movies" of the early 1990s, that offered lots of narration, but gave the player very little to do. Rather, I mean graphics with other kinds of play besides gameplay. In other words, the systems that we create need not be exclusively dedicated to providing challenges, and in some cases I don't believe that we need to provide challenges at all. It's quite possible to make an entertaining experience with all the features on my list except the first one.

Far Cry

Let me talk to you about what happened the first time I played *Far Cry*. I started it up, and I immediately noticed that the landscape was *gorgeous*. The trees, the sky... there were even fish in the water. It's full of interesting old ruins. I just wanted to hike around and look at it. And I thought to myself, "Finally I can explore a tropical island without the heat or humidity or poisonous bugs."

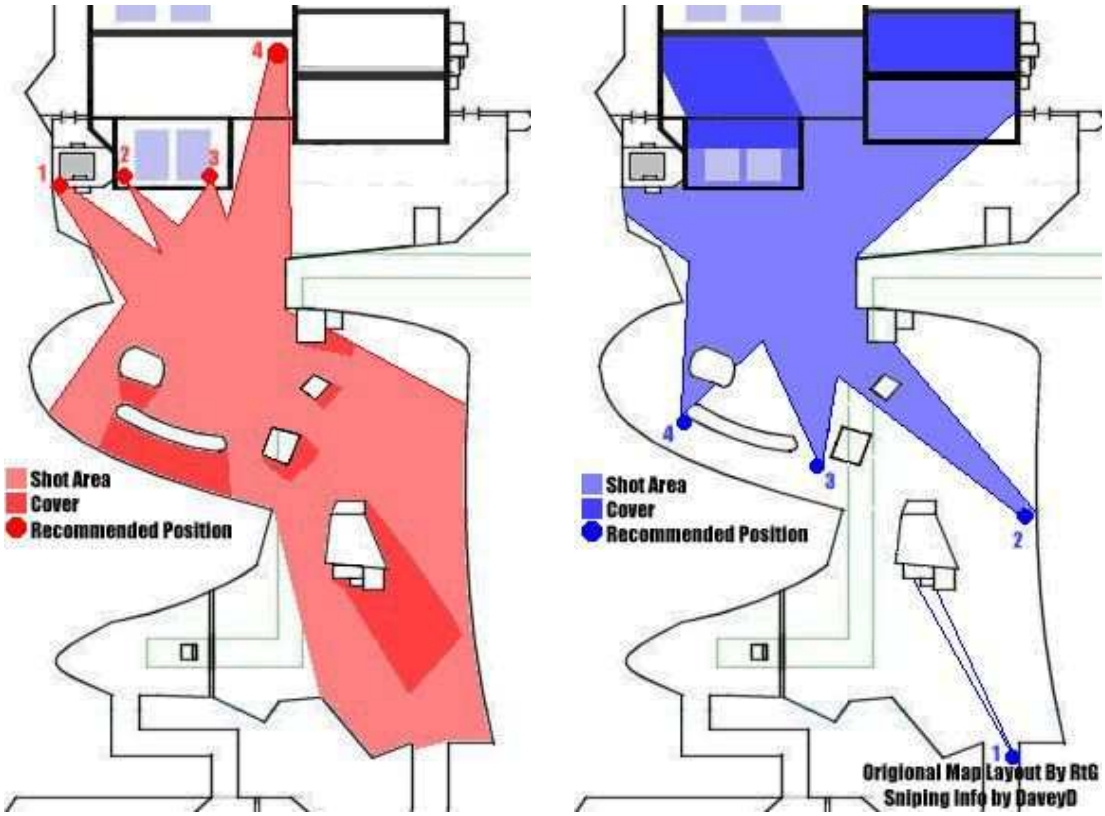
Unfortunately, when I tried it, every 30 seconds some jerk tried to shoot me! How much fun is that? Would you go to the Pyramids, or to Angkor Wat, or Chichen Itza if somebody were trying to blow your head off all the time? So you're supposed to play *Far Cry* if and only if what you want to do is shoot other people before they shoot you.

And when you think about it, isn't it a shame that our artists spend so much time creating these incredible environments that nobody gets a chance to enjoy properly?

When I introduce the concept of an internal economy in my Fundamental Principles of Game Design workshop, I do it with reference to first-person shooters because they have very simple economies—enemies, hit points, ammo, that's really about it—but I'm always careful to point out that FPS games also have exploration challenges that are secondary to the central challenge of managing your hit points and ammo.

But in fact, as we've begun making rail-shooters or arena games, FPSes have abandoned exploration as a source of entertainment in its own right. If you're on a rail or in an arena, there's not a lot to explore. Exploration is about making choices in an unfamiliar environment. You can't do that when you're on a rail. Now *Far Cry* isn't exactly a rail-shooter, but it does require you to traverse the landscape in particular ways, in order to force you to confront its challenges in a certain order. In other words, its landscape, beautiful as it is, is optimized for gameplay. That's as it should be, because *Far Cry* is a game.

Here's another example. This is an analysis one of the *Counter-Strike* levels. It's a carefully designed space for balanced sniping opportunities between the red and blue teams. Both have an equal chance in this scenario—they have good positions in which to hide, and certain areas that they can cover, and so on.
Analysis of Counter-Strike sniping areas.



Counter-Strike *analysis.*

Level design for shooters is a particular skill that concentrates on such things as sight lines and choke points. But landscape design for the purposes of exploration *itself* requires different considerations. And this is what the great landscape designers of the 18th century excelled at. They persuaded the owners of English country houses to tear out their flat, formal, geometrical gardens that had been popular for 300 years, and to replace them with landscapes that were meant to be explored—landscapes full of hills and valleys, hidden lakes and grottoes, and distant vistas. They even built fake ruins, called follies, on the tops of hills, just to make the skyline more interesting. Or they would deliberately allow a small portion of a building to show through the trees, to encourage people to come and find out what was there. In game design terms, they left a clue. You can see that in this image:

Prior Park, Bath, England

So the landscape designers of the 18th century were in effect designing exploration-game landscapes, or rather an exploration-experience landscapes. It wasn't about gameplay, but about exploration.

The landscape gardeners optimized their landscapes for people who were simply taking a walk. Interactive entertainment needs to provide people with more to do than simply take a walk. But I still think there's something to be learned from the principles that they discovered. And I think that both landscape gardening, for outdoor spaces, and architecture, for indoor ones, have a lot to offer us if we want to provide the kinds of reduced-difficulty or reduced-challenge play that I'm talking about. Games for people, who like me, aren't very good at a lot of games.

Earning the Right to Play

The central organizing principle of most video games, and this goes all the way back to our arcade days and has been with us ever since, is that the player must earn the right to play by doing well. If you're bad at the game, too bad. You just don't get to see the rest of it. Now, we also put in cheats to help the bad players, but we label them explicitly as cheats in order to humiliate the player and to remind him that he's no good, as if he needed reminding.

But if you want to make games equally accessible to poor players, and you should, because there are a lot of us and we have money too, *don't require the player to earn the right to play.* Earning the right to play is a challenge-and-achievement model. It's inappropriate if you want to provide the player with non-gameplay play.

Virtual Tourism

So what about a landscape that's optimized for exploration, and other, non-gameplay-based activities? What about a computerized version of Club Med, where you can do the kinds of things that people like to do when they're on vacation? Here's a brief list:

- Visiting interesting places
- Hiking
- Rock-climbing
- Mountaineering
- Caving
- Skiing
- Surfing
- Diving
- Hunting
- Horseback riding
- Pony-trekking
- Skydiving
- Flying
  - Airplanes
  - Helicopters
  - Hang gliders
  - Microlights
- Boating
  - Sailboats
  - Powerboats
  - Fishing
- Recreational sex!

In essence, what I'm talking about here is *virtual tourism.* And I don't mean to suggest that all these things are easy to do well. You can still include activities that have a learning curve. It takes practice to fly well or to sail well. Rock-climbing and mountaineering are strenuous and difficult activities, and you can, to some degree, mimic that strenuousness and difficulty. But I'm saying that you don't have to force the player to jump through your hoops in order to earn the right to play. A skier can ski on any level slope she wants to. If she's not very good, she might not do well at the advanced slopes, but since a virtual skier can't hurt herself, why prevent her from trying? Unlockable content is all very well when it's used as a reward for achievement, but that's not appropriate here.

Second Life

Naturally, one of the first things that comes to mind when we talk about virtual tourism is *Second Life. Second Life's* conceptual ancestor was an online environment for—I kid you not—the Commodore 64, called *Club Caribe*, which was named in deliberate imitation of Club Med.

Gamers kind of upset by all the mainstream publicity that *Second Life* gets, because it has a fraction of the number of participants that *World of Warcraft* has. And *Second Life* keeps on attracting attention and getting mainstream press, as when presidential candidates open offices in *Second Life*. Why do you think this is? The reason is that *Second Life* is about money and sex, while *World of Warcraft* is about killing imaginary monsters. In other words, *Second Life* offers an experience that the mainstream press is interested in, partly because it bears a relationship to real life, which it's the mainstream press's job to cover. When the Swedish government decides to open an embassy in *Second Life*, that's mainstream news. It's about a real-world entity stepping into cyberspace for a real-world purpose. *World of Warcraft* is about a world that it is *not* the mainstream press's job to cover. From a numbers

standpoint it would make much more sense to have an “Obama for president” office in *World of Warcraft* than in *Second Life*, but that would be a fantasy-killing element and everyone would hate it. *World of Warcraft* is a game; *Second Life* is a place.

So *Second Life* approximates what I’m talking about, but it places much more emphasis on social and commercial activity than it does on virtual tourism. I was exaggerating when I said that *Second Life* was about money and sex; it’s about money and creativity. Sex is just a by-product that you tend to find in these sorts of environments. But its emphasis on player creativity is both a strength and a weakness. It’s a strength in that it’s very Web 2.0, and it counts on letting the contributors do the work of providing the content, which is certainly cheaper for Linden Lab than doing it themselves.

The weakness, however, is that the content of *Second Life* is extremely surreal. It’s the product of a very large number of competing visions. As a result, *Second Life* is both aesthetically and culturally incoherent. It feels like walking around Disneyland on acid. One minute you’re in Tomorrowland, but the next minute you’re in Frontierland and a woman with a blue cat head is trying to talk to you. It’s a sensory overload of the strange. Because it’s not the product of a single guiding mind, it doesn’t convey a harmonious sense of place. Rather, it’s an endless series of discords, so I don’t think it’s the answer if we really want to provide virtual tourism. Personally, I place a high value on creative vision; that’s why I like looking at the English country-house landscapes. I can say to myself, “Ah, this is a Capability Brown landscape, and I can feel his deft touch at work here in the placement of these lakes and little rivers and so on.” But I do think that *Second Life* is a step in the the right direction: entertainment that offers things to do, without forcing you to overcome challenges to earn the right to do them.

S.T.A.L.K.E.R.: Shadow of Chernobyl

I want to talk for a minute about *S.T.A.L.K.E.R.: Shadow of Chernobyl*, which does something pretty amazing with space as well. *S.T.A.L.K.E.R.* has been vaporware for several years, but it just went gold about a week ago. The title is somewhat unfortunate, for those of you who have not heard of it, and it represents what I think is a mistranslation from the Russian. It has nothing whatsoever to do with stalking in the familiar connotation of obsessively pursuing an innocent person. A better translation would be “hunter,” but at this point the marketing has been done, so THQ is stuck with the name.

I was asked to do some design consulting on *S.T.A.L.K.E.R.*, and I flew over to Kiev to meet with the development team, so I got a good look at it. *S.T.A.L.K.E.R.* is a first-person shooter set in the 30-kilometer exclusion zone around Chernobyl. It’s pretty much the opposite of a rail shooter—it’s mostly outdoors in the open, and you can go anywhere you want, although there are certain choke points to prevent you from getting into areas before you’re ready for them.

But what really struck me about Stalker is the extent to which they’ve modeled the real place. I was in their offices and I happened to look out the window and noticed an interesting and distinctive pine tree of a type that I had never seen before. Then I

looked at one of their screens and there were those pine trees. And they have modeled the dead city of Pripyat, which was right next to the power plant, with extraordinary accuracy. Here are two pictures of it, the top one a photograph of the real place and the bottom one, the modeled one in the game.

