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**An Analysis of Persistent Non-Player Characters in the First-Person Gaming
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An Analysis of Persistent Non-Player Characters in the First-Person Gaming genre 1998-2007: a case for the fusion of mechanics and diegetics

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No-one has ever carried out a qualitative analysis of computer game content across a representative sample of an entire genre. This represents a glaring omission in the literature.

Malliet (2007) puts it thus: “Only a few researchers with a background in media sociology or psychology have done the effort of analysing a number of games, taking into account aspects that go beyond the binary oppositions of ‘violent vs. non-violent content’ or ‘sexist vs. non-sexist content’”. His study, concerned with the representation of violence, analyses 11 games from across several genres. Malliet cites a number of other scholars: Dietz (1998), Smith et al (2003) and Brand et al (2003) also carrying out content analysis, each with larger samples (33, 60 and 130 games respectively) and all tightly focused around a pre-existing thematic. Appelman (2007) recently presented a meta-analysis of game research published in the three DiGRA international conferences; although there are a substantial number of game analyses, he has confirmed that there has not been a single instance of a genre-wide content analysis programme, nor is he aware of any existing elsewhere in the literature (personal communication, 21st January 2008). Put simply, the published paper, which analyses the content of games across a single genre, searching for patterns, themes, symbols, structures and their relationships to gameplay and game mechanics does not exist. This is a quite extraordinary situation.

The reasons for this may be pragmatic. Even a simple, relatively short FPS game such as *Halo* (Bungie 2002) takes in 10-12 hours of play. Assuming the analysis will be carried out with only a single play through, with no retrospective analysis of footage captured during play, no cross-referencing to the literature, walkthroughs, reviews, and so on, this represents a significant time commitment to any such project. There may also be theoretical and philosophical issues operating against such an endeavour. For the last ten years, a debate about the relative narrativity of computer games, and the dominant conceptual approach to their study has raged in the field of game studies. Although this does appear to have subsided in recent years, it has drawn the attention of many scholars in the field, arguably sidelining the issue of game content to the question of how one should approach it.

Deep analysis of game content has been made in relation to individual titles, such as Davidson’s discussion of *Ico* (2003) or by comparing titles across genre, as in Atkins’ argument for the game as a fictional form (2003), but what is lacking is a map of any given genre’s content. What does happen in a game? Are there prototypical plot structures or archetypical characters? What generalities, assumptions and core devices are ubiquitous across a genre? These are important questions currently

without answers. As such, it is thus immensely problematic to discuss genres in any great detail, as baseline knowledge about the landscape of these genres is missing.

For the last five years I have been investigating the content of major FPS games, cataloging types of worlds, agents, avatars and plot structures. The analysis is based upon a conceptual framework for the relationship between story and gameplay which rests on the simple notion that they are simply sides of the same coin; that there is no critical or paradoxical divide between them.

What is presented here is part of this exploration: an analysis of persistent non-player characters (PNPCs), drawn from 34 commercial releases. It is hoped that this will a small contribution to filling in the data gap.

Numbers and core functions of PNPCs

The overwhelming majority of FPS games include at least one PNPC, featured in either cutscenes or in-play, who play a significant role in story or gameplay. This term should thus be defined. The idea of a non-player character implies that the agent in question has some form of individuality, that they are recognisable as a separate character from the background population. Clearly, *Painkiller's* (People Can Fly 2005) hordes of demons are not characters in any sense, they have no individuality. Further, each of *Halo's* marines is one of six 'archetypes' with no individuality attached to them. A similar principle is applied to *Quake 4's* (Raven Software 2004) marines, or *S.T.A.L.K.E.R.'s* (GSC Gameworlds 2007) Zone inhabitants who have individual names and occasionally some bespoke dialogue but no significant or ongoing distinguishing features. A non-player character, conversely, is an agent with such individual features, which represents a greater investment in terms of diegetic and system resources.

Persistent NPCs are those individuals presented in the diegesis who appear repeatedly or have a definable role in the world and plot. They are, to an extent, defined by diegetic significance rather than representation, as PNPCs like *Halo's* Cortana do not actually appear in the game as finite-state machine driven agents – that is, objects with dynamic and context-constrained independent control over their actions. When discussing PNPCs, therefore, it is a diegetic quality which distinguishes them: they are significant in the reality of the game, most normally due to a repeating significance in the story. Thus, although *Doom 3* (id Software 2003) and *Resurrection of Evil* (Nerve Software 2005) include occasional meetings with trapped scientists, who are named and do have bespoke dialogue, they do not repeat, and have no diegetic significance outside the sequence they occupy. They are NPCs, but not persistent. Equally, although the medics and traders who occupy *Hellgate's* (Flagship Studios 2007) key stations are persistent, and do have individual names, representations and a small amount of introductory dialogue, they have no significance outside the very limited affordance relationship they offer.

S.T.A.L.K.E.R.'s substantially non-linear game environment contains a large number of agents, controlled by the ALife engine, which enables them to conduct ongoing 'lifecycles' outside interaction with the player. This engine enables a more dynamic factionality to take place in the Zone between Duty, Freedom, Monolith, the Stalkers

and the military. However, whilst this means it is entirely possible for the player to constantly return to and talk to Nimble or Bes, they play no additional role in the developing game after delivering their informational payload (and swiftly run out of new things to say). This is to be contrasted with the traders Sidorivich, Barkeep or Sakharov. Likewise, although the player can return to and continue to receive quests from the large numbers of NPCs in *Hellgate*, only a few are active in the plot or development of the game. The same goes for the general population of *Quake 4*; just because all soldiers are named, and may even be re-encountered, it does not make them significant to either plot or gameplay to the same extent as Voss and the rest of Rhino Squad.

