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Narrative, Games, and Theory

by Jan Simons

What Ball to Play?

During the last quarter of a century, narrativity has been a key concept in the humanities. Whereas in earlier centuries the world was thought of as a stage, in the last quarter of the twentieth century it was conceived as a text woven by the narrative threads human beings read in it in their efforts to make sense of their perceptions and experiences. As Roland Barthes wrote, "narrative is international, trans-historical, trans-cultural: it is simply there, like life itself" (Barthes, 1977). Narrative became generally considered as the core pattern for cognition, comprehension and explanation and as the most important tool for construing identities and histories. The "linguistic turn" (Rorty 1992) in the humanities was a narrative turn as well.

This predominance of narrative in the humanities is no longer uncontested. In the late 1980s and early 1990s hypertext theoreticians claimed that interactive, computer based media would bring "a textual medium of a new order..., the fourth great technique of writing that will take its place beside the ancient papyrus roll, the medieval codex, and the printed book" (Bolter, 1991). Whatever kind of "textuality" new media might bring, it was certainly bound to be different from narrative-as-we-knew-it (see Landow, 1994). Nowadays scholars of games studies argue that narrative theory is no longer appropriate to cope with the forms and formats of new media. These scholars call for a new paradigm that provisionally has been baptized "ludology" (Juil, 2001; Frasca, 1999; Eskelinen, 2001).

In their efforts to carve out a niche on the already highly varied and constantly changing palette of the humanities ludologists don't shun strong language. They accuse narratologists of "imperialism," "academic colonialism" and "story fetishism" (Aarseth, 2004; Eskelinen, 2004) and ludologist Eskelinen pokes fun at narratologists: "Luckily, outside theory, people are usually excellent at distinguishing between narrative situations and gaming situations: if I throw a ball at you, I don't expect you to drop it and wait until it starts telling stories" (Eskelinen, 2004).

If there is still anybody waiting, it must be for Eskelinen to explain the point of this stab at narratology. Narratologists will be happy to explain to him the difference between the act of throwing a ball and the act of *recounting* that (f)act. Because in the heat of the debate ludologists sometimes seem to have lost sight of such subtle distinctions their arguments against narrative and narratology have often been unnecessarily unconvincing. Their arguments are ideologically motivated rather than theoretically grounded, and don't hold up against closer scrutiny. Although the storm raised by this debate seems have withered away after Frasca's confession that "ludologists love stories too" (Frasca, 2003a), the issues at stake seem to have been blissfully ignored rather than resolved, as testified by the occasional outburst of anti-narratologism (see Aarseth, 2004). Therefore, it might not hurt to take one more look into this matter.

External Observers versus Immersed Players

According to ludologists, the major difference between games and narratives is that the former address "external observers" who apprehend "what has happened," whereas the latter require "involved players" who care about "what is going to happen" (Frasca, 2003b). Reader-response researchers and

film theorists have argued time and again that readers and film spectators experience events narrated in novels and films as if they occur in the present, and anyone who has ever seen a Hitchcock movie knows that film spectators are very much concerned about "what is going to happen." What Frasca sees as a categorical distinction is merely a matter of perspective. As cyber-text theorist Mary-Laure Ryan writes:

When we compose a narrative, especially a narrative based on memory, we usually try to represent "how things came to be what they are," and the end is prefigured in the beginning. But when we read a narrative, even one in which the end is presented before the beginning, we adopt the outlook of the characters who are living the plot as their own destiny. Life is lived prospectively and told retrospectively, but its narrative replay is once again lived prospectively (Ryan, 2001).

A ludologist would argue that a reader or film spectator nevertheless always knows that the story will come to an already determined end. But this too is a merely psychological and phenomenological matter. A reader or a film spectator who is engaged with and cares about the characters does not experience stories very differently from games. As Patrick O'Neill observes:

For the internal actor/participant it, [the story world] reveals itself as a world that is entirely provisional, fundamentally unstable, and wholly inescapable. In considering the implications of this statement, we find much to support the contention that... narrative is always and in a very central way precisely a game structure, involving its readers in a hermeneutic contest in which, even in the case of the most ostensibly solid non-fictional accounts, they are essentially and unavoidably off balance from the very start (O'Neill, 1996).

Moreover, most game players also know that a game will come to an end, often within an already fixed time limit. In case they might forget, their computer screen is clogged with watches, clocks, bars and other devices that keep them aware of this. Even in persistent gameworlds like *Everquest*, where the game never stops and in which there are no clear winners and losers, "many in-world activities actually have finite goals with predetermined methods of completion, such as quests," whereas in roleplaying games the implicit goal is to acquire sufficient "stats" to reach a new level (Klastrup, 2003). Therefore, persistent gameworlds can be described as games of emergence with "minor 'games of progression' embedded" (Klastrup, 2003; see also Juul, 2003a).

Moreover, game players also know that whatever happens to their avatars in the gameworld, nothing nasty will happen to them. And, more importantly, to an "external observer" game players often behave like characters in a story, not only because the sequence of signs produced by a film of a plane landing and a flight simulator "look exactly the same" (Frasca, 2003), but rather because to an external observer it often becomes obvious that the courses of action open to the player are scripted into the design of the game. Michael Mateas, for instance, notices:

By watching many players interact with the system, the observer has begun to discern the devices that control the plot in the face of player interaction. This observer will conclude that the player has no true agency, that the player is not able to form any intentions within the dramatic world that actually matter. But the first-time player within the world is experiencing agency. The designer of the dramatic world could conclude - because they are designing the world for the player, not for the observer - that as long as the player experiences a true sense of interactive freedom (that is agency) transformation as variety is not an important design consideration (Mateas, 2004).

