Gameplay Design Patterns for Believable Non-Player Characters

Petri Lankoski
Media Lab
University of Art and Design Helsinki
Hämeentie 135 C
FI-00560 Helsinki, Finland
petri.lankoski@uiah.fi

Staffan Björk
Interaction Design Collegium
Computer Science and Engineering
Chalmers University of Technology and Göteborg University
SE-412 96 Göteborg, Sweden
staffan.bjork@chalmers.se

ABSTRACT
Descriptions of humans require several qualities for people to experience them as believable: human body; self-awareness, intentional states, and self impelled actions; expression of emotions; ability to use natural language; and persistent traits. Based on these we analyze non-player character Claudette Perrick in *The Elders Scroll IV: Oblivion* to detect how these qualities can be created in the interactive environment of a game. We derive the gameplay design patterns *Awareness of Surrounding, Visual Body Damage, Dissectible Bodies, Initiative, Own Agenda, Sense of Self, Emotional Attachment, Contextual Conversational Responses*, and *Goal-Driven Personal Development,* which point to design choices that can be made when designing believable non-player characters in games.

Author Keywords
Gameplay design patterns, non-player character, game design, *The Elder Scrolls IV: Oblivion*

INTRODUCTION
The fields of literature, theatre, film, and other media studies have long argued the importance of characters to stories [2, 10, 11, 20]. Similarly, events in games can be interpreted as a story [6] and also here characters are important: characters and intentions are central in structuring events in intelligible form [14]. However, the inherent interactivity of games raises a question if new requirements exist. That is, how should characters be design for games in order to support the interactive experience of playing a game?

The focus of this paper is on character driven design related to gameplay. This to explore what specific requirements the field of gameplay design has to consider when doing character design. From the hypothesis that the believability of characters in games depends on how they are depicted in narration and gameplay we pay special attention to the lesser-developed area, the gameplay believability of characters. To reduce the scope of our exploration, we look at non-player characters (NPCs) since avoiding the design of player characters limits the need to discuss subjects of agency and self-expression. A long-term goal with the approach is to show how character design in games can become a vehicle for creating novel conflict structures, primarily social conflicts. This can offer a complement to the primarily physical forms of conflict (i.e., solving game tasks by attacking, avoiding, following, or stealing from characters) associated with characters in current games. This is not to say that that all games containing characters needs, by necessity, guide players to infer them as multi-dimensional characters. *Doom* [13] is engaging without complex characters or narration; *Tetris* [18] does not present characters at all. Choosing techniques depends on what kinds of effects designers are seeking.

As we are focusing on designers' means to control their players and guide their gameplay we will in passing discuss and consider social and psychological forces that influence the players. As we are not studying how players interpret a game, we pay little attention to (possible to probable) disparity between designer's intentions and players interpretations or affects. It should be sufficient to say that a game can fail to convey intended effects.

BACKGROUND
This section presents the theoretical stance of the paper through a series of different perspectives. The first deals with concepts of narration, narratives, and gameplay. This is followed by models humans have for judging experienced phenomena as characters and how character traits or qualities are perceived in terms of narration. We also discuss criteria for believability based upon previously introduced concepts.

Narration, Narratives, and Gameplay
As a basis for our discussion we use "the structures of player interaction with the game system and with the other players in the game" [5] as a definition of *gameplay*. This definition is used to stress the part of playing a game that concerns seeing how it is possible to affect the game state.

Situated Play, Proceedings of DiGRA 2007 Conference

Further, it is meant to be disjunctive from narrative comprehension of game events and game aesthetics, so that it is possible to talk about the intended experience of playing a game from any of these perspectives. We do not wish to discuss the relative importance of the different perspectives in influencing the overall experience of playing a game; this probably being a very subjective for each individual player. Nor is it possible to say that they do not affect each other, e.g., it is difficult to see how planning is possible without any form of presentation. Likewise, the aesthetical experience and narrative comprehension of a game naturally consist of the actions done by the player and the motives for doing them. However, each of the perspectives can be given primary attention and for in the following we will change between the perspectives.

We use *narrative* to refer narrative interpretation of game events and *narration* to point to structures on how a game reveals (or left untold) information in relation to the progression or events. The game characters intentions and personalities, like real people or characters in film, are constructed predominantly from their actions in contemporary computer games [8, 15]; narrative comprehension and character interpretation have close connection. Therefore, gameplay that contains characters is likely to be interpreted as story. Generally speaking, gameplay is interpreted, (mostly) in relation to narration the game offers. In this context, questions such as what does Tetris represent become irrelevant; abstract presentations can also have meaning in relation to social conventions—but that outside of our scope.