If PNPCs are defined by diegetic significance, it should be expected they will play a major role in driving the plot forwards; a key means of diegetically wrapping or adding diversity to the simple ludic framework of FPS play. It is telling that even *Painkiller*, possibly the least narrative (or narratively cohesive) game in the analysis still makes use of three PNPCs, even if these only exist in inter-episode cutscenes. According to the cutscenes, the repetitive action the player undertakes unlocks more diegetic information to the avatar than the player is aware of; the cutscenes carry on as if the player were privy to this 'lost' information. In other words, the PNPCs of *Painkiller*, through cutscenes, deliver a plot that is entirely absent from gameplay. This is an extreme instance, however, and in most games in the genre it can be suggested that PNPCs represent a powerful and easy to control tool for managing affect and atmospherics. *Painkiller* is significant because although its PNPS are diegetically significant, they have no gameplay function – they are not ludically significant.

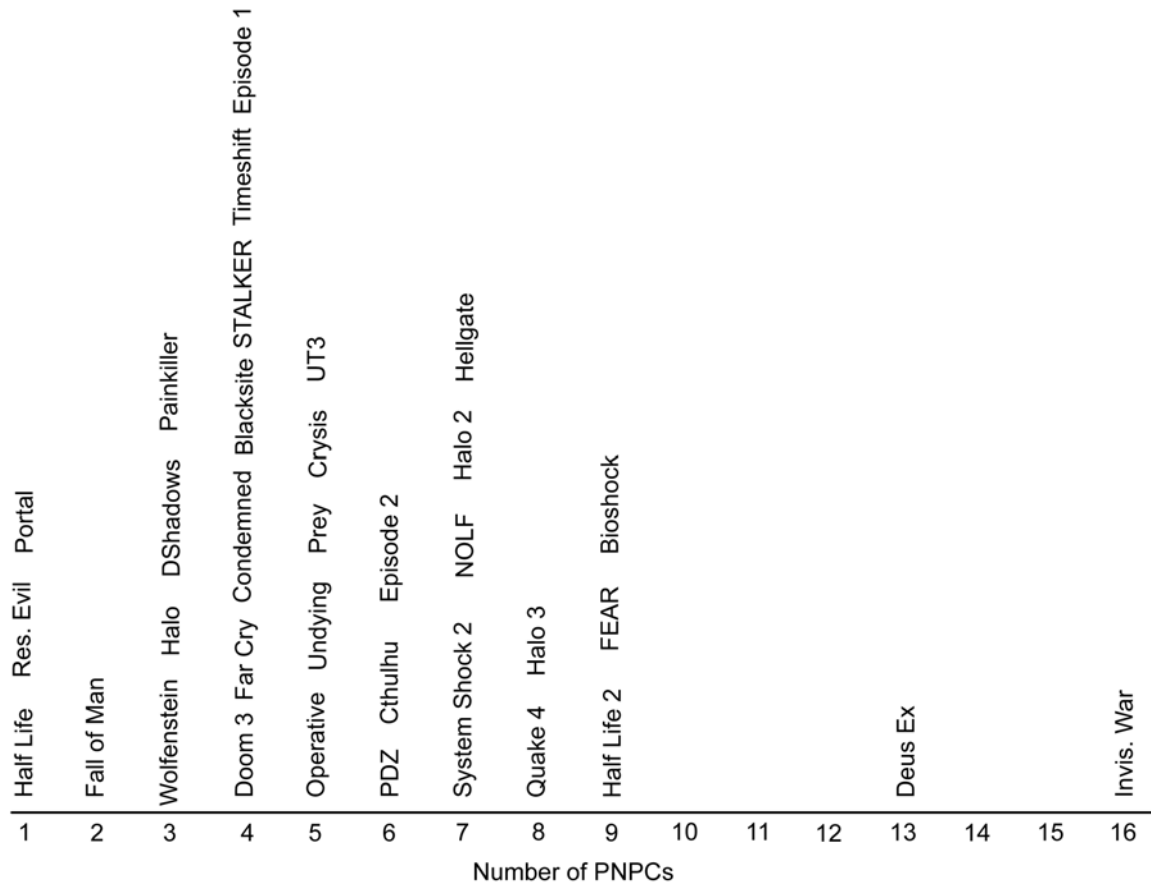


Figure 1: Number of PNPCs per game across the genre

A count of the number of PNPCs per game (Figure 1) shows that there tend to be somewhere between 3 and 9 PNPCs in each title. A distinction can also be made between PNPCs and their position relative to the avatar. They may be classified broadly as allies or enemies. A third group's motive shifts from one position to the other, or is exposed as a result of plot development. This enables a reinvention of relationships that reinvigorates the story by immediately drawing focus back along the entirety of the arc, exposing focalisation and voice and manipulating existing closure.

The most regularly used type of PNPC is the ally, occurring in all but five of the titles in the analysis. Following this is the enemy PNPC, as might be expected. It is interesting, however, that more allies than enemies are found, which suggests that PNPCs have a function that is more epistemological than challenge-based. That is, it is clearly not necessary to have a running nemesis figure, or even to always conceptualise end-game boss encounters as characters within the game. In *Quake 4*, Kane ultimately faces the Makron, but the Makron is never presented elsewhere in the game as a character. Likewise, the Nihilanth in *Half Life* (Valve 1998) is not a running, developed figure in the game's story; Lucifer has no part to play in what little there is in the way of story in *Painkiller*, and Betruger is reinvented in *Resurrection of Evil* as the Maledict, but does not feature in any meaningful way in the story until the

boss battle at the end. At the other end of the scale, *Half Life 2* (Valve 2004) presents Breen as a nemesis figure, but does not use him in a boss showdown at the end of the game. Interestingly, the same is true for Betruger in *Doom 3* and Krone in *Timeshift* (Saber Interactive 2007). *Far Cry* (Crytek 2004) does use its nemesis, Krieger, as a boss, but interestingly then follows this up with a 'non-boss' battle with the ally-turned enemy Doyle to end the game. *Undying's* (Dreamworks Games 2001) family members, together with Keisinger, are used as bosses during gameplay, but the final battle is saved for the Undying King, once again, not a featured PNPC. So not only do nemesis figures not appear to be the primary use of the PNPC in FPS games, but where game do use oppositional PNPCs, they are only occasionally deployed as bosses. This, together with the overwhelming deployment of allies, should lead to a consideration of an alternative key role for PNPCs in gameplay.