Pripyat was once home to 45,000 citizens, who were all evacuated in the space of a few days by a group of heroic bus drivers who went back in again and again, ferrying people out. All those bus drivers are dead now, and the whole city stands empty and decaying. But GSC Game World, the developers, have reproduced every building. The species of trees are right, the abandoned vehicles are right. What they've done is to create a memorial in computer game form.

Now don't get me wrong. This is still a shooter, and it's full of zombies and hostile soldiers, and all kinds of other nasty stuff that's constantly trying to kill you. And I freely admit that *S.T.A.L.K.E.R.* has the same problem that *Far Cry* has, in that you can't just explore freely, because there's always a risk of being eaten by a mutant pig. But this isn't yet another fantasy world. It's the game developers' own country, that got poisoned and can never be inhabited again. Imagine if, instead of being flooded with water, New Orleans had been flooded with radioactive waste. That's what happened to northern Ukraine. And they deliberately chose to remind their players of that, which I think is an interesting and moving thing to do in a video game.

America's Army

Now let's look for a moment at *America's Army*. This is one of the most peculiar games you can imagine the US Army producing, because the Army is the last place you would expect to find moral relativism. Moral relativism is the idea that right and wrong are simply a matter of perspective. But because of the strange politics of making this game, they had to build moral relativism in. It was politically impossible for the Army to make a game in which players could shoot at US soldiers, and obviously they didn't want to have US soldiers shooting at each other either (which happens by accident with distressing frequency).

The Army could not do that, so they had to make a game in which everybody thinks that they're a US soldier, and everybody thinks that everybody else is a terrorist. The graphics display the world that way. So in this image [below] here we are, we're US soldiers. We've got the drop on this terrorist. He's surrendering. We're standing there with our M-16s, and he's holding up his AK-47 in surrender. That's how we see the world. If we were to flip it around and see it from his point of view, he would see himself as a US soldier and us as terrorists. The graphics engine would render us as terrorists. He would see himself holding an M-16, and us holding AK-47s. It gets even stranger still. If we pick up his AK-47, he sees us pick up his M-16. Completely bizarre. Not only is the representation of the people relative, but even the weapons. Total moral relativism! Everybody thinks they're the good guy.

I think this idea that you can display multiple perspectives on the same place is extremely interesting. In America's Army, there is no underlying reality. There's no data bit that says, "This is the correct answer, you really are a terrorist." It's completely morally relative. And I think that this could be put to use in other kinds of games as well.

PeaceMaker

Here's a screen shot from another game that recently came out, *PeaceMaker*. *PeaceMaker* is about trying to create a successful two-state solution in Palestine. You take the role of either the Israeli Prime Minister or the President of the Palestinian Authority, and you try to manage the situation and negotiate with the other side in order to arrive at a two-state solution. At the same time, you have to deal with various militants on your own side, whom you have to try to keep in check. And it's exactly the right sort of game for showing the same situation from different points of view. In *PeaceMaker* it's not done with a 3D engine, it's done mostly through reports of events, and it chooses to report events that are of interest from different points of view. So, for example, "18 Palestinians killed and 40 wounded by Israeli tank fire" is an event that directly affects the Palestinian Authority President's ability to negotiate with the Israelis, because of course his own people will be very upset by this and demand a strong response. This is the kind of game in which showing the same landscape and circumstances, but from different points of view, would be particularly advantageous. In this case it's political points of view, and in the case of *America's Army* it's graphical points of view, but I think there's a lot to

be taken from this. If we stop and think about these kinds of things, we can find opportunities to present places for people to experiment with play in situations that seem different to each other, but are in reality the same. They may even learn to bridge their differences. The really interesting thing about *PeaceMaker*, which incidentally is being released simultaneously in English, Hebrew, and Arabic, is what happens when people from one side play the other side—the one they're not familiar with. They get a chance to see what the world looks like from a different point of view. I had a similar experience when I played the Russian side in Chris Crawford's *Balance of Power*, many years ago. I had never really thought about what it would be like to be the Russians during the Cold War, and the game really brought it home to me. All of America's friends were extremely rich and powerful and armed with nuclear weapons, like Britain and France, and all of Russia's friends were extremely poor, like Cuba. And the Soviet Union was surrounded by rings of steel in the form of NATO and other treaties. So I had this really unfamiliar and enlightening experience of what it was like to be the Russians during the Cold War, and I think this capacity to present people with different points of view, whether graphical or otherwise, offers them an experience that has very little to do with challenges. Now it's true that as I played *Balance of Power* I was trying to accomplish certain tasks in this context, and that helped to make the point. But in any case, it was an experience that I don't get when I'm just trying to blast aliens.

Science Museums and Science Software

I think there are other ways to use this kind of power as well. Why are science museums cool—the Exploratorium here in San Francisco is cool, the Museum of Science and Industry in Chicago is cool, the Ontario Science Centre is cool, the National Air and Space museum is the most-visited museum in the United States—but science educational software stinks? Why is this? The software is hands-on, you get to do things, but even so, it's terrible. Well, I think it's because we're not making an effort to create a sense of place. The Exploratorium is a cool place to be in, it's a vast building full of blinking, flashing things where all kinds of exciting things are happening, and you can feel it around you. But most science education software just presents little flat worlds in which you pour one test tube into another test tube and the mixture turns blue and that's about it. We could use some of our power to present interesting phenomena, in a non-gameplay context, to make that software more exciting and fun to play with.

We can now show every leaf on every tree. Every blade of grass, every petal on every flower. We can show the quality of the sunlight at dawn as it breaks through the storm clouds of the night before. We can even display alternative versions of the same reality to different players. So it's time that we used this power to entertain in its own right. To provide environments that are more than simply places in which to shoot things. Our nouns are amazing. Let's get some new verbs.

The Effects of Challenges on Interactive Stories

What does the author owe the reader in a traditional story?

- Credibility—the story has to be believable. Even in fantasy and science fiction stories there's a credibility budget; I talked about that last year. Ken Perlin puts it this way: "You can be the last human being left alive on a remote asteroid and the rest of the human race has died out, or you can invent a time machine, but not both."
- Coherence—the story has to hang together as a harmonious unified whole without any contradictions, unless they're intentional and presented to create ambiguity or to represent different points of view. But in general, coherence is one of the things we owe a reader.
- Dramatic meaningfulness—the story has to be about things we actually care about.
- Technical and aesthetic proficiency—it has to be competently crafted.

Those are the things that we owe a reader in a non-interactive story. That's about it. But in interactive storytelling, the player places additional expectations upon us. First and most obviously, they expect to be given something interesting to do. And generally, they expect to be a hero rather than a sidekick, to be the prime mover in a story rather than in a secondary role. Most of the time, what we give them are challenges. But there are issues with this.

If we offer the player storylines that can change, they typically change for one of three reasons:

- Randomly, or in response to internal computed mechanisms that the player has no control over.
- In response to the player's choices.
- In response to the player's ability to meet challenges.

If the story branches based on internal mechanics, then it can be frustrating to the player, but as long as the story is credible and coherent, it doesn't matter that much. If the story branches on player choices, then it reflects the player's own wishes, and it gives him an opportunity to participate more fully in the game world. If it branches based on the player's ability to meet challenges, then certain problems arise.

Changing the Plot via Challenges

If we change the plot via challenges, then the player's degree of success or failure produces different outcomes. The emotional significance of this is that the player expects to be rewarded with positive dramatic consequences for meeting those challenges. The player will get annoyed, and be unhappy with you and with your story, if he is told that his efforts have been in vain ("Oh, did we ask you to bring back the magic whatsit, and you sweat blood and died fifteen times to get it? Sorry, it turns out we don't need it after all.") or in the wrong direction, i.e. you lied to him ("Thanks for sweating blood and dying fifteen times to get the magic whatsit... what you didn't know is that it is the final piece I needed to assemble the Doomsday Machine and destroy the world!").

So if the game is about achievement, then the plot must reward achievement.

Changing the Plot via Choices

By contrast, if the plot changes on the basis of player choices, then the player is free to choose among options or behaviors that affect the plot. The emotional significance of *this* is that dramatically significant actions, that is, those that do affect the plot, must be apparent, not obscure or trivial. ("Oh, you walked out of your house wearing the Manolos instead of the Jimmy Choos, so I've decided to destroy the world today." "Wait a minute. It depended on what kind of *shoes* I put on? How was I supposed to know?" "You didn't! [*evil laughter*].") That's not acceptable.

Secondly, the player expects the progress of the plot to meaningfully reflect her choices. If you tell the player that her choices matter, then they damn well have to matter. Telling the player that it's vitally important that you make a choice, and then she discovers later that it didn't matter at all, is not acceptable either.

But changing the plot based on choices is a different thing from basing it on challenges, because with challenges the player actually has to accomplish something, and if she fails, then the plot goes a different way, and she has to go back and work at it some more in order to get it to go the way she wants it to.

So changing the plot via choices is very useful for setting up situations such as moral dilemmas, or social or political decisions to make. But the greatest advantage of this is that you don't have to earn the right to play! You make the choice and on you go. You get to see what the consequences of that choice was, and then if you want to go back and play the game again with different choices, you can do so. Whereas, if you base the plot branching on challenges, what happens if the player is really good? He zooms through the game and does really well, but if he wants to go back and see what other storylines there might have been, he has to play deliberately badly in order to see other branches. And that seems kind of weird. Counterintuitive to what people actually expect.

So that's something to keep in mind about all this stuff. Now I'm not saying that challenges are *wrong* in stories, or that you shouldn't use them. I'm saying that there are emotional consequences, and these consequences are not always beneficial. Understand what they are as you decide how to design your game.

The Great Debate

This leads me to my final mini-rant. Last year I pointed out some of the difficulties with branching storylines, and I presented a new idea as an alternative approach. This may have led the less thoughtful among you to conclude that I was condemning branching storylines. That is not the case. There's this huge debate going on in the academic literature and on the Internet forums about what interactive storytelling is supposed to be, and there are various factions.

There's the anti-storytelling crowd, the people who believe that all storytelling in games is a waste of time; they're the people who button through the movies right away. When id Software made *Doom*, the called story "the s-word," and consequently when somebody made a movie out of *Doom*, my God, it was an s-word.

Then there's the pro-storytelling crowd, and this is a whole bunch of different people. It's the fans of adventure games, who are still out there and getting what they want, exploration and puzzles. There are practical researchers and people who are trying to sell engines; that's the category I put Chris Crawford into. And the interactive fiction developers who are working on text-based games and so on. There are the narratologists and people in the academy. There are the wanna-be film directors from within the game industry, who are positive that they know all about what interactive storytelling is supposed to be, and so on.

And there are various arguments that you get on the boards and other places:

- "Linear stories are bad! It's only *true* interactive storytelling if the player can change the outcome."
- "Branching stories are bad! The combinatorial explosion of branches makes them cost too much."
- "Foldback stories are bad! The freedom that they offer the player is false. They're fraudulent!" That's what Chris Crawford said in his book. I'm going to go sue LucasArts.
- "Emergent stories are bad! Only humans can tell decent stories."

They're all wrong. And where they're all going wrong is that there's way too much emphasis on structure. The big error that these theorists make is to concentrate on structure and delivery and organizational mechanisms. That is like taking a class in creative writing and spending the whole time studying grammar. What matters is the player's experience, not the mechanism that delivers it. All this stuff about "this is the right way to do it," and "this is the wrong way to do it," is a waste of time. The only thing that matters is how the player perceives it in the end. You don't create art by prescription about technique.

So think for a moment about the huge number of types of *non*-interactive stories in the world. Here's a list:

Jokes
Urban legends
Fan fiction and Slash
Television advertising
Children's cartoons & TV shows
Sitcoms & satire
Plays & short dramas
Drama series
    Unlimited, e.g. *Law and Order*
    Limited, e.g. *24*
Soap operas
Movies
Children's books
Comics
    Single panel, multi-panel, and books
Airport fiction
    Chick-lit
    Thrillers
Genre fiction
Short fiction
Women's magazines
Literary magazines *(New Yorker*, *Atlantic Monthly)*
Highbrow literature

No one theory of storytelling can cover all of these. Aristotle does not tell you how to write urban legends. Joseph Campbell does not tell you how to write for the *New Yorker*. So why would anybody think that one theory of interactive storytelling can possible cover all the forms of interactive stories?

