

Story Construction and Expressive Agents in Virtual Game Worlds

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ABSTRACT

The narrative structure of virtual game worlds involves a division of narrative elements into unique levels of text and meaning, coherent with game world system architectures. These levels of text and meaning create different levels of narrative authorship, variously integrating both game designers and players as authors at different levels. Both game design and game play therefore involve the creation of narrative potential, while specific narratives as told stories relate histories of play within game worlds.

Author Keywords

Story construction, MMORPG, virtual game worlds, expressive AI, agents, narrative structure.

INTRODUCTION

The aim of this paper is to discuss structures in massively multi player role-playing games (MMORPGs) that makes the emergence of narrative possible. These games are played in virtual worlds, i.e. virtual game worlds (VGWs). The first virtual game world, MUD, was text based and was built by Richard Bartle and Roy Trubshaw (1978). The VGWs started to reach a larger audience at the end of the nineties when they were implemented with three-dimensional graphics (Meridian 59 September 1996, Ultima Online September

1997, EverQuest Mars 1999, Asheron's Call November 1999). Virtual game worlds are realised by networked computers that simulate environments. In these worlds players have graphical representations, avatars that represent them in the world. All interaction with the world and with other players is done through the avatar. The interaction in the world is in real time, and the world is persistent, that is, the world is still there even though a particular player/avatar is not active in the world.

Virtual game worlds have as a genre a set of more or less general features that control what type of game activities are available. Eladhari (2003) describes these features based on a study of 172 game worlds. Note that this is based upon worlds where game play is the focus as opposed to virtual social worlds (VSWs) that are more oriented towards social interaction as the main activity. There are a few things that are striking with virtual game worlds, that makes them unique and different from other forms of art. One of those aspects are how the openness of the narrative structures inherent in the form makes it possible for players to add their own goals to the game worlds, which in turn results in added narrative potential in the world.

A lot has been written about narrative in interactive media. In the area of games, there



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have been classification spaces offered, comparisons presenting similarities to other media, and differences have been pointed out (eg. analyses of interactive from a cultural studies perspective including Aarseth, 1997, Murray, 1997, Juul, 1999, and Ryan, 2001). Publications by authors with backgrounds in screenwriting and filmmaking usually refer to the Hero's Journey (Campbell, 1949, Vogler, 1992) and the restorative three-act structure of drama (described by Danzyger and Rush, 1995); papers and books published by game designers usually refer to the Koster-Vogel Cube (Koster and Vogel, 2002), while publications in more technical venues on the issue of narrative often refer to 'The Oz Project'¹. Prominent traditions of narrative analysis include the structuralist perspective beginning with Propp's morphology of the folk tale (Propp 1968) and including Greimas' actant theory (Greimas 1966), as well as the tradition of hypertext theory (Bolter 1991, Landow 1992), i.e. systems for causal (interactive) relationships between story elements in multi linear stories.

In the light of these different traditions that have had impact on the discussion about interactive narrative, Richard Bartle (2003) makes the refreshing statement that:

Virtual worlds are places, not stories. You can have a story about New York, or a story set in New York, and New York can have a history, but New York is not itself a story. [...] Trying to impose a story on the inhabitants of New York is as sensible as trying to impose a story on the inhabitants of

New York. You can impose events, but not stories; people make their own stories. (p. 661)

Virtual worlds are places, and narrative elements are part of those places. On the scale of the single vs. shared authorship author we have whole spectrum coexisting in these worlds, from pre-scripted story lines to narrative arcs that are totally created by players, more or less despite the world myths and the original intentions of the world creators. When Lisbeth Klastrup (2003) in her paper "A Poetics of Virtual Worlds" presents a possible poetics of virtual worlds, she introduces the concept of "worldness" as a metric of the particular traits that constitute the experience of a virtual world. In these worlds a more pressing issue than "who is the author here?" is *who owns the world*. (Bartle 2003:51, Reynolds 2002) Who has the right to create content, and how persistent is this created content? Does it become a part of the world history? The world history is in some cases created out of game, for example by guild leaders who document the story of their guild on websites. Another intriguing question is that of the role of the player: is the player a part of the world, designed into it, becoming a part of the creation of the game design teams, or should the player be viewed as an artist within the artwork, expressing him or herself through the tools given by the designers?

It is tempting to take a relativistic stance in this, to say that since these worlds are so intrinsically different from each other, and also very different depending on the cultures and norms the individual player bases have developed, that it is not possible to make any generalizations. We also have the complication that a single researcher cannot participate in a large set of virtual game worlds in order to gather data from a bigger sample set since this would be so time consuming. Yet we do know that many worlds share a lot of features. Bartle

¹An overview of the Oz project and publications is available at: <http://www-2.cs.cmu.edu/afs/cs.cmu.edu/project/oz/web/>

(2003) writes about common paradigms, such as levelling systems, and also about the impact that different code bases for virtual worlds have on, for example, authorial ownership in worlds and their orientation to more or less combat or adventuring as activities that can lead to levelling up. Virtual social worlds like *There* and *Second Life* are exceptions to this though, while not being strongly focused around these types of achievements. For some data we can, instead of playing all the games thoroughly, lean on surveys among the player bases, for example the long-term survey work conducted by Nicholas Yee.² This work can give us hints about player experiences in different virtual worlds.