By believability we mean that game is consistently structured in terms of narration or gameplay so that it is possible to build and maintain coherent event indexes where each event or action is put in relation to each other, i.e., indexed by time, space, causality, intentionality, and actor/protagonist. [23]. In games with complex narration both gameplay and narrative believability need to be preserved. That is, gameplay believability does not override the need of narrative believability (although the game most likely can be played even if the narrative believability fails). In one sense, the requirements of gameplay believability implies that the narrative, and specifically the events caused by NPCs, must by in accordance with players' actions for narrative believability to hold. Notably, narration and gameplay can be somewhat incoherent, or incoherence is needed for certain effects like surrealistic feel and dream likeness (see [12, 15]).

Person Perception and Understanding Intentions

Our starting point for character believability comes from the claim within cinema studies that all persons share the following qualities:

- human body;
- self-awareness, intention states, and self-impelled actions;
- expression of emotions;
- ability to use natural language;
- persistent traits. [20]

When encountering these qualities it is natural to initially assume that a human character holds them, e.g., perceiving a human body or noticing communication through natural language implies a human character. These qualities are predominantly assigned from perceivable physical qualities like face, body, voice, and actions. Descriptions, name, and titular names have also role in assigning qualities. [20]. Smith argument is specific to film, but the principles are applicable to games also, as the basis of argument is derived from how people make sense of others (for detailed look in support of generalization of the claim, refer to [14, 17, 19]). Currie points out that genre and other filmic or literary conventions have also role in interpretation [7], which also transfers to games.

Taking a more general perspective, Daniel Dennett has described a model how people categories phenomena they encounter in the real world in order to most efficiently predict their behavior and interact with them [9]. According to the model, for each category people take a particular stance to understand the potential actions and reactions the phenomena can take. The first category, *the physical stance*, describes the stance taken towards phenomena that accord to strict laws and has no apparent ability to actively affect its environment. The second category, *the design stance*, is used for phenomena that are too complex to understand from a set of rules[1] but one can predict how it behaves from assuming that someone has created the phenomena for a certain purpose. This purpose can then explain the possible events the phenomena can cause and how it will react to actions observable by it. Examples of phenomena that people usually take a design stance towards are computers and cars; one does not need to (and probably cannot) understand how all the components of these interact with each other but one can still use these effectively by assuming that they are created for a certain purpose and using them in accordance with this purpose. The last category, *the intentional stance*, is used when the phenomena is most easily predicted by assuming that it has goals and can actively perform actions to pursue these goals.

Although the model presented by Dennett originally described for phenomena experienced in the physical world (as opposed to a virtual world inside a game or computer system) and the laws being simply the laws of nature, the stance can be generalized to include computer programs and virtual game components. In fact, the field of intentional agents within computer science can be seen as creating programs to which humans take the intentional

[1] Note that the set of rules may be fully understood. The design stance is taken when the *effects* of their interactions are not possible to visualize in one's mind.

stance (see, e.g., [19] on how people treat representations or even computer as they are persons). Thus, the model can be used to describe the possible stances a player can take towards all phenomena encountered in a game. When creating a character and wishing the player to perceive this as a person in accordance to the qualities listed above, it follows that not only the thematic elements (like visual appearance) must be met but also the interactive qualities of self-awareness, self-impelled actions, expression of emotions and ability to use languages. We equal the perceiving of these latter qualities with taking an intentional stance.

Summarizing, when we think that something is an intentional agent we try to understand its' behavior in terms of what mental states can explain the behavior. Understanding intentions of the agent enables us to predict how the agent will behave in a given situation. [8]. However, in games players can interact with the models that represent the characters. This is in contrast with media where only the narration of characters' actions and reactions are described, and more importantly the events characters are reacting to are not controlled by readers or audiences. In these one cannot test assumptions of believability through experimenting by playing the same sequence several times and providing different stimuli to the characters each time. In games players can test such assumptions by interacting in different ways with the character, especially in games where it is easy to use patterns *Save-Load Cycles* or games design for *Replayability* (for details about these patterns, see [5]). Therefore, the gameplay believability of a character is dependent one being consistent for all types of stimuli a player can expose the character to.

