Lovecraftian Horror in Story-Driven Games: Narrative Design Challenges and Solutions

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Abstract. Cosmic horror, or Lovecraftian horror, is an important subgenre in horror fiction, which is concerned with the horror of the unknowable and incomprehensible. In cosmic horror, the thin veil of human sense-making through which we ordinarily perceive the world is inevitably destroyed through a confrontation with a deep and terrible truth about the universe. For the story protagonists, the encounter with the true nature of things practically always results in madness or death, or at least denial of the events that took place. While cosmic horror originates in literature, significant works exist also in films, graphic novels and games. However, while many games include elements from cosmic horror, the themes and genre conventions of cosmic horror mean that it is far from trivial for games to engage genuinely with the genre. This paper explores the potential for games to capture the feelings of experience of a Lovecraft story authentically via their mechanics and design. We give an overview of the genre conventions of literary cosmic horror and identify six narrative design "challenges" where the genre conventions of narrative-driven games appear to be directly incompatible with those of literary cosmic horror. For each challenge, we discuss the depth and nature of the seemingly irreconcilable differences and use examples from narrative horror games (Lovecraftian and otherwise) to identify potential solutions. Can games and cosmic horror really be mixed? And, if so, how?

Keywords: Lovecraftian horror · Cosmic horror · Game narrative · Interactive narrative design

1 Introduction

Cosmic horror, or Lovecraftian horror, is an important subgenre in horror fiction, which is concerned with the horror of the unknowable and incomprehensible [1]. Genre conventions place the human protagonists against monstrous antagonists that are impossible to overcome, or even to understand. In cosmic horror, the thin veil of human sense-making through which we ordinarily perceive the world is inevitably destroyed through a confrontation with a deep and terrible truth about the universe; and the encounter with the true nature of things practically always results in madness or death.

While cosmic horror originates in literature, significant works exist also in films [6], TV series [22] and graphic novels [10]. An increasing number of games are also classified

as Lovecraftian, by critics as well as gamers. For example, as of 14 June 2023, a Steam search for "Lovecraftian" returned 1163 results, and 620 games were specifically tagged as "Lovecraftian." However, even though many games include elements from cosmic horror, it is far from trivial for games to engage genuinely with the genre. In fact, I would argue that of the many supposedly Lovecraftian games, few offer a genuine engagement with the idea of cosmic horror as we know it from literature. Games often borrow surface level elements (e.g., tentacled monsters) rather than engage deeply with the genre (e.g., instilling a sense of cosmic dread). Kevin Flanagan has explored this in some detail, but his focus is on "the sheer variety of approaches" to Lovecraftian horror in games, rather than on the specific ability (or inability) of games to "capture the feelings of experience of a Lovecraft story via its mechanics and design" [5].

In this paper, cosmic horror is of interest to us exactly because of its ability to evoke feelings of a Lovecraft story, because these are not typically within range of game experiences. We consider the ability to evoke feelings of cosmic dread an expansion of the range of procedural rhetoric available to games as a medium, which is valuable for the narrative games to mature as a form of storytelling. In this fashion, we are concerned with the expressivity of games as a storytelling medium. It is for this reason, that the paper explores the potential for games to capture the feelings of experience of a Lovecraft story authentically via its mechanics and design. As a starting point, we argue that there seems to be a seemingly irreconcilable relationship between the most important cosmic horror conventions from literature and the genre conventions (perhaps even inherent characteristics) of story-driven games. Drawing upon a selection of horror games (Lovecraftian and otherwise) from the last three decades, our intention is to present a deep analysis of the challenges related to making cosmic horror work in games and chart the possible solutions. Can games and cosmic horror really be mixed? And, if so, how?

2   Cosmic Horror Conventions from Literature

The originator of cosmic horror is the American writer H. P. Lovecraft (1890–1937). Rather than being concerned with gore and shock as is known from many other sub-genres of horror, cosmic horror themes include cosmic dread, forbidden and dangerous knowledge, madness, non-human influences on humanity, religion and superstition, fate and inevitability, and the risks associated with scientific discoveries. While Lovecraft's contribution to the horror genre is very significant, his legacy is also encumbered by racism [22–24]. Fortunately, modern creative works in cosmic horror show that racism and racial anxieties are not integral to the genre, and that cosmic horror in fact can be used to *critique* racism, as Dan Hassler-Forest observes in his analysis of the TV series *Lovecraft Country* (2020) [22].