Firstly though, instances where the relationship shifts need to be considered, starting with the relative lack of opposition to ally characters. The *Deus Ex* series (Ion Storm 2000, 2004) break this pattern somewhat, probably due to the fact that its PNPCs are specifically designed to operate with a more flexible allegiance system. The first title has more fixed allied and oppositional PNPCs: it is impossible to be allied to Simons or Page, and the game will not progress without Everett as an ally. This leads to some breakdowns in functionality: it is possible to have a running gun battle with Everett in his laboratory, but he is improbably impervious to bullets and suffers immediate amnesia about the situation as soon as Denton moves to the next environment. However, with some of the more minor PNPCs, or for temporary sequences within the game and the occasional major PNPC it is possible to shift allegiance and establish a play-defined relationship. This is expanded in *Invisible War*, making it difficult to describe a comprehensive network of PNPC relationships. It must be absolutely noted, however, that this is hardwired into the core of game design and is significantly more complex to handle, perhaps an explanation for its rarity.

Aside from the *Deus Ex* titles, only one game in the study has a PNPC shift from opposition to ally during gameplay, Judith Mossman in *Half Life 2*. Armstrong shifts from enemy to ally between *The Operative* and *No-One Lives Forever* (Monolith 2000, 2002), but this can be excluded from in-game representation for obvious reasons.

The reason for this paucity is suggested by the central schematic dynamic of FPS play. As has been argued, the underpinning structural dynamic of the genre is the simplification of the ludic space (Author 2007), as opposed to ongoing or additive configuration, such as is found in MMOs or puzzle-games. Simply put, allies require more complex structures to function, both in terms of systemic capacity and affordances. In other words, they present more of a challenge for both system and player, in terms of input-output relationships. When an enemy becomes an ally, they require more complex interaction. When a traitor is revealed, the means of interacting with them reduces to the standard method of dealing with enemy agents in the general population. When Doyle is exposed as the real nemesis in *Far Cry*, the question of how Jack will interact with him the next time they meet becomes as simple as it is with the other nemeses, Crowe and Krieger. Not only is this easier to handle as far as system complexity goes, it also simplifies the field of response for the player, particularly given the semantic structure of the game, story, affordances

and avatar they are slotting into. Jack's response to Doyle's betrayal is as straightforward as it is justified by all other aspects of the game's content. On the other hand, Mossman becomes a more complex character through her re-affiliation with the rebels: she has already been exposed as a traitor earlier in the game, now she switches again, leaving her trustworthiness totally open to question. This potentially makes the experience more complex, as further interactions would be subject to doubt and the player would not be unreasonable in deciding to removing Mossman from the equation permanently, which would present a serious problem for the game. This presents a problem for the system, evidenced in the breakdown of diegesis of Everett's amnesia in *Deus Ex*. Thus, Mossman has to be removed from dynamic play as a result of the increase in complexity. In fact, it occurs at the very end of the game and she plays no further part. This is not entirely dissimilar to the branch involving Jock's death in *Deus Ex*: if the player follows a non-core exploratory route, they may uncover a bomb on Jock's helicopter. Should they not do this, the bomb explodes and kills Jock, but only after he has served his last function, transporting Denton to Area 51. This is a powerfully emotive diegetic occurrence, but it occurs outside any potential ludic impact.

It can be suggested that a similar issue of complexity is behind the relative lack of ambiguous or unrelated PNPCs found in the genre, which can be broadly separated into two types. In *System Shock 2* (Looking Glass Studios 1999), there are a substantial number of unrelated PNPCs developed over the course of the pre-game narrative, as deployed through the audio logs. These characters are fully non-interactive and have no dynamic impact upon gameplay, though they are occasionally used to deliver ludically significant information. Similarly, in *Doom 3*, Swann and Campbell really have very little to do with the player, being used to established a parallel story to add depth to the narrative spine being developed by the player's actions. *F.E.A.R.'s* (Monolith 2005) unfolding conspiracy operates somewhere between the two, oscillating between past and current events but with little direct link to play or the avatar. By contrast, the G-Man is hugely implicated in the ongoing narrative of *Half Life 2* (though less in the original), but it is perhaps telling that he only bookends the proceedings, and makes fleeting appearances in the beginning and at the very end of the first title. Other ambiguous, as opposed to unrelated characters, such as the reappearance of 343 Guilty Spark in *Halo 2* (Bungie 2004), are reduced to very minor roles and arguably should thus not really be counted as PNPCs at all. The lack of ambiguous PNPCs stands in striking contrast to the high degree of usage of ambiguity as a plot device in FPS games in general, which suggests that NPC character definition is primarily a decision predicated upon system constraints and an economical, functional approach. PNPCs tend to serve a gameplay purpose, and those classes of NPC that increase the general load on the system, in terms of both computational power and experience/affect management, are extremely rare. This leads back towards the question of the function of PNPCs, now underpinned by a better sense of what types are likely to be found in the genre.

