Multiplayer Games as a Template for Multiplayer Narratives: A Case Study With Dark Souls

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ABSTRACT

Interactive Digital Storytelling (IDS) is an increasingly popular field, with a number of novel systems emerging in the last few years. However, these systems have typically focused on narratives involving only a single person. In contrast, multiplayer video games are a common and popular form of entertainment. In this paper we ask whether the way in which these works might inspire a new generation of multi-player narratives.

In particular we look at the multiplayer video game "Dark Souls" and consider the goals and inter-player interactions present within the game. We then reimagine what these might look like as multiplayer narratives, and demonstrate how they might be realised with a sculptural hypertext approach. We conclude that even within a single game there are a number of rich possibilities demonstrated, from asynchronous indirect examples where the players enrich each others worlds and exchange information, to synchronous direct examples where players have direct influence over the choices of other players, and thus the outcomes of their stories.

CCS CONCEPTS

• **Applied computing** → **Computer games**; • **Software and its engineering** → **Interactive games**; • **Human-centered computing** → *Hypertext / hypermedia*; *Collaborative interaction*; Collaborative and social computing devices; • **Computing methodologies** → Modeling and simulation;

KEYWORDS

interactive storytelling, narrative, multiplayer, player interactions, games

1 INTRODUCTION

Interactive Digital Storytelling (IDS) is a type of storytelling that allows the reader to change the story through their actions. The most popular examples of IDS can be found in digital games. Examples range from emergent, simulation driven narratives (such as *Dwarf Fortress*[21]) to pre-authored, structured narratives (such as *The Walking Dead*[1]).

Most of these games are single player as opposed to multiplayer. This is despite the huge popularity of multiplayer games [1], their recognised social benefits[9], and ability to heighten emotional responses[17].

A number of multiplayer games contain elements that can be considered interactive narrative experiences. For example, the Massively Multiplayer Online Roleplaying Game (MMORPG) *World of Warcraft*[2] contains "Dungeons", in which a group of players need to overcome a highly-structured series of challenges in order to receive a reward. A game such as *Space Station 13*[3] offers a more emergent form of storytelling, where the story arises from the actions and experiences of the players. In this game, players take on positions aboard a space station, with some players being designated as "traitors". These "traitors" are assigned goals designed to bring them into conflict with other players.

These interactive narrative experiences can be considered a limited form of multiplayer [4] narrative experience. But the majority of the literature in the IDS space deals with singleplayer narratives[4, 5, 13, 19]. There is little research in the area of multiplayer narratives, despite the opportunities that it offers, and the popularity in non digital games (the most obvious example being table top role-playing games).

In this paper, we consider the dynamics of the multiplayer experience present in a number of multiplayer games and attempt to reimagine them into a narrative space. We propose an initial model for multiplayer narrative and inter-player narrative interactions, based on Sculptural Hypertext[3, 15].

2 BACKGROUND

One of the first IDS systems was TaleSpin, a system that generated stories based on the answers a user provided to a series of questions[14]. Since then, a number of novel systems have emerged, particularly in the last 20 years[3, 5, 6, 13, 19]. These systems typically fall into a number of categories. Emergent systems typically attempt to create narrative through the simulation of a complex world, creating narrative through the interactions of independent

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[1] http://www.polygon.com/2017/1/27/14417214/how-many-people-play-overwatch-25-million
[2] World of Warcraft official website: https://worldofwarcraft.com/en-us/
[3] Space Station 13 - Wiki of the most common distribution: http://www.ss13.eu/wiki/index.php/Main_Page
[4] The term "player" has been chosen as opposed to "multi-reader" or "multi-participant" as we feel it best reflects common usage.

components[2]. Plot-based systems adopt a top-down view of narrative, typically assembling a high-level plot from a number of narrative components[8]. Structural systems are plot-based systems that typically use a hand-crafted structure, such as a graph, offering a unified and well-formed experience, typically at the expense of agency[13].

Some systems do not fall cleanly into any category, using elements of each, such as Facade[13]. Facade is an interactive narrative that places the player amidst a conflict between a couple engaged in a heated argument. It adopts elements from both plot-based and emergent approaches, representing the world as a simulation, with the addition of a "Drama Manager". The drama manager adds and retracts behaviours and discourse contexts for the characters, in an attempt to manage the dramatic pacing of the narrative.

