

# How Games Tell Stories: Engineering a Dynamic Plot

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# Chapter 1: Games Telling Stories

## Introduction

The question of whether games tell stories may appear a straightforward one, but it has in fact been a topic of heated debate over the last decade. The issue is not with whether a game, quite generally speaking, tells a story. A number of classic games, from Chess to *Monopoly*, and nearly all modern games, include some form of story to contextualize the player's actions. The contentious issue, however, appears when one asks: *What* is telling the story? Is it the instruction manual included with the original *Super Mario Bros.*, John Braden's oral recitation of *Super Breakout's* back story, the visual representations on the *Snakes and Ladders* game board, the game piece in *Chess*, or the cinematic sequences in *Final Fantasy VII*? These may all be ways in which a game's story is related to us; however, none of these are constituent parts of the game itself: they are merely additions to the game and, strictly speaking, are unnecessary to the fulfillment of the game's rules. What this paper asks, then, is: "Is it ever the game itself?"

The battles over storytelling and the right to study games have been played out over the last decade, and the dust has largely settled. Many feel that the issue is dead, debated to the point where nothing more can be said, or that it in fact "never took

place” (Frasca 2003). If it appears that it’s my intent to bludgeon this poor horse some more, then I will reassure you that I will do my best not to. However, it will prove to be necessary to go over this ground again to establish a position in relation to it. The debate may be over, but the question of games telling stories is still heavily divisive. It would therefore be wise to first secure the groundwork, which will be my aim in the following section.

What follows in Chapter 2 is a survey of formalism and structuralism in narrative theory (narratology) and its application alongside the highly formalistic study of games (ludology). With this intersection of narratology and ludology, we proceed in Chapter 3 to define a methodology in which to approach content (story) in games in a way that also respects their form as systems of play.

## The Position Held by this Author

Jesper Juul identifies five areas of dispute in contemporary game studies (Juul 2005, 11). We will focus on the latter three since they deal specifically with storytelling.

These revolve around the question: What should the focal topics in the field of game studies be?

- game rules or game fictions
- games or their stories
- game ontology or game aesthetics

### Game Rules or Game Fictions

These are often held as necessary opposites. When discussing rules and fiction in games, Erving Goffman suggests that the specific shape of a game unit's irrelevant to the game itself (Goffman 1972, 19), effectively denying that the fiction depicted by a game has any impact whatsoever on its system of play. Whether the Chess piece that moves diagonally across the board is a tall and slender Bishop with its distinctive cap, or Gandalf the Grey in flowing robes, the material shape is irrelevant to how one plays the game of Chess. So long as the rules remain the same, the fiction depicted by the game pieces does not affect gameplay. Moreover, Roger Caillois, considered one of ludology's founders, explicitly states in *Les jeux et les hommes* that games must be

seen as either “ruled *or* make-believe” (Caillois 1961, 9) and not both. In Caillois’ opinion, a game’s rules and fiction are exclusive and can not be evaluated in unison.

### Games or their Stories

Games are often accompanied by stories, and the belief that ludology does not accept this fact is “totally erroneous” (Frasca, 2003). However, the crux of this dichotomy lies in the belief that games do not tell stories; they are simply accompanied by them to give context to their rules. And so, the study of games should not be interested in these companion stories, but in games in-and-of themselves.

### Game Ontology or Game Aesthetics

In the analysis of games, theorists will tend to gravitate towards using either a game’s ontology or a game’s aesthetics; that is, one will consider either a game’s units and rules or a game’s visual rhetoric, metaphors and other aspects that shed light on its meaning.

If we considers these divides closely, we will note that they suggest a much larger issue at hand—one that reflects on the true root of the above dichotomies—and so it’s by using these dichotomies that I will establish my position.

## Bridging the Great Divide

The three dichotomies above are all variants of the age old philosophical binary: subject/object. A game in-and-of itself, a game's ontology, its rules and units, are all objective, concrete, empirical, quantitative and verifiable. Fiction, storytelling and aesthetics are subjective, intangible, interpretive, qualitative and unsubstantiable. It's not surprising to see this binary cause debate in an emerging field. However, we will avoid falling pray to this age-old division and attempt instead to view these approaches, not as mutually exclusive, but as mutually reinforcing.

Beginning with the *rules or fictions* dichotomy, we turn to Jesper Juul who has made an extensive case for their simultaneous study. As he points out: “the denial of fiction [in game studies] is an alluring position that I have also previously taken [...] it is also false” (2005, 13). He argues that games are “half-real”, simultaneously exhibiting real rules and artificial fictions. He argues that “the representation and the fictional world presented by the game cue the player into making assumptions about the rules” (176) and thus concludes that “the player's experience of the game is shaped by both [rules and fictions]” (177).

Next, the *games or their stories* dichotomy is being bridged by the recent trend in academia to study both games and their stories simultaneously. For instance, Henry

Jenkins put forward the concept of game design as “narrative architecture” after noticing that a “blood feud threatened to erupt” between his colleagues. In his paper, he hopes to offer “a middle-ground position [...] one that respects the particularity of this emerging medium” (2004 First Person). In establishing arguments where games and stories are complementary, theorists looking for a middle ground are demonstrating that games and stories do not need to be considered in mutual exclusivity. We will be covering stories and games in detail in Chapter 3.