Prior to this, two things should be noted. The first is that there appears to be no pattern between the dominant types of NPC and the overall number of PNPCs in each game. In other words, the most common use of PNPCs in a given game - such as allies in *Call of Cthulhu: Dark Corners of the Earth* (Headfirst Productions 2006), enemies in *Far Cry*, balanced as in *Condemned*(Monolith 2006) or dominant use of

unrelated PNPCs as in *System Shock 2* - does not appear to relate to the overall numbers of PNPCs present. Secondly, there is no discernible pattern between type of PNPC and date of release. This means that the issue of advances in game AI as a driver behind PNPC type can be dispensed with as there is no apparent move from the dominance of one type of PNPC use in the early period of the analysis (1998-2002) and the games released in the last year of the analysis (2007)

Direct and indirect functions of PNPCs

We should now consider how PNPCs are represented in games, and what it is they actually do. Firstly, it was noted whether the PNPCs are primarily represented in cutscenes or in-game. For example, although Anderson (*Quake 4*) does appear in two short cutscenes (aboard the Hannibal, and during his death), he is predominantly represented in-game, visually, as are the rest of Rhino Squad. Doyle (*Far Cry*), on the other hand, appears only briefly in cutscenes and as an in-game visual representation, so is determined to be predominantly represented as an in-game audio object. Finally, although Armstrong (*No-One Lives Forever*) makes a brief boss appearance, he is predominantly represented in cutscenes. This distinction enables a determination to be made of the relative systems cost of the PNPC: a dynamic, visually represented PNPC with the capacity to independently interact with the world (Alyx Vance, *Half Life 2*) is substantially more costly than a static cutscene character, even when these cutscenes are extremely short and integrated more fully into play (Alma, *F.E.A.R.*). In-game representations can be developed further by cataloging the relative dynamism and affordance capabilities of PNPCs: their ability to function independent of the player's input; to conduct themselves in combat; whether (when appropriate), they engage the player in combat; and whether they are explicitly tied to a goal. By cross-referencing the last two factors, it is possible to identify boss encounters and distinguish these from persistently independent PNPCs. The list of independently operating PNPCs is much reduced, confined to a small number of games: the *Half Life* series, *Quake 4*, *F.E.A.R.*, *Condemned*, *Far Cry* and *Prey* (Humanhead Studios 2006). Of these, *Prey* is represented by Talon, who is little more than a gameplay device and has no real 'character' as such, and *F.E.A.R.* by Jankowski and Sun-Kwon, whose input into the game is minimal. The same goes for *Far Cry's* Val, who only plays an active role in the Factory level of the game. In terms of true persistence, that is, active participation and representation throughout a significant proportion of the game, the list of in-game, visually represented, independently active PNPCs can be limited to *Half Life 2*, *Condemned* and *Quake 4*: it is only in these titles the most developed character objects in the classification are found.

The overwhelming majority of PNPCs are represented primarily through either audio or cutscenes. This should immediately highlight their limitation in terms of active, dynamic influence upon gameplay. When the kinds of information PNPCs have attached to them are examined, relating this in particular to the relationship between critical gameplay object attachment and critical information load, it is clear that although there are plenty of occasions where there is an attachment of a PNPC to a critical object, only rarely does not engaging with the information a PNPC is giving directly obstruct the player's capacity to progress in the game. In other words, finding

Jen is Tommy's constant long-term goal for the majority of *Prey*, but he (or the player) is never actually reliant upon her for this to occur. Likewise, when this goal shifts and progression is fundamentally predicated upon killing Jen, this information is not exclusively attached to her as a PNPC; she does not deliver the information required to progress. Nor are PNPCs often found delivering ludic information, that is, information directly pertaining to gameplay.

An example is probably the best way of illustrating this. On first meeting Kane in *Quake 4*, Medic Anderson says: "If you find a medic, they'll heal you up". This would not be dissimilar to Sgt Kelly telling *Doom 3*'s marine that their guns require ammunition. In fact, only a small number of occasions are found when PNPCs give direct information about gameplay function: in *Deus Ex*'s training Sections, Alex is used for this purpose; and Alyx is directly tied to the gravity gun training Section of *Half Life 2*. *System Shock 2* uses its PNPC characters to occasionally give non-critical information that is perhaps better thought of as ludic rather than diegetic in nature (Myers' audio log, for example, records that "I rewired the security station to 83273. I don't trust any of those bastards...") and *Doom 3* uses a similar tactic, albeit with non-persistent NPCs; but apart from these examples, there is little ludic instruction to be found. So, although every PNPC contributes in some way towards the story and diegesis of its game, there are actually relatively few examples where any PNPC, regardless of its representation, is critical to ludic structure or progression. This does not, however, mean that direct interface can be dispensed with just yet.

Just because it is possible to ignore almost every PNPC in a game and still progress does not mean by extension that it is easy or desirable to do so, and it should not be surprising to find a fairly ubiquitous use of PNPCs as goal-communication and manipulation devices. Every game, with the exception of *Painkiller*, uses at least one character to explain what the avatar is expected to be doing next, and a significant number also use PNPCs to adjust the goal and objective structures during episodes or levels. That PNPCs are used to do this is highly significant and it should be noted that this is not merely a case of technological capability, as there does not appear to be a simple correlation between the fall-off in use of inter-episode loadscreen information and date of release.

System Shock 2 does not use a single heterodiegetic goal communication device, or overlaid system level prompt. It is possible to complete the game with the sound off, without picking up any significant number of audio logs, but it does not reinforce location, goal and key plot as text in level load screens, like *F.E.A.R* or *Return to Castle Wolfenstein* (Gray Matter 2001). Nor does using loadscreens necessarily lead to this reinforcement: they are absent in *Far Cry*, *Quake 4*, *Prey*, *Invisible War* and *Doom 3*, which instead offer snippets of generalized information about the world. The last two criteria, therefore, refer to isolated and distinguishable moments when the PNPC tells the player what is expected of their avatar, rather than supplying absolute information about how to progress, and to those moments where, during an episode of play, the goal or objective is shifted, or a suggestion about an alternate approach to play is made ("I'd go quietly from here on in. You don't want them calling for reinforcements, etc"). In other words, they are directly homodiegetic and do not necessarily have to have a heterodiegetic counterpart function. To put this another way, it is entirely possible for Doyle to send Carver across an island to attack a

mercenary camp, then to secure a radio mast, then to unlock a blast door and finally to a jetty to steal a boat without the player ever having to do anything other than move forwards, removing objects from play and triggering every object that can be triggered through a process of un-diegetic elimination. The essential structural dynamic of FPS play, to simplify the environment, is all that is necessary, it is the function of homodiegetic goal structures to enable an inference of complexity to be overlaid.