The Meta-Approach

So here's a meta-approach that cuts through all this crap. Forget all the debates. Forget all the people who say, "This is the one right way to do interactive storytelling." Don't let yourself be bullied. Don't let anybody tell you that linear stories are no good because the player can't change the outcome. That's OK with many players. Don't let anybody tell you that branching stories are no good because they cost too much. You *can* make it work if you keep the number of branches down. Don't let anybody tell you that foldback stories are no good because the player cannot change certain inescapable events. Sometimes events just are inescapable. The burning of Atlanta in *Gone With the Wind* is an inescapable event. If you insist that in your storytelling game Scarlett O'Hara be able to prevent the burning of Atlanta, then she's not Scarlett O'Hara, she's Wonder Woman.

Do what works for your player and your product. The meta-approach is, *write a requirements spec for what you want.* Ask yourself what you want interactive storytelling to do for you. Then choose an approach that meets your needs. Only you can answer the important questions about narrative immersion, depth of characterization, coherence, credibility, if and how the player influences the plot, multiple endings, and sequels and later exploitation opportunities. Only you can answer this for yourself. No argument on a message board can provide you with the answers to this. Let *your answers,* not other people's arguments, help you to determine what structure and mechanism you need.

Appendix R: Why Design Documents Matter

By Ernest Adams
Gamasutra
July 17, 2007

From time to time I get questions from students, or see postings on the Internet from newbie developers, demanding to know why they should write design documents. They want to dive straight in and get modeling or coding, and they see the paperwork as a waste of time. The player will never see it, so why take the trouble to write it?

I know the feeling; I was that way too, when I first started making games. I remember writing out FORTRAN code long before I had a clear idea of how my game was going to work either as a form of entertainment or even as a piece of software. Of course, back then there were no experienced designers around to tell me how it should be done - everybody made it up as they went along.

One of the most common newbie objections to writing design documents is that nobody reads them. That sounds valid at first, but it actually misses the point. Nobody reads the phone book, either, but if there weren't a way to look up phone numbers, the telephone would be a lot less useful. Like the phone book, most design documents aren't intended to be *read* but *referred to*. Nobody reads them cover to cover, but managers and developers look things up in them that are relevant to their particular tasks.

Another common objection is that, as most games are prototyped first, the prototype can form the basis for the game and the team can just keep adding new features to it, so why write a document? But that's not what a prototype is for, and doing it robs the prototype of its value. They're intended to be quick and dirty, and the dirtier they are, the quicker they can be. They're *testbeds*, not designs - you can play them, but you can't look up data or plans in them. In Mark Cerny's famous design methodology, he warns his developers that every scrap of material they create for a prototype will be thrown away. This frees them to cut corners as much as they like, secure in the knowledge that whatever kludges they make in the prototype, those kludges won't find their way into the product. It's always dangerous to try to turn prototype code into final code, and Cerny avoids those risks by making sure it doesn't happen. Also, prototypes almost never include all the content of the final game. We build prototypes mostly to test mechanics and user interfaces. If a game will have thirty levels, the prototype might implement three or four, or maybe only one. Somebody still has to design and document all the remainder for the content teams to construct them. A prototype can't replace the documents - diagrams, maps, lists of objects and so on - that are needed to build those levels.

So far I've answered some objections, but I haven't advanced any positive reasons why design documents matter. Anybody who's led a big project in the mainstream industry knows perfectly well why they do, but it's still a reasonable question for those who haven't enjoyed that dubious privilege. There are actually several reasons, which I'll address from least to most important.

Reason 1 (least important): Funding agencies (publishers and others) want design documents as evidence that the designer knows what he's doing.

A lot of people in the industry would like to get the money first and figure out the details later - heck, who wouldn't, if you could get away with it? Sometimes you can sucker a private investor into letting you do that, especially if they don't know much about the business. But a sensible publisher simply won't hand over several million dollars to a designer who doesn't have a clear plan in mind. Executive producers want to see something in writing. They no longer insist on a 300-page game bible, as they did 15 years ago, but they still want something they can hold in their hands and take to show the marketing department. These days it's more likely to be a 30-page treatment, but it's still a design document and somebody has to write it. No document, no money.

If you're self-funded, this isn't an issue, but there are several other good reasons for writing design documents even if you're paying your own way.

Reason 2: Design documents are sometimes the basis for contractual obligations.

Most development contracts include a milestone schedule that dictates when the developer will produce certain deliverables and when the publisher will advance more development money. You can't create a schedule until you know what features will be in the game, and you can't know that until you've designed at least part of it, including some kind of a written record to build the schedule from.

In practice, milestone schedules always change, and the feature list almost always changes too. That doesn't matter; you have to start somewhere. No feature list, no milestone schedule; no milestone schedule, no contract. Furthermore, it's in the developer's best interests to have each milestone deliverable be as clear and unambiguous as possible. If the developers can demonstrate unequivocally that a certain amount of the work is done and a new payment is due, they are in a position of strength. If the game design consists of a lot of vague hand-waving, the publishers can do a lot of hand-waving in return when explaining why they are withholding payment and demanding more work. The more you know in advance about what you are promising to provide, the more confident you can be that you have met your obligations when the time comes.

In addition to the developer's legal relationship with the publisher, there's also the developer's legal relationship with external content providers to consider. Music, art, animation, and writing are frequently outsourced to specialized agencies these days. In order for those companies to do their jobs, they have to have documents telling them what's wanted, and again, those documents may form the basis of their contract.

Reason 3: Design documents communicate your intentions to the rest of the team, and let them plan their tasks.

In theory, this is why anybody writes a design document: to communicate information to others. Small teams don't need this as much because the team

members are often working in the same room and talking to each other all the time. This is why students and newbie independents don't see the point of writing design documents: they assume that if they can all talk together, there's no need to put anything on paper. However, as we've seen, some documents are created for business or contractual reasons, and they serve other functions as well. Strangely enough, communicating with the rest of the team isn't actually the most important reason for writing a design document. But it is one of the reasons, and a good one.

Instructors make students write design documents even though student teams don't always require them for communication because the instructors know that the students won't always be on a small team, and they need the practice before they get into the working world. Large dev teams can run up to 150 people, often spread out over several offices and even several countries, if some of the work is outsourced. Talking all the time, even on the phone or in videoconferences, is impractical.

The bigger the game, the more important it is to document the design so that others can build their schedules. If you want your game to include 45 types of moving creatures, the artists will have to make models, textures, and animations for all of them. They'll need concept art to work from - another form of design document. The audio engineers will have to find or create sound effects for each creature. If the creatures are autonomous, the programmers will have to know their behavioral characteristics. If you don't write all this down, how will all those people know what to do? You can't just explain it all in a meeting and expect them to remember it.

When I was doing the audio/video production for the *Madden* series, I wrote the audio recording scripts for the play-by-play - yet another form of design document. All told, they were about 75 pages long. We had to record material for every possible event that could occur in the game, and all of John Madden's color commentary as well. Nobody could possibly keep all that in his head, and in any case, Madden needed something to read from in the voice booth, and the audio engineer needed something to work from when editing the raw recordings. Sports games require more design docs that you might think, because even though the league has created the rules of the game, somebody has to figure out all the strategies (in football, the playbook for each team), animations, and user interface required to translate the sport to the target hardware. All that work produces documentation.

Finally, on some projects, not all the team members will speak the same language - literally. I encountered this when working with THQ (England) and GSC Game World (Ukraine) on *S.T.A.L.K.E.R.: Shadow of Chernobyl.* Most of the developers did not speak English at all, only Russian or Ukrainian. They couldn't have simultaneous voice translators standing by 40 (or 60) hours a week, so a great deal of communication between the publisher and developer took place in the form of translated documents.

Reason 4: Design documents turn generalities into particulars.

The process of writing a document turns a vague idea into an explicit plan. It's one thing to say "Harpies will be flying creatures" in a meeting, but that's nowhere near enough to build from. In fact, there's not even any point in writing it down if that's

all you have to say. What the developers need are *details*: How high can they fly? How fast do they fly? Are they affected by the weather? Can harpies land? Can they land anywhere they want to? Can they also move on the ground, and if so, what sorts of terrain and how fast? Are they more, or less, vulnerable when in the air or on the ground? And so on and so on, and it all needs to be written down so that everyone on the team has all the information they need to build the product.

It would be nice if game design consisted of sitting around with your feet up and daydreaming about cool content and features, and I've met some designers who thought that was the whole job. It isn't; they were slackers. The vast majority of design consists of figuring out the details. Although you'll always change those details later in testing and tuning, you have to start with something. In a real sense, the process of writing documents *is* the process of design, because it is then that you turn abstract concepts into concrete plans. Even if no one reads your document at all, an idea written down is a decision made, a conclusion reached.

Reason 5 (most important): Design documents are a record of decisions made; they create a paper trail.

Video game design is a highly collaborative activity, far more so than the movies. Unlike a film director, whose rule is well-nigh absolute, few designers are allowed total control over their game. As developers, we tolerate the long hours and comparatively low pay of the game industry because we get to make a creative contribution, and if that were taken away, it wouldn't be much fun. A lead designer does not create the entire design himself; he continuously weaves other people's ideas into the whole, and must also (preferably with a degree of tact) reject those ideas that don't fit.

As a result, an enormous number of design decisions are made not at your desk, but in meetings, around the coffee pot, or over lunch. Some of these, perhaps made by junior staff, are only tentative and must be cleared with the lead designer or the rest of the team. In any case, when a design decision occurs through conversation or negotiation, you must get your conclusions down in writing - again, even if you already know that you'll change them later. The reason is that you need a paper trail, a record of what you have decided. I have sat in too many meetings in which an argument broke out because nobody wrote down an earlier decision, and people's memories of what was decided were in conflict. "Didn't we say we were going to do X?" "No way, we were going to do Y!" The result is wasted time and energy. If a week or two has gone by since the previous meeting, a whole team may have spent all that time working based on an incorrect assumption. This is why all meetings should have a designated secretary or scribe to make notes and distribute them to interested parties - and where the questions discussed are design issues, these notes are part of the design documentation and should be filed as such. When people's memories conflict, you can go back and check the notes.

Design docs also help you keep track of what you've done and what you still have left to do. If a feature of your game is never described in writing, there is a good chance that you overlooked it and that someone will have to come and ask you about it later, or worse, make up her own answer without consulting you or anyone else.

The result can be a disaster, when each part of the team has a different idea of what you intended, and they build incoherent or incompatible material. It's far easier and cheaper to correct a design error before any code is written or artwork is created.

I listed this reason as most important because above all, design documents are organizational tools. They're not books or stories to read, but *plans:* records of things to implement. They can take many forms: diagrams, concept art, graphical reference material, explanatory text, tables of stats or attributes, lists of many kinds, storyboards, flowcharts (yes, even today, but for command sequences in a user interface, not for the code), meeting notes, audio and video recording scripts, and pitch documents to help sell the product to the funding agencies. When the game is mostly complete and the majority of the work consists of testing and tuning, you can throw the design documents away just as a builder takes down scaffolding - though it's still useful to keep them around for reference. But while things are in flux, design documents are essential for keeping track of what's going on and what needs to happen next.

Conclusion

Design documents alone won't guarantee that you'll make a great game or even a good one, nor that you'll get done on time. In fact, when approached wrongly, a design team can waste a lot of valuable time and effort on their docs, and I'll address some of those pitfalls in a future column. But I hope I've answered some of the questions I hear from the innocent and the ignorant.

Yes, a small team working on a small game, perhaps with no deadline to meet, doesn't need much in the way of design documentation. If your entire design career will be devoted to trivia games on mobile phones, you may never create one (but somebody has to write down the trivia questions, don't they?). Nevertheless, serious professionals working on a large project that's due out at Christmas understand the value of documentation. It communicates, organizes, and guides the entire process. A project manager can't create a schedule, task list and staffing allocation - and follow their progress - without knowing exactly what needs to be built, and that information must exist in written form.

Ultimately, writing (and sketching, and diagramming, and making tables and lists, and writing pseudo-code) *is* design. You shirk it at your peril.