Lastly, in examining the *ontology or aesthetics* dichotomy one lands on a well weathered philosophical division. However, if we were asked to choose one and not the other in the act of analysis or creation, one would find that it invariably limits one’s ability to properly analyze or construct. To establish the pieces to a puzzle is important, but it’s a useless exercise unless one attempts to also complete the picture; and completing the picture correctly is impossible without knowing the shape of the pieces. In a truly encyclopaedic reconciliation of literary theory and philosophy on the one hand, and computer science and game studies on the other, Ian Bogost states that the form of criticism he is putting forward “would focus on the aesthetic meaning revealed by a cybertext’s *parts*” (2006, 54; my emphasis), that is, the aesthetics revealed by the rules, units, classes, attributes and relations that constitute a system of play. Said differently, Bogost argues for an approach to criticism that

interprets a game's aesthetics by a close analysis of the different parts of a game's ontology and their relations within a system of play.

It's founded on a unified approach—where game rules and game fictions; games and stories; and ontology and aesthetics are studied together—that this paper hopes to dispel the antiquated subject/object binary that has crippled the study of storytelling in games in favour of a theory that game creators, rather than just critics, can use “to approach art and cultural objects that have equal home in both the worlds of the literary and the technological” (Bogost 2006, 46).

## Chapter 2: Defining Story, Plot, Narrative and Game

To show how games tell stories, it will first be necessary to define what a narrative is and what its constituent parts are, and next briefly delve into the study of games, ludology, to get a better understanding how the two could possibly mingle. After these brief surveys, we will endeavour to establish that the analysis of form (ludology) in harmony with content (story/plot/narrative) is the singular method of demonstrating how games tell stories.

Note, however, that I will not be applying narratology directly to games by comparing them to narratives. Rather, narratology will be used to better understand story and the act of storytelling, which will then be used to explore how games communicate their stories. The arguments presented here will not be narrativist attempts at establishing a simile between narratives and games. However, it will not shy from the quasi-taboo discussion of narratology within the context of formal game analysis.

## Origins of the Study of Narrative

Although the study of narratives dates back to Aristotle's *Poetics*, the modern incarnation of narratology finds its roots in the Russian formalists. Their approach, formulated in the late 19<sup>th</sup> century, was a highly structural investigation of literature distinctive in its time for its emphasis on functional analysis. One of its most enduring developments is the break down of narrative into story and plot. For our purposes, story is the "elemental materials of a story" (Abrams 173), an abstract chronology of events and characters. Plot, on the other hand, is the "concrete representation used to convey the story" (Abrams 173), or the way the story's abstract "material" is told. The story is the abstract events and characters themselves in the chronological order in which they happen, and the plot is the concrete presentation of those events in the order in which they are told (narrated), but *not* necessarily in the order in which they happen in the story. The abstract story behind Christopher Nolan's hit film *Memento* is about a wife's brutal rape and murder, the husband who develops anterograde amnesia during the struggle and his devotion to getting revenge on the one remaining assailant. However, the way the story is told is in reverse chronological order, tasking the audience to piece together the story as the plot progresses. Watching *Memento* in chronological order (one of the features on the limited edition DVD release) will still tell you the same story, but the plot will be different and as a result the dramatic experience of the story and emotional connection to the story will be different. It is in

this sense that the story itself is abstract and distinct from the concrete “telling”.

Stories can only be told through plot. In this sense, you can have the same story and tell it an infinite number of ways. The intangible, core “story” of *The Lord of the Rings* can be told over lunch, can be read over the course of roughly 1500 pages, or can be watched over the course of 11 hours and 23 minutes. Each telling omits, adds and even changes details and events, but in the end each version contains the same story. What changes between these versions of *The Lord of the Rings* isn't the story, but the plot, or how that core story is told.

These definitions of story and plot aren't the same as those we use in common speech, and it's this incongruity between the academic and common definitions that has caused so much controversy and confusion. The common definitions are problematic for games since they severely limit our ability to see how a dynamic and emergent system such as a game could ever tell a coherent story. If every play session of a game is different, how can we presume authorial control over its story? Instead of thinking this way, the academic definition allows the story to remain the same by acknowledging that it's the plot, the way the story is told, that changes with each play session. A game's story stays the same; it's the experience, the telling, the plot that changes. But in the end, it's essentially just a matter of semantics. I am sure we can agree that the above three versions of *The Lord of the Rings* share the same core of events and characters; this fact is why we have no issue giving the novels and the

films the same titles, and why we don't disdain synopses. This core, the basic chronology of events and characters, is what I will be referring to as story, and the way this core is communicated (told) I will refer to as plot. If you don't agree with these signifiers, make up your own as you read along, because what's being signified is what's most important here.

Using this distinction between story and plot as a stepping stone, the Russian formalists advocated a quasi-scientific method for the study of poetic language. Rather than studying literature using "contiguous disciplines such as psychology, sociology, intellectual history, and [...] the 'distinguishing features' of literature", they focused on the "artistic devices particular to imaginative writing" (Erlich 1993, 1101-02). These devices can be considered formal units in the system of narrative. The term "device" highlights the formalist approach to the writing process. Formalists conceived works of literature as complex machines intentionally and purposefully constructed using devices that serve particular purposes. Indeed, this functional analysis was established on the same principles that lead formal game analysis (ludology) to break away from psychological, sociological and aesthetic considerations and to study instead the constituent parts of systems of play. As Ian Bogost notes, "narratology is just as formalist and reductionist a practice as ludology" (2006). Formally speaking, the difference between the two is one of subject matter. Given that this remains true during their application, there is no reason that they can not be

used side-by-side in a context that contains both rules and fictions. There is also no reason, then, why rules and fictions could not furthermore interact and influence one another.