What is it that we measure in these worlds? A very obvious and striking aspect is that we have big virtual communities here that are perfect test spaces for monitoring human behaviour in environments where we can control many of the conditions. Or at least, we have knowledge of many of the conditions, if not control (significantly, however, we generally have little knowledge of and control over the *extra-game* circumstances of players and their play). Bartle (2003:chapter 6) presents an overview of different disciplines that have found these worlds enticing, accounting for the most common lines of research performed in these disciplines in VWs; virtual worlds are becoming a melting pot for many forms of research.

Within this spectrum, the purpose of this paper is to focus on story construction in virtual game worlds.

DEFINITIONS

When we talk about story, we mean a fixed temporal sequence of events and the actors

² These studies are available at <http://www.nickyee.com>

that take part in these, that is, the content that a narrative is about. The events are not necessarily told about in the order in which they have happened. In multi linear narratives the reader/player can often chose when to be told about a certain event, but the order in the sequence of events as such does not change – only the sequence of experiencing them/being told about them. A narrative is a story *the way it is told*. Narration, or the art of story telling, is about *how to tell* a story. (These statements are based on work by Genette 1983:27, and Rimmon-Kenan 1993:3.) In multiuser virtual game worlds, being places, there is generally little to no story telling in the design of the world in the traditional sense³. Instead there are elements in the world that have narrative potential (the term narrative potential is used by Ryan, 2001). Players do one thing after another in the world, and the sequence that emerges from the now of the playing is the player's individual story discourse. (This definition is derived from Chatman's definition of discourse, and from Gunder's definitions of omni-discourse and real-discourse, Chatman 1978, Gunder 1999.) The act of creating narrative potential in a virtual game world, whether it is done by the team of world designers, members of a live team, game masters, guild leaders or ordinary players is an act of story construction, not story telling. That is, the story is constructed by game play

³ In single user games, game play *is* often framed by a pre-designed traditional story at a high level, generally presented via cut scenes. In this case the account presented in this paper applies to what happens *between* cut scenes. For multiplayer games, there is also the possibility of storytelling in a traditional sense occurring within the game, e.g. if either players or NPCs tell stories. But this is at a very small scale of world design and history, while the current focus is on the larger scale design of the world.

providing material for potential narratives as tellings of the story. Koster distinguishes between impositional and expressive forms of interactive narrative (Koster quoted in Meadows 2003). The *impositional* form is used in chose-your-own adventure books, adventure games and other fixed multilinear narratives, while the *expressive* form relies less on a sequence of events and behaves more like an architecture. The word expressive is also used by Mateas (2003) when he describes expressive artificial intelligence; “AI-based art and entertainment constitutes a new interdisciplinary agenda linking games studies, design practice, and technical research. I call this new interdisciplinary agenda expressive AI. In the context of game analysis and design, expressive AI provides a language for talking about “readable” behavior, that is, behavior that a player can read meaning into.” (2003: 1) Mateas discusses the characterization of the ghosts in the game Pac Man, expanding the discussion of characterization of non-player characters (NPCs) to encompass dynamic entities which do not have humanoid form. In this paper the term “expressive agents” will be used to refer to dynamic entities in virtual game worlds that in their functional setup carry possibilities for creating narrative

potential. In this sense they embody *foundational narrative potential* in their design. This term encompasses NPCs, player characters (PCs) and other dynamic entities. This term is not to be confused with the concept of *believable agents*, since that concept is usually applied only to agents that are autonomous. Player characters are always semi-autonomous agents. In addition to carrying out player commands, possible functions of these agents include enhancing the simple player-driven avatar with context-sensitive expression possibilities and varying degrees of autonomous reaction to in-game situations. A practical example of this, in a virtual world where PCs can be in combat with hostile creatures, is to change the state of the PC depending on how battles with certain creatures have turned out in the past. If the PC has been killed many times by orcs, it might be “afraid”, i.e. have a harder time to battle the orcs again, or “angry”, i.e. have more strength when battling them again. This is a very simplistic example, derived from the common game play paradigm of fighting “mobs” (mobile objects) (Bartle, 2003, p. 102), something that was implemented in the first MUD written by Richard Bartle and Rob Trubshaw in 1978.