Appendix S: Bad Game Designer, No Twinkie! VIII

By Ernest Adams
Gamasutra
September 4, 2007

It's time once again for another edition of that annual favorite, Bad Game Designer, No Twinkie! Since last year I've collected up another batch of Twinkie Denial Conditions from my readers, which I present for your edification and entertainment. I've also finally fulfilled an old promise to set up a No Twinkie Database of all the TDCs, organized by category. Just click the link and it'll take you to my website.

And away we go! Some of these are biggies that I really should have mentioned years ago.

Mandatory Wildly Atypical Levels

This one bugs the heck out of me, and I'm apparently not the only one. Joel Johnson writes:

> I'd like to point out the painfully irritating sections of games where they "change it up." Mini-games are fine by me, but when the game is an FPS except for two levels where you drive a car, race style, that's not a lot of fun. It's just padding that hides the fact that there isn't a lot of content in the main game. Other examples of this include the obligatory "stealth mission" not uncommon in FPSs (if you want to make a stealth game, make a damn stealth game), on-rails shooting-gallery sections of FPSs, the rhythm sections of games like *Grand Theft Auto*, etc. Optional mini-games are fun, and can be a refreshing change of pace, but *optional* is the key word here. Levels where a player must complete a game that uses a completely different skill set in order to continue back to a point that uses the original skill set can be irritating as hell.

Bullfrog was often guilty of this—I remember some wildly atypical levels in *Dungeon Keeper*, *Magic Carpet*, and *Populous: The Beginning*. They padded out the game, but because they made just about everything you had learned useless, they were very annoying. Keep them optional.

Failure to Provide Clear Short-Term Goals

The first time my wife sat down to the play the original text adventure, *Colossal Cave*, she saw the opening words:

```
You are standing at the end of a road before a
small brick building. Around you is a forest. A
small stream flows out of the building and down a
gully.
```

Then it just sat there, waiting. "What am I supposed to do?" she asked the guy who was showing her the game. "Anything you want!" he said proudly (this was 1979,

and games with parsers were brand new). But she didn't know what she wanted to do. The game didn't give her any incentive to do anything in particular, and we've lived with the same Twinkie Denial Condition for nearly 30 years—it still happens, believe it or not. Andrew Harrison wrote to say:

> When I played *Metal Arms: Glitch in the System* (PS2), it sometimes happened that I would start a game from a checkpoint without a clear indication of what it was that I should be doing: no information in the pause menu, no one to whom I could talk, no way to revisit an explanatory cinematic segment, not even a blip on my radar. Often I simply wandered around until I found enemies and then progressed in their general direction, hoping that their defeat was my goal. If the *actual* goal was to destroy some piece of machinery or flip a switch, I could potentially wander for a very long time before trying the right thing. I think that designers should try to avoid those situations.

You're darn right they should; in fact, it's one of Noah Falstein's rules for game design: *provide clear short-term goals*. And if he starts up a saved game, give the player a recap, a journal, or something else he can look at to see what he was supposed to be doing.

Dominant Strategies

"Dominant strategy" is a term from mathematical game theory. It refers to a state of affairs in which one particular course of action (a strategy) always produces the best outcome regardless of circumstances. A dominant strategy doesn't necessarily guarantee victory, but it is always the best choice available. As a result, there's never any reason to use a different strategy. A game with a dominant strategy is flawed, because it offers no meaningful decisions for the player to make.

Dominant strategies show up in ordinary games for entertainment, too. Joel Johnson writes,

> Most games nowadays, be they action, adventure, RTS, or whatever, give the player a wide variety of options or methods of attacking enemy units. One of the bigger problems that I've noticed is that it is not uncommon for most of these [special moves/spells/units/etc.] to be completely useless, because one method is so overwhelmingly useful. For example, look at *Halo*. Pistol-sniping was the name of the game, at least for me and for most of the people that I played with. There was little incentive for me to use other methods of attack because I could kill someone across the level quite rapidly and easily. I had a lot of fun pistol sniping people who went for a sniper rifle. There was a certain ironic pleasure in that. At any rate, Bungie did their homework and nerfed the pistol something fierce for *Halo 2*. I was chagrined at first, but the game was a lot more interesting to play.

It's a perfect example of the problem. Choosing the pistol is a dominant strategy, or very nearly. Sometimes dominant strategies get into games because there just wasn't enough playtesting; sometimes because the designer was so in love with a particular

feature that he couldn't bring himself to weaken it, even though that would bring the game into proper balance. Bottom line: there must be benefits *and* disadvantages to every possible choice that make them preferable at some times and not at others.

Amnesia at the Game's Beginning

Moving on from game balancing to storytelling, Andrew Stuart writes about games that begin:

> "You wake up in a strange place. You don't know who you are or how you got here. You have amnesia and your objective is to find out who you are and what you are doing here." It's hard to believe but it seems every second game has me waking up with amnesia. It's okay after a night out on the booze, but in every second computer game? Enough!

Years ago I identified the Problem of Amnesia in a lecture at the Game Developers' Conference. The problem arises because the player doesn't know anything about the game world when she starts the game. In a lot of adventure games, the first thing she has to do is go through all the drawers in what is supposedly her own apartment to see what's in them—which is ridiculous. A character in a real story doesn't have to do this, because the character already belongs to the game world. So in the game industry, we make a lot of games in which the player's character has amnesia to justify the player's own ignorance.

That's a cheesy solution to the problem, though. In reality, the viewers of a film don't know the film's world either, so movies have carefully crafted introductions that bring the audience up to speed gently. Occasionally, when the situation is really unfamiliar, movies resort to voiceover narration, but that's not necessary most of the time. Consider the following exchange at the beginning of the first episode of *The Sandbaggers*, the best spy TV show ever made:

> Secretary: Wellingham rang. He wants to see you.
>
> Burnside [starchily]: Do you mean the Permanent Undersecretary of the Foreign Office?
>
> Secretary [equally starchily]: I mean your father-in-law.
>
> Burnside: **Ex**-father-in-law.

In four lines, without even meeting him, we've been introduced to Wellingham, his job, and his relationship to the show's main character, Burnside. We've also learned that Burnside is divorced, but still has professional business with his former farther-in-law. Finally, we've noticed that Burnside is a bit formal about people's titles (not uncommon in 1978 Britain) and that his secretary can stand up to him. That's a lot of information in 10 seconds of dialog, and it beats the heck out of listening to some long-winded mentor character explain things in a video game. We need to study

those film and TV introductions and learn how to do them too. In the mean time, no more amnesiac player characters!

Incorrect Victory Checks

Interstate '76 was a driving game that included a lot of fancy weapons on the cars. One level contained a funny, but annoying, mistake. The game told you that you had to find your way out of a closed area surrounded by a concrete wall. The "correct" solution was to find a hidden ramp, drive up it, and fly over the wall—which landed you in a pit, but that was essential for the next part of the story. However, some clever players realized that they could drop a land mine near the wall, then drive towards it at speed. The explosion would blast the car into the air while forward momentum would carry it over the wall. If the car was sturdy enough, they'd land damaged but alive. They fulfilled the stated victory condition, but the game didn't recognize it, so the level never ended. The game was only testing for use of the ramp, not whether the car was outside the wall.

When you tell a player to do something, then check to see if he's done it, you have to test the thing you *asked* him to do, not just what you *wanted* him to do. In modern games with richly-simulated environments (e.g. the *Grand Theft Auto* games), there's a good chance the player will find a way to meet your victory condition that you never expected—and he should get credit for it.

Continuing in the same theme, we come to...

Illogical Victory Checks

Avoiding incorrect victory checks does not mean that you should nitpick the precise details. If the player performed some action that by its nature included the victory condition, he should get credit for that too. Andy Lundell explains:

> It's bad enough when the mission objectives are illogical, but when you start punishing the player for making logical decisions, you've gone to far. You usually see this in FPS games or sometimes in the single-player parts of RTS games.
>
> My favorite example is from Red Faction. There was a mission where you were told you had to destroy a particular computer on the space station. Once you got there you were told that you had to blow up the entire space station and run for the escape pods. So I, quite logically I thought, assumed that I could just blow up the space station and not worry about targeting the computer specifically. I blew up the space station, jumped in my escape pod and ... and ... the game glitched. We were supposed to blow up the computer then blow up the station. (They had no explanation for this duplication of effort.) Apparently the game couldn't handle the fact that the level ended without the computer being specifically blown up, so I just got dumped back to the main menu screen. All because I tried to do things intelligently instead of the stupid way the level designers wanted me to!

Here's a clue, level designers: if one victory condition (blowing up the station) naturally includes another one (blowing up the computer), there's no need to check the second one at all—and doing so could get your Twinkies taken away.

Seizing Control of the Camera at Bad Times

Ever since 3D came along, we've had to work a whole lot harder to depict our worlds, especially in action games. With side-scrollers, top-scrollers, and isometric views, life was pretty simple. The 3D fixed third- or first-person perspectives aren't too hard either, but both have their limitations (what happens in third person when the avatar has his back to a wall?). Nowadays we put a lot of work into creating intelligent cameras, a la *Ico*, and we don't always get it right. Loren Schmidt writes,

> You're playing a third person platformer. You're running down a hallway towards a huge, spike-filled pit you can barely clear in a single jump... and then the camera flips around 180 degrees, messing up your timing and causing your helpless character to plunge to its virtual death.
>
> This is even worse when combined with a transition from controllable to fixed camera modes, as seen in the last two *Prince of Persia* games. Most of the game is played with a player-controlled camera, but occasionally your point of view suddenly leaps to a (sometimes poorly placed) stationary camera. This can be particularly lethal during combat sequences and potentially deadly jumps.

I understand the goal here—right before an action sequence we often need to lock down the camera so as to guarantee the player a clear view of what's going on, and to fix the relationship between joystick and screen. But suddenly changing the point of view *while* the player is jumping, or fighting for his life, guarantees him trouble. Don't do it. It's better to leave the camera under the player's control, even if that's not ideal, than it is to disorient the player by changing his perspective without warning.

That's it for this year. Amazingly enough, I didn't get any big complaints about configuration menus (a constant source of irritation). One person did write to object about lists of saved games that were un-sorted, or sorted inconveniently so you had to hunt for your most recent save, and while I agree that's a nuisance I figure it's not bad enough to warrant denial of Twinkies.

Appendix T: Single-Player, Multiplayer, MMOG: Design Psychologies for Different Social Contexts

Ernest W. Adams

2010 Game Developers' Conference

[This is an approximate transcript of the text of my lecture at the 2010 GDC on March 13, 2010. I present it in this form because the nature of the material does not lend itself to the traditional paper format. Also, because the lecture is informal and to some extent ad-libbed, this is not a verbatim document.]

Introduction

Hello, and thank you for coming. This talk is called "Single-Player, Multiplayer, MMOG: Design Psychologies for Different Social Contexts or "It's Not About You." I should begin by warning you that this lecture may be of more use to people who teach game design than to those who do it for a living. This lecture is actually a continuation of a talk I gave her back in 2004 called "The Philosophical Roots of Computer Game Design." It is not going to contain anything of tremendously practical value, so if you came in here wanting to learn how to maximize your profit margins or to ship games on time, I'm not going to be offering that kind of advice.

In "The Philosophical Roots of Computer Game Design," I made some observations about the nature of the task of game design. Along the way I observed that there were certain differences between English and French philosophy; that English philosophy tends to be driven by deduction and by hardcore rational thinking, and that French philosophy tends to be more inductive, and to be more about feeling. I also highlighted the "two cultures" debate, started by the scientist C.P. Snow in 1959 in a famous paper, in which he talked about how the academy is divided between the hard sciences and the social sciences or the humanities. There are these two cultures growing up in the academy, moving progressively farther and farther away from each other, and having a hard time talking to each other. I also discussed the distinction that Robert Pirsig made in his book *Zen and the Art of Motorcycle Maintenance:* the distinction between classical thinking and romantic thinking. The classical is rather like English philosophy. It's dedicated to deductive logic, while romantic thinking tends to be more free-form.