The trick of the trade of game design is indeed to make the player *believe* she is in control. Moreover, as Lisbeth Klastrup argues, performances by players in interaction with each other and virtual gameworlds give rise to "tellable

events," "which would retrospectively make good stories" (Klastrup, 2003). Klastrup suggests to speak of "the experience of interaction-in-time, a series of effective interaction events that are naturally connected" (Klastrup, 2003) - an appropriate rephrasing of Aarseth's concept *ergodic* - as "*story-living*" (Aarseth, 1997). This also convincingly shows that the differences pointed out by ludologists between a reader or spectator of narrative and a game player are a matter of perspective rather than principle.

By emphasizing the importance of the player's gaming experience ludologists seem to want to say that to understand games one needs to have hands-on experience with games. This requirement would safeguard games studies from intrusions by narratologists, but it reveals itself as a fallacy when one applies it to narratologists. After all, only few narratologists write novels or make films, art historians usually don't make paintings or design buildings and novelists, filmmakers, musicians, artists or architects are usually not very articulate when it comes to theorizing their practices. The same applies to readers, film buffs and art lovers who often accuse theorists of "destroying" the pleasure of the artwork. There is some truth in this complaint, because readers or spectators who are fully engaged with a story are usually not in the best position to reflect on its structural and functional properties. The same goes for game players. Readers, film buffs, art lovers, and passionate game players tend to confuse the experience of their beloved objects with a theory thereof, a lesson that some ludologists apparently have not yet learned.

Another example of over-theorizing experiential aspects of gameplay is the attempt at categorizing narratives as examples of "representation" and games as examples of "an alternative to representation and narrative: simulation" (Frasca, 2003b; see also Aarseth, 2003). According to Frasca, narrative representations produce "descriptions" of traits and sequences of events while a simulation "does not simply retain the - generally audiovisual - characteristics of the object but it also includes a model of its behaviors" which "reacts to certain stimuli (input data, pushing buttons, joystick movements), according to a set of conditions" (Frasca, 2003b).

The differences between representations and simulations are less straightforward, however. For one thing, many narratologists would object to a characterization of narrative as a "description" of traits and events. Gérard Genette distinguishes the "the representations of actions and events," - "the properly narrative parts of a story" - from "representations of objects and characters, which belong to what one nowadays calls *description*" (Genette, 1969). According to Genette, *narration* is concerned with the "temporal and dramatic" parts of a story, whereas *description* "suspends time" and "displays the story spatially" (Genette, 1969). Genette admits that there are no clearly marked boundaries between narration and description, but the distinction at least has the merit of reminding that narratives are too complex to be subsumed under a single label.

The same goes for simulation. Whatever textual or audiovisual narrative representations retain from characters, actions and events, these certainly are "models of their behaviors." The way the characters of a story speak, move and act is constrained by physical laws, biological features, psychological traits, historical circumstances, cultural conventions and the cosmology of the universes concocted by authors, scriptwriters and filmmakers, as much as computer-generated simulations are constrained by the algorithms written by the designer of the model. Moreover, one doesn't need joysticks, buttons or other input devices to feed a model with variable parameters or "conditions." In its technologically simplest form a simulation can be run in the mind by imagining a certain situation (e.g., "throwing a ball at a narratologist"), feeding this situation imaginarily with certain conditions (e.g., "balls can talk"), and then see what happens ("narratologist waits until ball starts telling stories"). Languages even have syntactical constructions for thought experiments like these, known as conditionals, counterfactuals or hypothetical constructions (e.g. Fauconnier, 1994).

Neither is it necessary that a simulation can be interactively manipulated in real time. In computer simulations of evolutionary processes, for instance, scientists define the ecology's ontology and the algorithms of its reproduction and selection process, and then wait and see what happens when the program runs up to thousands of reiterations. In such simulations the role of the scientist is confined to that of the external observer who analyzes, interprets, and reports after the fact. Not all simulations are like flight simulators.

Narratives, on the other hand, provide excellent platforms for thought experiments and simulations of "models of behavior." Narratives allow the exploration of (or speculation about) what would or could have happened under even slightly different conditions (the size of Cleopatra's nose). In his novel *The Plot Against America* (2004), Philip Roth examines what might have happened if the Americans would have elected a president who sympathized with Nazi-Germany in 1936 and in his film *Red Dawn* (1984) John Millius explores what might have happened if the Soviet Union had invaded the USA. Historians have recently begun to explore the explanatory powers of "virtual history." This approach of history is interested in what might have happened if decision makers in the past would have weighted their chances differently from how they did actually. As Nial Ferguson (1997) writes, the counterfactual scenarios of virtual history are not mere fantasy: "They are simulations based on calculations about the relative probability of plausible outcomes in a chaotic world (hence 'virtual history')."