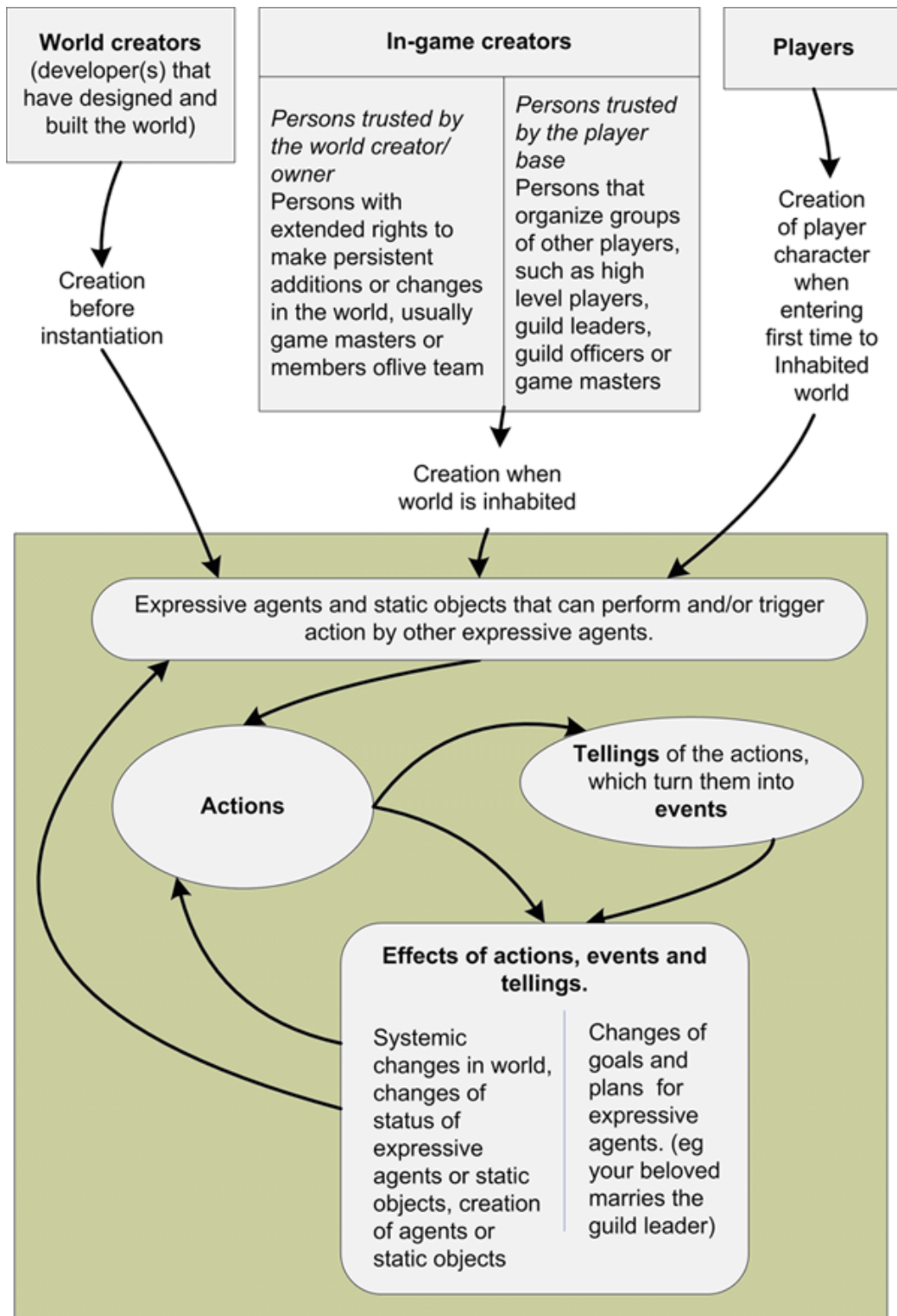


Fig. 1 Creation of narrative potential in virtual game worlds

TEXT LEVELS

When discussing story construction in the context of computer based systems such as virtual game worlds, it is useful to divide story and narration into different levels (see fig. 2). This way it is easier to communicate where in the structure some specific thing is or may be implemented, and what implications the feature has, e.g. for authoring rights and persistence. For example, few designers would probably give creator rights to players on the code level since a change on that level would change the rules of the whole game world. Note that these levels refer to different layers of text, not to software architecture design.

Text levels in virtual game worlds			
Code level	Story level	Discourse level	Narrative level
	Story Construction		
Designed narrative potential		Played narrative potential	
Engines, framework and game programming. These together manifest the geographic structure as well as the conditions for the deep structure of the narrative, the overall story and its construction.	The overall story (if there is one), the deep structure and the individual expressive agents and the static story elements, which at the discourse level manifest the overall story, possible side-stories and separate independent stories.	The states of the individual elements in the now of the playing, and the sequential order created between the different parts of the narrative simultaneously with the movements of the player characters and the autonomous agents through the game.	The narratives told about the actions and the events in the game world. The narratives are told both in-game and out-of-game.

Fig. 2, Text levels in virtual game worlds

Practically these different text levels are usually created by persons having different roles: the

code level is written by software engineers, the story level by the people responsible for the designed narrative potential, while the discourse level and the narrative level are performed by players, game masters and sometimes live teams.

THE CODE LEVEL

The code level itself can generally be divided into three layers (see Figure 3). In this case we *do* mean pieces of software. The bottom layer is the engine which consists of very general functions, such as network and communication systems, the rendering of the system's interface, the sound system, the interface for animation, the handling of the terrain, the dialogue system, media storage, and the physics system which governs gravitation, forces, collisions and collision response.