A highly influential, early proponent of functional literary analysis was Vladimir Propp. In *Morphology of the Folk Tale*, he seeks to approach the narrative structure of Russian folk tales by reducing them to their smallest narrative units. In so doing, he proposed a narrative typology. In an impressive reductionist analysis, he is able to reduce every major Russian folk tale character into seven broad character types (e.g. hero, villain, donor, helper, etc.) and all plot events into 31 “functions” (e.g. a member of the family leaves home) that take place in a largely rigid and specific order. The reason he is able to reduce such a broad array of characters and events into so few is by reducing these to their essential elements. To do this, characters must be stripped of their particular attributes such as name, sex, social status, personality and so on, and considered for what role they play within the plot. A character exists in the plot to enact certain events. These events are what shape the character. The character that gives the hero a gift is a donor, regardless of his or her psychological, sociological or aesthetic attributes, and regardless of whether the gift was an egg, a sword or a mint julep. It’s the event that dictates what the character is within the plot. Events can similarly be reduced by ignoring the specifics of the situation and focusing instead of the event’s function within the plot. If one considers a story as a chain of events that

must necessarily start at a beginning and logically follow towards an end, then what I have been referring to as “events” are the links within this chain. The criteria for determining an event’s function in a plot is to consider its role, logically, within the plot. For example, leaving home, regardless of from where, or how, is a unique function in so far as the plot could not logically end if the hero never leaves home. That isn’t to say that a plot could not omit the leaving of home and merely imply it, but rather that if a plot were to have a leaving home event, it would be analysed as a concrete “function” within the plot since it’s logically necessary to it.

Propp’s typology has often been criticized as too simplistic and lacking in meaningful depth. To say that the multitude of Russian folk tales studied can be systematically reduced to a single, pure form with minor variants leaves something to be desired. If all are of one form and the content is irrelevant, then there is nothing left to say and the topic either falls dead or is doomed to endless quibbles over form that amount to nothing substantial. In a work criticizing formalism and praising the structuralist method, Claude Lévi-Strauss states, referring to Propp’s work, that “nothing can be more convincing of the inadequacy of formalism than its inability to reconstitute the very empirical content from which it was itself drawn”, asking, “What then has it lost on the way?” (135). In an obvious sense, to reduce folk tales to their form, Propp had to remove any considerations of content. In his search for a morphology of the folk tale, he restricts himself to the analysis of those essential aspects that make up the

form, and discounts the content as arbitrary, or at least as merely ornamental. It's immediately understandable why Propp chooses to discount content; it's only form that is objective, concrete, empirical, quantitative and verifiable; whereas content is subjective, intangible, interpretive, qualitative and unsubstantiable, and in the eyes of formalism, completely unsuitable for analysis. At this point, the keen reader should note a resemblance in this viewpoint to that of ludology's. However, Levi-Strauss' position isn't that we should simply add back the content and end where Propp began. Rather, the structuralist method sees these two terms that are traditionally set in opposition, form and content, as equally and simultaneously analyzable:

“For structuralism, this opposition does not exist. There is not something abstract on one side and concrete on the other. Form and content are of the same nature, susceptible to the same analysis.” (Lévi-Strauss, 131)”

For Lévi-Strauss, what is lacking in the formalist mindset is an acknowledgement of the “complementarity of signifier and signified” (Lévi-Strauss, 141), that form and content are mutually reinforcing. This distinction is one of the founding principles upon which structuralism has come to evolve. Deeper explorations of structuralism by the likes of Ferdinand de Saussure, Michel Foucault, Roland Barthes and Jacques Derrida over the last century have taken this complementarity to its limits. Roland

Barthes, most influentially, applied the structuralist method to plot, characters and narrative. What follows is a quick survey of Barthes' early applications of structuralism.

## **Barthes on Narratology**

In his search to discover a theory able to classify all possible narratives, Barthes finds a “founding model” (97) for his structural analysis in the (then) current state of linguistics. Specifically, he refers to the syntactic theories of the time, which revolved largely around phrase-structure rules and the constituent parts of phrases that follow these rules. This breakdown into units and rules quite common in formalist theories should ring a bell to anyone considering what has been said to this point. As Barthes sees it, what he proposed is simply an extension of this linguistic theory. Linguistics stops at the sentence, because “beyond the sentence, there is never anything but more sentences: having described the flower, the botanist cannot be concerned with describing the bouquet” (Barthes 98). But simply studying the sentence can't account for all the possibilities of discourse, since discourse itself, as groups of sentences, can be organized in particular ways to communicate slightly, or significantly, different things. Barthes proposes that this big picture way of looking at discourse is characteristic of rhetoric as it was practiced and studied in ancient times (99)—with both form and content considered in harmony—before the logical aspects of Rhetoric,

*Invention* and *Disposition*, were relocated under the exclusive banner of Dialectic (form/objectivity), leaving Rhetoric itself with the more intangible subjects of *Style*, *Delivery* and *Memory* (content/subjectivity), eventually leading to Rhetoric's association with *belles lettres* and ultimately to today's modern conception of rhetoric as empty, flowery words. Barthes doesn't propose to bring back the ancient art of Rhetoric, but he does see the value in studying the logical structures of something (form) in conjunction with its more intangible aspects (content).

Barthes, reflecting on the works of Propp and Lévi-Strauss, believes that discourse does have a logical structure, a system composed of "units and rules" (97) that exist "beyond the sentence" (99). As Lévi-Strauss has argued, it isn't enough to simply take the formalist approach and label the form without considering the content. And the inverse also holds true, when studying the content one cannot ignore the form:

"[...] it's no longer possible to conceive of literature as an art unconcerned with any relation to language, once it has used language as an instrument to express ideas, passion, or beauty: language does not cease to accompany discourse" (Barthes 100).