Only a few systems exist within the multiplayer narrative space. Fairclough and Cunningham proposed a multiplayer case-based story engine that used a "story director" (SD) to assemble a plot using moves from Propp's morphology[6]. Characters could be assigned to roles in each move by the SD. The system supported multiple players by instantiating a story director for each. This allowed the system to support multiple parallel plots or insert players into different roles in a single plot. However, the multiplayer component of the system was not evaluated and so how it performed is unknown.

A system proposed by Peinado and Gervas uses a knowledge intensive case-based reasoning approach to plot generation[16]. The system creates a single plot, allowing the players to navigate it only as a group.

In our work we propose using Sculptural Hypertext as a model for multiplayer narratives. In a sculptural hypertext the author creates a collection of narrative nodes. Each node has a set of preconditions and effects. Unlike traditional hypertext, all nodes are potentially available, but links are removed based on the current reading context. For a node to be accessible, all of its preconditions must be satisfied by the world state. Visiting a node modifies the reading context, revealing or hiding new nodes[3]. Despite its basic underpinnings a number of more complex high level patterns can be created using this system, such as parallel threads, or narrative phasing [10].

In [3], Bernstein proposes the collaborative system Social Shark using Card Shark as a base. Card Shark is a sculptural hypertext implementation that treats each node as a card. Each card contains a brief passage of the narrative. The player is dealt 7 cards, and able to select any which have satisfied preconditions. This node is visited, any effects triggered, and then left "on the table", unable to be reused. The player then receives another card, and the process repeats. Social Shark deals a hand of cards to each player, who then take it in turns to play possible cards. Each player receives points, depending on the card played. Goals can be added to each player utilising points, such as score maximisation. The game ends when no more cards can be played. Similarly to the system by Peinado and Gervas, players collaborate on a single narrative viewed from a shared perspective.

We are interested in this kind of collaborative multiplayer narrative, in Social Shark multiple players take it in turn to influence

a collectively experienced story, but clearly other models of interaction are possible. For inspiration we have looked at the types of interaction found in more traditional multiplayer games, and explored how these might translate into multiplayer narratives.

3 MULTIPLAYER GAMES AS NARRATIVE

Multiplayer games consist of a number of significant gameplay elements. Goals and interactions are areas frequently looked at as significant to the multiplayer experience[7, 11, 18, 20, 22]. For the purposes of this paper, interactions as defined as "perceivable actions that act as manifestations of the user-user and user-environment interactions" as proposed by Manninen[12].

In this section, we look at the video game "Dark Souls", identify the inter-player interactions present and consider how to adapt them to the narrative space.

3.1 Dark Souls - Game Description

Dark Souls is a third-person action role-playing video game. Players play as an "undead", a cursed human that is unable to die permanently, who must collect resources known as souls and humanity in order to prevent them becoming mindless like most of the other undead. Mechanically, this is represented by "humanity", a resource that can be expended to restore the player to human form. In this form, the player games a number of benefits, such as being able to summon other players for aid.

At the beginning of the game, the player's character is condemned to an undead asylum, which the player is required to escape. Following that, they are left to explore the decaying world outside of the asylum in a open-world fashion. Much of the history of the world is implicit, told through the visual style of the game and dialog with non-player characters (NPCs).

The goal of the player is to progress through the game, defeating a number of strong opponents so that they can make a final narrative choice at the end of the game - To usher in an age of darkness, or to prolong "the age of fire" and end the undead curse. A number of sub-goals exist within the game in the form of tasks given to the player by NPCs, or joinable groups known as "Covenants". The player's progression through the game can be considered to be in a fixed number of states, depending on several interactions with key objects in the game, in addition to bosses defeated.

Each player has an individual version of the game, independent in almost all aspects, including progression and space. However, a number of interactions between players still exist.

The simplest interaction in Dark Souls is to leave a message on the ground, which other players can later read. In order to do this, players require an item, known as the "Orange Guidance Soapstone". Using this item presents players with a dialogue, where they construct a short phrase from a pre-made grammar. "Try Jumping" and "Illusory Wall Ahead" are examples of messages. Each message appears in the game of an unknown number of other players, and may or may not be helpful. To aid in determining this, players can add a positive or negative rating to the current message they're reading, which is visible to other players.