Above this there is the framework of the game, a layer of abstract representations of the game's structures such as classes of game agents, classes of behavioural control and systems for action control and communication. The engine is usually general and may be used in various game genres, but the framework tends to be more specific for its genre, implementing a generic game system.

Above the framework there is the specific game programming, which mostly consists of data and the instantiated definitions specific to the given game.

These layers are co-ordinated to bring forth the media that become visible and audible to the player, such as environments, characters, dialogues, music, sound effects and graphical user interfaces.

In terms of MUD-based virtual worlds, the engine layer, the framework and the game programming layers are often called driver, mudlib and world model (Bartle 2003, p. 44). There are a number of major codebases that

have been developed for creating textual virtual worlds. Each of these represents a certain game play paradigm and has historically provided both game designers and players with norms of how a virtual world is “supposed to function”. (Bartle, 2003, describes the codebases and what types of game play they may result in, in terms of combat vs. battle orientation, common myths and persistence of player created content). It is important to be aware of the implications that a certain code base, or inspirations from a certain codebase, have on resulting game play and the conditions for creating narrative potential in a game world.

Code level		
Engine	Framework	Game programming
May include - Physics system - Rendering system - Dialog system - Sound system - Media storage system - Communication layer	- abstracted model of the game world and game system - the glue between the game programming and the engine(s)	Detailed programming of individual objects specific to the game.

Fig. 3, Code level

The layer divisions within the code level are very general, the details being different from architecture to architecture. Sometimes the layers can be correlated with production team structure: a game engine group is assigned to create the engine layer, another group writes the framework and undertakes game programming. In many virtual worlds players take an active part in game programming by scripting behaviours for objects they are responsible for. This is the case in many text-based virtual worlds, one of the most famous of these being *LambdaMOO*. Cherny shows an early example from *LambdaMOO* of how players program personal and characteristic behaviours for their avatars that can be triggered by keywords typed by other players

(Cherny 1994:11). This is usually referred to as *scripting*, which has been developed much further in later graphical VWs, most notably in *Second Life* and *Star Wars Galaxies*. In text-based VWs players are in many cases granted more freedom to script, i.e. to be able to build features that have a larger impact on the rest of the virtual world, this due to the fact that many of these worlds are non-commercial and build upon common efforts from players and developers (which may be the same persons) for survival.

To illustrate the relationships between the different layers in the code layer one can compare the building of virtual game worlds with the construction of our physical world. Game engines are then the equivalent of the physical laws that are common to different planets. On each planet the framework is analogous to local conditions providing the foundation for the biotope on that planet. The individual classes in the framework or in the descriptions of the object types are the equivalent of genetic codes. At the level of programming games these genetic codes are combined with data specific to individuals, comparable to individual DNA sequences.

THE STORY LEVEL

At the story level we find the deep structures of the potential stories. At this level the individual expressive agents as well as the dynamic and static story elements are designed. This can include driving forces, goals and specific abilities under certain circumstances for each individual entity. At the discourse level these entities manifest actual stories via performed actions.

The story level also includes back-story, which is a case of explicit storytelling on the part of the game/world designers, which may or may not have a branching and therefore interactively traversed/selected structure. This relates to the previously mentioned distinction

between impositional and expressive narratives. The impositional stance is used most strongly in single player adventure games and hypertext narratives, where the overall story and its content is fixed, even though, when experienced, there can be variations in the chronology and quantity of the sequences that make up the story.

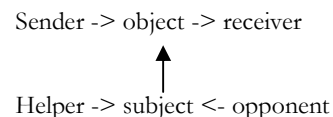
In virtual worlds we often find a mix of different story construction techniques at many different structural scales. Both *Asheron's Call 2* (AC2) and *Star Wars Galaxies* (SWG) are good examples of game worlds that contain mixed strategies, from the totally linear to the emergent, i.e. from the impositional to the expressive.

In AC2 we find a linear story arch which is mandatory for the player to go through in order to be able to get to new geographic areas in the game world. The virtual game world SWG is an example of a world where the player can perform quests that are implemented as linear narratives, but they are not mandatory for the development of the player character. (Unless the player aspires to become a Jedi after that update 10 is released for SWG.) Within virtual game worlds that mix both impositional and expressive story construction in ways like this, the expressive stance is inherent, deriving from the code level and implemented in the story level, giving dependencies, constraints and affordances in the world that govern what agents and player characters are allowed to do depending on their state. It is in this way that the agents are *inhabitants* in the world.

THE DEEP STRUCTURE

Even if all games do not contain a story, just as films, plays and novels, they all contain a deep structure. Games like chess and solitaire contain deep structures; there are goals, driving forces and constraining rules for achieving the goals. In these examples though, the goals that drive the mechanics of game play are part of the predefined conception of the game. This is not always the case in virtual game worlds where the players may define their own goals that are not always be foreseen by the designers.