In relation to genre conventions, Donald Burleson [1] has identified five major themes in Lovecraft's writings:

1. *Denied primacy*: Humans are neither the first or last civilization on Earth and has never really been the foremost.
2. *Forbidden knowledge* (or *merciful ignorance*): Some types of knowledge are so terrible that wellbeing can only be maintained through avoidance or suppression.

3. *Illusory surface appearances*: Things are not as they seem, and underneath lies a deeper and more terrible reality.
4. *Unwholesome survival*: Some things and beings outlive their rightful existence and encroach on human existence.
5. *Oneiric objectivism*: Any distinction between reality and dreams is at best ambiguous, and deep dream may be as real (or more real) than the waking world and holds terrible secrets about the ultimate nature of the universe.

In terms of morphological conventions, cosmic horror stories are often short[1] and frequently take the form of personal accounts, often authored by people who are either dead or missing or otherwise distanced in time and/or space. An example can be found in "The Green Meadow" (1927) [15] in which a notebook written in classical Greek is found by scientists inside a meteorite (and hence separated from the story's characters by time as well as space) and is revealed to contain the account of a man trapped on a small, disintegrating island in an alien world. Even if a narrator is still alive, they must frequently distance themselves from the experience that is the subject of their account, such as in "Under the Pyramids" (also published as "Imprisoned with the Pharaohs") (1924) [16] in which the narrator attempts to retain his *merciful ignorance* by denying his terrible encounter with monstrous entities under the Sphinx of Giza as dream, hallucination or delirium. The possibility that the experience is true is impossible to bear, and only denial of the knowledge about it allows a modicum of sanity to persist. Vivienne Ralickas writes:

> Cosmic horror therefore amounts to an experience of the cataclysmic horror that the human subject experiences once it cognizes the finitude of its existence and realizes that, contrary to a humanist view which posits human life as intrinsically meaningful in relation not only to itself but to the cosmos, *there is neither anything distinctive nor significant about being human.* [19; emphasis added]

The *insignificance* of the protagonists is also identified by David McWilliam who observes that the characters in cosmic horror stories tend to experience "*insignificance* and *powerlessness* at the cosmic scale" [17; emphasis added]. As we will argue in this paper, these characteristics are not easily reconcilable with genre conventions of story-driven games.

While cosmic horror stories in this fashion deal with the *unknowable* and the *incomprehensible*, and also emphasise *insignificance* and *powerlessness* of their protagonists, the stories are also concerned with the *indescribable*. On this topic Kneale writes, "Lovecraft's stories are centrally concerned with the paradox of representing entities, things and places that are beyond representation" [12]. This has a marked effect on the vocabulary used in cosmic horror stories, and Philip Smith observes:

> A recurring theme in Lovecraft's prose is that which is beyond description. A collection of Lovecraft's work includes the following prose, 'unheard of,' 'inconceivable,' 'nameless,' 'indescribable,' 'unmentionable,' 'inexplicable,' 'unexplainable,' 'useless to describe,' 'no pen could even suggest' and 'unknown.' [21]

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[1] H. P. Lovecraft wrote or co-write 73 short stories, six novellas and only one novel.

The challenge of showing the indescribable is of course of particular interest to a visual medium like story-based games, even if it is not unique to games *per se.*

3   Challenges for Cosmic Horror in Gaming

We have identified six characteristics of games (in particular, story-driven games) that appear to be in direct conflict with the genre conventions of cosmic horror. In the following sections, we will discuss each of these characteristics and identify why it seems irreconcilable with cosmic horror conventions and give examples of games that engage with the challenge, either successfully or unsuccessfully.

3.1   Agency

Nearly all game genres are defined by (and even named after) the core game mechanics, i.e., *what the player does.* Examples include *shooter* games, *fighting* games, *puzzle* games, *role-playing* games, etc. It is through these game mechanics that the player interacts with the gameworld and thereby experiences *agency.* Notably, *horror* games (along with *sport* simulations) is one of the few game genres named for its content (or, perhaps, the emotion that it aims to evoke), rather than a core mechanic. (Perhaps this indicates that horror games are "special" somehow and that the game mechanics and emotional affect serve a different purpose for horror than they do for many other game genres, but that is the topic of another paper.) In the context of interactive narrative, Janet Murray defines agency as "the power to take meaningful action and see the results of our own choices" [18]; and in the context of games, Carstensdottir et al. write,