METHOD

The requirements of believability given above indicate that players may be susceptible to taking the intentional stance towards NPCs when first encountered if the thematic presentation is believable. As players then interact with NPCs this stance can change depending on how easily it is to reduce the complexity of the NPCs responses. For example, NPCs that always answers the same way in a conversation will invite the player to take a physical stance to the NPC (at least during conversations) while only having a few options of actions when haggling with a NPC may invite a design stance if the algorithm determining the outcome is sufficiently advanced.

As a method of deducing what patterns in the interaction can cause the believability to fail an analysis of a NPC by playing the game *The Elder Scrolls IV: Oblivion* [3], hereafter *Oblivion,* is presented. The assumption is that each identified potential failure points to a requirement on gameplay that is related to the believability requirements. The starting reference point of the analysis will be the qualities identified as being required for perceiving phenomena as people. Although many of the design choices causing potential failures can be explained through gameplay choices, e.g., of balancing, these will not be discussed since the focus of the analysis lies in how a potential intentional stance can be reduced to other stances due to the design of the interaction with a NPC.

The requirements will be introduced as gameplay design patterns [5, 21]. Gameplay design patterns "are semiformal interdependent descriptions of commonly reoccurring parts of the design of a game that concerns gameplay." [5]. A patterns consists of a name, definition, general description, description on how the pattern can be used, description of consequences of using the pattern, relations to other patterns, and references to previous work in the relation to the pattern. [5]. An example of the gameplay design pattern is Level, which is defined as: "[a] level is a part of the game in which all player actions take place until a certain goal has been reached or an end condition has been fulfilled." [5]. Unfortunately, no full account of the pattern can be given here due the limited the size of the presentation format.

The reasons for using design patterns as the format for the requirements are several. First, a significant collection of gameplay design patterns (near 300 individual patterns) together with their relationships to each other have already be documented [5], allowing the requirements identified to be integrated into an already existing structure of game design knowledge. Second, the format of gameplay design patterns is explicitly designed to support both analysis and design, thereby being a potential tool for both academic analysis and practical design work. Third, unlike other similar approaches (such as the 400 rules [1]) the collection has the aims of not being normative. This is important for supporting design processes, since the rationale for arguing to aim at having believable NPCs depend on the type of game and the design goals of the designers.

Again, given the limited size of the presentation format, the identified patterns will not be fully described but only described through their names (in title cased italics), a one-sentence description, and their relation to other patterns identified in this paper. Although the names of the patterns could in some cases be directly taken from the required attributes this is avoid for two reasons. First, other names may be appropriate either due to being not having so strong connotations within another research field than game research or due to fitting the already implicitly established naming conventions in the existent pattern collection. Second, it allows a clear distinction between the attributes and the patterns.

ANALYSIS OF CLAUDETTE PERRICK

The choice of using the game *Oblivion* as a basis is due to the fact that the designers of the game have the outspoken design goals of making a open-ended game world inhabited with believable character [4]. Further, it is regarded by its' players as being one of the most successful attempts at this [22], and therefore the identified issues should not be viewed as negative criticism towards the game design but

areas still needing solutions and *Oblivion* being one of the games that has come farthest in exploring this area of gameplay design.

The character *Claudette Perrick* (hereafter Claudette) was chosen mainly because she represents a typical NPC in the game with which the player may interact for several reasons: learning rumors, succeeding with quests, and trading. She is also a potential target for thieving characters since her goods are valuable. Other characters will be mentioned when they highlight additional traits supported by *Oblivion*.

The parts of the chapter are organized as follows: after a general overview each of the requirements introduced above are examined individually to find more specific details of how these can be supported in games. The observation made in the following section can be reproduced by playing the game and using save files; the only requirement is that the player character used can open locked doors (through lock-picking or magic) to recreate unlawful entries into Claudette's shop.

General overview

Claudette is a female Imperial (one of the human races in the game) owning the shop The Guided Carafe in the Imperial City, the capital of the country of Cyrodiil that the game takes place within. She lives by buying and selling alchemical ingredients, tools, and books and has her sleeping quarters on the second floor of the shop. She spends most of her waking hours, from about 8 am in the morning to sometime after 8 pm, running the shop but does go to a park-like area called The Imperial City Arboretum to spend her evening hours. She retires to her sleeping quarters after a couple of hours gossiping with other characters and sleeps soundly unless disturbed until about 8 am when she opens the shop.