The concepts of deep structure and surface structure are used by Greimas (1966), summarised by Rimmon-Kenan(1993): "Whereas the surface structure of the story is syntagmatic, i.e. governed by temporal and causal principles, the deep structure is paradigmatic, based on static logical relations among the elements".(p. 10) Greimas' Actant Theory models static relations as relations among *Actants*. Actants are entities that accomplish or submit to an act. The number of actants is six in Greimas's model:



In a story where a player character meets a wizard and accepts an assignment to slay a dragon, the actants would be divided as shown in Figure 4.

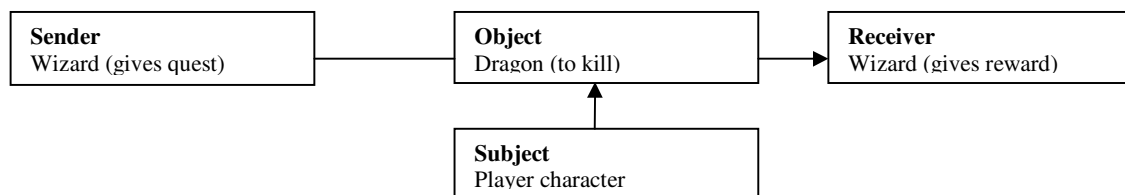


Fig. 4. An Actant model of a simple story scenario.

In this case the model is presented from the Subjects perspective, the player character. It could also be the case that the wizard is a player character, who is not strong enough to kill the dragon himself, but needs the dragon's scales for crafting a piece of armor. In that case the diagram would have the wizard as subject, the Sender would be assigned to make the armor, the object would be to talk a warrior into slaying the dragon and the scales functions: "The positional value of the Object is doubly defined by the convergence of the actantial axes: both as an "object of desire" and as an "object of communication" (p. 76)

Budniakiewicz reminds us that for Greimas the actant model and the actant grammar are foremost a way to extrapolate syntactic structure. How can this be of use when we discuss story construction in virtual game worlds?

First of all, actant theory is a conceptualization that breaks down the parts of a story into the force fields that make it possible for the narrative to come into existence. By applying this way of looking upon expressive agents and static story elements we can more clearly define the forces that, in Greimas words, make up "the semantic syntax" or the micro universe that a game world and the overall narrative consist of.

This perspective becomes especially interesting when applied to live role-plays, MUDs or MMORPGs. In these games the discourse *is made up of* an execution of these interacting forces. (This can also be said about BRUTUS, a story telling machine, a system which functions as a sophisticated narrator and uses a formal model of betrayal; this system does however not accept user input (Bringsjord and Ferrucci 2000)).

Starting with this model one can then break the larger units into smaller components with

would be the reward. Actants can, just as expressive agents, include non-human beings, but actants can also be what we would call static story elements, such as inanimate objects (e.g. a magic ring) and abstract concepts such as 'destiny'.

In *Fundamentals of Story Logic*, Theres Budniakiewicz (1992) points out that the position of the object in the model has double clearly defined functions. Budniakiewicz speaks of two large classes: "The two big classes which make up the 'semantic syntax' are the *actants* and the *predicates*; they combine with each other to form the semantic and thematic kernel or nucleus of a textual micro-universe, The *predicates* are divided along the static vs. dynamic binary opposition: *Function* [...] designates the dynamic predicate and *Qualification* [...] the static predicate." (p. 75)

In terms of story construction for virtual game worlds this would be translated into what functions are possible for a certain class, or type of agent, and what state or states the agent must be in to execute the function.

If this way of thinking is applied to the text layers previously sketched, it would be manifested in the framework layer as well as in the game programming layer. In the framework the agents' classes, or types, would be defined with their possible functions, while the conditions, whose different combinations in the game create the states that make the execution of these functions possible, would be described in game programming.

Typical for a story driven computer game is that the player performs a series of quests which are added one by one to the player character's story discourse when it has been performed. Most single player story driven games that have an overall story have a similar structure to the folktales systematised by Vladimir Propp. Usually a story starts with

something in the game's microcosm being out of balance. The hero of the story, or the subject, is given a quest and is thereby contracted to either solve the overall lack of balance in the world, or to take the first step on that path. Usually the hero is also put through a qualifying test to prove his worth in recreating balance. After this the hero may perform a number of minor quests before finally performing the main quest that restores the balance. In many story driven games this last quest consists of a final boss-fight. After this the microcosm of the game is saved, the hero has succeeded in performing the overall quest and the player characters, and supposedly also the player's, motivations are neutralised.

Vladimir Propp's (1968) pioneer work *Morphology of the Folktale* explains that the typical Russian folktale is built around seven types of persons (or more specifically; spheres of action corresponding to performers), namely 1) the villain 2) the donor 3) the helper 4) the princess (and her father) 5) the dispatcher 6) the hero and 7) the false hero (p. 79 – 80). The names of the people who contain these functions differ from tale to tale, but the actions they perform are always the same. A function can, in Propp's words, be "understood as an act of a character, defined from the point of view of its significance for the course of the action." (p. 21) The fixed number of possible functions is thirty-one. (p. 26 – 65) All of them are not necessary in the same story, but where they occur they always have the same sequential order.