> Broadly, agency in games can be described as the phenomenon where a player feels that the actions presented to them in the context of the game are *meaningful* and that their choice of action has a *meaningful impact* on the context in which they are engaging. [2; emphases added]

As Carstensdottir et al. observe, definitions of agency in games generally focus on whether the actions available to the player are meaningful; and agency is seen as a good (if not crucial) characteristic of games. More agency in a game is typically seen as better, and games are often lauded if the player has a wide range of actions available to them to which the game (and the gameworld) can respond meaningfully. Janet Murray's identification of the infinitely adaptable and endlessly flexible Holodeck as a guiding metaphor for interactive storytelling [18] shows that more agency is considered desirable in interactive digital narratives too, even agency in interactive narratives, as Noam Knoller has argued very convincingly [27], is always restricted.

In comparison with their counterparts in games, the protagonists of cosmic horror stories have little, if any, agency. Rather, such characters experience "insignificance and powerlessness at the cosmic scale" [17]. Their situation is fundamentally hopeless, and any perceived agency is soon revealed as illusory and, if attempted, outright dangerous. For example, in "The Horror at Martin's Beach" (1923) [14], the industrious Captain Orne attempts to land a monstrous sea creature using a heavy rope, but instead he and his men find themselves mysteriously unable to detach themselves from the rope and are

slowly and painfully dragged into the sea. The agency Captain Orne expresses becomes his doom, and also the doom of others. The bystanders leave the scene while Orne's men are still being dragged into the sea, not only because it is too terrible to keep watching but also because the event is incomprehensible: How did the sea creature cause the men to stick to the rope? While the question is not answered (or even articulated) in the story, no plausible answer seems possible; there is no meaning to be found, and all the bystanders can do is walk away in a futile attempt to return to merciful ignorance. The unseen monster's powers are awesome and incomprehensible, and it retains its primacy over the humans with little or no effort. The question of *meaning making* is at the centre of this discussion. In story-driven games, exercising agency enables the players make sense of the world. In Lovecraftian horror, the characters come to realise that the world makes no sense. In this fashion, the character arcs used in the two forms are exactly the inverse of each other.

So how do games deal with this? It appears that few games do. Agency is so intrinsic to games that removing it, even for short periods of time, is a highly risky design decision that is likely to result in player frustration. An example can be found in the (non-Lovecraftian) *Haunting Ground* (2005) in which the playable character and protagonist Fiona under certain circumstances reaches a state of panic, causing the player to lose control of her, often resulting in the death of Fiona and severe frustration for the player. Perhaps the distinction made by Murray and Carstensdottir above offers some hope: As long as there is *gameplay* agency, perhaps we can dispense with *narrative* agency. There are many examples of (non-Lovecraftian) games that do this successfully, such as *The Last of Us* (2013), which is narratively completely linear (and hence, offers no narrative agency) but features a considerable amount of gameplay agency through its well-designed game mechanics. However, as we saw in "The Horror at Martin's Beach," it is exactly Captain Orne's *actions* (which would map to gameplay and mechanics in a game adaptation of this story) that turn out to be not only futile, but detrimental. The difference here seems irreconcilable: It is doubtful that a game in which the player takes on the role of Captain Orne and struggles on a rope for two hours before drowning (or worse) will be a rewarding game experience.

We have found two game/narrative design techniques that seem to result in less in conflict with literary Lovecraftian conventions around agency, even if they are closer to "workarounds" than create approaches to game design. The first technique is to use game mechanics that emphasise story, rather than gameplay. Many (non-Lovecraftian) titles already use such techniques, and common examples include environmental storytelling, in which the player uses game mechanics to navigate and examine the gameworld and its objects in order to piece the story together; or narrative puzzles that must be solved in order for the story to progress or for its elements to be revealed. Fernandez-Vara has identified five narrative puzzle patterns, e.g., figuring out which item a character desires and helping them, or combining and disassembling game objects to form new objects [4]. Nevertheless, narrative puzzles also rely on meaning making; they are generally assumed to "have a satisfying solution, i.e., one that ultimately makes sense to the puzzler" [3].