Before looking at how Claudette fulfilled the qualities of gameplay believability, a general observation is first appropriate. For any action directed towards a character to be treated as interaction both parts must have the possibility to detect each other and the events caused by the others actions. This leads to a first pattern, *Awareness of Surroundings*, which not only refers to being able to detect players' avatars but all phenomena in the world which can be affected by players' actions since these can be seen as part of the interaction. Claudette turns to face a player character whenever it is openly[2] in the proximity of her, so she could be argued to manifest the pattern.

Human Body

Besides the visual appearance, and the sounds Claudette causes by her actions or utterances, Oblivion provides basic physical attributes of Claudette's body, i.e., it takes up space and moves between locations in a consistent fashion. However, regarding what physical interaction the player character can have with her only the most rudimentary actions are possible: bumping into her, attacking her, throwing spell, and shooting arrows at her. Bumping into her moves her and stuff dropped on her bounces but this has no other detectable effects.

Looking at more macabre aspects, hitting her with a weapon causes blood to momentarily appear but leaves no visible wounds or scars. Such a feature in a game could be described as *Visual Body Damage*, i.e., that damage to a character is represented through changes in the character's appearance, and not only strengthen the similarity to real world human bodies but provide gameplay feedback on past and current injuries. This lack of *Visual Body Damage* in Oblivion is carried beyond death in that corpses of people and creatures in Oblivion have no visual indications of what killed them. Although corpses can be looted and removing of armor is indicated, the collecting of furs from dead animals does not change their physical appearance. There may be aesthetical, ethical, and moral reasons why *Dissectible Bodies*, i.e., that body parts can be removed from character bodies, are not part of the game but its absence does make the impression of human bodies less realistic.

Self-Awareness, Intentional States, and Self-Impelled Actions

Beginning with the last attribute of self-impelled actions, Claudette can be observed to start moving on her own accord. Her daily routine includes moving between the counter in her shop, the Arboretum, and her bed. In addition, she avoids walking into other characters but more interestingly acknowledges their presence by greeting them. This can be described as a pattern of *Initiative*, i.e., that a game component can take an action that is not directly perceived as the consequence of an event. However, *Initiative* also relies on taking place in the appropriate context, e.g., ignoring customers in a shop to go to bed simply because it is the appropriate time to sleep. Thus, *Initiative* has a relationship with *Awareness of Surroundings* in that the former requires the latter. Claudette passively observes the requirement of proper context by waiting for player characters to leave her shop. Another way she manifests *Initiative* and *Awareness of Surroundings* is through moving within her shop to always be able to directly observe the player character.

That Claudette moves around to observe that nothing is stolen in the shop provides the basis for assuming she has the goal of avoiding losing goods to thieves. This can be further confirmed by that if she observed a theft she calls for guards and tries to take back the stolen goods. On a more fundamental level, she defends herself if attacked included equipping armor and using magic spells, indicating a goal of self-preservation. These goals are gives her an *Own Agenda*, i.e., a character can be observed to strive towards personal goals, that provides a basis for

[2] In contract to when the player character is successfully sneaking into her proximity.

taking the stance that she has an intentional state. Claudette also displays goals through a quest related to her regarding the rogue trader Thoronir that initially refuses to join the local merchant society. However, the two first observable goals can be observed through the presence of the *Initiative* and *Awareness of Surroundings* pattern while the quest goal is only revealed as reactions to player actions (specifically, being mentioned when the player first initiates a conversation with her). There are gaps in the *Awareness of Surroundings* for the other goals as well: Claudette does not mind being pushed around, having weapons waved in front of her (or heavy axes dropped on her head), or magic being cast in her shop. (Similarly, prison guards in Oblivion can pass by cells with open doors and no prisoners in them without reacting.)

Related to *Awareness of Surroundings* and *Own Agenda* is the fact that honest merchants in Oblivion such as Claudette do not buy stolen goods. This indirectly supports a player view that Claudette does not want to have her goods stolen by making it impossible to sell it back to her; offering the player the possible interpretation that she is so observant with her goods that she can recognize each of them from any other similar goods. This interpretation does however not hold up to closer examination since she treats goods stolen from other shop owners exactly the same way.