The death of a player in Dark Souls forms a passive interaction. When a player dies, there is the potential for a bloodstain to appear on the ground in the games of other players. Should another player

stand on the bloodstain, they will witness a ghost of the dead character, acting out their final moments. This can provide a warning of future danger to the other players.

Dark souls also contains a cooperative play system that allows players to directly fight and assist each other, called "summoning signs". Players can place these signs on the ground, in a similar way to messages, using the "White Sign Soapstone". These signs appear in the games of other players, who can then interact with them to summon that player into their game. A player can only summon someone to assist if they are in human form, the area boss is alive and they haven't placed a summoning sign. The summoned player appears as a copy of their avatar in the hosts' game, with a restricted set of abilities. The area is then sealed off, preventing either player from exiting. The area can be unsealed by defeating its boss or the summoned player dying. If the boss is successfully defeated, the summoner's game progresses, while the summoned is returned to their own game with resources as a reward. If the summoned player dies, they are returned to their own game with no rewards.

Several mechanics exist to begin player versus player fights. Each fight behaves very similarly: a copy of the invader's avatar enters the game of another player, with a restricted set of abilities and the task of killing them. The winner of the fight receives resources as a reward. The loser is sent back to their last checkpoint, possibly losing a number of resources, depending on the mechanic used to initiate the fight. A number of these mechanics operate in the same way as the White Sign Soapstone. They place a sign that requires the to-be-invaded player to interact with it. Others allow a player to forcibly invade the game of another player. These mechanics generally require the expenditure of an item, as in the case of the "Cracked Red Eye Orb" or the invaded player to be in a specific area, as is the case for players who have a "Cat Covenant Ring" equipped. All of the mechanics require the player to be in human form.

4 DARK SOULS' INTERACTIONS AS SCULPTURAL HYPERTEXT

Our objective is to identify the interactions between players within Dark Souls, and then reimagine these as narrative interactions in a multiplayer story experience. How would the players interact and be aware of each other, what is the impact and extent of their agency?

In each case we use a sculptural hypertext model to define the interaction. As discussed in section 2, Sculptural hypertext is a system that allows navigation of a set of nodes based on whether a node's preconditions are satisfied by the current system state, known as the reading context. Our choice of sculptural hypertext is based on it facilitating an authored approach, rather than utilising narrative generation techniques.

To model a multiplayer narrative one would need to create a separate sculptural hypertext instances for each player. Each instance is then given access to the reading context of the other instances. Nodes can then be crafted whose conditions depends on the other player's context and therefore, their actions. This provides the means for a player to influence the narratives of others.

```
Write a Report:
  Conditions:
    – {player1} has seen Professor Plum with Miss
      White
    – {player1} at {location1}
  Effects:
    – (∀Players) report available on
      {Plum White Relationship}

Read the File:
  Conditions:
    – report available on {Plum White Relationship}
    – {player2} at {location2}
```

Figure 1: Example Sculptural Nodes for Messaging Another Player

4.1 Messaging Another Player

Leaving a message for another player is a purely aesthetic change to the narrative, but one that could influence the receiving player's future decisions by giving them access to information from an alternative story world. By limiting the set of messages the author can control the extent and value of these interactions, as well as forcing them to comply with the rules of the narrative itself (for example, by referring only to the internal story world, or being in the voice of a particular character).

In Dark Souls these messages are typically functional (avoiding an obstacle, warning of an impending enemy), but in a broader narrative could also add detail or richness to the world, or expand on the player's understanding of a character's motivation. For example, imagine a simple murder mystery where other player's messages manifest as background information on suspects, provided by detectives working on similar or past cases.

In terms of a sculptural hypertext it assumes a set of players experiencing the same murder mystery story (although not necessarily simultaneously), and could be implemented through the *unlocking pattern*[10], where a new "Read the File" diversionary node in Player A's story is unlocked by Player B visiting the "Write a Report" node in their own story. Figure 1 shows an example.