The second technique is to include (and place focus on) game mechanics that emphasise danger and powerlessness. Figure 1 shows two examples from *Song of Horror* (2020) in which the character must listen at doors to detect (and avoid) the presence of monsters

in the next room and (less frequently) keep a door closed to keep the monster away, at least for a short while. The radio in the (non-Lovecraftian) game *Silent Hill 2* (2001) also falls into this category; it serves a gameplay function by alerting the player to the presence of monsters but its uncanny static also creates a feeling of danger and vulnerability. Survival horror games, like the *Silent Hill* series, frequently feature game mechanics that emphasise danger and powerlessness, even when they are not Lovecraftian, and these are straightforward to use also in Lovecraftian games.

Fig. 1. Game mechanics in *Song of Horror* (2020): listening at doors (left) and keeping the monsters out (right)

3.2   Opponents Can Be Defeated

Many games, including story-driven games, features opponents, and it is convention that these opponents can be defeated. Opponents of varying difficulty are frequently used to regulate or mark the progression of a game, such as a "boss fight" at the end of every chapter. For the purposes of this paper, we will consider the question of whether opponents can be defeated a special class of *gameplay agency*, which extends the discussion in the previous section.

Many games with Lovecraftian elements, such as the classic game *Quake* (1996), features killable enemies with Lovecraftian design, rather than the undefeatable undying monsters that are one of the hallmarks of literary cosmic horror (Fig. 2 left). Even *Call of Cthulhu: Dark Corners of the Earth* (2005), which is one of the more faithful attempts to use cosmic horror in games, sees the protagonist confronting the monstrous Dagon with a machine gun (Fig. 2 right). This type of agency works well in games, but as we saw in Sect. 3.1, it is directly at odds with the genre convention of *powerlessness* from cosmic horror. Any protagonist in cosmic horror literature who confronts a Great Old One with a gun would quickly come to dismal end, but not so in games. In games, the Lovecraftian monsters may bear a superficial resemblance to those from the literature, but for many games, the engagement with cosmic horror goes no deeper.

Some RPGs feature monstrous antagonists that appear multiple times and are designed to defeat the player repeatedly until the final encounter. An example is the monster Lavos in *Chrono Trigger* (1995) which defeats the player (although without killing the playable character) repeatedly until the final encounter in which it is finally possible for the player to win. Through the repeated (but non-fatal) defeats, the game

emphasises the antagonist's power. *Chrono Trigger* is not a cosmic horror game, and it does let the player prevail in the end, but its repeated defeat structure is a useful approach that can be adopted by cosmic horror games to help show the overwhelming power of the opponents.

Fig. 2. Left: Lovecraftian monster from *Quake* (1996). Right: The monstrous Dagon from *Call of Cthulhu: Dark Corners of the Earth* (2005)

So, how do games deal with this? While many games (such as *Quake* mentioned above), do not attempt to create a feeling of powerlessness against invincible, incomprehensible opponents, there are games that adopt clever solutions to solve this problem. One approach is to introduce multiple monstrous antagonists that are equally powerful and pit them against each other: Cthulhu is not really after the puny humans – he is pitted against another Great Old One, and the humans just happen to be in the crossfire, or serve as pawns in the game between the two. *Eternal Darkness: Sanity's Requiem* (2002) does this expertly through a three-way structure of Great Old Ones (called Ancients) whose powers are also mapped to game resources. Another approach is to remove combat from the game altogether. This can be done by simply not including a game mechanic for fighting, such as *Song of Horror* (2020) or *The Terrible Old Man* (2019), or by making the monster obviously undefeatable, such as in *The Land of Pain* (2017). This approach combines well with the introduction of narrative-focused game mechanics discussed in Sect. 3.1.

3.3 Winning is Possible

Most games incorporate the idea of winning, or at the least overcoming obstacles and reaching a satisfying resolution. Victory (over a level, over an enemy, over other players) is something the player must strive for. We have already discussed the question of whether opponents can be defeated, but the question about whether the game can be "won" in any meaningful sense is a broader one. In many games, victory in one shape or another is typically used as requirement for game progression, through a level completion, boss fight, etc. The player may fail at first, but they get a second try, and a third, and a fourth, typically through checkpoints and saved games. While some games are punishingly hard, such as the *Dark Souls* series, there is always a path to victory, and players who are sufficiently adamant and skilled can achieve it. In addition, many story-based games feature a "good" ending and one or more "bad" endings, which are awarded depending on

how well the player has played. When such multiple endings exist, there is a motivation for most players to reach the good ending, and for completionist players to reach all endings through repeated playthroughs.