The restorative three-act structure used in movies also follows a chronological sequence of events, focussed around the main character in the tale (Danzyger and Rush, 1995). The narrative is seen to be divided into three acts, where the first is the setup of the drama, the second contains a confrontation and the third

involves a resolution. Each act rises to a point of crisis, a plot point. It is the central character that gets into conflict and needs to make a choice. The restorative model is based upon the Hero's Journey.⁴ Also here we find a strict chronological sequence of events, and a concentration around the main character, the hero. The true character and development of the hero are shown by a series of situations where the hero is acting under pressure. The hero is said to have a character arc, which corresponds with our expression *individual story discourse*.

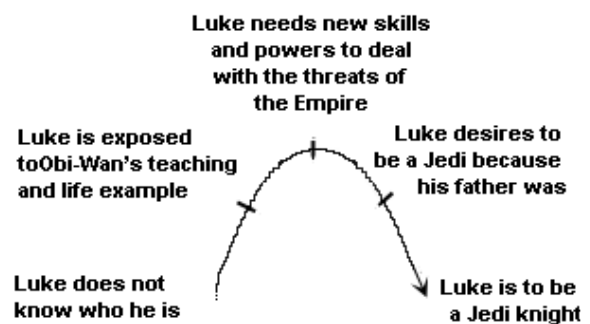


fig.5, Luke Skywalker's character arc in the movie Episode IV. The example is adapted from Freeman (2003).

The other characters in the narrative also have character arcs, but their main functions are to have a function for the hero, not for themselves. The roles are called character

⁴ The Hero's journey was described by Joseph Campbell 1949 in *The Hero With a Thousand Faces* (Princeton University Press 1949). In 1992 Christopher Vogler wrote *The Writers Journey*, (Michael Weise Productions 1992), and 1999 *Story – Substance, Structure, Style, and the Principles of Screenwriting* (Methuen 1999) by Robert McKee was published. Books geared towards game design that use the Hero's journey for giving guiding principles for game design include *On Game Design*, by Andrew Rollings and Ernest Adams (New Riders 2003) and *Creating Emotion in Games* by David Freeman (New Riders 2003).

archetypes and are, in addition to the hero: Mentor, Higher Self, Allies, Shape Shifter, Threshold Guardian, Trickster, Shadow and Herald.

In multiplayer games it is not possible to have meaningful gameplay for all participants if they all have the role of the hero, nor if they are all merely functions for a single hero. This is an obvious fact in live action role playing contexts, and very clearly expressed in the Dogma 99 manifesto (Fatland and Wingård, 2003): “§ 3 No character shall only be a supporting part”. (p. 20).

Is it at all possible to apply the idea of heroship in a massively multiplayer game world? Richard Bartle (2003) applies Campbell’s model in an innovative way. He interprets Campbell’s hero’s adventurous journey to find the self as the player’s journey within a virtual world. In this case the player’s journey begins in real life, with getting hold of an account that lets him or her log on to a virtual world. That is the “departure”. The “initiation” stage takes place wholly within the virtual world, while in the “return” the player is separated from the virtual world but has learned a lot about him- or herself along the journey. Bartle also states that not everyone can complete the hero’s journey, “not everyone can be – or wants to be – a hero”, but everyone can *try* to be a hero in a virtual world.

The concept of heroism does imply that heroship is something for a chosen few. In *Asheron’s Call* (AC2) everyone who reaches level 50 can undertake quests and assignments to earn the title hero in the game world, but since everyone does it the term becomes emptied of its meaning. In *Star Wars Galaxies* (SWG), on the other hand, becoming a Jedi has true hero status in the original sense within the mythos of the virtual world, not as the player’s personal journey of development by

participating in an online world. In order to acquire a Jedi character slot, a lot of effort and creativity is required from the player. A proof of the amount of effort that is required is that a Jedi character is one of the most expensive items from virtual worlds that are for sale, priced at more than three thousand American dollars on Ebay. The richness in the content and the vastness of the world both in terms of variety of functionality, strategy, geography and elements creating narrative potential, as well as a large player base, makes SWG a world where true heroship can be achieved by dedicated players.

ACTION, EVENT, STATE AND ANTECEDENT DRIVINGFORCES

In the context of story construction it is necessary to make clear distinctions between action, event and state, and in this way to be able to distinguish what implications an action has for one or several states. What states are affected depends upon an action’s direction and sender.

Greimas (1990) defines the distinction between action and event in the following way:

[...] *event* was redefined to distinguish it from *action*. Whereas action is dependent only on the subject concerned with the organization of his activity, event can be understood only as the description of this activity by an actant external to action. (p. 176)

An action is, according to these terms, dependent on the subject that performs the action or activity. An event, on the other hand, is a description of the same event when the description is performed by an actant standing outside of the performed action.

A state is held by an agent and is a result of all actions performed by the agent itself and by the actions performed by other agents aimed directly or indirectly at the first agent.