4.2 Involuntary Signalling of Significant Event

Being aware of the death of a player is very similar to leaving a message, except it is not voluntary, and lacks the richness of a messaging system. Dark Souls focuses on player deaths, which is entirely in line with the game's aesthetic, but the idea could be broadened in narrative terms to involuntary signalling of any significant event that occurs to the player.

For example, imagine a location-based ghost story where players can encounter the ghost at a variety of different places according to the way in which the story unfolds. When they do, in the stories of other players, it changes the way in which that location is described. For example, a warm sunlit garden could become cold and drab. Just as in Dark Souls, this simultaneously adds richness to the story world and provides clues to the player seeing the effect.

```
Ghost Encounter:
  Conditions:
    - {player1} at {location1}
    - (other conditions that indicate an
      encounter should happen)
  Effects:
    - (∀Players) ghost seen at location1

Description of Garden:
  (Text describes warm and vibrant garden)
  Conditions:
    - {player2} at {location1}
    - NOT ghost seen at location1

Description of Garden:
  (Text describes cold and drab garden)
  Conditions:
    - {player2} at {location1}
    - ghost seen at location1
```

Figure 2: Example Sculptural Nodes for Involuntary Signalling

```
Romeo rejects Rosaline:
  Conditions:
    - {player1} follows Romeo
    - (other narrative conditions...)
  Effects:
    - (∀Players) Romeo has rejected Rosaline

Juliet and Paris meet:
  (Text has Paris mentioning Romeo and Rosaline)
  Conditions:
    - {player2} follows Juliet
    - NOT Romeo has rejected Rosaline
  Effects:
    - (∀Players) Juliet is unsure of Romeo

Juliet and Paris meet:
  (Text makes no mention of Rosaline)
  Conditions:
    - {player2} follows Juliet
    - Romeo has rejected Rosaline
  Effects:
    - (∀Players) Juliet is intrigued by Romeo
```

Figure 3: Example Sculptural Nodes for Collaborative Play

In terms of sculptural hypertext this is also a form of unlocking, but in this case the more specific example of an *alternative node* pattern. In this pattern, there are multiple versions of a single node (that otherwise have the same location and place in the narrative) but the version the player sees depends on their reader context. This was imagined to deal with things like alternative descriptions of a place depending on the time of day, but could equally be applied to this kind of involuntary inter-player signalling. Again the assumption is that a set of players are experiencing same story. Figure 2 shows an example of how this might be implemented.

4.3 Collaborative Simultaneous Interactions

Summoning Signs are a much more complex interaction as they summon another player into your world to help you directly. To do this requires a simultaneous experience. There are also two distinct viewpoints within the narrative - one for each player.

Simultaneous experiences require that a sculptural hypertext front end continuously polls the engine, as it is no longer just this players actions that can change their state, but also the actions of other independent players acting in real time. Thus a player contemplating which choice to make on a list might suddenly see that list change, as another player makes their choices.

For example, consider a romantic adventure where the players are angels sent to Earth to guide and protect a young couple destined for love. Each player is assigned one half of the couple and their narrative follows that person throughout the romance, but the interventions of each player impacts on the experience and possible actions of the other, as they try to manoeuvre the pair to find love.

This is about as far removed from the Dark Souls premise as you can get, but functionally follows the same collaborative simultaneous interactions. Figure3 shows an example of how part of this

interaction might be encoded as sculptural hypertext nodes, using the same alternative node pattern as above.

In Dark Souls this whole collaborative venture occurs as a multiplayer encounter within a singleplayer game, as the player has to use a summoning stone to bring in the second player. There is a primary player who has existed for the duration of the game, and a assisting player that is only temporarily part of the game world.

This whole collaborative encounter is effectively part of a significant *foldback* pattern. In this pattern, the narrative branches (in this case to be either single player or multi-player) and then returns to the same point. This is shown in Figure 4.

In our romance example, this re-conceptualises the story as a single player experience where the player plays an Angel following both characters. However they can (at some strategic point) summon in another player representing another Angel to assist them, with each Angel affecting one half of the couple. Such encounters are likely to be very difficult to both author and successfully run. This is because it requires players to be matched dynamically, rather than choosing to play together from the offset.