For literary cosmic horror, however, the idea of a "win" or a "good ending" is alien. The characters always lose and there is no way that they could not. As we have seen, this is especially the case when characters exercise agency, like Captain Orne. Hence, games are nearly always winnable, and literary cosmic horror never lets the characters win in any meaningful sense. This convention of winning – even if it is hard and takes many tries – is one of the big challenges for making genuinely Lovecraftian games.

So, how do games deal with this? Many games, e.g., *Quake* as mentioned earlier, simply ignore this genre convention from literary cosmic horror, resulting in experiences that while they may look Lovecraftian on the surface, feel much less Lovecraftian when played. Other games The best approach we have found is to surprise the player with a narrative "defeat" snatched from the jaws of a gameplay "victory," as *The Land of Pain* (2017) does: After finally having returned from the alien world to their own, the player breathes a sigh of relief. But immediately, it becomes clear that the monsters have returned too. The subsequent ending is swift and merciless: the playable character is overpowered and transported to an alien world in which there is no choice but to become one with the Great Old One in the void, which of course means the destruction of the playable character. *Call of Cthulhu: Dark Corners of the Earth* also features the destruction of the playable character (through madness and suicide) at the end. In most games, narrative victory and gameplay victory go hand in hand, but by decoupling the two, games like *The Land of Pain* and *Call of Cthulhu: Dark Corners of the Earth* can reconcile the two seemingly incompatible genre conventions. The player gets a feeling of satisfaction from having completed the game, but at the same time, they understand that the playable character's defeat is inevitable, which honours the genre convention of narrative endings with no hope or victory. For the decoupling between narrative defeat and gameplay victory to work, it must be clear that the narrative defeat is inevitable, or the player will likely feel unfairly treated. *The Land of Pain* uses the almost instant capture of the player to make it clear that there is no escape; there is no better ending than that which was achieved. This removes the resonsibility for the defeat from the player and makes it acceptable. There is nothing the player could have done to avoid it – the playable character was doomed from the beginning.

The idea of decoupling narrative closure from gameplay (or "system") closure has been proposed by Alex Mitchell et al. [25] as a useful distinction between the player reaching a satisfying understanding of the story and a satisfying understanding of its underlying structure. In my analysis, the "narrative defeat" is largely equivalent to what Mitchell et al. consider "narrative closure," i.e., what Noël Carroll describes as a "feeling of finality that is generated when all the questions saliently posed by the narrative are answered" [26]. Interestingly, the cosmic horror titles discussed here are structurally simple, featuring no narrative branching, and do not appear to be designed for the player to achieve a "system closure," i.e., an understanding of the narrative's structure.

3.4   Knowledge is Good

Many games have complex mechanics and narratives that require the player to learn in order to develop the right strategies (for a gameplay heavy game) or make the right decisions (for a narrative game). In this way, games reward the player for achieving knowledge and understanding, such that they can complete the challenges. Steven Johnson [11] has observed that when players interact with games, they are using a probe-hypothesize-reprobe-rethink loop first proposed by James Gee in connection with learning experiences. Johnson has argued that games in this way essentially teach players the scientific method. The argument is that games are fundamentally about learning, and the entertainment value of the game is to learn to play the game, learning to understand how it works. In this fashion, games teach players that with careful attention, it is possible to understand the gameworld, and that this will lead to improvement in their skill and eventually to mastery. In other words: Knowledge is good.

At a first glance, this seems fundamentally irreconcilable with the cosmic horror genre convention that knowledge – especially scientific knowledge – can only lead to madness and death. As observed by Burleson [1] in the form of the *forbidden knowledge* theme and as discussed earlier in the context of "Under the Pyramids," denial is often the only way that a protagonist of a cosmic horror story can cope with their knowledge. While this may seem like an irreconcilable conflict at first, if we think deeper, the quest for knowledge in a cosmic horror game is only a problem if it leads to success. If the game has an ending that is consistent with cosmic horror, such as the death or incurable madness of the playable character, then the pursuit of knowledge can be depicted exactly as the reason for the dismal ending, which is completely compatible with cosmic horror and also the approach adopted by *Call of Cthulhu: Dark Corners of the Earth.* A game with multiple endings could even give the player an ending that is extra horrible if they have pursued knowledge with particular fervour, for example by finding and examining all story objects. I am not aware of any games that do this, but it is an interesting possibility.