To analyze the content of literature by examining its form, Barthes identifies three levels of meaning in discourse. The first is the level of functions, which follows closely in the footsteps of Propp, to the point of incorporating the term “functions” with largely the same meaning. But this is where the one to one similarities end. Whereas Propp chose to narrow functions to a limited and defined set, Barthes acknowledges the infinite possibilities of narrative and makes no such attempt, for in doing so one would have to remove all consideration of content. Instead, Barthes takes a “stemmatic” (116) approach whereby a hierarchy of functions and sub-functions can be established. The Propp-like function of Request for Help can be broken down into the functions of Meeting, Solicitation and Contract. These functions together form a sequence that describes Request for Help. Moreover, the function Meeting can be further broken down into the functions of Approach, Interpellation, Greeting and Sitting Down; and each of these, in turn, can be reduced to the individual functions that compose them, down to the sentences, sentence, or sentence clause that make them up. In this way, Request for Help is not formalized into a completely generic unit with no relation to its specific content, it can, if an analysis deems it necessary, be broken down into functions that are specific to the content. For instance, given different content, the above function Meeting could include Take a Stroll instead of Sitting Down, or even not include Take a Stroll or Sitting Down at all. This highlights Barthes’ distinction between *cardinal function* and *catalyses*. Whereas the Approach is necessary (cardinal) to there being a meeting, whether they sit, stroll or

stand is irrelevant to the function itself, but importantly, not irrelevant to the plot. A catalytic function “always has a discursive function: it accelerates, delays, resumes the discourse, it summarizes, anticipates, sometimes even misleads or baffles” (Barthes 109).

Accompanying functions on this level of meaning is what Barthes refers to as indices. It's in the formulation of this class of functions that he truly diverges from Propp and embraces the notion that content can bring insight to form. Indices are those parts of plot that were completely ignored by Propp: descriptions. Indices include indicial material that help establish mood, atmosphere or give character, and items of information that help identify and situate the plot in time and space. A scar on a character's face is indicial of ruggedness, experience or a sinister disposition. Indicial material always has an “implicit” signified. A description that mentions that a roof is grey is an item of information that simply helps describe the scene. Items of information are “pure data [...] immediately signifying” (Barthes 110) what they refer to, and so help to authenticate the fiction's reality. Together, cardinal functions, catalytic functions, indicial material and items of information denote all possible classifications for the various units of discourse on the level of functions. What is of note here is that these formal units of discourse consider the meaning of content by referring to its form.

Having shown an application of form and content in harmony, I will briefly describe formal game analysis (ludology) to set the groundwork for how we might strive to find the foundation for a structuralist approach to ludology that considers form and content in harmony.

## **Brief Introduction to Ludology**

Although the history of the term ludology is largely unknown, its earliest known usage was by Csikszentmihalyi (1982) in his work “Does Being Human Matter—On Some Interpretive Problems of Comparative Ludology” (Juul 2005, 16). The word ludology is rooted in the Latin word *ludens*, meaning play. This alone asserts a shift in focus, away from questions of story and meaning, towards what is considered a core element of games, what they unquestionably afford and require: play. Ludology is the study of games as systems of play. It is the functional analysis of the constituent parts of games, influenced by Espen Aarseth’s typology of “ergodic texts” (Aarseth 1997). But above all, it demands that academics “start afresh” (Juul 2001). It is this mindset that draws the line between ludological and narrativist approaches to game studies. Whereas narrativism is the application of existing theories to videogames, ludology seeks to study all games, from the ancient Chinese game of Go to the latest computer videogame, without being dependent on existing theories. And whereas narrativism seems to approach videogames with the mindset that they are a new “medium” for

storytelling, ludologists are quick to point out that games and stories are two distinct ontological classes or categories. Notably, games are not translatable into stories, and vice versa (Juul 2001). A novel's description of a game of chess, no matter how detailed, is not the same as playing a game of chess. Moreover, whereas "the dominant user function in literature, theater and film is interpretative [...] in games it is [...] configurative" (Eskelinen, 2001 First Person). Furthermore, a game such as chess can be played across many mediums: from the traditional, physical game of chess, to a digitally simulated game of chess; one could go so far as to draw out the board and pieces on a sheet of paper and play using the rubber-end of a pencil and some patience, redrawing the pieces as moves are made. Or, for even more tedium, one could write chess moves on a sheet of paper and visualize the board and pieces in one's mind. Although the last two examples are unlikely to ever be played seriously, they do emphasize that the rules that govern a game of chess are translatable across mediums, much like stories can be translated from text to theatre to film. Thus, games and stories are two heterogeneous genii. That they both share similarities to the higher form of narrative is irrelevant, or rather, not worthy of study for ludologists.

### Systems of Play

Ludology could be said to be the study of play, but play as "free movement within a more rigid structure" (Salen et al. 304). When one plays with language, one freely

moves, associates and modifies the rigid units of language. When a father plays catch with his son, they are playing freely within the system of the laws of physics, the physical space in which they are throwing the ball, the material system of the ball and glove, their anatomic systems, and the social systems of father-son relations. When one plays in this fashion, it is always antagonistically. To play with language is to go against the established, rigid structures of language; to playfully place underwear on one's head is to break the established conventions of given social and material structures. That isn't to say that one is set against the system, merely that the system pressures one to conform to it, and that being playful is to act freely regardless of these pressures.

To play a game falls under this definition of play, but with one striking difference. To play a game is to move freely within a rigid structure, but in games, and only in games, rather than being antagonistic towards play, the structure itself necessitates play. To participate within the rule system of a game is necessarily to play. To not play would be to break the rules, or at least to not participate within the system. This phenomenon is a different kind of play: game play.