The most direct form of goal communication is the explicit instruction: go here and do that. In this case, what is being communicated is an epistemological schema that simplifies the core ludic activity by attaching significant markers to the ongoing action. A player can randomly run around the Armachan offices, firing blindly at Replica troops and attempting to activate any object that looks interactive, but it is much simpler and easier to know that the Point Man is trying to restart a server, because it primes the player to be on the look out for rooms full of big banks of computers (*F.E.A.R.*). It is feasible to simply exhaust the available possibilities of the Zone, but the experience is unlikely to be rewarding. If the player follows Sidorovich's lead, however, orientation is made easier as significance is anchored to landmarks and events within the world (*S.T.A.L.K.E.R.*). Likewise, when Goodman warns Cate not to set off alarms in *No-One Lives Forever*, it is rapidly made apparent why this is a good idea, in terms of likelihood of surviving the experience, although it is important to note that for more gung-ho players, this also clearly indicates how to start a great big fight (occasionally it is also a critical failure condition for the mission). In these three cases, the latter relatively less direct than the former, the game is attempting to co-opt the player into a certain mode of play, both attentional and behavioural. A suggestion is made: "Look out for these points of significance; act in this way over that".

By rewarding the player who operates within the diegesis by making play both implicitly and explicitly easier and rewarding, the game is establishing a very particular relationship. Attention paid to the diegesis, rather than to the system, pays off. In return, the system increases its control over attention and behaviour and, by extension, affect. If the player engages with Doyle as a character, rather than an object, then Doyle's betrayal means more, which increases the chances of it expanding on the normal affective scope, in which case the game succeeds in delivering an experience within a greater predetermined range. If a player fails to engage with Doyle as a character, the betrayal is relatively meaningless: it just tacks another goal onto the game. But it is uncontentious to argue that even in a game such as *Far Cry*, whose emotional and political range is simplistic to say the least, there is an attempt to expand the affective journey of the player. As *Haze's* (Free Radical 2008) scriptwriter Yescombe has commented

If you shoot someone in a game, what do you feel? Triumph. And how much further could this be removed from reality? You look at soldiers who return from battle having shot one guy and they're traumatized. Yet we'll shoot 100 people and feel triumph: what about guilt, responsibility, even remorse? (2007: 63 – Edge 176).

Thus, even though *Far Cry* is no any way approaching anything other than a glorification of mass slaughter, there is an attempt to create an affective state other

than tension, adrenaline or triumphalism. A betrayal is a complex thing, potentially inducing a feeling of shock, anger, self-doubt and a little panic. Doyle's actions, and the fact they force a reconsideration of the plot to this stage, thus plays with the closure that may have already been put into place, demonstrating that developer Crytek sought a degree of maturity in their plot that may otherwise be comically absent. In order to increase the chances of this more complex payoff happening, the player needs to engage with Doyle as a character rather than an object, and a very good way of increasing the chances of this happening is to ramp up Doyle's significance: make the player want to engage with what he is saying, because a great deal of what he is saying is useful.

The use of PNPCs as goal-givers can be discussed in terms that refer directly to the act of play. In ludic terms they can be seen as technically superfluous, but their function runs deeper and more experientially than that. Games often co-opt the player into attaching significance to the NPC, rewarding them for doing so, and as a result, open up the potential for more complex affective experiences. Anderson's death in *Quake 4* is another good example of this: he is fundamentally useful in play, as he is able to restore health. This functional capacity increases his significance, as it's worth keeping track of where he is (as a representative of the general medic class). This is then reinforced by his being part of the squad that rescue Kane from full-Stroggification: Kane owes him his life. Three minutes later he is murdered while Kane stands helpless and, tellingly, from here on in, the player has access to Strogg medical terminals to heal up. But Anderson's death is only meaningful if he is meaningful first, and to be meaningful, he must be significant. By contrast, it's questionable whether Jankowski's death in *F.E.A.R.* has any emotional punch whatsoever, but attention is specifically drawn to it by the ongoing and ambiguous appearance of his ghost in the preceding levels. He starts the game as a boring, standard FPS goon, but is transformed into something substantially more interesting and ambivalent, thus screaming for significance, and this attention seeking behaviour directly invites and rewards the player for entering into the diegesis of *F.E.A.R.*, in other words, happily surrendering a degree of interpretative control over to the system. Ghosts can also be found operating according to similar principles in *Undying* and *System Shock 2*. Of course, it should be noted that one of the primary characteristics of a ghost is it cannot be interacted with: the player has no power to affect it. It thus serves as a reminder of the player's relative lack of control over the environment, which may have important affective ramifications. In a very real sense, it reminds a player, whose primary objective is mastery over the ludic space, that they are relatively powerless.

A more indirect functionality of PNPCs is virtual expansion of affordances. Tech Strauss in *Quake 4* is frequently used as a means of enabling Kane to be associated with actions outside the affordances of the game, thus offering a solution to the affordance/ecology discontinuity. This is, in essence, a principle more or less analogous to environmental localization of the game's action and story. The climax of *Quake 4*'s first half involves an attempt to hack into the Nexus Hub, a complicated activity that falls outside the affordances the player can utilise. However, not only does this diegetic overlay increase the diversity of *Quake 4*'s actions, it is a diegetically supportive military solution to the situation (the marines are massively outnumbered and are attempting to disrupt the means by which the Strogg are coordinated). Thus, rather than the inelegant situation of the player destroying a

complicated and large computer system by shooting at it, Tech Strauss is used as a device to hack into and disrupt the Hub, unlock doors that could not otherwise be opened (thus separating the play area off into smaller environments), and so on.