3.5   (Prolonged) Survival of the Playable Character

We have already discussed whether the game is winnable or not. A related genre convention for games is that there generally is a way for the playable character to survive with their skin intact, and this is typically a requirement for a "good ending." A "bad ending" may feature the death of the playable character or one or more supporting characters, but other types of losses can also be used, such as the "nightmare ending" in *Fatal Frame 2* (2003) in which both sisters Mio and Mayu survive, but in which Mio has lost her sight (see Fig. 3). For this reason, we have classified the question of the survival of the playable character as separate from winning the game.

Generally, games use all sorts of methods to let the playable character ultimately prevail: Health bars and medkits, checkpoints and save points, respawns, etc. As discussed, even for the most difficult games, there exists a path through which the playable character can survive, and the most adamant players can find it. However, in cosmic horror, the genre convention is of course that the characters die horribly, go insane or at the very least survive considerably shaken. Furthermore, this tends to happen relatively quickly:

Fig. 3. The "nightmare ending" in Fatal Frame 2 (2003)

Cosmic horror stories tend to be short, perhaps because the horrors are so immense and so terrible that their effect is always quick and detrimental. It is rare to find a cosmic horror story that features a long, drawn-out survival of the protagonist, but prolonged survival is of course the convention in games, even for games that, like *Call of Cthulhu: Dark Corners of the Earth,* feature the ultimate demise of the playable character. In this fashion, the survival of the playable character is linked to the duration of the game.

How can these two genre conventions be reconciled? As mentioned, *Call of Cthulhu: Dark Corners of the Earth* admirably attempts to combine the long story form from the AAA game format (12–16 h) with the dismal ending from cosmic horror. From a story-telling perspective, it is challenging to justify the prolonged survival of the protagonist for a full-length AAA game, and it appears *Call of Cthulhu: Dark Corners of the Earth* compensates for its protagonist's prolonged survival by making his end extra horrible: not only madness, but also death, and sucide at that.

Perhaps the simplest approach to addressing this challenge is to make games that are short or very short, such as *The Land of Pain* (which takes 3–4 h) or *The Terrible Old Man* (which takes 20–30 min), and that features a fatal narrative ending, such as we discussed in Sect. 3.3. This lets the playable characters come to a dismal end rather quickly, which is in good accord with both genre conventions from Lovecraftian horror.

Another approach that allows the long game form is to have multiple playable characters that can be killed off or driven insane one at a time. *Eternal Darkness: Sanity's Requiem* does this very thoroughly, featuring a total of 12 characters, only one of whom prevails in the end, as shown in Fig. 4. This allows the two genre conventions to coexist. *Song of Horror* (2019) uses a similar approach, but its highly creative design allows the player to keep multiple characters alive if they play well. As long as one of the six playable characters survives, the game can be completed. In terms of gameplay, this works practically like having six "lives," but by making the characters different, *Song of*

Horror honours the cosmic horror convention of high character mortality and at the same time constructs a more complex and interesting storyworld than if only a single playable character had been used. *Song of Horror* and *Eternal Darkness: Sanity's Requiem* both use the deceased playable characters to reappear for extra creepiness. For example, Fig. 5 shows a scene from *Song of Horror* in which one playable character (Etienne Bertrand) encounters the rather physical ghost of the previous playable character (Alina Ramos) who was killed by the monsters and now stands in the kitchen, sobbing and asking what will become of her.
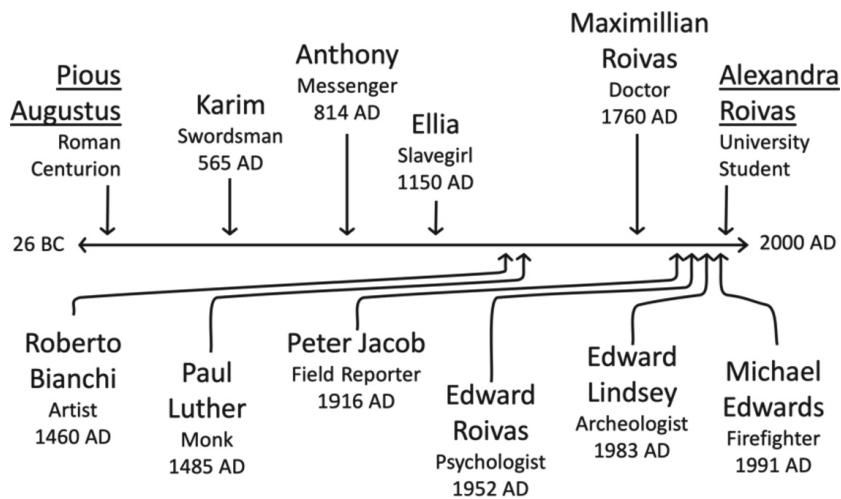