In the section “A Systemic Definition of Action” Budniakiewicz (1992) asks what we mean when we say that we *do* something. She means that the use of a verb is not enough for us to draw that conclusion. Instead we “unpack” the verbs to become a description of the *antecedent states* when we contemplate the whole. Even though Budniakiewicz, just as Greimas, primarily studies syntactical structures, this terminology is useful in the current context.

These antecedent states are the wants, the goals, and plans of the agent which are interconnected in a peculiar pattern of reasoning used by the agent both before and during the performance of action, when the agent is said to ‘be doing’ something. The reasoning has been named in traditional Aristotelian commentary a practical syllogism or inference.

[...]

Let us look at what a schema of this kind works out:

Major premise: N wants to do O / bring about O.

Minor premise: N considers that he cannot do O unless he does P.

Conclusion: Therefore, N sets himself to do P / does P. (p.53)

It is worth noting what an application of our example with the wizard and the dragon would look like in these terms. The reward from the wizard is a key that is needed to enter an environment that brings the player character closer to its overall goal. N (the player) wants O (reward from wizard). N realises that he cannot get O if he does not do P (kill the dragon). Therefore N decides to do P.

We can see here how the player character’s antecedent driving-force consisting of a will to get further in the game results in a quest

structure where he/she decides to kill the dragon. The concept of antecedent driving-force differs from the current state in that the antecedent driving-force represents the expressive agent’s *initial* driving-force, while what we generally have called state is a result of the conditions stored in the agent during the progression of the game that limits, gives freedom to act and possibly adds new driving-forces to the agent.

In her article “Semiotic and nonsemiotic MUD performance”, Ragnhild Tronstad (2001) discusses what constitutes a quest and how only after its completion it becomes a story. For her, what constitutes the motivation for solving a quest is the search for its meaning: “To do a quest is to search for the meaning of it. Having reached this meaning, the quest is solved. The paradox of questing is that as soon as meaning is reached, the quest stops.”(p. 81)

In a virtual world the player characters and other expressive agents that perform quests within the rules of the game are governed by the antecedent driving-force constituted by their long-term goals, plan or will. When the goal is reached, or the plan is carried out, or its will is satisfied, the driving-force of the agent is neutralised.

Story level		
Dynamic expressive agents and static story elements	Conditions	Driving forces and goals
The specific setup of agents and objects to be instantiated.	Casual dependencies governing relations between specific agents and objects	Wills, motives, aspirations and goals of the expressive agents.

Fig. 6, story level

THE DISCOURSE LEVEL

Discourse, in the context of virtual game worlds, is the sequence of experiences (expressed by signifiers in the game world) that an expressive agent, whether it is a player character or an autonomous agent, goes through. The individual story discourse emerges simultaneously with an agent's activity and movement in the world.

It is in the discourse level that the state of the expressive agent evolves. The class describing the type of the agent describes what types of actions are possible for the agent to perform and the possible basic obstructions against performing them. When the agent is instantiated for the first time, it contains its first conditioned state. The state of the agent changes depending on its own actions, what actions are aimed at it by other agents and objects, and depending on influences from other parts of the system.

Discourse level (Dynamic)	
Story (individual story discourse)	State
The past of the expressive agent, a chronological sequence consisting of the actions performed and the events experienced.	The state of the expressive agent in the now of the playing, defined by the construction of the class the agent is instantiated from and of the agents individual story discourse.

Fig. 7, discourse level

THE OPEN NARRATIVE STRUCTURE OF VIRTUAL WORLDS

Single player adventure and role playing games, movies, novels, and multilinear interactive narratives have in common that they are closed narrative systems in the meaning that the plot, the goals, and the antecedent driving forces are fixed, their nature having been decided by the creator(s) of each work. This is also the case for BRUTUS, the story telling machine described

by Bringsjord and Ferruci (2000); the antecedent goals and driving forces are set before story generation starts.

Games set in massively multi player game worlds differ from this by being open narrative systems in the sense that player's and other active participants in the world such as members of live teams can add external goals and driving forces to the world.

These goals can be both inspired from the world mythos, or have another origin, such as personal preferences. Taylor (2003) proposes the power gamer as specific player type; based on ethnographic studies and interviews done in *EverQuest* she describes dynamic goal setting as one of the distinguishing features of the power gamer. E.g. the player might aim to reach level 50 in three weeks. There is a semi-level to this where guild leaders and players who organize other players formulate, together with a larger group of players, more long term goals, such as waging wars on another guild. This is the case in *Lineage*, for example. In SWG it is not uncommon for a guild to decide to help one player to become a Jedi, which is a more powerful type of player character (in terms of the game rules in the world) than the player character that all players create when they start playing a game. In order to acquire a Jedi-type character a lot of effort and time needs to be invested. These goals, formulated by individuals, are most often inspired by the mythos and the rules of the specific game world. When these goals are being formulated, agreed upon and strived for they are adding to the narrative potential in the world.