Cortana operates in a similar way in the Halo series, but as a disembodied AI, she is handily capable of being plugged into any available computer system to undertake complex actions not realistically solvable by the Master Chief's arsenal of weaponry. Rosa, also disembodied for the majority of *Condemned* does the complicated things like analyzing evidence and making plot connections for Thomas: he can operate comfortably within his small affordance set because the actual police work is farmed out to a remote PNPC. Strauss is more frequently dynamically present as an agent in *Quake 4*, but the function is the same, as is Alyx Vance in *Half Life 2* (without her general purpose 'sonic screwdriver', Gordon Freeman's ability with a firearm would be pretty useless). Even when direct activity in the game is not distributed, plot progression is nearly always pushed out in the direction of a PNPC or two; it's a highly effective and non-intrusive way of increasing both the likelihood that a player will engage with the diegesis and ensuring they understand why events are occurring, again aiding the attachment of significance, and general orientation. As noted above, it is rare that the PNPC is critical to success (usually in the form of the need to protect the PNPC whilst they carry out their distributed function), but engaging with the PNPC is ludicrously advantageous in that it provides clear explanation as to what is expected or about to occur.

Bettors in *F.E.A.R.*; Enisi and Elhuit in *Prey*; Jeremiah in *Undying*; Parker in *Fall of Man* (Insomniac 2007); even Eve and Sammael in *Painkiller* fulfill this function. As with localization, it detracts attention from the repetition inherent in gameplay by wrapping virtual extensions around the core ludic activity. This activity is a great deal more direct than simple contextual support; it has a deliberate and non-ambient deployment in gameplay. Whether this is explicitly extending the context of the player's actions through association with the actions of a PNPC, or the wrapping of extended associative action around these actions through PNPC contribution ("by doing that, you've actually achieved this..." or "now you've blown up the radio, they won't be able to do X"), what is actually happening is the use of a device to divert attention in a particular manner, to adjust the mapping of significance within the diegetic space.

Further, the fact that not only is action distributed, but also thought, should not be ignored. Cortana, Strauss and Parker quite literally do the thinking for the Master Chief, Kane and Kale. The avatar's role is to supply the embodiment, not the mind. In a not insignificant number of cases, PNPCs determine where to go next and what to do next, and this is as much the case with nemeses like S.H.O.D.A.N. as it is with allies like Tracer Tong. This should probably be understood as an epistemological process: the system is repeatedly reinforcing the message that the player does not have to think about the why or the how: it will be supplied. There is a form of training going on, where the player is encouraged to surrender a level of problem-solving to the system, quite specifically surrendering power to the game to make decisions for them. It could be argued that it is non-accidental that PNPCs, the highest point of anthropomorphisation of the system; the points where there is the easiest opportunity to adopt the intentional stance, are the crux of this process.

Finally, the most indirect functions of PNPCs should be considered. The notion of contextual support has already been mentioned, and continuity should be added to this in order to understand how PNPCs fulfill a vital role in ensuring that the player's actions are successfully supported by the environment. This extends beyond the actual input-output issue of ensuring that affordances do what they are supposed and expected to, but that there is a semantic, schematic justification by extension of the occurrences presented by the game. When context is described, in effect, the idea of the 'atmosphere' of a game is being essentially recast in terms that are ludological. A quick consideration of Barthes' structural model of narrative (1977: 79-124) at this point may demonstrate why this is advantageous.

Context and behavioural manipulation

Barthes splits narrative units into functions (actions) and indices (which might perhaps be described as diegetic anchors). The latter are then subdivided into indices and informants. Indices cover such aspects as emotion, mood or atmosphere, and informants act as temporal locators. These can be used to correspond to context and continuity respectively. When an agent, particularly a PNPC acts or responds to the environment and situation, it has the capacity to support and justify both the avatars' and players' responses. In other words, Alyx's opinion of Judith is a mirror of Freeman's and, by extension, the suggested response of the player. PNPCs, through their implied affective relationship with the player (as opposed to simple, location or situation based relationships existent with more general population agents), illustrate the system's expectations of the players' reaction, by reflecting the avatar's. Especially, but not exclusively, in games where the avatar's input is minimal, such as *Doom 3*, *Half Life*, *F.E.A.R.* or *System Shock 2*, PNPCs allow an avatar to be carved out by proxy, and assist in the formation of a response system that supports the ludic activity. Not only that, but this prompts and supports an affective relationship with the environment. Just in case the player has stopped finding the action and plot of *F.E.A.R.* spooky and weird, Betters is usually on hand to reiterate that this is just how they should be finding it. And, critically, this atmosphere is important not just for affective outcome, but because it has the capacity to influence player behaviour. *F.E.A.R.*'s indices corroborate the gameplay microstructure: bursts of highly intense action punctuated by periods of lone, isolated and tense exploration. The game is less effective if a player rushes through the levels without any consideration of what is around the next corner. In order to try and create the appropriate play-style, the game advantages a particular type of play-activity (by including sneak attacks and head shots, and the ability to utilise the environment strategically), but it also uses every available tactic to support this semantically. Alma, Fettel and Jankowski, being supernatural and incorporeal, can appear at any point, meaning that the player's expectations of the environment are quite literally invaded and subverted by two direct nemesis figures and one of ambiguous relationship to the avatar. When Betters radios in to expresses his disbelief and lack of understanding in regard to the situation, it sends out a clear signal to the player: it's OK not to understand, it's not supposed to fit expectations of reality, even in the game world presented. By responding to the world in a way that fits the world, PNPCs broadcast the appropriate response to the player. This is, of course, alongside the more obvious use of PNPCs to directly transmit information about the

avatar to the player: telling them who they are, so to speak. This technique occurs frequently in *Quake 4*, where marines aboard the Hannibal provide background information about both Kane being a new addition to Rhino Squad, and of his previous exploits.