4.4 Competitive Simultaneous Interactions

The last interactions we described in Dark Souls are those that initiate a player versus player fight. These fall into two major categories: voluntary summoning and forcibly invading another player's game. Forced invasion can occur either through item use or the player to be invaded entering a restricted area.

In a narrative this has the same dynamics as the collaborative simultaneous interactions, but now the goals of the two players are at odds, and the reading becomes a competition to see who
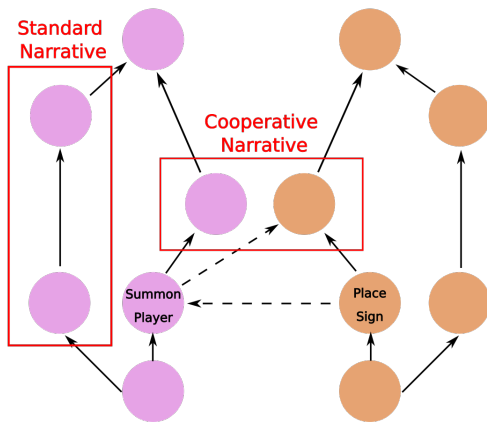
Figure 4: Cooperative Narrative Foldback Pattern.

can prevail. For example, a spy story in which the players follow characters on opposing sides. In terms of sculptural hypertext this could be implemented in a very similar way to our romance example above.

However, one problem with this type of narrative is likely to be the importance of speed. The player that acts first, or acts mosts, will be at an advantage, and thus likely to skim read or skip narrative information presented to them. Thus competitive multiplayer narratives are likely to need some kind of system to regulate the rate at which choices are made (for example, by requiring a certain time to elapse between choices, or by giving players credits to spend on choices and replenishing this supply at some regular interval).

5   CONCLUSION

In this paper we investigated the potential of multi-player narratives. We did this by looking at the multiplayer game Dark Souls and considered the goals of each player and the interactions available between players. We then reimagined these as narrative interactions, gave examples of multiplayer stories that might use these types of interactions, and showed how they might be implemented by a sculptural hypertext system.

This initial work shows that even within one game we can see the inspiration for many different types of multiplayer narrative, from asynchronous indirect examples where the players enrich each others worlds and exchange information, to synchronous direct examples where players have direct influence over the choices of other players, and thus the outcomes of their stories.

Although we focused on goals and interactions, the case study also shows that timing and information flow are significant for the player's experience of narrative. And that while sculptural hypertext seems a promising model for multi-player narratives, the assumptions behind sculptural systems may need to change to enable them (for example, by introducing rules on the rate of choices, and by active rather than passive polling of the reader state).

It is clear that this work only scratches the surface of what might be possible with multiplayer narratives. For our future work we propose to undertake a more systematic analysis of multiplayer games, expanding both the range of games and genres, and also the

factors by which those games are characterised. Our hope is that this will reveal a wide range of multiplayer models, each of which could potentially by translated to a multiplayer narrative model that could be prototyped in a sculptural system and explored in greater depth.