Virtual historians build models and explore alternative narratives just as players of one of the *Close Combat* (Atomic Games) games replay crucial episodes of World War II to explore the consequences of alternative strategic choices on the part of the war commanders (Atkins 2003). More generally, narratives often serve as a means to explore the future. As Edward Branigan (2006) argues:

One of the purposes of seeing and perceiving narratively is to weigh how certain effects that are desired may be achieved, how desire is linked to possibilities for being, how events may proceed. In this way, perceiving narratively operates to draw the future into desires expressed in the present as well as demonstrates how the present was caused by the past and how the present may have effects in the future (p.32).

When trying to look ahead, game players probably weigh the outcomes of the alternative choices they are confronted with "narratively," too. These narratives constitute a domain that narratives and games have in common rather than that it sets them apart.

Much depends, of course, on your definitions of narrative and simulation, which, in turn, depend on the language game you're in and the moves you want to make. More often than not, however, academics seem to be unaware of the "gameness" of their work and tend to overlook that terms and definitions are provisional and constantly changing labels for sets of assumptions, tentative descriptions, local theories, wild speculations, bold hypotheses, metaphors, pragmatic inferences, etc. The proposed distinction between representation and simulation is itself a good example of how categories and definitions are set up strategically in an attempt to re-model the playground of the humanities.

This also applies to terms like "narratology," "narrative," "narration," "representation," "text" and "discourse." Narratologists might agree that a narrative is a sequence of causally and chronologically linked events, but, when it comes to filling in the details, opinions differ.

There is not even a general agreement on what counts as a narrative (e.g., is the sentence "the king died and then the queen died" a story and why is it, or why not?), where a narrative is located (in the text, in a story world, in the mind of the reader or spectator?), on the purpose of narrative and many other basic questions. Others, like Gérard Genette argue that narrative is not what is narrated, but the act of narration (Genette, 1983), which opens up a quite different area of research that is concerned with levels of

narration, focalization, perspective, enunciation, etc. Moreover, events, whether historical or fictional, actual or virtual, are not intrinsically narrative or non-narrative but they become stories because someone deems them "tellable" (Ryan, 1991) and perceives or construes them as causally and chronologically connected (which is the point of the previously mentioned sad example of the royal deaths).

It does not make much sense to dismiss narratology wholesale and to propose alternatives like "simulation." Games studies scholars have already admitted that the boundaries between games and narrative are not very clear-cut, that narrative often plays a significant role in games (as expository introductions, as "non-playable" parts in the form of cut-scenes, as background information, or as report-after-the-fact - see Jenkins (2004). Gonzalo Frasca (2003a, p.92) even declared that "ludologists love stories too" and referred to the game-story controversy as "a debate that never took place." The main problem with the ludologists' strategy is that it keeps them trapped in the language game of the humanities. In order to avoid this trap, a different move is required that introduces a new game altogether.

"Gameness" and Game Theory

One explanation for the rivalry between ludology and narratology is that they are siblings. Both are firmly rooted in the humanities and therefore tend to consider narratives and games primarily as fictional symbolic artefacts. Narratologists tend to consider novels and fiction films as prototypical examples of narrative, and games studies scholars generally follow Johan Huizinga and Roger Caillois by setting games apart from "serious" activities (Huizinga, 1997; Caillois, 1958). However, just as narrative is not confined to fictional discourse, games are not always fictional either.

There is another tradition in the study of games for which this question is a non-issue. Rather, this tradition is very much interested in games with outcomes that have very serious non-negotiable consequences. This tradition comes from mathematics and has found its way into research areas such as economics, political sciences, physical sciences, biology, psychology, law and the philosophy of ethics. But although it goes under the name *game theory*, one will hardly ever find the names and works of John von Neumann and Oskar Morgenstern, John Nash, John Maynard Smith, Robert Axelrod or William D. Hamilton in the indexes and bibliographies of games studies publications. A game theorist who, out of curiosity, would browse the indexes of games studies publications and who would notice the absence of terms like "payoff," "utility," "equilibrium," "minimax," "zero-sum game," "dominance," "mixed strategies," "perfect information," etc, will certainly be puzzled about what games studies is actually all about.

Game theory and games studies obviously hardly ever met [1]. Therefore, the term "game theory" will be used here to refer to the mathematical approach of games, and "games studies" to refer to its humanities based counterpart. This terminological distinction captures some major differences between game theory and games studies. The singular noun "theory" points towards a unified, mathematical approach to games. It is not a singular encompassing body of assertions about games, but it is a label for a unified mathematical methodology for modelling the situations, processes and events game theorists want to explore. The plurals in "games studies," on the other hand, express the vast and heterogeneous multitude of approaches, disciplines and methodologies (except those of game theory, that is) games studies scholars bring to bear on the study of a wide collection of types and genres of (mostly) computer games. The singular "game" and the plural "games" that precede "theory" and "studies" are meant to stress the different conceptions both domains have of their research objects. For game theory, a game is any situation in which two or more decision makers interact (Osborne, 2004) and game theory "the study of multiperson decision problems" (Gibbons, 1992). These include the "competitive and rule-based activities" usually meant by the word "game" in

everyday language and by games studies scholars, but they also extend to economic competition, political campaigns, military strategies, arms races, animals fighting over prey, biological evolution, the role of rewards and punishments in long-term relationships, coordination problems, conflicts of private interest and public good, etc. As J. D. Williams writes, "we then call any conflict a game when we are considering it in the light of the theory" (Williams, 1982). A game, then, is not a game because it has some set of features that jointly guarantee its gameness, but because it can be modelled by game theory.