There have been many definitions over the course of the century that attempt to define the necessary requirements for systems that create gameplay. For our purposes, we will be using those of Katie Salen et al., and Jesper Juul. Firstly, Salen and

Zimmerman propose that a game is “a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome” (Salen et al. 80), where a *conflict* is a struggle between players, or a struggle between the player and the system itself. In this sense, playing *Solitaire* is still an act of conflict, even though there is no true opponent. It should also be noted that the conflict alluded to here is structured differently than the antagonistic pressures of all other forms of systems, since it is a conflict that the system of play demands. Expanding on Salen et al. and many other theorists, Juul proposes a consolidated definition:

A game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable. (Juul 2005)

These orismological endeavours are important in a largely unestablished field, but their purpose here is to highlight ludology’s highly objective and quantitative approach to games. It is by viewing games as systems of play, rather than systems of narrative or meaning, that ludologists break free from humanistic approaches to focus instead on games in-and-of themselves: their rules, the systems created by the interaction of their rules and units, and the play that ensues.

## Mingling the Study of Games and the Study of Narrative

To mingle these two disparate studies, we begin by establishing the parallels between them. Literature is structured by language and its substance is discourse (Barthes 100). Discourse, according to Foucault, is “an entity of sequences of signs” (141). In language, discourse can be a conversation, a debate or the telling of a story. Using this definition of discourse, one could further argue that what is experienced when playing a game is a form of discourse. The game’s system of play presents the player with a sequence of signs for the player to react to, and after having reacted, the player is presented with yet more sequences of signs that are logically related. Gameplay is a form of discourse. Thus, games are structured by systems of play and their substance is a form of discourse. What Barthes did with literature was to show how its structure (language) is in harmony with its content (discourse). What we propose here is to show how a game’s structure is in harmony with its content.

Saying that “games tell stories” implies two things. Firstly, that game’s discourse (that is to say, gameplay) can communicate, or *tell*, an abstract chronology of events that reside outside the game (a story). If games tell stories during gameplay, they thus create plot during play. But it’s important to reiterate that games and stories are not the same. Games are experienced as narratives, and stories are experienced as narratives, but this is merely the *de facto* state of experiencing anything. However,

and this is where the second implication arises, games—their units and rules, environments, art, sounds and even haptics—can contribute to, influence and transform the way the story is being told. In other words, they change the game’s plot. I am not suggesting that a game’s system of units and rules *are* plot, or plot functions; rather, I am suggesting that games are experienced as narratives and, if that narrative tells a story, then that narrative must necessarily be a plot. It’s well known that changing a game’s units and rules changes the player’s experience of a game. But the larger implications of this fundamental understanding have been largely ignored. If changing a game’s units and rules directly affects gameplay, then it also affects discourse, which is to say that it affects the way the game’s story is told during the course of play. Said differently: game mechanics, environments, art, sounds and haptics—the formal aspects of game design—by affecting the way we experience play, affect the way the game’s story is told to us.

It’s the effect that a game’s system of play has on the telling of a story that I refer to when I say that games tell stories. Supplementary textual material, auditory storytelling, and visual cut scenes all tell stories, but these aspects of a game are not really parts of its ontological makeup. They are additions, tacked on quite often unfortunately after the fact. What I argue for here is a view of games as “narrative engines”, systems that that drive plot, whether their designers consciously

acknowledge the fact or not, and that any alteration to this system's constituent parts subtly or surely transforms the way the underlying story is told through gameplay.

It should be noted that the above applies more readily to games that profess to actually have a story that they hope to tell. Games for gaming's sake have justifiably no need to worry about story and plot, and what follows is directed to those systems of play that hope to more deeply engage, persuade or move their players using story.

## Chapter 3: Narrative Engineering

Games—unlike plays, novels, comic books, and film—produce plot as an “emergent experience” (Salen et al. 383). Emergence is when relatively simple rules and units interact in unexpected ways, forming a whole that cannot be described as the simple addition of its rules and units: “One can describe all the rules, but not necessarily all the products of the rules—not the set of all whole numbers, not every sentence in a language, not all the organisms which may arise from evolution” (Campbell 108).

Every time a game is played, the narrative experience is significantly different. But it isn't the story that changes, unless it's a game with multiple outcomes—which we will leave out as a special case where a game may have multiple, concrete stories—but rather it's the way the story is told that changes; it's the plot that changes. Other forms of storytelling are static. An author chooses their final wording only once, a director shoots a scene in a set number of ways and an editor puts the final scenes together in one final way. The designer of a game must too make final decisions about rules, units, environments, art, sounds and haptics, but this only creates a “static” game (as in, its rules and units do not change), and consequently a static story (dictated by the units, rules, art, environments and sounds), but the plot that this game can potentially produce is emergent and never truly the same twice.

Narrative engineering is the process of purposefully designing and manipulating rules and units (game mechanics), environments, art, sounds and haptics with the explicit aim at crafting a certain kind of emergent, dynamic plot experience. The problem with this process is that it's an attempt at shaping an emergent, unpredictable second order. A game designer creates rules and units to produce a specific kind of gameplay experience and, if it all works out, a fun experience. The design process has traditionally had nothing to do with story, except in so far as to acknowledge that there is a story, and to use the story to help influence some of the units and rules, although it's usually the other way around. Generally the latter is done for the sake of realism, but ultimately the story is made to fit the mechanics. Indeed, even a highly accurate World War II game could be "re-skinned" to tell a different story while preserving the exact same set of units and rules. This metaphor of skinning exposes how story is often seen in relation to games: it's something to be manipulated and stretched over a game to cover up the bare inner workings. This view suggests that the inner workings do not affect the skin in any meaningful way, except to stretch and pull it here and there; the skin is merely ornamental. However, this view forgets that the story is experienced through gameplay. Story isn't merely what contextualizes gameplay; it's what *emerges* from it.