The conclusion I reached in that lecture is that one of the reasons game design is so hard is that we're actually trying to straddle these dichotomies. That what we do in the video game industry, what I do in my job, is to write technical documents that enable the creation of romantic fantasies. That is a completely bizarre idea. To an ordinary engineer, who thinks in terms of meeting requirements specifications, that is really strange. And to an artist, who thinks in terms of artistic expression, that is also really bizarre. So I've come to the conclusion that game design is neither art nor engineering. It's a craft, because it has both aesthetic and functional elements.

I concluded in my “Philosophical Roots” lecture that our hero in this industry really needs to be Leonardo da Vinci. He was a Renaissance man who was both an artist and an engineer. He, too, straddled these various gaps: the C.P. Snow gap, the classical versus romantic gap. I think he’s the person that we should look up to. So I ended the talk on an upbeat note, feeling that this was an important thought.

This lecture is a sort of précis of my thoughts since then about the nature of game design. And I want to talk for a little while about how I do game design myself, and how I consult with companies to teach them how to do game design, and how I teach students at a variety of institutions to do game design.

Now, you might ask yourself why anybody would bother to think about “the nature of game design,” rather than just getting on with the job and doing it. The answer is two-fold. First, you really do need to know what you’re doing. You wouldn’t expect someone to just “get on” with architecture without first thinking about what we build buildings for and what we need to modify our landscapes for, what we want out of them, what we’re trying to achieve with them. An architect who went into constructing buildings and modifying landscapes without having thought about that might make some very expensive mistakes.

Well, guess what: In the game industry we *do* make a lot of very expensive mistakes, and we pour a lot of money down rat holes. We kill two out of every three projects that we start. That’s not a good way to do things. Any architecture firm that had to demolish two out of every three buildings that they started would very quickly go out of business. And you know what else? A lot of game companies *do* very quickly go out of business. So there is a point to thinking about this kind of thing.

It has been my experience that the biggest game design mistakes, the most expensive disasters, do not result from minor mistakes or technical problems, but from the major mistake of failing to actually think about what they were trying to accomplish in the first place. They get part way through the game and the company changes its direction because they haven’t committed themselves to a particular thing that the were trying to do. So this philosophical noodling does have a practical purpose.

The second reason that I need to think about these underpinnings is that I have a university-level textbook [*Fundamentals of Game Design*] on game design that I have to keep revising. I need to keep it up to date, both technically and as things change in the business of game design. There are thousands of college students all over the world who are buying and reading my textbook, and it’s up to me to think about the background. I brought out a new edition just this past year, and I’ve already come to the realization that I need to bring out another new edition sometime in the next three or four years because things are changing so rapidly.

Let me start with a couple of points that I begin with when I teach game design, two more ideas that inform how I go about it. These ideas are in my book and my workshops and classes. Then I want to talk about how these ideas, which have informed the way I do it for a long time, have actually gotten me into trouble. In certain respects, they don’t work any more.

Player-Centric Game Design

One of them is a concept called *player-centric game design.* I ask the designer to imagine a representative player of the game. The designer accepts two duties to this representative player. The first is the *duty to entertain*. The designer asks of every single game design decision made in the course of developing the game, "How does this entertain the player?" If a feature doesn't help entertain the player, then maybe it doesn't need to be there. (In some cases it does, because there are some features that we need for reasons other than entertainment—saving the game and bookkeeping functions and so on, that are not specifically directed at entertainment.) I believe that a game designer should regard any feature that doesn't entertain the player with deep suspicion, as guilty of superfluity until proven innocent.

The other is a *duty to empathize*, to ask, for every design decision that you make, how it's going to make the player feel. Will he become frustrated, or bored, or will it make them triumphant, or happy, or frightened, or what? Ask that question. Think about it. Because the designer has a duty to empathize with the player in player-centric game design.

I want to make a distinction here between the concept of the representative player and "the market." You might think that this business of thinking about a representative player is the same as thinking about what the market wants. I don't really want designers thinking about the market as a large, faceless statistical aggregate. I want them thinking about *the* player: a real person who is sitting there on the living room floor with the controller in his or her hands—not a statistic—who has chosen to play this game, and has certain beliefs and expectations and hopes about the experience. I do this particularly because I want to emphasize that it's necessary to make games for people who are other than ourselves. I'm very often dealing with young students who have been playing games all their lives, and the very first thing they want to do is make exactly the sort of game that *they* really like. In students this is not necessarily a problem, but as our market expands more and more, we need to be able to start reaching people who are different from ourselves. And if these students want to get jobs, they have to realize that young people are now a diminishing percentage of the overall market. When they graduate, they need to able to make games for girls and young children and senior citizens and people with disabilities, and all kinds of other people who are now game consumers that we always used to ignore. That is the reason for thinking about this representative imaginary player. Who is my imaginary player, and how do they feel about the way my design decisions work? What kind of emotions am I going to create in them—that's the empathy part—and am I entertaining them?

The Tao of Game Design

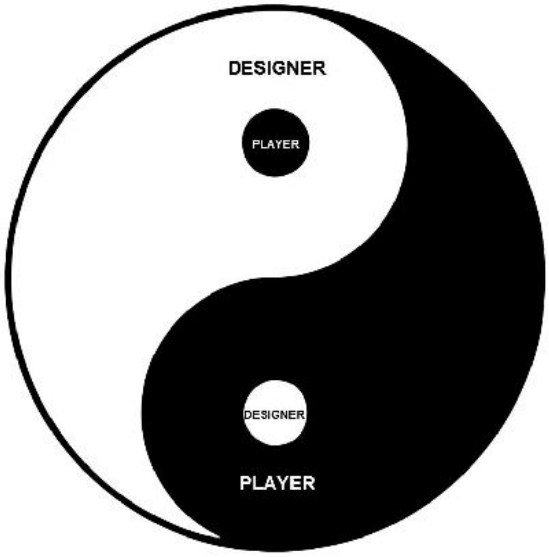
The next idea, that I came up with a little while ago—I wrote it up in one of my *Gamasutra* columns—is called "The Tao of Game Design."

To begin with, let's look at the way the Japanese language works. Japanese uses suffixes on words that modify the meaning of the first part of the word. There are two particular suffixes that I want to talk about. One of them is *-jutsu. Jutsu* means approximately *methods* or *techniques.* The other is *-do*, which is cognate with the

Chinese word *tao*, which literally means *way* or *path*, but has come to mean a kind of underlying philosophy: how should we think about this thing when we do it? *-do* has come to connote a more refined or sophisticated version of whatever activity it is that you're talking about.

A very good example is *jujutsu*, which is a form of martial arts. The original form of *jujutsu* was a particularly brutal violent form—fighting to the death—for use in war; a desperate, no-holds-barred means of hand-to-hand fighting without weapons. Later, they invented a higher form, essentially a form of wrestling, called *judo.* This illustrates the distinction between these two terms. *Jujutsu* is the original methods and techniques of hand-to-hand fighting; *judo* is the more advanced form, the form that is informed by an underlying philosophy. It has additional rules, and so forth.

I feel that in game design we have a whole lot of *jutsu.* We have a lot of methods and techniques. When the player has consumed most of their resources when trying to accomplish a challenge, then you have to refill their resources again, and there are various techniques for balancing, and positive feedback, and fairness, and that kind of thing. We have a lot of *jutsu* that tell us how to design games, in a kind of methodological and technical sense. But my question is, what is the *do*? What is the *tao* of game design?



I concluded that the Tao of Game Design is this: Every designer contains within himself a player, and every player contains within herself a designer. Every designer has to be thinking about that representative player all the time, and every player is trying to figure out what the designer had in mind. They're trying to figure out "What did the designer want me to do? How do I beat this game? What was the designer planning for me here?" So these two work together in the dance of creation. They're locked in this mutual exchange, this closely-coupled relationship.

I concluded that the Tao of Game Design is *Know Thyself* and *Know Thy Player.* Know what it is that you want to achieve, and understand what it is that the player wants from the game. Neither one can exist without the other. A designer with no player only creates an abstraction, a collection of pieces and rules. In my book I say that a game is an activity, not a thing. A game really only comes into existence when somebody starts to play it. If you paraphrase the old Taoist question, "If a game sits in the forest and there's nobody around to play it, does anybody have any fun?" the answer is no.

If there's a player without a designer, then there's no game to play. So each requires the other in order to make himself or herself whole. So that is the Tao of Game Design: know thyself and know thy player.

Limits of These Approaches

So these are the precepts that inform the way I teach game design. However, they are insufficient. They're not wrong, but they're incomplete. You might have noticed that all this time I have been using the term *the player* and not *the players.* That is, I have been thinking of the player in the singular. In effect, what I was doing was the very thing that I warned students against doing themselves, which is designing for myself. I was privileging single-player games, and that's because I prefer single-player games. And that's not right. It's inappropriate. I did that unconsciously because that's my preferred form of computer game.

When I was 16 or 17, I had a close friend named Terrance Druggan. Terrance and I were really into *The Lord of the Rings,* and we decided that we would build a *Lord of the Rings* board game. There were some already on the market, but we didn't have any money, and we thought we would create our own. So we went out and bought a blank hex sheet from Avalon Hill. I took that hex sheet and I opened up the front of *The Lord of the Rings,* and I got a whole lot of colored markers, and I copied line-for-line J.R.R. Tolkien's map from *The Lord of the Rings* onto this hex sheet, adjusting the features a little bit so that rivers ran along the boundaries of hexes.

Terrance and I got into defining some of the rules, but we kept kind of knocking heads, because it was very clear to me that Terrance was trying to fix it so that the good guys always won. Terrance identified with the good guys. He wanted the good guys to win. But I was talking about balance, and I kept saying, "No, no, no! We have to make it so it's possible for the bad guys to win too!" Terrance really didn't like that. So we abandoned it, and the hex sheet has remained in my parents' house from that day to this.

What I realized recently about this experience was that Terrance was failing to create a good two-player game; he wanted to create a single-player game. He wanted a game that the player wins; that's what happens in single-player games. We just didn't have a term for that back when I was 16. He wanted to create a game that you play by yourself, in which virtue prevails.

So I came to realize that the meaning of player-centrism varies significantly depending on the social context of the game, and that's what this talk is really about. I have come to the conclusion that the task of the game designer in these different social contexts is almost entirely different. It's not quite orthogonal—there's definitely some overlap—but it is profoundly different. So I'm going to talk about how the job of the game designer varies from one to another.

The Single-Player (PvE) Game

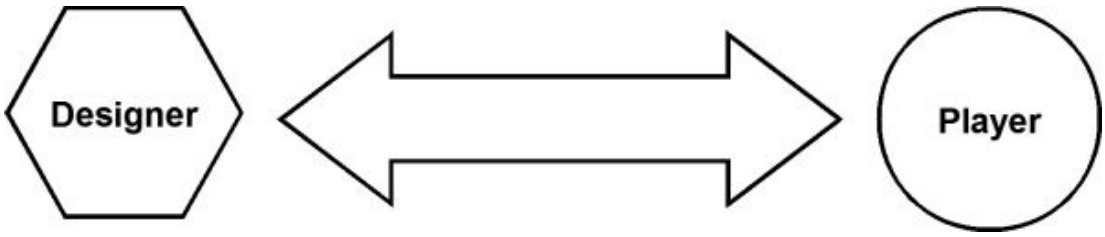
I'll start with the classic single-player game. I should explain that by *single-player game,* I really mean *player-versus-environment* game. I worked for six years for Electronic Arts on *Madden NFL Football. Madden Football* has a single-player

mode, because it has an artificially intelligent opponent, but it's not a single-player game. It's a multiplayer game with an AI opponent.

In a single-player, player-versus-environment game, the nature of the designer's job is *interaction design,* where interaction has to do with the player's relationship to the environment. The designer sets up exploration, sets up puzzles, tells stories. Fairness, in the context of a single-player, player-versus-environment game, is very complicated. If we take a look at fairness in single-player games, players will feel that a game is unfair if any of the following things occur:

- The difficulty of the challenges suddenly spikes.
- The player suddenly loses the game in a way he could not predict or avoid (learn-by-dying). There was a time when this was commonplace in the game industry, but it's now considered bad form.
- The game gets into a stalemate or deadlock.
- The player has to make critical decisions without enough information.
- The game requires factual knowledge from outside.
- The types of challenges change unexpectedly. So you work like crazy killing aliens to get all the way through *Half-Life,* and at the very end of *Half-Life,* there's a jumping puzzle.