Most of these situations are not separate from, but part and parcel of everyday life, and most of these situations have no clearly defined rules, agreed upon outcomes or fixed values attached to them (quantifying the "utilities" of the players is one of the most difficult and speculative aspects of game theory). The situations that game theory studies have in common are those in which decision makers try to act in such a way that they will get the most out of it, taking into account the actions of other decision makers that influence the outcome. In this conception of a game, rules are less important than goals and strategies. Game theory is not even interested in the particular nature of the strategies available to the players, but it reduces situations in which decision makers are involved to the "normal-form representation" of games. This is a matrix that lists the payoffs for every combination of strategies the players can deploy. This normal-form representation abstracts away from many of the factors operative in their real world counterparts, so one could say that game theory reduces all sorts of situations to a single form: the payoff matrix. This justifies the singular "game" as the name for the object of game theory [2].

Ironically, games studies scholars are more concerned with "gameness" than game theory theorists. This is because they wish to set games and gameplay apart from ordinary and "serious" activities, as well as from other cultural artefacts. If one plays by the rules of academia, the carving out of a special niche for games studies requires the identification of a set of features that is at the same time common to all and exclusive for all things "gameness." Given the enormous variety of games that games studies scholars study this is a tantalizing task. The number of objects considered as candidates for membership in the category "games" will always exceed the boundaries drawn by theoretical and always soon to be revisited definitions of "gameness." And features like "negotiable consequences," "rules," "not serious," etc. exclude a great number of situations that game theory is most interested in. Therefore, the object of games studies is best referred to with a plural.

Game theory is much more interested in the interactions of decision makers than in those of definition makers, and game theorists would certainly not understand why games and narratives should be situated opposite of one another. On the contrary, many examples in game theory come from myths, legends, stories, riddles, paradoxes and dilemmas transmitted by narratives. Game theory's most famous example, the so-called "prisoner's dilemma," only caught the attention of the wider scientific community when it was "dressed up" as a story by Albert W. Tucker in a letter to game theorist Melvin Dresher (Poundstone, 1992; Mehlmann 2000). It should come as no surprise that game theorists "love stories too" because stories are often about characters who face difficult decisions, impossible moral choices and conflicts with rivals. The conflicts, strategic calculations and fortunes and misfortunes narratives abound with are the stuff of the "mathematics of conflict" (Mehlmann, 2000) because readers, spectators and game theorists alike are confronted with questions like: "What would you have done?"; "What was the best way to act?"; "What *should* the heroine have done?" (The questions raised by "virtual historians").

Paradoxically, game theorists love stories for the reasons ludologists renounce them. According to ludologists, games and stories belong to different categories, because, as Juul argues and Aarseth concurs, the plot of

a story cannot be extracted from a game based on that story, while in the inverse translation from game to story the rules of the game get lost (Juul, 2001; Aarseth, 2004). Aarseth concludes: "So, although non-narrative and non-ludic elements can be translated [setting, atmosphere and characters], the key elements, the narration and the gameplay, like oil and water, are not easily mixed" (Aarseth, 2004).

For ludologists like Juul and Aarseth a plot makes a story and rules make a game, and never the twain shall meet. Moreover, ludologists argue that game players do not identify with their avatars in the gameworld as readers or spectators of a narrative do with the main characters of a story. To illustrate this point, Aarseth quotes Mary-Laure Ryan:

Interactors would have to be out of their mind--literally and metaphorically--to want to submit themselves to the fate of a heroine who commits suicide as the result of a love affair turned bad, like Emma Bovary or Anna Karenina. Any attempt to turn empathy, which relies on mental simulation, into first-person, genuinely felt emotion would in the vast majority of cases trespass the fragile boundary that separates pleasure from pain (Ryan, 2001a).

"What player," Aarseth asks, "would actually commit suicide, even virtually?" (Aarseth, 2004) This is an odd question coming from a scholar who works in a discipline that studies games like *Half-Life* (Valve Software, 1998), *Carmageddon* (Stainless Games, 1997) and *Grand Theft Auto* (DMA Design, 1997/1998) in which players crash cars, run over, beat-up and shoot other players and happily and voluntarily run the risk of being virtually mugged, crashed or shot themselves. This obviously is an argument of the storytelling ball kind. Many games actually are designed to make at least one of the players meet her virtual death (e.g., chess, checkers, poker, *Pacman* (Namco, 1979)) and there are single-player computer games that never can be won by the human player but have been and still are hugely popular (e.g., *Tetris*). Moreover, Emma and Anna were not driven to their deaths by a merciless plot; their deaths were the consequences of the unfortunate choices they and others made in their lives. It is rather the awareness that they *could* have made different choices that makes *Madame Bovary* (Flaubert, 1857) and *Anna Karenina* (Tolstoy, 1877) such compelling literature. Emma Bovary and Anna Karenina are just less fortunate players in the game of life whose fates are recounted in the novels that bear their names.

Moreover, nothing precludes the behaviour of story characters to be rule-based. The plot versus rules distinction is simply a non-starter, as has already been amply demonstrated in practice by games like *The Sims* series (Wright, 2000) which are designed to let stories emerge and to have players empathize with characters, and RPGs and MMORPGs in which "tellable events" emerge from the interactions of the players (Klastrup, 2003). Conversely, game theoretical examples can perfectly well constitute the basis of engaging narratives as is the case in the films of Lars von Trier which can be described as an infinite series of reiterations of the Prisoner's Dilemma (Simons, 2007).