## Finding a Foundation in Procedural Rhetoric

If it's true that games tell stories, then it's necessarily true that the way in which a game tells its story is what we should call a game's plot. Though one might agree that this assertion is true, in no way does it prove that a game's plot can somehow be manipulated by engineering, shaping, or moulding the game itself. To prove this latter argument, I could refer to anecdotal evidence, but in the spirit of formalistic objectivity I will turn to Ian Bogost's concept of "procedural rhetoric" (Bogost, 2007) as a foundation for this claim. A quick breakdown of the term will serve as a guide to understanding the concept of procedural rhetoric. First, procedurality for Bogost is a manifestation of computational expression: "Computation is representation, and procedurality in the computational sense is a means to produce that expression" (Bogost 5, 2007). In other words, if you consider that computer simulation is achieved through the computation of data, then the *procedure* that the simulation follows to compute that data is the way in which it produces the *expression* of those computations. Second, by following the lead of Kenneth Burke, Bogost takes rhetoric to mean, generally, the use of verbal and "nonverbal" (21) means "to change opinion or action" (29).

Together, procedure and rhetoric combine as the use of computational expression to persuade, "its arguments are made [...] through the authorship of rules of behaviour, the construction of dynamic models" (29). One can see this form of rhetoric at work

in procedural media by unpacking “the particular rules of a particular game in a particular context” (54). For instance, *The Landlord’s Game* has a quite similar game board and set of game mechanics as its conceptual descendant *Monopoly*, except in a few key areas. According to Salen et al., *The Landlord’s Game* is “distinctly anti-capitalist in its conception. The game’s conflict was not premised on property acquisition and the accumulation of monopolies, but instead on an unravelling of the prevailing land system.” (qtd. in Bogost 53, 2007). In *The Landlord’s Game*, one can only rent properties and not buy them (to then charge rent to other players) like in *Monopoly*. This distinction to Bogost reveals the way “the rules of the game make fundamentally different arguments about land ownership” (53). These arguments may or may not be intentional, but they are nonetheless there and are communicated during the act of play. The interactivity required for play “can produce an effective procedural enthymeme”, a technique “in which a preposition in a syllogism is omitted [...] the listener [...] is expected to fill in the missing proposition and complete the claim” (43). Although a procedural argument doesn’t come right out and tell you its argument orally, visually or texturally, it nonetheless communicates it through your interaction with the game’s system of play, allowing a keen player to complete its claim. That being said, *The Landlord’s Game* isn’t the pinnacle of procedural rhetoric. It does, however, highlight how, firstly, a game can communicate an argument through its units and rules, and secondly, how changing the units and rules can communicate a subtlety, or completely different argument. Using this concept we can

then extrapolate that if a game's units and rules create gameplay, which we have established communicates the game's story through a dynamic, emergent plot, then changing the game's units or rules will tell the story differently.

A game's plot is dynamic because unlike linear plots, the plot generated by a game's system of play is actually a space of plot possibilities constrained by the play possibilities afforded by the game's units and rules. For example, *The Sims* is considered a powerful example of a game that lets players "author" their own stories. In actuality, what players create is a version of a specific kind of story: a story about suburban life, friends, love, marriage, getting a job, having a child, etc. *The Sims*' system of play provides the building blocks necessary for a player to create their own version of this story, but they're limited to the story the system provides. They can't create a story about a Sim (an inhabitant of *The Sims*' simulated world) giving up his meaningless, commercialistic life, moving to India, joining an obscure religious sect and living out his dream of an ascetic life ... until one day Carla (from back home) finds him and begs him to please! please come home! The reason players can't author this particular story is because the building blocks that *The Sims* provides the player do not include these potential story events. The "story" of *The Sims* is pre-defined by the game's mechanics, by the system's units and rules, and what a player does when playing *The Sims* is create one of the virtually infinite, yet pre-defined, dynamic, emergent plots afforded to them by the game's system of play.

## Conflicts and Coherence in Dynamic Plot

The effect a game's system of play has on its generated plot can most readily be seen when considering instances where gameplay and story are in conflict with one another. In *Grand Theft Auto IV* (*GTA IV*), a game series renown for its attempts at telling stories, one such conflict arises when the player chooses to go on a date with one of several female characters. During the date, it's perfectly acceptable to hold a grenade in your hand without so much as stirring up an interesting conversation. This bit of inanity is an extreme example of a gameplay mechanic being incoherent with the story that the game is trying to tell. Whereas the story wants you to feel that you are on a date, the mechanics surrounding weapons never take this into account and cause there to be the possibility for a ridiculous situation. This incoherence has a (narratological) function in the game's generated plot, mainly allow the *potential* for the introduction of inanity into the narrative experienced by the player during play (whether the developers intended it or not). Referring back to Barthes, every function, "to varying degrees, signifies [...] even when a detail seems irreducibly insignificant, refractory to any function, it will nonetheless ultimately have the meaning of absurdity or uselessness" (104). What this mechanic in *GTA IV* does to its tacked-on-story is highlight the fact that the story is just tacked onto the game. Although it may be post-modern, it's ultimately ruinous in a game attempting to seriously tell a story.

When a game's units or rules do not coherently reflect the story, they ultimately take on the meaning of absurdity, uselessness or plain old cheesiness. This experience resonates negatively in the player, causing a persistent friction that lowers the player's enjoyment and works against the player's feelings of immersion and agency.