Claudette displays fundamental self-awareness since she can navigate in the game world. Further, she will attempt to flee when seriously hurt in combat. These two abilities together support the conclusion that she has a *Sense of Self*, i.e., a character can monitor game state values related to that character and based actions on that information. A part of self-awareness is related to reacting to closures of one's own goals, i.e., either successes or failures. This points to a relation between *Own Agenda* and *Sense of Self* in that the former can be used to manifest the latter. Claudette shows examples of this, displaying different sets of moods depending on whether she is greeting customers, fighting a battle, trying to reclaim stolen goods, or fleeing an assailant. However, there are easily shown omissions to the completeness of the pattern in the game; Claudette is completely unfazed by the absence of goods if only the goods are removed without her observing the act of stealing.[3]

Food and drink exist as objects in Oblivion and players can notice NPCs consuming these. Although this could be seen as promoting views of a *Sense of Self* in these characters a problem arisen due to the fact that not all characters do this, specifically unlike some other characters it is not part of Claudette's daily routine to visit an establishing serving meals. Therefore the act of eating and drinking becomes just that, an act, which is not related to any sense of hunger or thirst in a character.

Expression of Emotions

The requirement of characters being able to express emotions is not only the functional ability to do so but also to express emotional responses that are believable as responses due to the context. The significant resources have been used in Oblivion to make character animations and voice acting support expressions of emotions, so on the narration level Claudette supports this attribute. The question then becomes if she does respond properly to the context.

Given that Claudette displays goals of securing her goods from theft naturally supports the presumption that she is emotionally attached to this goal. The active responses of calling for guards and attempting to retrieve the goods when discovering thieves, as well as the anger displayed, support this. However, if the thefts were not observed Claudette's affects are unaffected, even if the shop is completely emptied. This points to gaps in her display of interest in the goods, or in more general terms that Claudette does not display consistent *Emotional Attachment*, i.e., that a character has a noticeable emotional relation to a specific type of game phenomena. Stealing good right in front of Claudette does in fact negatively affect her disposition toward the player character, but this effect is small and will not affect conversations with her unless certain thresholds are passed. In fact, if one is caught and pays the fines related to ones crimes, she will revert back to her earlier opinion about the player character. Another example of Claudette's lack of *Emotional Attachment* is that she completely disregards if the player character jumps around on tables in her shop and makes objects fall over (nor does she ever pick them up to tidy up).

These effects are very easy to detect as a player since the preposition of a NPC towards the player character is given as a number between zero and a hundred accessible in a mini game that is part of the conversation system in the game. The mini game provides the social interaction available in the game besides physical actions and choices of topics in the conversation menu. Basically the mini game consists of trying to determine four emotional states of a character and then allocating weights to different actions as effectively as possible (which can be either to make the character like or hate the player character). Although the actions are themed (admire, boast, coerce, and joke) one can ignore these at still play the mini game with maximum efficiency, making the mini game basically a test of how well players can judge what emotional responses the animators are trying to convey.

Ability to use Natural Language

Natural Language can be seen as consisting of two components: non-verbal communication through the use of movement, posture, hand movement, and facial expressions; verbal communication through the use of

[3] The other possible explanation, that she quickly accepts the losses and moves on, is neither supported by her actions or displays of emotions after the goods have been stolen.

spoken language, typically very resilient to interjections, interruptions, and rephrasing. Claudette's ability to perform non-verbal communication has already been touched upon through the facial expression mini game; the only other aspect worth mentioning is that all verbal communication is accompanied by facial expressions.

Verbal communication takes places through a structured call-and-response pattern where the player initiates discussion about a subject and Claudette responds. Besides the action to initiate conversation, all subjects are chosen by selecting general (e.g., "Rumors" and "Directions") or specific (e.g., "Thoronir" and "Nirnroot") entries in a menu. Since Claudette can respond in full sentences one could make the assumption that she can use natural language but the *player character* cannot. However, Claudette responds the same way about a topic if ask twice in a row and starting and stopping conversation many times directly after each other has no effect on the conversation. Further, game time stops when a player has entered the conversation menu and neither the player's or NPC's speech act can be interrupted while it is being performed. This unnaturalness of verbal communication with Claudette can be attributed to the lack of contextual information: Claudette repeating of the same answers shows that she is not aware of the current conversational context is performed and thus makes the responses similar to voice mail greetings. Avoiding this would require *Contextualized Conversational Responses*, i.e., the characters responses in a conversation depend on all relevant game states.

Persistent Traits

Claudette's most obvious persistent trait is that she maintains the same general physical appearance throughout the game. Less visible but easily observable is that game values related to her *Sense of Self* are preserved over time, e.g., her reaction to the player character remains the same unless the player character has done action to change it. Similarly, her *Emotional Attachments* remain unaffected over time unless events have taken place that would plausibly change them.