So the definition of *fairness* is really complicated, and the longer the game, the more these matter. You can get away with a few of these things in a short game—except for stalemates and deadlocks, which are always bad—but if it's a longer game it's really important to avoid these things.



The designer-player relationship in PvE games.

I feel that the single-player, player-versus-environment game is as close as we get to Art with a capital A. The relationship between the player and the designer is intimate and personal. If I'm playing a single-player game and the designer cheats me, I'm offended by that individual. And if the designer does a spectacular job, then I admire that individual. This is the Tao of Game Design. It's a very close relationship.

The Multiplayer (PvP) Game

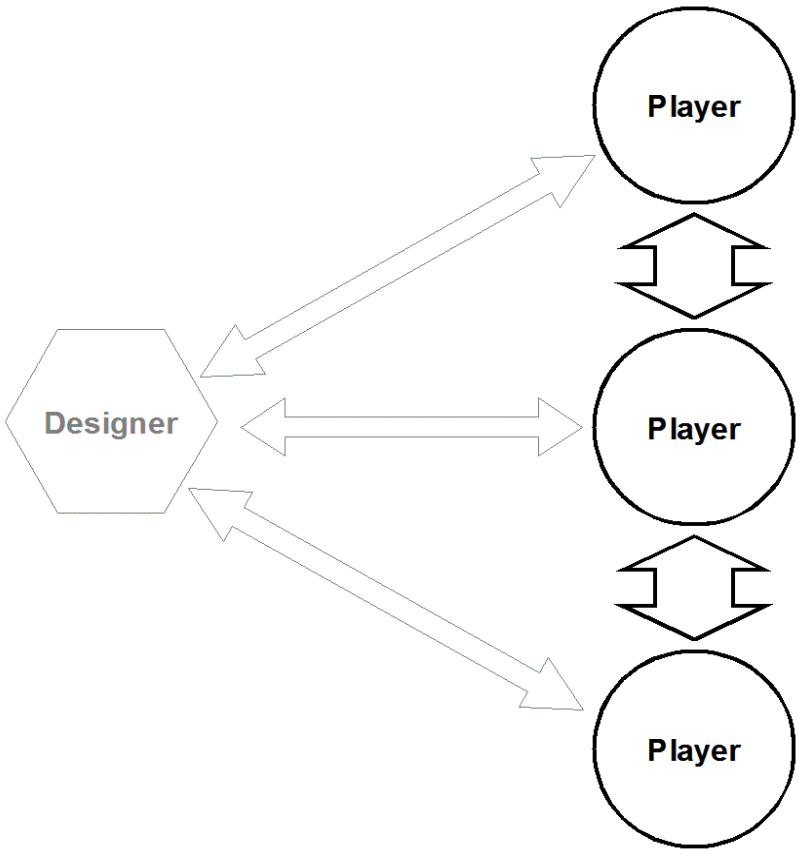
Let's move on to the multiplayer, or player-versus-player game. These games are not really about the player's relationship with the designer; they're about the players' relationships with each other. The designer's work consists largely of *competition design,* and of managing interactions among others. The designer is an enabler of other people's fun. Your work as a designer consists very much of mechanics and balancing. There's a lot less of the storytelling and puzzles and exploration and all

that kind of deep immersion, because it's really about the players' interactions among themselves.

The definition of fairness in player-versus-player games is much simpler:

- The rules give all the players an equal chance of winning at the start. Of course, they don't have an equal chance of winning all the way through, because some players will be ahead and others will be behind, but at the beginning—ignoring issues of talent and skill, or prior experience—all the players have an equal chance of winning. (Interestingly, amateur golf includes handicapping, which enables bad players to play with good players. This is really quite unusual. If you play poker and you're a really bad player, they're not going to adjust the rules to make it easier for you.)
- Players must not be able to cheat each other. If the players do something that is within the rules, it's not cheating, but if they do something that is prohibited by the rules, or they're deliberately trying to hassle the other players, that is cheating.

That's it. That's all there is to fairness in player-versus-player games.



The designer-player relationship in PvP games.

In these kinds of games the relationships are somewhat different. Balance is a question of competition. It's not about managing the pacing or the environment, but

about managing the competition and the interactions among the players. They can't pause or reload; the game always goes forward. They don't necessarily expect to win short games, and in fact there tend not to be any long PvP games. If they get really long, they turn into persistent worlds.

Here I feel that the designer is more of an architect than an artist. You construct the building, but other people decide how to use it, and in fact, you have no control over how they use it. Players quite famously change the rules of multiplayer games to improve them. In *Monopoly*, the practice of putting all the money from fines in the center of the board, and then giving the money to whoever lands on Free Parking, is not in the official rules of the game. That's a house rule that a lot of people play by because they think it makes the game more fun and moves the money around a bit more. Another good example is forbidding the tank rush in *Command & Conquer: Red Alert. Command & Conquer: Red Alert* is badly balanced because it has the problem of the tank rush, so people just make a rule: no tank rushes.

As you see, I've drawn the designer and the designer's relationships here in light grey, to indicate that the players' relationships to each other are much more important than the designer's is to them.

The Massively-Multiplayer Online Game

Now I want to move onto massively-multiplayer online games and Raph Koster's Laws. I am not an MMOG designer. There are other people who are a lot better qualified than I am to talk about these kinds of things. Richard Bartle and Jessica Mulligan and Raph Koster and Sheri Graner Ray, for example. But I'll give you the benefit of what experience I do have with large-scale online games.

The very first job I ever had in the game industry was coding the PC-side client for an America On-Line game called *RabbitJack's Casino. RabbitJack's Casino* was a pay-per-minute game. The players logged on, played in this casino, and they paid by the minute to play. It cost 10 cents every minute, or 6 dollars an hour, to play this game. In EGA graphics.

I feel as if pay-by-the-minute games are the most honest business model of all, because as a designer, your butt is on the line every single second. You are keeping people happy and entertained, and if they are not happy and entertained, if they get tired or frustrated or bored or angry, they leave and you stop getting the money. It's a very direct measure of your success. Am I entertaining people? Yes or no. They're paying or they're not paying; they're logged in or they're not.

Another interesting phenomenon in those days is that people were nice to each other. It was impossible to be a griefer in *RabbitJack's Casino*. The worst thing a player could do was wait the maximum amount of time allowed to place his bet, which forced all the others to wait too. But it was only 12 seconds. After that the timer would run out, and they would automatically fold and lose their stake. There was also lots of staff around to help out. They kept an eye on the conversations and threw out anyone who was being obnoxious.

I was really fired up about online games at that time. The thing that I found most exciting—we're talking 1989 here—was that there was no need for artificial intelligence. On a 4.77 MHz 8086 machine, the need for AI becomes a problem. If we could make multiplayer games in which the human beings provide the intelligence, then we don't have to, and that was very exciting. I gave a talk at this conference, the very first talk I ever gave, called "The Problems and Promise of Online Games," and I discussed all these opportunities and the various issues that we had to deal with. Most of them were technical and have long since been solved.

What I did not anticipate at the time was that online games would become so totally evil.

Let me talk about what happened when I started *Second Life*. *Second Life* is not a game in the conventional sense, but it is a massively-multiplayer online environment. I wanted to go in and see what *Second Life* was all about. It got a whole lot of press a little while ago and seemed to be a big deal.

In *Second Life* you don't start with any graphics already on your machine, because everything is mutable. You don't go down and buy a disc full of graphics at the shop, as in other games, that stay with you for the rest of the game. *Second Life* has to download all the graphics of the universe all the time. Constantly. Now I live in England, and the *Second Life* servers appear to be in Botswana as far as I can tell, so there's a terrible lag. I stand there on an extremely foggy island, the island for newbies, and then suddenly a brick wall appears out of nowhere right in front of me, and then suddenly a tree pops in, and other things pop in a little at a time as the bits crawl their way slowly from wherever the server is to where I am. So I didn't know what was going on. I was having trouble figuring out how to move around, and I spotted this other guy, so I thought I would try out the chat feature. I typed in "I seem to be having technical problems."

He turned around, and he said to me (in Spanish), "You seem to be having mental problems." Now, I did not know this guy from Adam. I had never met this person in my life, and he has just gratuitously insulted me for no apparent reason whatsoever. I had not done anything to him. So what is this about?

I'm a grownup, so it's not as if I'm heartbroken about this. I don't consider myself to be a terribly thin-skinned individual. But what did occur to me was, "This is not OK for my mother." I might be prepared to tolerate this gratuitous rudeness, but she won't be. And I want my mother to be able to play games too. I want my mother to get into *Second Life* too. (God forbid she enter certain areas of *Second Life*.) But if people are going to be crappy to you the moment you arrive, then what's the point? So that informs my thinking about this.

When we think about these online games, *community-building* becomes a major goal. That's really the point, and there have been tons of books and articles and discussions and talks at GDC all about community-building. In this context there's no such thing as a short game, and fairness become a very complicated concept again. *Very* complicated. Players don't start symmetrically. In *Monopoly,* everyone starts with $1500, and they all start on Go, so it's all symmetric. But in massively-

multiplayer online games, everybody starts with different stuff, and some are clearly going to be ahead of the others because they've been there longer.

This suggests that the game shouldn't be about competition at all. But of course it still is. Sometimes players compete, sometimes they cooperate. The players expect at least to advance, if not to "win." You definitely wouldn't want people to win at *World of Warcraft,* because then the game would be over. You have to support cooperation in various forms, and usually some form of competition, and generally you also want to support solo play. As with other PvP games the players cannot pause or reload the game.

I was trying to find out more about massively-multiplayer online role-playing in order to write a chapter for my book about it. Of course you could write whole huge books about nothing else, but I did need to say something about it. So I spent some time looking into the topic and I came across Raph Koster's Laws. Raph Koster has been designing online games, MUDs and so on, since God was a child. He assembled his laws with a lot of other MUD and MMOG game designers that he had talked to over the years.

The vast majority of Koster's Laws are about trying to survive, as a designer and a game administrator, with a rude, unruly, whining, cheating player base. Here is one of them:

> **Violence Is Inevitable.** You're going to have violence done to people no matter what the facilities for it in the game are. It may be the combat system, stealing, blocking entrances, trapping monsters, stealing kills to get experience, pestering, harassment, verbal violence, or just rudeness.

So I took that on board. Here's another one.

> **Baron's Theorem.** Hate is good. This is because conflict drives the formation of social bonds and thus of communities. It is an engine that brings players closer together.

I might also call this George Orwell's Theorem or Adolph Hitler's Theorem, because he had this insight a few years before Mr. Baron, and it sure worked for him.

> **In-Game Admins.** …no matter how scrupulously honest [the in-game admin] is, no matter how just he shows himself to be, no matter how committed to the welfare of the virtual space he may prove himself, people will hate his guts. They will mistrust him precisely because he has power, and they can never know him. There will be false accusations galore, many insinuations of nefarious motives, and former friends will turn against him.

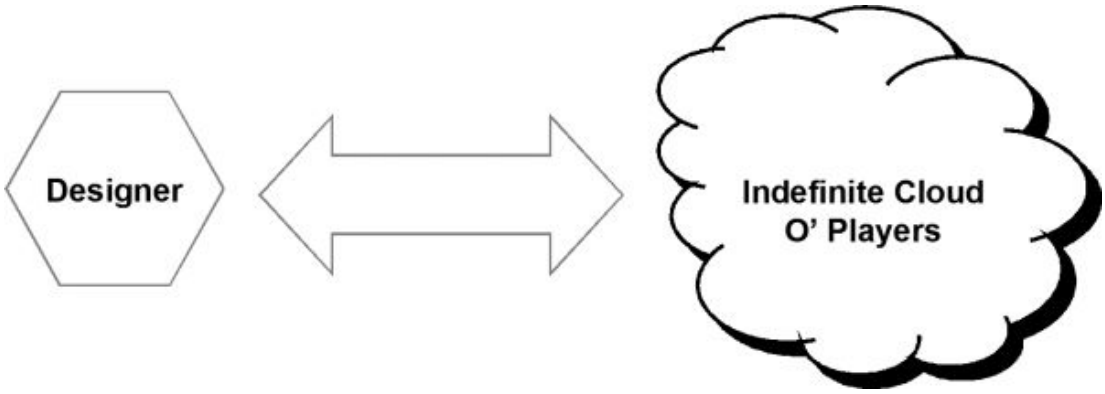
I don't know about you, but I didn't get into this business in order to lose my friends. There is not a single one of Koster's laws that gives a good reason for creating an MMOG. Not one.