The above example suggests two things. First, a game's units and rules become meaningful when experienced through play whether the designer intends that meaning or not. Secondly, *coherence* is an important factor in making game mechanics that harmoniously reinforce and enrich the story being told. Coherence can be simple, as in making sure that the units and rules in a World War II themed game somewhat accurately reflect the peoples, places and weapons that a player would expect to experience during World War II, at least in such a way that it does not break the player's sense of immersion. I will hazard a guess and say that most game designers are already skilled at implementing this kind of coherence into their games. What game designers often lack, however, is the skills and knowledge to implement units and rules that are coherent in such a way that they enhance the way a game's story is told.

## Story-Coherent Gameplay in *BioShock*

An example of this second kind of coherence, story-coherence, can be found in *BioShock* (2K Games). The relationship between two non-player characters that populate the levels of *BioShock*, the Little Sisters and the Big Daddies, is an important part of *BioShock*'s story. This relationship is made evident through some of *BioShock*'s core mechanics, mechanics that players cannot avoid if they want to become strong enough to progress in the game. The coherence established by these mechanics is a visceral way to showcase the Big Daddies as protectors and demonstrate their unyielding dedication to the safety and wellbeing of the Little Sisters.

Firstly, the Big Daddy initiates the Little Sister's entrance into the level by banging on the Little Sister's tunnel, waking her and eventually coaxing her out; after some time, the Little Sister will lead her Big Daddy back to a tunnel where he will then offer his body as a stepping stool so that she can climb back into the tunnel. That's to say, a Little Sister can't enter or exit a level without her Big Daddy. Secondly, the Big Daddy will always follow his Little Sister no matter where she goes. Thirdly, the Big Daddy will threaten and even knock away any player or non-player character that gets too close to his Little Sister. Fourthly, the Big Daddy will attempt to kill any player or non-player character that physically tries to harm his Little Sister. Lastly, you *must*

kill the Big Daddy in order to get to the Little Sister at all; it isn't just a matter of distracting him or separating the two, the Big Daddy must die.

These mechanics can be described as simple rules in the game:

- 1) A Little Sister cannot enter or exit a level without a Big Daddy.
- 2) A Big Daddy will follow his Little Sister.
- 3) A Big Daddy will threaten and push anyone that scares his Little Sister.
- 4) A Big Daddy will attempt to kill anyone that tries to harm his Little Sister.
- 5) The player can not interact with a Little Sister until her Big Daddy is dead.

These rules are coherent with the game's story; they reinforce the fact that the Big Daddies and the Little Sisters have a close relationship. Without saying it orally, textually or visually, these rules procedurally communicate a strong relationship between these two units, reinforcing the story that the game is trying to tell. This communication, this transference of meaning, this storytelling occurs dynamically during gameplay.

A way to look at this dynamic is to say that the above game rules correspond to dynamic plot functions. To name them as Barthes would, the first rule could be Entrance and Exit, the second could be Ambulation, and so on. Each of these functions is composed of sub-functions, such as Cower, Forewarn and Requit—when the Little

Sister gets scared, the Big Daddy warns you and then pushes you back—and together as a whole they create what Barthes would call a sequence: “a small group of functions [...] a logical succession of nuclei, linked together by a relation of solidarity” (Barthes 114). These procedural sequences representing the comings and goings of Big Daddies and Little Sisters—each function and sub-function within them—serve to reinforce their relationship. If the Little Sister could come and go as she pleased, if the Big Daddy walked randomly around the level, if the Big Daddy’s defence of the Little Sister was programmed as an “on/off” behaviour, or if it was possible to get to the Little Sister without killing the Big Daddy, there would be far fewer opportunities for the player to observe and emotionally react to their relationship beyond the “interactive” cut-scene that introduces them when you first enter the city of Rapture.

In no way am I attempting to say that the above game rules are the same as the narratological functions they afford, or that all game rules should be viewed as narratological functions. Rather, I am pointing out that these particular rules procedurally create what can be analyzed as narratological functions within the game’s generated, dynamic plot. Game mechanics and plot functions are not the same, but it’s clear that the latter can emerge dynamically from the former. The visual representations and animations associated with these rules may be pre-scripted, but the what, when and how of these plot functions are generated dynamically by the

game's system of play and by the actions of the player. They may be experienced in a virtually infinite number of ways, but the intangible "story" being told by these game mechanics, the core that can be told an infinite number of ways, remains the same. Every player of *BioShock* experiences the same relationship between Big Daddies and Little Sisters.

Narrative engineering, then, is the process of purposefully and deliberately manipulating a game's units and rules to create dynamic plot functions that serve to coherently reinforce the game's core story. It entails looking at the story and the game in harmony, and designing mechanics that are mindful of what the story is trying to say. To give an example that's applicable to mainstream AAA titles, let's assume that the game's mechanics allow the player the freedom to attack defenceless non-player characters (NPCs) while fighting off an enemy of some kind, but that innocent deaths are undesirable to the game's story. A typical solution would be to create a simple AI (artificial intelligence) system that has the NPCs run away when attacked; and to prevent deaths, they could be made impervious or resistant to player attacks. These mechanics create the desired functionality, but in no way do they reinforce the story.