For game theorists, however, the plot versus rules distinction is beside the point, since game theory does not assume that rules are a necessary part of a game. In fact, John von Neumann's interest in game theory was triggered by the "unruly" behaviour of poker players, who deceive, bluff, second-guess and use an almost infinite repertoire of methods to mislead the other players. Although poker players do all this within a framework of rules, the rules of poker are silent about these deceptive strategies. For games like the nuclear arms race, the prisoner's dilemma, the setting of prices in a competitive market or the choice of a position on a left-right scale in a political election campaign there are no rules either. In situations like these there are only players who prefer certain outcomes to others, and who have a set of strategies at their disposal. These actions are not defined by rules, like in soccer or chess, but follow from the particular situation and the

players' preferred outcomes.

When you are stuck in a thermonuclear conflict, or try to get an advantage over your competitor in a market, throwing a ball is in game theoretical terms not a very rational act. In fact, arms races and economic competition have no rules from which the actions of the opponent can be derived: only by asking yourself what you would do when you were in your opponent's position and would prefer the outcome you assume your opponent prefers, you may second-guess your opponent's moves. Game theory is neither concerned with constitutive rules that define an activity that otherwise could not exist nor with regulative rules that govern pre-existing activities (the traffic code, for instance) (Searle, 1969). For game theory, the former are part of the constraints on the strategies of players, and the latter are equilibriums reached by the interactions of decision makers (once it is agreed that drivers should keep to the right or to the left, no drivers would do better by choosing the opposite side or by randomizing their choice).

Game theory is not interested in rules but in reasoning. After all, every multiplayer strategic game is a mind game because players play against what they believe other players believe they believe (Osborne, 2004). Rules can be a part of that reasoning but they are not always necessary and almost never sufficient since a players' strategic choices may be constrained by rules but are not necessarily derivable from them. For game theory, the role of rules is rather limited and they are certainly not part of the core of "gameness." Games that leave players only choices as specified by or derivable from their rules are for game theorists trivial: once you know the correct way to play such a game, it becomes as predictable as ticktacktoe [3].

Whatever else may set narratives apart from games, it is not the absence or presence of action- or event-generating systems like rules or algorithms, because games are not necessarily always rules-based, and because actions- and events-generating engines exist in stories as well where they go by names like duty, desire, beliefs, intentions and other intentional states that motivate or govern the behaviour of characters.

Game Theory and Narrative

For game theory, the difference between a narrative and a game is merely a matter of perspective. Both game theorists and narratologists use the term "histories" to refer to the sequences of actions and events that make up a game and a narrative respectively (Osborne, 2004). Of course, games and narratives cannot be reduced to action sequences alone, and both the study of games and the study of narratives comprise more than the logic of actions and events sequences. Game theory does not deal with games as cultural artefacts or commodities brought into global circulation by the entertainment industries, or as platforms for exploring questions of identity and sexuality, which are all part of the cultural studies approaches to games, but neither do narratology or ludology. The interests of game theory and narratology converge at the level of history or story the interests of game theory and narratology. This is, however, precisely the level where ludologists locate the differences between narrative representations and simulations.

At first sight, narratologists and game theorists take a different perspective on histories. In order to reconstruct the causal and chronological chain of events that constitutes a narrative narratologists distinguish between events that are necessary for the development of the story and those that can be deleted without destroying its coherence and comprehensibility. Roland Barthes called the former "cardinal functions" or "kernels" (Barthes, 1979b). As Seymour Chatman writes: "Kernels are narrative moments that give rise to cruxes in the direction taken by events. They are nodes or hinges in the structure, branching points which force a movement into one of two (or more) possible paths" (Chatman, 1978). In order to identify these kernel events, a narratologist must identify a story's ending and then reason

backwards in order to establish which events must have occurred in order to make the occurrence of later events possible. The narratologist's take on a story is hence retrospective (as is the narrator's and historian's perspective, because in order to be able to tell a story or to identify the beginning of a historical development, one has to know how it ended (Danto, 1985; Martin, 1986)).

The point-of-view of the game player on the other hand, games studies scholars argue, is prospective because for the gamer the outcome of the game is still hidden in the future. As they argue, the game player still has every chance to influence the outcome of an ongoing game. But, again, this distinction confuses the phenomenological experience with a theoretical perspective. More precisely, it confuses the temporality of a sequence of events with its logical structure. How a particular game will end may be unknown to the players but for most games it is quite clear in advance which outcomes are possible and which are not. This applies to many games in the limited, everyday sense of the word but also to interactions between decision makers in which things are more complicated. In zero-sum games, for instance, there is a clear winner and a clear loser, and the winner's gain is the loser's loss. But of many non-zero-sum games with less clearly defined outcomes the possible outcomes can also be calculated and represented in advance (that's the whole point of game theory). The so-called "normal-form" representation of a simple, symmetric two-player two-strategy non-zero-sum game like the prisoner's dilemma is a bi-matrix in which the boxes contain the payoffs of both players for each combination of strategies [4]:

Figure 1. The Prisoner's Dilemma

-	<i>Cooperate</i>	<i>Defect</i>
<i>Cooperate</i>	2,2	0,3
<i>Defect</i>	3,0	1,1

The matrix does not predict which choices the players will make but it represents all "states" in which a one-time playing of the game can end. And because it represents the choices available to each player and the payoffs of the players for each possible combination of strategies, it makes it possible to outline the potential calculations of each player. The strategic calculations of each player, however, can only be reconstructed from the outcomes preferred by each player, that is, by "backward induction," as game theorists call this procedure. This is true for symmetric two-player two-strategy games like the prisoner's dilemma but also for so-called extensive games in which two or more players take turns and make two or more moves. In extensive games, the best strategies for each player can be found by rendering all possible subsequent choices in a tree-diagram in which where the nodes represent the points at which one of the players has to make a choice and the branches represent the actions the player can choose from. The player's payoffs are listed at the terminal points of the game. By reasoning backwards from the possible terminal points, each player can decide what his or her optimal actions are at each "node." and choose a strategy

The matrixes, diagrams and other graphics of game theory do not represent actual gameplay by "real" game players, but model the choices available to the players and simulate the reasoning behind the players' strategic choices. They converge with narratological models of stories because in order to determine an optimal strategy a game theorist (and a game player who calculates his or her chances) has to be able to compare the payoffs of all possible outcomes of a game and therefore must know the states a game can possibly end in. The method of backward reasoning is thus not unique to narratology but is a method shared by both narratology and game theory.

Second, The distinction between narratology's retrospective view on stories and a game player's prospective view on a game is also misleading because

the models of both narratology and game theory are a-temporal, spatial simulations of the logical structure underlying stories and games. As Martin Osborne (2004) puts it: "Time is absent from the model." In such a model one can reason forwards and backwards because the model itself has no temporal dimension: simulating a situation is not the same as emulating it. For a simulation it is not necessary to preserve the temporality or sequentiality of its source system, and sometimes it is even essential not to preserve its temporal dimension. This also applies to the analysis of narrative, of which Roland Barthes wrote that it "tends to 'dechronologize' the narrative continuum and to 'relogitize' it."

To put it another way, one could say that temporality is only a structural category of narrative (of discourse), just as in language [langue] temporality only exists in the form of a system; from the point of view of narrative, what we call time does not exist, or at least only exists functionally, as an element of a semiotic system (Barthes, 1979). Time is part of the referent of a simulation model, but not of the model itself. In a spatialized simulation - a diagrammatic representation of the logical structure underlying a narrative or a game - terms like "future" and "past"; "prospective" and "retrospective" are simply meaningless because all possible states are represented simultaneously.

This is not to deny any differences between narratives and games or between the models of narratology and game theory. In game theoretical terms narratives can be described as actually accomplished itineraries through a game's state space - the set of all possible states or configurations a game can attain (Holland, 1998). Although narratologists acknowledge that each kernel in a story line is a turning point where the character can choose between two or more actions, narratology usually focuses on the actions actually chosen by the characters of a story, just as historians in general only focus on the actual decisions taken by decision makers in history. In other words, narratologists take as the point of departure for backward induction the actually reached final state of an itinerary through state space.

Game theorists, on the other hand, are interested in all paths the players can choose. In game theory a player's strategy consists of the complete set of plans of action that describe what a player will do under all possible circumstances, whatever actions the other players take (Davis, 1997; Osborne, 2004). This entails that for extensive games, a player's strategy specifies an action for every move of the other player after which it is the player's turn to move, "even for histories that, if the strategy is followed, do not occur" (Osborne, 2004). A narrative then, is just one of the possible histories that happens to have actually occurred. A strategy, on the other hand, is a set of histories that might or might not or even could not possibly occur. In that sense one could say that a narrative is historical while a strategy is conditional or hypothetical ("if player X moves to B, I will move to C, but if player X moves to C I will move to C..."), or even counterfactual ("if player X moves to B, the game will be over, but I still intend to move to C, just in case..."). In game theory, then, backward induction takes as its point of departure every final state the player prefers to reach, taking into account the actions of the other players. Strategies and stories, however, are not mutually exclusive categories, since game players may apply "narrative reasoning" for weighing their chances (Branigan 2006). Games not only become "stories" after the fact, but stories can be an important part of the decision making process during the gameplay itself.

The difference between narratives and games and narratology and game theory is, in narratological terms, a matter of focalization rather than "voice." The narratologist or a historian looks at the final state a protagonist actually arrived at, and then asks herself how he or she got there and what choices the protagonist has actually made. The game theorist looks at the larger picture, and asks herself at what final states the protagonist could have arrived, what other histories were open to her, and whether the protagonist could have done better than he or she actually did. From this

point of view, there is not a categorical distinction between narratology and game theory, but rather a matter of scale: narratology is not game theory's adversary but rather one of its aids which explores specific paths through the entire state space that constitutes the domain of game theory. Rather than trying to keep narratologists out of games studies, games studies scholars had better follow the example of game theory and welcome the expertise of narratologists in the "logic of narrative."

The "logic of narrative," moreover, is increasingly moving towards a conception of narrative as a contingent assemblage of characters, settings and actions that can be constantly reformatted, reconfigured and repackaged for release and re-use in different media for different purposes. The story of a movie is nowadays one out of many possible arrangements into which its constitutive elements and relationships can be and actually are organized, such as video games, cartoons, books, television-series, theme parks, appearances in advertisements and other public relations gadgets. In that sense, the one-to-one comparison of the movie *Star Wars* (Lucas, 1977) with the arcade game *Star Wars* (Atari, 1983) as proposed by Juul is indeed, as Henri Jenkins observes, "a pretty old-fashioned model of the process of adaptation" (Jenkins, 2004). To conclude that movies do not "translate" into games because you cannot "deduce the story of *Star Wars* from *Star Wars* the game" (Juul, 2001) is missing how movies and games are "contributing to a larger narrative economy" (Jenkins, 2004). Narratives and games, along with many other existing and yet to be invented forms and formats, are all part of the same game.