The individual player goals are not always inspired by the game world itself. With the growing market of items, virtual world specific currencies and player characters are also sometimes of a purely economic interest in achieving certain goals, e.g. to achieve Jedi status in SWG in order to sell the player

character at Ebay for 3000 US Dollars, or to gather 10 million credits on one of the most populated servers and trade them for 150 US dollars. Players with this type of goal setting are a fairly small segment of the player base, but the formation of companies earning their revenue by selling virtual-world objects for real-world money suggests a growth of this segment.⁵

Another type of goal inspired by circumstances outside virtual worlds is that of professional gaming in the form of competing in tournaments. This is mostly in multi player games in the first person shooter genre. Pedersen's (2002) study "Are Professional Gamers Different? - Survey on online gaming" shows that one of the dreams of being a professional gamer is to travel and compete in tournaments.

It can be argued though that these goals can also be seen as motivations. I want money, therefore I have the goal to earn 10 million credits in SWG that I can sell on Ebay. Or, I want to go travelling and participating in tournaments, therefore I have the goal to become very skilled at playing a particular game. Motivation is a broader and more intangible concept to bring in to the discussion than goals deriving from motivations. Richard Bartle's (1996) four player types, (the achiever, the socializer, the killer and the explorer) and Nick Yee's (2002) five facets of player motivations (relationship, immersion, grief, achievement and leadership) provide guiding principles for major player motivations that can be regarded as sources that define goals

⁵ An example is the company Internet Gaming Entertainment, who employ full time staff in low wage countries such as China to get hold of rare items in the game to sell for real money. Currently they have 100 employees. <http://www.ige.com/>

for individual players and groups of players. There is a risk here of mixing up motivation, preferred type of activity and goal setting. Taylor (2003) shows that dynamic goals set by an individual player often lead to a very diverse set of activities. For example it is difficult to be really successful in a massively multiplayer game as a lone achiever or explorer – a high level of success is dependent on a large social network and good reputation. One cannot take for granted that goals are achieved by in-world achievement. Lets say that a motivation is to have the status of a hero, and the goal is to be a Jedi in SWG. To be a Jedi in SWG means true hero status, and as such it also has monetary value. Without going into issues of meaning, value or cheating here, clearly the goal of becoming a Jedi can be achieved by out-of-game activities that provide money, which in turn can be used for instant achievement in a virtual world.

No matter what comes first for the player when he or she dynamically sets goals, preferred activity or motivation, no matter if they derive from the world design or from motivations outside the game world, it is clear that narrative systems in the virtual world are open to goals defined by other persons than the originators of the worlds. This is, from the aspect of narrativity, the feature that together with the world's nature as a *place* most distinguishes virtual game worlds from other types of narrative systems. Virtual worlds as places support the emergence of stories. Emergence in this context means: the emergence of a higher level structure from the interaction of many simpler, lower level primitives. In this case emergent narrative must be understood as a system in which lower level elements interact to result in the emergence of a pattern of events that may be told about in ways conforming to a specific higher level pattern of narrative structure. The originators of the higher level narrative in

these cases are people active within the world, especially those who take part in planning long term goals or plans that result in sequences of events that lead to achievement of the goal or fulfillment of the plan, such as players, live teams, game masters and guild leaders.

The narrative system is also open in the way that the history of the world is told in many different ways, and from many perspectives. Most virtual world live teams write regular newsletters about what is happening in the world and have official websites where this history is gathered and edited. In some virtual worlds it is possible to leave individual marks which become part of the worlds history. One example is *A Tale In The Desert* (ATTD) where players of the first version of the game build monuments that will bear the player's marks in the second version of the world. Another, example is the official scribe, or in-game journalist James Wagner who writes about events in *Second Life*. The most massive resource of documentation of the history of a world is the player diaries and forums on the websites of different guilds. It is also common for whole guild histories to be written by the most active players in a guild, highlighting marriages, wars that have been won and other important happenings.

ENLARGING THE PARADIGMS OF VW GAME DESIGN TO ACCOMODATE VARIETIES OF GOALS

Progress of player characters in virtual game worlds is commonly expressed by numerical values that increase, representing strengths and skills needed in the specific game world. The type of progress that Bartle points to in the development of the self by embarking on the player's journey is equally present, but not expressed via the game interface. It is questionable if values of personal development of the player can ever be expressed in such a setting. These two perspectives represent very different ways of looking at progression; the

first numerical one is instrumental while the second one is more intangible. Bartle has described the representation of the player character in terms of levels of immersion; going from avatar, to character, to the highest level of immersion where the representation is a persona - a state where the player does not make a difference between himself and the character. A player who feels that the game character is a persona rather than an avatar has not only achieved statistical proofs of achievement, but also a sense of synthesis, of really *being there*, in the game world. The paradigm of levelling up has been so prominent that it is important to remember that there are other types of progress and development that can be achieved. Possibly the fact that virtual game worlds are open systems that can accommodate goals deriving from other people than the creators of the games, can open up the common levelling paradigm into the development of systems that support a wider variety of goals. This could have the effect of an increasing focus, both in design and implementation, on expressive agents.

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