Koster points out, quite rightly:

It's a SERVICE. Not a game.
It's a WORLD. Not a game.
It's a COMMUNITY. Not a game.

Now, John Perry Barlow—one of the founders of the Electronic Frontier Foundation, sometime lyricist for the Grateful Dead, and all around cyber-pundit—turned up at this conference 18 years ago with a six-gun on his hip and gave a speech at the banquet in which he asserted that he was going to make the Internet safe for women and children. Leaving aside the gratuitous sexism of that remark, the only conclusion I can reach is that nearly two decades later, his effort was an abject failure. Viruses, worms, botnets, trojans, spam, phishing attacks, identity theft, Nigerian scammers... as far as I can tell the Internet is not only not safe for women and children, it's not safe for anybody at all. And when you build an MMOG, you are building an entertainment enclave in a place that is already pretty hostile. So long as Koster's Laws remain true, online games are going to suck for a lot of people. For people who are not prepared to tolerate being gratuitously insulted.

In spite of what this may sound like, I am actually an optimist. I believe that Koster's Laws don't have to be true in all cases. *Club Penguin* does not have these problems. In *Club Penguin* there really isn't any way to abuse others, even verbally. And maybe that's what I have to play. Maybe in order to get basic courtesy and decency from the player base, I have to restrict myself to the kiddie wading pool of online entertainment. But I do think it's possible to make a *Club Penguin* for adults. Some sort of online entertainment experience, or massively-multiplayer online game for grownups who are prepared to behave like it.



The designer-player relationship in MMOGs.

So here's the diagram for MMOGs. When you're building an MMOG, you're a *social engineer*. You have an absolutely vast number of players. You can't actually think of them as individuals at all. You have to treat them as a statistical aggregate. Based on what Koster has said—and Koster has forgotten more about online world design than I'll ever know, so I have to take his word for it—game design in the conventional sense is very much a secondary activity in MMOGs. The game is the hook to get people in and to keep them in, but that's almost not primarily what they're there for. So if it wasn't "about you" in multiplayer games, it is *really* not about you in MMOGs—until you screw up.

The Massively-Multiplayer Free-to-Play Game

This last part of the lecture is not mentioned in the title. Massively-multiplayer free-to-play games are new to me, and they're a relatively new arrival to our industry, when compared to the other business models we have used over the years. "Free to play" actually means "sort of free." It doesn't mean "truly free." The game doesn't cost anything if you have a whole lot of time, but if you want to advance at anything other than a glacial pace, you have to pay money, to buy virtual goods and things that enable you to get ahead faster. And I know even less about free-to-play, or F2P, than I do about MMOGs, but I've learned a lot in the last few days.

In particular, I want to talk, or rant, about a particular lecture that was given by a man named Zhan Ye at the Virtual Goods Summit 2009. I do not know this individual and I've never met him. These are his slides, which he has published online. You can find them at http://www.tinyurl.com/ZhanYe.

In his lecture, Zhan Ye asserted that in F2P game design, every feature must be measured by two metrics: is it fun, and does it make money? The designer is no longer free to make a fun game. The designer must be a businessperson. He asserts this explicitly. He says that fun is kind of a desirable goal, but it's about monetization.

I had this idea confirmed when I had a conversation with Matha Sapeta, who's an old friend and a designer at Playdom. She knows a great deal about free-to-play gaming also, and is the lead game designer on *Sorority Life.* She told me that at Playdom, every game feature must drive one of three things: *daily average users*, or DAUs,

which simply means “number of logins”; *re-engagement*, which is fancy biz-speak for “the number of people who come back”; and *monetization*, which is a nice way of saying, “how much people spend.” So every design feature must drive one of these, and is measured against that. You’ll notice that there’s no sign of empathizing with the player here.

Now, I come from the retail business. I worked for Electronic Arts. We made games, we put them in boxes, we put them on the shelf and hoped that they sold. The designer of retail game also thinks about whether the features will be popular or not, but he or she is free to take a more holistic approach to the whole thing. You don’t have to measure moneymaking potential on a feature-by-feature basis. You don’t decide that this year you’re going to put a new playbook into *Madden*, and for each new play that you add, it will earn you 15 more cents from each player. We don’t think that way.

So let’s take a look at Zhan Ye’s lecture, because I found it extremely enlightening. It taught me a lot about free-to-play. For one thing, he said we had to get over these conventional notions of fairness.

My response to this is, God forbid the game world is a reflection of the real world. Who the hell wants a game world with all the misery and oppression of the real world? Why don’t we just throw in cancer and Alzheimer’s while we’re at it? They’re not fair. Maybe in the context of a game you can make money selling people artificial cures for their artificial cancer. “Oh, you’re a newbie and you didn’t pay, so you’ve suddenly got cancer, but we’ll sell you the cure.”

Regarding fairness, he also says:

Then he goes on to mention a solution that didn't work, which I'll skip—this is a bit out of context, I'm showing you whole slides, but I am skipping some slides. Here is his solution that he says does work:

Oh, great. This is gangsterism. This is warlordism. This is tribalism. This fantasy game world that they've constructed is essentially Afghanistan or Uganda or Somalia, where children and the poor are forced into militias at gunpoint, abused, and made to fight. "Fight in our army or we'll kill you." It doesn't seem to have occurred to him to create a game in which nobody kills anybody at all.

Now, maybe this is popular in China. Clearly he says that a lot of people will pay a lot of money for it. Maybe when they want to escape from their day-to-day lives in an oppressive totalitarian centralized regime, what they fantasize about is being peasants forced to fight for a brutal overlord in an oppressive totalitarian *de*centralized regime!

Zhan Ye defends all this in his lecture by likening it to Las Vegas. He points out that gambling takes advantage of a human weakness and never goes out of fashion. These free-to-play games take advantage of another human weakness, the desire to dominate and oppress other people. Apparently that never goes out of fashion either.

I think this is a dangerous sort of analogy. Gambling is very heavily regulated. Do we really want free-to-play games to be regulated the way gambling is? He comes from China where *everything* is regulated, so maybe he's not aware of the difference, but in a liberal democracy we have different expectations. Also, the analogy is very inexact. Las Vegas is not free to play. It doesn't have to charge the paying players enough to cover the expense of supporting the non-paying players. In fact, the whole essence of the experience in Las Vegas is that you *must* pay to play. Las Vegas is actually much closer to the old pay-by-the-minute games I used to work on, the difference being that you can win real money.

Most importantly of all—and this is a key point in this question of fairness—Las Vegas does not deal aces to rich players and deuces to poor ones. Rich players can play for longer before they run out of money, but everybody plays by the same rules regardless of how much money they have.

Personally, I find this whole idea completely appalling. I first heard of this lecture from a guy named Rich Carlson, who's somebody you should know. He's one of the Digital Eel guys, and he's an old-timer. He designed board games and card games and video games a long time ago, and he believes in this concept of fairness, and he believes in players treating one another with certain minimum standards of decency. He sent me the link to Zhan Ye's lecture in an E-mail message with no further comment than the subject line, which simply read, "An obscenity." And I have to say that I'm inclined to agree.

Here's another example.

Zhan Ye also thinks that conflict and hate are good. They have this mechanism: "When people are emotionally unstable they're more likely to make purchases." Well, that's a really desirable state of affairs, isn't it? And there's this virtual item called the Little Trumpet that you can use to curse other gamers. It will be broadcast to all the other gamers, so it's a public humiliation tool. That's just really delightful.

Is this what game design has come to? Creating things to sell players that enable them to be crappy to each other? Looking around for opportunities to make money out of emotional instability? The only people that ought to be making money out of emotional instability are therapists, and at least they're trying to improve the

situation. Even the handgun industry *tries* to make the claim that they're only selling them for self-defense. They're don't say, "Go out and blow the hell out of people because that'll make you feel better, and besides we can sell you virtual bullets."

Now, I'm not against competition. Competition is fun. I like a hard-fought game. But there's a social convention called *sportsmanship* that is designed to keep competition on the right side of the line. I realize that I'm beginning to sound like a crotchety old man, and that some of you are sitting there thinking, "Oh my God, *sportsmanship?* What century did he crawl out of?" But I have to tell you something: When competition turns into hatred, you have gone too far. If you are building games that foster tribalism and hatred, you are doing evil. There is no such thing as artificial hatred. All hate is real.

Summary and Conclusion

So, the GDC insists on lectures including some takeaway, and here it is:

If you're a single-player game designer, you are an *artist*, and your relationship with your player is as close as it will ever be in any game. Everything that I have thought and taught about Player-Centric Game Design and the Tao of Game Design is still correct for you. I believe these approaches are the right ones in single-player game design: know thyself; know thy player; you have a duty to entertain; you have a duty to empathize.

In multiplayer games you are the *architect* of interactions among others. Your first concern is not how the player perceives your game, but how the players use your game to enjoy themselves together, either through competition or through cooperation or team play. Fairness is critical to your experience. Balance is key. It's only partially about you.

In massively-multiplayer online games you are a *social engineer*. You are attempting to build a place where people will want to live over a long period of time. In your case, you can't provide fairness in a competitive sense because some players have been there longer than others. A lot of games have realized this, and they have removed direct competition between players. They made player-versus-player interactions either impossible or consensual. They create situations that tend to group players together who are of like skill level. They cooperate and go out raiding together, and they're roughly equal. The Tao of Game Design does not apply to you because your relationship is with a very large community of people and not with any one person. I still encourage you to try to entertain and to empathize with your players.

Massively-multiplayer free-to-play is an area that is new to me, and as far as I can tell it's chiefly about economics; about predicting and manipulating the spending patterns of people *en masse*. If Zhan Ye is correct then as a game designer you are an *economist*. The question of monetization infuses every design decision that you make. Your job is to create currencies and study their flow, and find ways of encouraging more spending on virtual goods.

So far as I can tell, neither the Tao of Game Design, nor Player-Centric Game Design, applies to you. You want to entertain the player, certainly, but you empathize with the player only to the extent that it is profitable to do so.

I think the only way to make these games fair is to remove the element of competition from them, so the rich players can't just defeat the poor ones by spending money. It becomes about growth and advancement, not about death and destruction. And that's how *Farmville* works. They should not be zero-sum games.

It's also possible to place caps on the players' ability to compete using money. The NFL salary cap is an excellent example. The NFL salary cap was put in place because rich teams could always hire the best college players coming up, so naturally they tended to win more games and got richer still. The NFL said, "You can't spend more than X amount of money on hiring players," and this tended to level the playing field and create a better experience for everybody. What that did was make the entire NFL more interesting and balanced. By contrast, the America's Cup, and F1 motorsports, have turned into technology races where it's more about money than it is about talent or skill. I mean, the America's Cup has just gone weird. It's hardly about sailing the boat any more. It's about designing the boat.

Ultimately, game design is fragmenting. The new business models mean that the way we go about it has changed dramatically, and it's increasingly difficult to teach the subject, or approach the subject, with a single unified philosophy. There's a lot to think about. But there's one thing, I think, that we ought to try to preserve. If I ever make a game in which there's a feature whose sole purpose is to humiliate other players and make them feel bad, then take me out and shoot me on the spot. If I ever make a game whose purpose is to enable players to be crappy to each other, hang me from the nearest tree. Because that's not what I'm here for. I think we should at least try to keep one thing in the backs of our minds:

Appendix U: Sandbox Storytelling

By Ernest Adams
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Back in 1995 I gave a lecture at the Computer Game Developers' Conference in which I identified several problems with interactive storytelling. I reprised those ideas a few years later in a Designer's Notebook column called "Three Problems for Interactive Storytellers." At the end of both the lecture and the column, I suggested that instead of trying to *tell* stories, we should build worlds in which stories can happen—worlds in which players live a story of their own creation. The industry didn't have a term for it at the time, but what I was proposing was sandbox storytelling.