Key NPCs frequently have, at the least, ambiguous motives, even when direct betrayal is not on the agenda. The player's relationship with S.H.O.D.A.N. is not as simple as straightforward enmity, they are reliant upon each other to a degree. Even though S.H.O.D.A.N. is the villain of the piece, the avatar is repeatedly forced to cooperate in order to survive; the Many being the most immediate problem. It is made clear that Carver never really trusts Doyle, even though he is the major point of contact; *Deus Ex* is awash with ulterior motives and half-truths; Better's may be a straightforward boss but he is surrounded on all sides by Wade, Mapes, Aristide, the ghost of Jankowski; and even the initial characterisation of Fettel as nemesis is gradually undermined by the unfolding plot. Voss goes from father figure to unwilling boss-agent; Jen undergoes a similar transformation. On the subject of *Prey*, Mother's relationship with Tommy, from first awareness to deliberate grooming as a replacement is a classic example of the ambiguity at the centre of key PNPC relationships. Even Cortana has a flash of rampancy when she first connects with *Halo* and by *Halo 3* is intimating a far greater and more ambiguous role in the overall plot, suggesting in the opening voice over that she has been watching (controlling) the Master Chief since he was first bolted together. Her captivity also seems to manifest other psychological breakdowns of personality, so the player is repeatedly fed the inference that what will remain of Cortana when she is found is very much an unknown quantity. Those core PNPCs without the intimation of a deeper purpose are rare: Alyx Vance, Parker in *Fall of Man*, Rosa in *Condemned* are notable exceptions.

Ambiguity is very closely linked to closure, and thus may serve a double-function here. On one hand, it buys a narrative flexibility that does not require as explicit a plot twist as a betrayal. In other words, it holds off player's ability to form closure; deliberately coding a non-ludic tension into the proceedings that does not require representation in play. Secondly, it once again expands the diegesis beyond play, by referring out to situations, timelines, relationships and sequences of action that pre-exist the game itself. By hijacking closure, ambiguity forces a breach into the presented diegesis, derailing a tidy and limiting summation of the world, thus increasing its inferred complexity. It is perhaps telling that no single game in the study is fully self-enclosed in narrative terms, every single one of them requires a link out to an unrepresented world in order to create a context for the action, and it is significant and interesting that this is normally conducted through a relationship with a PNPC.

Indeed, Barthes' concept of informants directly corresponds to continuity which, along with context, forms direct support. PNPCs, by their definition, span periods of diegetic time and ludic time. As Juul (2006) and Nitsche (2007) have noted, the relationship between play time and event time (or diegetic time) can be very complex, yet players demonstrate no obvious problem with integrating this. Consider *S.T.A.L.K.E.R.* as an example. On one level, there is the real time actually taken to play the game. This must be separated from the temporal sequence enacted when actually doing things in the world. The Zone works on an internal time-clock of about 1 minute per 5 real seconds meaning a 24hour rotation of diegetic time for two hours

of play time. However, the microtemporal sequences are not accelerated: the game does not run in permanent bullet-time. On top of this, play time can be suspended or re-engaged at an earlier point. Finally, cutscenes such as the one seen at the end of the X-18 lab sequence show events presumably prior to the start of ludic activity but without explicit temporal referencing. *Call of Cthulhu's* diegetic time sequence is massively disrupted: the opening cutscene takes place six years before the first level of play, the cutscene following the first level jumps forwards six years again, but prior to the opening cutscene, and the rest of the game operates in this interim time (with occasional flashbacks to the missing six years but through Yithian time). There are also instances gaps of time between levels.

PNPCs are powerful tools in assisting the management of this complex relationship as they offer a point of reference that is semi-fixed in terms of relationship to the avatar. They offer clues as to the temporal location of what is occurring. This may be as explicit as the following dialogue from *Half Life 2*:

Kleiner: My dear, I had given up hope of ever seeing you again.

Alyx: I was thinking the same. I think the teleporter exploded just as we made it out.

Kleiner: Indeed it did. And the repercussions were felt far and wide. But that was over a week ago.

Alyx: What do you mean? Gordon and I were just there a minute ago.

Kleiner: Fascinating. We seem to have developed a slow teleport. This suggests an entirely new line of investigation.

Alyx: A week? Then what have we missed?

Kleiner: A great deal my dear. The blow you struck at Nova Prospekt was taken as a signal to start the uprising.

However, it can be more subtle, such as the ongoing reconstruction of events about the Rickenbacker in *System Shock 2*. Because PNPCs have a defined and persistent character, they offer stability in this complex array of time sequences.

System Shock 2's use of PNPCs to establish an entirely alternate timeline to the game's actual action should be considered in more detail, as it clearly demonstrates the further, indirect, function of PNPCs to virtually expand the diegesis. It has already been noted that marines refer to Kane's history prior to the commencement of *Quake 4*; in *System Shock 2*, the found audio logs create a prior story which supplies much of the game's affective charge. Simply put, by anchoring non-interactive affective plot to PNPCs existing outside the temporal span of play itself, *System Shock 2* can expand its range and the inferred complexity of its world beyond the available dimensions of its gameplay and affordances. Rather than trying to co-opt or coerce the player, via the avatar and its relationships with PNPCs in the manner of *Half Life 2*, *Quake 4*, *Far Cry* or even *Fall of Man*, *System Shock 2* keeps all the affective complexities safely locked into an already decided narrative line.

Two potential effects of this can be identified. Firstly, it allows the game to deliver a plot that is underpinned by a sense of predetermined fatalism: the characters are doomed and it is a question of slowly uncovering the details of how they died. This enables *System Shock 2* to introduce a rare plot element into the mix: failure, or determinism. Normally, FPS games are deterministic only to the extent that avatars will either die (temporarily, of course), or succeed. *System Shock 2* introduces an alternate layer: there is nothing that can be done to save the characters that the player is encouraged to develop an affective relationship with, they are already dead. Secondly, it enables the game to deliver a narrative that is far richer in terms of political, factional and personal motivations than found in any of its more recent counterparts - with the exception of *Bioshock* (2KBoston 2007), its spiritual successor - as the representation of the characters is extremely cheap, and does not have any real impact on gameplay. Thus, the virtual extension of time into a prior linear plot enables a virtual expansion of diegetic and affective complexity, without ever compromising constraints or their relative visibility. Once again, it can be argued that this is made possible primarily through the vastly improved call to intentionality that PNPCs, with all their very human characteristics provokes.