Interestingly, some of the patterns identified also have to be persistent traits. For example, Claudette displays *Own Agenda* both through trying to not having her goods stolen and through the quest regarding Thoronir. The first goals are *Continuous Goals* (see [5]) and thus naturally should be persistent since they cannot be completed. The player character can however complete the Thoronir quest after which Claudette is left only with her continuous goals. Thus, the *Own Agenda* of a character becomes weaker when a player character helps NPCs reaching their goals. Avoiding this would require that characters had *Goal-Driven Personal Development*, i.e., that characters update their *Own Agenda* with new personal goals after the closure of existing goals.

In contrast to strictly linear games, the player can assist, obstruct, or ignore Claudette in reaching her objectives without making further gameplay impossible for the player. This means that if Claudette is to have a *Goal-Driven Personal Development* the new goals she sets have to be dependent on the outcomes of the previous goals. These series of goals create a number of different potential life stories for Claudette which can be described as if she as an *Open Destiny*, i.e., that a character has different narrative arcs between game instances due to the events that took place in the game session. Regarding most of her goals Claudette cannot be said to have an *Open Destiny*: the success or failure of her goals do not change her fortunes in life in a perceivable way. She is not bankrupted by having all her goods stolen, forgives people threatening or attacking her if they serve their time, and the quest regarding Thoronir cannot fail[4] so her destiny is set for all these events. Only on a very general level does Oblivion support Claudette's *Open Destiny* since for each individual game instance Claudette may survive to the end or die at some point. But this pattern is not consistently implemented in the game: Thoronir cannot be killed before the quest revolving around him is completed but later the game allowed the player to kill him.

CONCLUSIONS

It should be stated that the patterns identified through the analysis would not necessary make the experience of playing *Oblivion* better if they were present. Each game has specific gameplay goals and we do not claim that all games would be better by having characters that were as believable as the production of the game could allow. As one example, one possible reason why characters in Oblivion ignore having a weapon pointed in ones faces can be a trade-off with general playability; having to sheath weapons before interacting with neutral or friendly characters may feel like forcing players to behave in a certain way which does not promote the intended core gameplay. More generally, the decision to put NPCs in the limelight of a gameplay experience is not a single decision for a game but one that has to be taken for each and every character in that game.

The issues mentioned in the analysis typically stack up. For example, *Oblivion* contains a quest regarding finding a number of Nirnroots for the alchemist Sinderion and one such plant exists in a pot in Claudette shop. However, one cannot try to buy it from her (it does not show up in the interface for buying and selling) and choosing the topic Nirnroot in the conversation after getting the quest only gives a good luck wish regarding the mission. Stealing the plant is the only option to get that specific plant, but doing this successfully makes no difference whatsoever in Claudette's behavior. In fact, she does not react as if anything has been stolen even though the interface shows that the action of taking it is an act of stealing. Explaining this behavior as one of a believable character requires one

[4] Although the quest can be short-circuited by killing Thoronir's supplier Agarmir.

of several assumptions (like she has a mental block, she finds it so uninteresting that she doesn't mention it even though she know the player character is interested in it, or she has forgotten it) that are difficult to verify. Assuming that the designers have intentionally made her behave this way[5] for overall gameplay is easier. Moreover, the AI systems running characters such as Claudette have limited range of competences due to the difficulties of achieving AI with the ability and flexibility of humans. This implied that players interacting sufficiently long with character driven by intelligent agents in a game will notice the limitations and thereby break the illusion of intentionality and take another stance towards the character.

This study leads to the conclusion that the objective of creating a fully believable NPC within a game may be an impossible one. However, instead of treating this as a holy grail quest which is doomed to fail, the different requirements identified and categorized as patterns show how the design space of games can be broaden to incorporate richer character design that affect gameplay besides narration. In one sense, it allows a widening of the gameplay scope, which is more social in character than physical and mental, thereby pointing to new potential gameplay styles. Moreover, criterion for believability set in this paper is very strict one and it is likely that expectations that relates genres influence level of believability required of characters to satisfy expectations of players like in film: John McClane in *Die Hard* [16] is only partly believable (i.e., corresponding realistic expectations based on our everyday experiences), but in many cases that seems to be enough.