A better solution would be to engineer game mechanics that create dynamic plot points that instil a sense of sympathy in the player, ideally giving the player the desire

to avoid harming the NPCs and to even safeguard their lives. Instead of a simple “run-away” AI system, one could develop an AI system that drives various dramatic scenarios (plot sequences) that ideally create a sense of empathy towards the NPC’s plight. One sequence could be a mother running towards her children, crouching into an embrace to protect them. Another could be of a man calling out to and ushering others into a shelter while standing vigilantly at the door. It’s important to realize that these are not pre-scripted events that occur at set locations; rather they are scripted AI behaviours that dynamically occur when certain pre-conditions are met. For instance, if a parent dies in the open while a child is hiding somewhere, the child could run out into the open and cry over the body. If another adult is nearby, he or she could run out into the open and attempt to scoop up the child to take it out of harm’s way.

I apologize for the gruesome nature of these examples, but they do serve to reinforce my point. These dynamic, gameplay driven NPC behaviours create plot sequences that ideally enhance the player’s sense of sympathy towards the NPCs. They will not occur in the same way or at the same time, or even necessarily end the same way every time. However, all reinforce the story. It isn’t a matter of creating more “realistic” situations, or AI with “real” feelings, but rather (in this one particular case) to see AI sophistication as a means to deliver dramatic experiences that enhance the story being told. Furthermore, if the player chooses to harm the NPCs despite these

heart-wrenching scenes, then that is the player's prerogative as an agent in the story.

Some players will play antagonistically, just like some readers will read the last chapter of a novel before the first. But if these sequences are well developed, the majority of players will ideally experience what a game is designed for them to experience, and this will in turn affect the way they play the game. It's here that we see the value of a good writer, someone who knows how to create emotion in an audience, and the value of thorough playtesting.

## Conclusion

This paper began with the innocent question: do games tell stories? In examining the oppositions of narratology and ludology, a trend towards the “middle ground” highlighted the approach that would be necessary to tackle the issue of games and stories. The dichotomies that surface when examining this middle ground boil down to a question of objectivity vs. subjectivity. However, the halves of this binary are not truly irreconcilable and can in fact be mutually reinforcing. To explore this further, a brief history of narratology served to highlight the structuralist quest for the union of another incarnation of the object/subject binary: form and content. The culmination of the structuralist method came to influence Barthes’ early theories on narrative and plot. With the opposition of form and content dispelled, it was finally possible to apply this thinking to the question of narrative and plot in games, or more specifically, of how games convey their stories. It was found that games create narratives through play. Since plot, the way a story is told, is a necessarily present when narrating a story, then to play a game is to experience a dynamic, emergent plot. That’s to say, games generate a dynamic plot that emerges through gameplay. Since gameplay is the expression of a game’s system of play, this dynamic plot, then, is an expression of the game’s units and rules. It follows, then, that it should be possible to manipulate this dynamic plot by engineering, fine-tuning and deliberately and purposefully adjusting the constituent parts of a game’s system of play. Players may be free to exert their

agency on the game's world, generating a particular 'linear' plot during their play experience, and it's also true that this particular plot will be different from every other plot generated by the game's system of play; however, this in no way inhibits a game from telling a concrete story without recourse to text, dialog and cut-scenes.

Games do tell stories, and if this is true, then it's also true that it's possible for game creators to tell stories better, to create games that avoid conflicting messages or meanings, that more deeply engage, persuade or move the player and that ultimately bring us closer to a new age in digital storytelling.

## Works Cited

- Abrams, M. A Glossary of Literary Terms. Fort Worth: Harcourt Brace College, 1999.
- Barthes, Roland. "Introduction to the Structural Analysis of Narratives". The Semiotic Challenge. Berkeley: University of California Press, 1994.
- Bogost, Ian. Persuasive Games. Cambridge: MIT Press, 2007.
- . Unit Operations. Cambridge: MIT Press, 2006.
- Caillois, Roger. Man, Play and Games. Glencoe: Free Press, 1961.
- Erlich, Victor. "Russian Formalism." The New Princeton Encyclopedia of Poetry and Poetics. Ed. Alex Preminger and Terry V. F. Brogan. Princeton, New Jersey: Princeton University Press, 1993. 1101-02.
- Foucault, Michel. L'Archéologie du savoir. Paris: Éditions Gallimard. 1969.
- Goffman, Erving. Encounters: Two Studies in the Sociology of Interaction. New York: Penguin, 1972 (1961).
- Jenkins, Henry. "Game Design as Narrative Architecture". First Person. ed. Wardrip-Fruin, Noah and Pat Harrigan. Cambridge: MIT Press, 2004.
- Juul, Jesper. Half-Real. Cambridge: MIT Press, 2005.
- Lévi-Strauss, Claude. Structural Anthropology. Chicago: University of Chicago Press, 1983.
- Mateas, Michael. *Interactive Drama, Art and Artificial Intelligence*. Ph.D. Thesis. Technical Report CMU-CS-02-206, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA, 2002.
- Murray, Janet. Hamlet on the Holodeck. Cambridge: MIT Press, 1998.
- Nolan, Christopher et al. Momento. Summit Entertainment. 2000.
- Salen, Katie and Eric Zimmerman. Rules of Play. Cambridge: MIT Press, 2004.

## Ludography

Bushnell, Nolan et al. Super Breakout. Atari, Inc. 1976.

Darrow, Charles. Monopoly. Parker Brothers. 1935.

Kitase, Yoshinori et al. Final Fantasy VII. Square. 1997. (PlayStation)

Lashley, Simon and Keith McLeman et al. Grand Theft Auto IV. Rockstar Games. 2008. (Xbox 360)

Levine, Ken and Paul Hellquist et al. BioShock. 2K Games. 2007. (Windows)

Miyamoto, Shigeru. Super Mario Bros. Nintendo. 1985. (NES)

Wright, Will et al. The Sims. Electronic Arts. 2000. (Windows)