In sandbox storytelling, the idea is to give the player a big open world populated with opportunities for interesting interactions. The player isn't constrained to a rail-like linear plot, but can interact with the world in any order that he chooses. If the world is constructed correctly, a story-like experience should emerge.

Not everybody thinks sandbox storytelling is a good idea. The year after I gave my lecture, Bob Bates gave his own lecture at the 1996 CGDC called "The Responsibility of the Author." One of the things he said was, "[Open-ended environments] may be fun to explore, but they do not fulfill the obligations of a story. There is no beginning, middle, or end. There is no pathos, no human drama, no greater truth to be gleaned from the hard-fought battles that the characters wage."

Bob recommended that we use a linear series of open environments instead—what we now call a multilinear or foldback story, in which the player is compelled to go through certain choke points in the plot line.

However, Bob was assuming that in an open-world environment the player would have to go find the plot, and all she would get is a disconnected series of events. I think Bob was expecting that the plot events would be tied to specific locations, and if the player could experience them in any order, they would have to be unrelated to each other. I'm not surprised that he made that assumption, especially back then. We're very used to mapping plots onto physical locations—so much so that it's our default approach, and any other system is unusual. From *Zork* to *Half-Life* to *Fallout 3*, movement through space equals movement through the story. But to do sandbox storytelling, we have to get rid of this notion and think instead about how to create a plot that advances—and maintains its continuity—by other means.

The *Grand Theft Auto* games famously include sandbox play, but they don't do sandbox storytelling. Instead, you get the usual linear chain of missions; complete one and you get another one, and so on. It just so happens that the missions take place in a large open world, and you can abandon the mission and just wander

around wreaking mayhem (or driving a taxi) if you want to. In a way, this was what Bob meant by a linear series of open environments, except that instead of a series of different environments, the *Grand Theft Auto* games just give you new missions in the same environment—although you do unlock new areas from time to time.

Grand Theft Auto IV

The Sims offers sandbox storytelling after a fashion. It gives you a world with a lot of stuff in it, and simulated people with varying personalities. As the player, you can make them interact and generate a (somewhat) story-like experience. Because the Sims don't speak English, most of the storytelling goes on in your head, but that's all right. You can make your own machinima, caption or record voiceover for it, and upload it to YouTube.

But *The Sims* uses a multipresent interaction model in which you don't have a particular avatar within the game world. To get a story out of *The Sims*, you have to manipulate more than one of the characters, rather than role-playing a single character. This makes you more of a creator than a participant. That isn't the way most storytelling games work, and I don't think it's what most people want from a storytelling game.

Computer role-playing games give the player a big open world, but rather than providing a single story, the world is full of quests—essentially, disconnected subplots. I love Western RPGs, but they don't have quite the same feeling as a story with one plot. They're more like the legends of Hercules, or any other ancient hero who appears in several unrelated stories.

So how do we make an open-world game in which the player can roam around, yet still feels as if he's taking part in a story? First, as I said, we have to abandon the idea that the player will experience the plot entirely through exploration. At the same time, traveling still has to be an integral part of the story; otherwise the travel will

just be tiresome. Movies usually cut out travel time—somebody comes out of their house in the morning, gets in their car, and in the next shot they're walking into their place of work—*unless* the movie is actually about travel, as in a chase movie.

In the typical adventure or role-playing game, all the plot events are player-dependent; they don't happen until the player finds them and makes them happen. By using constrained environments, we can make sure that the player finds them in the right order. The problem with a plot consisting entirely of player-dependent events, as I explained in the original lecture, is that it feels mechanistic: the whole world just sits around waiting for the player to do something.

If you make the plot entirely player-independent—that is, it goes forward no matter what the player does, even if he does nothing at all—then the player tends to lose the game a lot. He's not where he belongs, or he hasn't done what he needs to do, when the dramatic climax occurs.

The trick in sandbox storytelling is to build the plot with a combination of player-dependent and player-independent events. Keep things flowing no matter what the player does so the world doesn't seem static, but don't make it flow so fast that the player gets behind and loses the game (unless the plot is about finding a time bomb). Put a moderate degree of pressure on the player to act, but reduce the pressure if the player is on the right track. In a sandbox, exploration itself can't advance the plot—so instead, use a combination of the passage of time (that's the pressure) and player activity: meeting people, solving puzzles, making decisions, overcoming challenges. Change up the pace from time to time. Sometimes James Bond is exploring at his own pace (he's master of the situation) and at other times he's desperately running away from bad guys (they're masters of the situation). Then he gets away from them or shoots them and he becomes master of the situation again. Of course, not every game has to use a lot of pressure. You can let the player have a very relaxed experience if you want to.

One question some designers ask is, "What if the player just goes wandering around and never seems to get on with the story?" The answer is, it depends on what kind of experience you want him to have. It might be okay to just let him wander around. I'd love to explore the countryside in the *Far Cry* games without getting shot at all the time. On the other hand, if you want to push the player through the story, then you have to ask *why* he's just wandering around. If he's wandering around because he's lost or confused, that's your fault. The designer Chris Bateman wrote a chapter called "Keeping the Player on Track" in the book that he edited, *Game Writing: Narrative Skills for Videogames.* In the chapter he talks about *funneling:* various tricks for helping the player find the "spine" of the game. In an open world you can't use the landscape to forcibly funnel the player back to the plot, but you can leave various signs and clues around. Get the book for more information.

Far Cry 2

On the other hand, if the player is just fooling around and you want him to get on with it, that's when you have to increase the pressure with player-independent—and location-independent—plot events. Tabletop RPG game masters are very familiar with this. If the players won't come to the plot, bring the plot to them. If they've been hired to take down a crime boss and instead they're just sitting around the tavern gambling, the crime boss might get wind of their plans and send a gang of thugs to the tavern to squelch the expedition before it gets started. In the ensuing fight the tavern just happens to catch fire. Even if the party survives, it won't be doing any more drinking in *there*.

Another question people sometimes ask is, "In an open world, how do you prevent the player from seeing something early that he's not supposed to see until later?" The question is rooted in the assumption that everything that the story needs will be physically present in a static game world from the beginning—as it usually is in adventure games and Western CRPGs, where the story is mapped to locations. But we're not mapping the story to locations, we're mapping it to time and player activity. The answer is simple: don't put an object in the world until it needs to be there. In the *Grand Theft Auto* games you can't destroy a car in Mission 1 that will be needed in Mission 3, because the car simply isn't in the game world at all in Mission 1. You obviously don't want cars suddenly popping into existence in front of the player's eyes, but you can bring a car out of a (formerly) locked garage. The player can't be in more than once place at once, so you can do all kinds of things behind his back.

So what kinds of stories can we put into big open worlds that the player can explore in any order, and in which travel is an integral part of the experience? Well, here's a handful:

Find the buried treasure. This is a low urgency game good for kids because the treasure's not going anywhere. The player runs all over town assembling clues. The clues don't necessarily have to be found in a specific order; they might be scattered pieces of a treasure map.

Find the buried treasure before somebody else does. Same story, but there's some pressure on the player. You can make this a simple race, or you can raise and lower the tension by having the enemy team try to sabotage the player. If they succeed, then the player is under more pressure; if the player sabotages them instead, some of the pressure is off. (Be sure this doesn't create too much positive feedback, though.)

Find the time bomb. Obviously the most pressure of all, and tricky to pull off in open worlds, but not impossible. One way to give the player a little control over the pace is to endow the avatar with a limited amount of super-speed, like Superman or the Flash or Neo from The Matrix. The player can use the power at his discretion to buy himself a little more time.

Find people rather than objects, and of course this is made more complicated by the fact that people move around. Players can be bounty hunters looking for fugitives, private detectives looking for missing family members, counter-intelligence officers looking for spies, and so on.

Police procedural. This goes all the way back to the old Sierra On-Line *Police Quest* games. To build a watertight case, the police spend a great deal of time traveling around to visit witnesses, question the known associates of suspects, and look for physical evidence. Some evidence can be found in any order, while other evidence appears only after following a chain of clues. You might need to keep your town small, since although travel is an intrinsic part of the job it's not terribly interesting. You could spice it up a bit by letting your cops deal with street crime or spot witnesses or suspects walking around. To keep it low-pressure, have players search for evidence with a suspect already in custody. To add pressure, let the suspect escape.

Infiltrate a large open area from any direction. Too many shooters put the player on a rail. It's cheaper that way, but it's less interesting for the player. In the current Afghan war, the NATO allies have air supremacy and helicopters, so they can put troops down anywhere outside a combat zone and let them walk into it from any direction they prefer. Mission planning involves examining aerial photographs and choosing an approach that looks good.

Escape through hostile territory from somewhere in the middle to the edge. In my game design workshops I often challenge one team to make a game about the Underground Railroad, the network of abolitionists that helped escaping slaves to freedom before the American civil war. Some of the real

Underground Railroad routes were hundreds of miles long, and thus not convenient for a video game, but you get the idea.

Smuggling is about not just infiltrating or escaping, but doing both—and often with an awkward cargo. During the long, long wars between Britain and France in the 18th and 19th centuries, trade between the two nations was technically cut off—yet there was still plenty of brandy in Britain. The coastlines of both nations have numerous inlets that a warship can't get into, and the smugglers knew them all.

Like police, **reporters** do a lot of traveling, usually under deadline pressure, to gather information. So do **spies.**

Hunters naturally move around searching for game. Hunting doesn't ordinarily generate much of a story unless something unusual happens, but occasionally it does. As a kid I read two different stories in which wealthy (and therefore evil, apparently) big game hunters indulged a secret passion for hunting human beings—specifically, the guides they had hired.

Root out the criminal gang. Professor Moriarty's tentacles are everywhere. No matter where Sherlock Holmes goes in London, he encounters evidence of Moriarty's dastardly deeds. But where are Moriarty's senior lieutenants, where is his headquarters, and where is the man himself?

Resistance. Another game idea I give out in the workshops requires the team to design a game about a resistance movement in an occupied country. They're not allowed to make it a shooter; the game has to be about sabotage and making the occupier's lives miserable without getting caught. This, too, can be spread over a wide space, with soldiers of the occupying army constantly searching for the resistance fighters and keeping the player under pressure.

There are plenty of other kinds of jobs or hobbies that routinely involve travel: fire fighters, electricity linemen, tornado hunters, restaurant critics... not all of these are necessarily suitable for video games, but it only takes a little imagination. I'm sure you can think of more.

To make an experience story-like, you have to avoid too many repetitive or random (unrelated) events. (See my column "Dramatic Novelty in Games and Stories" for more about that.) If you read a thriller set in World War II, it doesn't consist of shooting an endless parade of identical Nazis; every situation is unique. This means that your sandbox has to be full of all different kinds of things, not just a lot of the same thing. This is probably the strongest argument against sandbox storytelling: it's expensive and a lot of work. But unlike rail games, if you construct the world carefully enough, the game will be highly replayable. Different paths through the world will offer different experiences. Nor do they need to have the same objective or ending.

For several hundred years the people of Rome gave their allegiance to one of four factions that supported chariot racing. The drivers wore colored clothing so people

could tell them apart, and the factions were named the Reds, Whites, Blues, and Greens. Suppose the player has just moved into Rome. He can join any group of supporters, just as we can support any sports team today—but with a difference: the factions often rioted, and there were bloody fights in the streets. What this means in practice is that an NPC who belongs to the faction that the player chooses is an ally, but if the player replays the game and chooses a different faction, the same person is an enemy. No need to write two stories or design the character twice; drama naturally emerges from the situation itself.

In short I think sandbox storytelling is both possible and fun. You'll need to fill the sandbox pretty full so as to offer plenty of dramatic opportunities (many sandboxes feel rather empty and sterile), and you'll have to decide how much pressure you want to put on the player and how you'll apply it. This may include using some time-dependent, player-independent plot events to keep things moving forward. The environment itself is also critical—it has to be a place that the player really enjoys being, because he's going to spend a lot of time there.

There was a famous film noir called *The Naked City* that was later adapted into a TV show. At the end of the film, and every episode of the TV show, the narrator said, "There are 8 million stories in the Naked City. This has been one of them." Try building your own Naked City, and see how many stories you can get in.