It is notable that mastering a game requires understanding it as a system; reducing all components in the game so they can be understood by taking the physical stance towards them, or habit-forming. It is outside the scope of this paper to discuss this further. It is enough to note, that players' engagement a character may depend on various factors. So by striving to make NPCs more believable as characters we are introducing new challenges for the (gamist) players. This does not however need to be seen as a conflict between game designer and player but rather as enrichening the gameplay by making the system more complex to understand fully.

The analysis here can be seen as an initial survey, it would be possible to identify more patterns through searching for inconsistencies in the game with greater details. In fact, we have identified several additional patterns (e.g., *Free Text Communication, Gameplay Integrated Conversations*, *Ambiguous Responses*, and *Unpredictable behavior*) but due to space constraints have omitted them. More patterns could also be distilled from finding more general parent patterns but these would run the risk of becoming more and more hypothetical the farther they were from being easily implemented. However, not all inconsistencies need to be related to characters being unbelievable, inconsistencies can also be important for creating specific playing experience: surrealistic feeling, dream likeness, and absurd effects.

The patterns described here have not been documented to the level of detail as in Patterns in Game Design [5]. This remains to be done in the future after detailed studies of each area described by the patterns. The patterns described here do only describe the basic requirements for NPCs with gameplay believability. To make stronger use of these their character traits and relations to other characters should be included to increase the likelihood of interesting conflicts to emerge from gameplay. Although it may be challenging to base these new patterns of examples of gameplay in games, we believe that they can be distilled from literary fiction, film, and theater at least if they are created by expanding on the patterns identified here. However, this issue requires further research.

[5] Or it was missed through out all play testing, or ignored due to lack of resources.

REFERENCES

1. The 400 Project. Available: http://www.theinspiracy.com/400_project.htm.

2. Aristotle. *Poetics.* Penguin Books, London, 1996.

3. Bethesda Softworks LLC. *The Elder Scrolls IV: Oblivion*, 2006.

4. Bethesda Softworks Announces The Elder Scrolls IV: Oblivion. Available: http://www.elderscrolls.com/games/oblivion_overview.htm.

5. Björk, S. & Holopainen, J. *Patterns in Game Design.* Charles River Media, Hingham, 2005.

6. Branigan, E. *Narrative Comprehension and Film.* Routledge, London, 1992.

7. Currie, G. *Arts & Minds.* Oxford University Press, Oxford, 2004.

8. Currie, G. *Image and Mind: Film, Philosophy, and Cognitive Science.* Cambridge University Press, Cambridge, 1995.

9. Dennett, D. *The Intentional Stance.* The MIT Press, Cambridge, 1996.

10. Egri, L. *The Art of Dramatic Writing.* Simon & Schuster, New York, 1960.

11. Forster, E.M. *Aspects of the Novel.* Penguin Books, London, 2000.

12. Grodal, T. *Moving Pictures. A New Theory of Film Genres, Feelings, and Cognition.* Oxford University Press, New York, 1999.

13. id Software. *Doom*, 1993.

14. Lankoski, P. "Goals, Affects, and Empathy in Games," in *Philosophy of Computer Games* (Reggio Emilia, Italy, 25-27 January, 2007).

15. Lankoski, P. "Building and Reconstructing Character: A Case Study of Silent Hill 3," in *Changing Views: World in Play* (Vancouver, June 16-20, 2005), DVD.

16. John McTiernan. *Die Hard,* 1988.

17. Morrison, I. and Ziemke, T. "Empathy with Computer Game Characters: A Cognitive Neuroscience Perspective," in *Proceedings of the Joint Symposium on Virtual Social Agents* (Hatfield, UK, 12-17 April, 2005), pp.73-79.

18. Alexey Pazhitnov. *Tetris*, 1985.

19. Reeves, B. & Nass, C. *The Media Equation.* CSLI Publications, Stanford, 1998.

20. Smith, M. *Engaging Characters: Fiction, Emotion, and the Cinema.* Oxford University Press, New York, 1995.

21. Björk S., Lungren, S., and Holopainen, J. "Game Design Patterns," in *Level Up Conference Proceedings* (November, 2003), pp.180-193.

22. The Elder Scrolls IV: Oblivion. Available: http://en.wikipedia.org/wiki/the_elder_scrolls_iv:_oblivion?oldid=104019611.

23. Zwaan, R.A. and Radvansky, G.A. "Situation Models in Language Comprehension and Memory," *Psychological Bulletin,* 123, 2 (1998), pp. 162-185.