REFERENCES

[1] The Walking Dead Season One Plot Graph. (????).
[2] Ruth Aylett. 1999. Narrative in virtual environments-towards emergent narrative. In *Proceedings of the AAAI fall symposium on narrative intelligence*. 83–86.
[3] Mark Bernstein. 2001. Card Shark and Thespis: Exotic Tools for Hypertext Narrative. In *Proceedings of the 12th ACM Conference on Hypertext and Hypermedia (HYPERTEXT '01)*. ACM, New York, NY, USA, 41–50. DOI:https://doi.org/10.1145/504216.504233
[4] M. Cavazza, F. Charles, and S. J. Mead. 2002. Character-based interactive storytelling. *IEEE Intelligent Systems* 17, 4 (July 2002), 17–24. DOI:https://doi.org/10.1109/MIS.2002.1024747
[5] Angelo E. M. Ciarlini, Cesar T. Pozzer, Antonio L. Furtado, and Bruno FeijÃş. 2005. A Logic-based Tool for Interactive Generation and Dramatization of Stories. In *Proceedings of the 2005 ACM SIGCHI International Conference on Advances in Computer Entertainment Technology (ACE '05)*. ACM, New York, NY, USA, 133–140. DOI:https://doi.org/10.1145/1178477.1178495
[6] Chris Fairclough and PÃądraig Cunningham. A Multiplayer Case Based Story Engine. Citeseer.
[7] Franca Garzotto. 2007. Investigating the educational effectiveness of multiplayer online games for children. In *Proceedings of the 6th international conference on Interaction design and children*. ACM, 29–36.
[8] Pablo GervÃąs, BelÃ¡n DÃ¡az-Agudo, Federico Peinado, and Raquel HervÃąs. 2005. Story plot generation based on CBR. *Knowledge-Based Systems* 18, 4âĂŞ5 (Aug. 2005), 235–242. DOI:https://doi.org/10.1016/j.knosys.2004.10.011
[9] Isabela Granic, Adam Lobel, and Rutger CME Engels. 2014. The benefits of playing video games. *American Psychologist* 69, 1 (2014), 66.
[10] Charlie Hargood, Mark J Weal, and David E Millard. 2016. Patterns of Sculptural Hypertext in Location Based Narratives Categories and Subject Descriptors. *Proceedings of the 27th ACM Conference on Hypertext and Social Media* (2016), 61–70.
[11] T. Manninen. 2000. Interaction in networked virtual environments as communicative action: social theory and multi-player games. IEEE Comput. Soc, 154–157. DOI:https://doi.org/10.1109/CRIWG.2000.885173
[12] Tony Manninen. 2002. Interaction forms in multiplayer desktop virtual reality games. In *VRIC2002 Conference*, Vol. 223. 232.
[13] Michael Mateas and Andrew Stern. 2003. Facade: An experiment in building a fully-realized interactive drama. In *Game developers conference*, Vol. 2.
[14] James R. Meehan. 1977. TALE-SPIN, An Interactive Program that Writes Stories.. In *Ijcai*, Vol. 77. 91–98.
[15] David E. Millard, Charlie Hargood, Michael O. Jewell, and Mark J. Weal. 2013. Canyons, deltas and plains. *Proceedings of the 24th ACM Conference on Hypertext and Social Media - HT '13* (2013), 109–118. DOI:https://doi.org/10.1145/2481492.2481504
[16] Federico Peinado and Pablo GervÃąs. Transferring Game Mastering Laws to Interactive Digital Storytelling. In *SpringerLink*. Springer Berlin Heidelberg, 48–54. DOI: 10.1007/978-3-540-27797-2_7.
[17] Niklas Ravaja, Timo Saari, Marko Turpeinen, Jari Laarni, Mikko Salminen, and Matias Kivikangas. 2006. Spatial presence and emotions during video game playing: Does it matter with whom you play? *Presence: Teleoperators and Virtual Environments* 15, 4 (2006), 381–392.
[18] Christian Reuter, Viktor Wendel, Stefan GÃ¼bel, and Ralf Steinmetz. 2014. Game design patterns for collaborative player interactions. In *Proceedings of DiGRA*.
[19] Mark Owen Riedl and R. Michael Young. 2004. An Intent-Driven Planner for Multi-Agent Story Generation. In *Proceedings of the Third International Joint Conference on Autonomous Agents and Multiagent Systems - Volume 1 (AAMAS '04)*. IEEE Computer Society, Washington, DC, USA, 186–193. DOI:https://doi.org/10.1109/AAMAS.2004.63
[20] JosÃľ Bernardo Rocha, Samuel Mascarenhas, and Rui Prada. 2008. Game mechanics for cooperative games. *ZON Digital Games 2008* (2008), 72–80.
[21] James Owen Ryan, Michael Mateas, and Noah Wardrip-Fruin. 2015. Open Design Challenges for Interactive Emergent Narrative. In *Interactive Storytelling: 8th International Conference on Interactive Digital Storytelling, ICIDS 2015, Copenhagen, Denmark, November 30 - December 4, 2015, Proceedings*, Henrik Schoenau-Fog, Emilio Luis Bruni, Sandy Louchart, and Sarune Baceviciute (Eds.). Springer International Publishing, Cham, 14–26.
[22] JosÃľ Pablo Zagal, Miguel Nussbaum, and Ricardo Rosas. 2000. A model to support the design of multiplayer games. *Presence: Teleoperators and Virtual Environments* 9, 5 (2000), 448–462.