Players and Characters

Another presumed difference between narratives and games concerns the role and status of characters. According to Aarseth (2004), "We might say that, unlike literature, games are not about the Other, they are about the Self. Games focus on self-mastery and exploration of the external world, not exploration of interpersonal relationships (except for multiplayer games)." Aarseth describes this difference graphically in his account of playing *Lara Croft*: "When I play, I don't even see her body, but see through it and past it" and adds, "the polygonal significance of Lara Croft's physique goes beyond the gameplay. But that doesn't mean it tells us much, if anything, about the gameplay, does it?" For game players, characters are vehicles onto which they project their own goals, skills, experiences and understanding of the game. Characters in games, one might say, are functional and not emotionally and psychologically characterized entities as their counterparts in narratives.

This distinction clearly depends on the kind of stories one talks about and the approach one takes rather than on some intrinsic properties of stories and story characters. Although most stories obviously evolve around characters, the notion of "character" is notoriously difficult to define. Usually protagonists of novels or films can be identified without difficulty as "characters." However, stories also abound with figures who are only referred to with indefinite nouns, pronouns or proper names in the case of literature ("a cabdriver," "a cop," "a nurse," "a bellboy," "James," etc.) or appear only briefly in films (like cabdrivers, cops, nurses and bellboys and "props") and a whole range of aides and adversaries that are somewhere between the fully specified protagonists and the only vaguely indicated passers-by. So-called "prop" in films are generally not considered as *dramatis personae*, but what about many of the characters in between (Ryan 2001)?

Having said that, one may grant games studies scholars that the important differences between game characters and story characters concern the protagonists of stories and games, and not the more peripheral non-playing characters in games and props in films. After all, these are the characters game players and readers and spectators of stories are said to "identify" with. "Identification" is a difficult and theoretically contested notion as well

(Smith, 1995), but the least one can say is that one should be careful not to confuse the phenomenological experience of a character by a reader, film spectator or game player with theoretical and analytical approaches of fictional characters. For formalist and structuralist theories of narrative a character is defined not by his or her psychological traits, physical features, social status or even gender, but - as Lara Croft for Aarseth - by what he or she does and his or her role in the story in which they participate. Roland Barthes (1979) calls the level of description of the characters of a narrative "despite being that of the characters... the level of Actions." In structuralist and semiotic typologies of characters, these roles bear labels that would not be out of place in a description of the roles of participants in a game: Subject/Object, Donor/Receiver, Helper/Opponent (Greimas, 1966).

From this theoretical and analytical point of view, characters in a story do not act the way they act because of who, what or how they are, but they are who, what and how they are because of what they do. A character doesn't act in a particular way because of his or her psychological, intellectual or physical endowment, but he or she is endowed with certain psychological, cognitive and physical traits to make his or her actions believable and acceptable. From a formalist and structuralist point of view, the psychological traits of a character are part of the motivation and motivation is from this perspective a justification *a posteriori* that explains and naturalizes the character's actions (Genette, 1969; Bordwell, 1985). For structuralist and formalist theorists, then, the function of a character's personal traits is similar as to what the function of the personal traits of game characters is for game designers: "colour." In this respect, too, the concerns and methodologies of narratology and game theory are not as widely divergent as games studies scholars claim. It is no coincidence that game designers had recourse to the "functions" defined by Vladimir Propp (1970) in his study of Russian folktales which would become one of the fundamentals of structuralist and semiotic narratology (Newman, 2004) or to Joseph Campbell's more popular book *The hero with a Thousand Faces* (Campbell, 1949) which allegedly was a source of inspiration for George Lucas' *Star Wars* films.

Conclusion

If one is to go by the writings of some games studies scholars, games studies and narratology are like two players involved in a zero-sum game in which one player gains what the other player loses. Confronted with a big and respected player in the academic playgrounds, games studies scholars seem to opt for a maximin strategy. Assuming that the incumbent narratologists will for the time being have the upper hand, ludologists try to "maximize" their own minimal payoff and adopt a defensive strategy aimed at deterring narratologists (thus minimaximizing the narratologists' payoff). In an effort to stake out an exclusive niche for games studies, these scholars succumbed to the endless academic game of naming and labelling that is designed to legitimate a strict division of labour among academic disciplines, and the accompanying appropriation and monopolization of objects of studies. This, however, is a quite sterile and obsolete game that nobody can ever win.

Game theory has been called upon to demonstrate that a more relaxed view on gameness is possible and desirable. For game theory, games and narratives are not categorically distinct entities, and game theory and narratology have quite a lot in common when it comes to theories and methodologies. This is not to say that game theory and narratology are identical or study the same objects, but an object of academic inquiry is less defined by its intrinsic, objective properties than by the purposes, the questions and the methods of analysis deployed by the researcher. Games studies scholars could learn from game theorists, for example, that there is no such a thing as "games" or "gameness" in itself, but that gameness is in the eye of the observer rather than in the minds of the game players themselves. Conversely, game theorists could learn from games studies

scholars, that, depending on the language game you're in, games involve quite a lot more than action sequences, strategies and payoff functions. However, although game theory does not deal with issues such as games as cultural artefacts, the "worldness" of gameworlds, gameworlds as communities, etc., it is fair to say that these are not the main issues at stake in the debates between narratologists and ludologists either.