Indeed, it may be noted that many PNPCs refer to existence outside the temporal span of gameplay. Cortana states "If I still had fingers, they'd be crossed". Not only does the intriguing ambiguity of such a statement, running as it does contrary to populist conceptualisations of artificial intelligences, immediately deepen the player's sense of a wider world, but it attaches a prior existence to the game and to the character. Halo furthers this by intimating at several occasions that Cortana and Master Chief's relationship is not initiated by the outset of the game's action, that the two share a past, something made explicit by Cortana's claim to have 'chosen' the Master Chief at the start of *Halo 3* (Bungie 2007). *Undying* is full of references to the past, even prior to its explicit time-traveling; *Half Life*'s central plot is all about uncovering the truth of what went before as is *Doom 3*, not to mention *Cthulhu*; *Halo* wallows in its space opera historicity. In almost exactly the same way that localization places the complex parts of the world that are required to back-up the inference of complexity needed to deepen the affective punch safely away from the action, so temporal expansion enables a bypass of the need to develop relationships with PNPCs and the action, because it has already taken place. In this, note again that a critical and often overlooked distinction is being made between player and avatar, and arguing that it is more or less irrelevant whether or not the player feels they have a relationship with Cortana, provided they accept that the Master Chief does. This is all that is necessary for their ludic relationship to function.

Cortana and Master Chief's relationship has another aspect to it that deserves attention as it serves as a good example of another common non-ludic characteristic of PNPCs that may have an indirect affect upon player behaviour. It has been suggested that PNPCs are frequently used to co-opt the player to handing over control of problem-solving behaviour to the system: getting them used to being told what to do by a representative of the game in the form of a NPC. It is not surprising then, that large numbers of key PNPCs are higher status than the avatar in one form or another. In *Halo*, Master Chief's status as mythic hero is constantly referred to, yet he is lower in status than all the PNPCs in the game, deferring to Keyes, 343 Guilty Spark and Cortana, who, interesting, assumes godlike power when she is plugged into the Halo systems. Kane follows orders from Voss, Bidwell and Morris, then, as

the squad system falls apart, from the not-accidentally arrogant and brilliant Strauss. Gordon Freeman is referred to as a saviour and leader, but always takes a secondary position of power when Alyx, Eli or Isaac Kleiner are in the vicinity. There are very good reasons for this. Firstly leaders require more options in terms of interactivity. If the player is to control someone who gives orders, rather than takes them, the system has to take on board the degree of supported choice and this is potentially risky – as evidenced by the difficulties facing squad-based shooters like *Blacksite* (Midway 2007). However, by placing the avatar below the core PNPC in status, this level of authority can be carefully put to one side whilst not compromising the transformation into redeemer, hero, savior, destroyer or whatever the avatar is required to undergo to mask the arc of increasing power. What is really interesting, however, is that these high status NPCs are not often present: many PNPCs are represented by audio when they are dynamically represented in play. Not only does a lack of visual representation solve some technical problems, avoid the uncanny valley, and increase association and empathy, it also means that a PNPC running a background high-status relationship to the avatar does not in anyway conflict with the player's mastery of the ludic space. In other words, the player's represented ludic skills are not outpaced by any PNPCs. Chandra is instrumental in the completion of Joanna Dark's early missions, but she does not compete for the attention of represented action. It might be suggested that this makes the prospect of handing power over elsewhere more palatable, as attention is focused upon immediate gratification. Cortana and Strauss may really save the world, but it is Kane and the Master Chief who are wielding the Big Fucking Gun with such power and skill. In effect, the PNPC handles the 'complex thinking' whilst the player lines up the vanishing point with objects, an act which is computationally simpler but culturally more 'heroic' as in real life it has an associated risk. Moreover, as with ambiguity of motive, disembodied PNPCs have the capacity, within the diegesis, to invade the ludic space at any point, increasing tension and exerting an influence upon play style.

PNPCs, especially those who fulfill this central, epistemologically functional role therefore have some core non-ludic characteristics that are easy to identify. They are smart, they are high status, they know or understand more about what is going on than the player, their motives are not generally obvious or apparent and they are located somewhere else. Thus, it should not be surprising to find a generic set of personalities, attributes and abilities in the PNPCs of this genre, and this extends beyond the dominant politics or demographics of the genre. That is not to dispute the generally poor representation of women (or men, for that matter); the mad German scientists, or the massively endowed space marines, but to note that beyond the superficialities, there are clear functional frameworks for PNPCs to fit into, in order to achieve distinctly ludic, epistemological goals. Consciously or not, designers are carving out a set of archetypes that are rooted in the demands of the media experience, rather than simply importing archetypes from existing media.

Conclusion

The diegetic properties of PNPCs in FPS games are not simply decorative or epiphenomenal. They represent a rich network used to manipulate gameplay and support action and affordances. PNPCs are most obviously linked to plot and

gameplay, as they are objects with explicitly enhanced significance, but this in itself is supported by diegetic characteristics. From the form of representation, such as the lack of dynamic, integrated occurrence in play and prioritising of audio contact, to the status relationship with the avatar, PNPCs are geared towards a deliberate gameplay function and this is absolutely supported by who they are and how they are represented. The farming out of actions needed to support a more ecologically valid diegesis to PNPCs is a hugely powerful device in drawing attention away from the limits of the affordance set, as is their function as orientation devices, reducing the need for the player to worry about where to go and what to do. These are essentially gameplay functions, and it is the diegetic construction of PNPCs which enable it to occur seamlessly and effectively.

At a meta-analytical level, what this paper has demonstrated is that by examining a gameplay object across a representative sample of a gaming genre, a more robust position from which to critically examine specific instances, support theorizing, challenge assumptions and expose links between rule and fiction is created.

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