Probably because most games studies scholars have a background in literary studies and film studies, where narratological approaches enjoy a prominent status, some games studies scholars feel urged to demonstrate that games are not narratives. Unfortunately they choose to do so with arguments that are mainly derived from narrative theory itself, and thus firmly stay attached to the umbilical cord that keeps them tied to their parent discipline. To convince oneself of the tight connections between games studies and literary and film theory, one only has to compare the indexes of a games studies reader (like, say, Wolf & Perron, 2003 or Wardrip-Fruin & Harrigan, 2004) with those of their counterparts from literary studies and film studies: similarities in terms, topics, and persons immediately catch the eye. A game theorist, on the other hand, would certainly ask herself what kind of games are going on in the humanities, and what is at stake. For a game theorist, the seriousness with which ludologists make their case against narratology would be an injunction to model the controversy as a game).

This game theorist might model the debate as another version of the prisoner's dilemma in which mutual defection is at the same time the most rational and the least desirable outcome. As game theorists have demonstrated, in an iterated version of this game, mutual cooperation is the more beneficial and more productive strategy (Axelrod, 1984), and this surely applies to narratology and games studies as well. And, if games studies scholars would team up with game theorists, they might find out that they would have a few things to say about stories that are of interest to narratologists as well.

Notes

[1] Similar observations were made by Jonas Heide Smith (Heide Smith, 2006). An exception should be made for Salen & Zimmerman (2004). Their monumental *Rules of Play* is a "valuable hub of game-related references and resources" (Järvinen, 2004), but rather than providing a meeting ground between games studies and game theory it aims at bridging games studies methodologies and design theory. Game theory is just one of the many perspectives on games introduced in this book which rather than synthesizing those tends to muddle them up.

[2] Scientist Jacob Bronowski, who worked with von Neumann during World War II, recalls how Von Neumann, an avid poker player, explained the object of game theory to him during a taxi ride in London: "I naturally said to him, since I am an enthusiastic chess player, "You mean the theory of games like chess." "No, no," he said. "Chess is not a game. Chess is a well-defined form of computation. You may not be able to work out the answers, but in theory there must be a solution, a right procedure in any position. Now real games," he said, "are not like that at all. Real life is not like that. Real life consists of bluffing, of little tactics of deception, of asking yourself what is the other man going to think I mean to do. And that is what games are about in my theory" (in Poundstone, 1992, p. 6).

It should be noted, however, that although game theory is not very much interested in rules, it is also not interested in the mode of 'unbounded' or 'free' play that games studies scholars in the wake of Caillois (1958, p. 13) usually refer to as *paida*, not because there are no rules in this mode of play, but simply because in *paida* there often is no interaction between decision makers and because there is nothing at stake.

[3] This corresponds to the distinction Jesper Juul (2003a) makes between "games of emergence" and "games of progression." Once a player has

mastered the complex rules and skills of a "progression game" she often loses interest in it.

[4] The Prisoner's Dilemma is about two members of a criminal gang who are arrested and imprisoned in separate cells with no means of speaking or exchanging messages to each other. The police do not have enough evidence to convict them on the principal charge and need a confession of at least one of both prisoners. They offer each prisoner the following choice: if both prisoners cooperate with each other and remain silent, they will each be sentenced to a year in prison for a smaller crime; if one of both prisoners confesses against the other, the "defector" will go free while his partner will get three years in prison on the main charge; if both prisoners testify against each other they will both be sentenced on the main charge but they will get a discount on their punishment and they will have to go to prison for only two years.

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The narrative structure or game-worlds of these cybertexts are compared to a labyrinth that invites the player, a term Aarseth deems more appropriate than reader, to play, explore and discover paths within these texts. Two kinds labyrinths that are referenced by Aarseth: the unicursal labyrinth holds one single, winding path that leads to a hidden center, while the multicursal labyrinth, synonymous with maze, is branching and complex with the path and direction chosen by the player.Â Experiencing Fiction: Judgments, Progressions, and the Rhetorical Theory of Narrative. Columbus: Ohio State University Press, 2007. Phelan, James. Game theory is a mathematical theory of strategy which assumes that there are at least two players whose choices determine an outcome. Insofar as the players have conflicting preferences, their conflict may not be total " it is not necessarily the case that what one player wins the other loses (as in most sports). Their conflict may only be partial, wherein both players can win or lose simultaneously.Â They met at the Institute for Advanced Study at Princeton University around 1940 and wrote the book Theory of Games and Economic Behavior (1944). The book was revised in 1947 and 1953. John von Neumann had earlier written an article (in 1928), proving the so-called minimax theorem, which is sometimes considered the fundamental theorem of game theory. This paper presents a narrative theory of games, building on standard narratology, as a solution to the conundrum that has haunted computer game studies from the start: How to approach software that combines games and stories? Discover the world's research. 15+ million members. 118+ million publications. 700k+ research projects. Join for free. Content uploaded by Espen Aarseth.