Fig. 4. Timeline with playable characters in Eternal Darkness: Sanity's Requiem

A third option is to adopt gameplay that features permanent death ("permadeath") of the playable character as an integral feature, such as known from Roguelikes [28]. This approach is taken by *Infra Arcana* (2011), which is set in the early 20th century (a genre convention from literary cosmic horror) and features the player repeatedly exploring a deadly procedurally generated underground complex in search of a mysterious object of non-terrestrial origin. The Roguelike genre conventions of permadeath and repeated attempts with different characters is a viable approach to reconciling games with cosmic horror.

3.6 Euclidean Space: A World that Makes Sense

Modern game engines, like *Unity* and *Unreal Engine*, are based around 3D (or sometimes 2D) models of the game world. When making a game, the designers create the entire game world – environment, levels, game objects, characters, everything – in a 3D modelling tool. Many of these are then animated and made to move according to the laws of physics, which like the 3D environment itself are built into the game engines. It is very difficult for a game developer to break free from the rigorous implementation of 3D Euclidean space and its associated physics, because it is hardwired into the game engines.

Fig. 5. Playable character Etienne Bertrand encountering deceased, previous playable character Alina Ramos sobbing in the kitchen (highlighted in red). Screenshot: Gab Smolders (YouTube) (Color figure online)

In comparison, cosmic horror deliberately eschews this orderly and familiar representation of the world. As noted earlier, cosmic horror frequently deals with the *indescribable*, and this also pertains to the perception of spaces and places in the stories. Perhaps the clearest example is from what is probably H. P. Lovecraft's most famous story "The Call of Cthulhu" in which he writes: "[T]he geometry of the dream-place […] was abnormal, non-Euclidean, and loathsomely redolent of spheres and dimensions apart from ours" [13]. While Lovecraft only used the term "non-Euclidean" a couple of times in his stories, he returns to the subject in letters, such as the following:

> Straight lines do not exist, nor does theoretical infinity. What seems infinite extension is simply part of an inevitable returning curve, so that the effect of proceeding directly away from any given point in space is to return at length to that same point from the opposite direction. What lies ultimately beyond the deepest gulf of infinity is the very snot on which we stand. (Howard Phillips Lovecraft, Selected Letters III.388)

And:

> I have had many severe criticisms because of the concrete and tangible nature of some of my "cosmic horrors." Variants of the general theme include defeats of the visible laws of time ... And transcensions of the boundary-lines of Euclidean space. (Lovecraft, Selected Letters IV, 1932)

Moritz Ingwersen offers a deep analysis of H. P. Lovecraft's use of monstrous geometries [9], and Thomas Hull discusses Lovecraft's use of mathematical language in "The Call of Cthulhu" to observe that it can be seen as double-edged to have subtly different horror effects on mathematicians and non-mathematicians:

What better way to convey a sense of an unknown, alien, yet powerful landscape than to use mathematical language that, while just as unknown to most readers, simultaneously conveys levels of mystery and legitimacy to the environment? What's more, readers who do have an understanding of non-Euclidean geometry can also appreciate this effect. What would be more unsettling to one's sense of reality than to encounter physical examples of, say, hyperbolic geometry transplanted into our Euclidean world? Lovecraft's use of strange geometry is effective for both the mathematical literate and layman. [8]

The tyranny of Euclidean space in contemporary game engines is perhaps the biggest obstacle to anyone making Lovecraftian games. Game engines are specifically designed to model a comprehensible world and anyone (as some of my students) who have tried to bend them in a different direction is bound to struggle. Game engines are intrinsically unsuited to depicting the unfathomable mind-destroying hyperdimensional nature of the cosmos from cosmic horror. As Perry Ruhland puts it, "Lovecraft's mythos is, by nature, unadaptable into a visual medium. The Old Ones do not obey the laws of our universe, they aren't bound by how Earth works" [20].

A few games engage with this challenge by playing with perception through simple mechanisms like teleporting or inversion or visual effects. *Eternal Darkness: Sanity's Requiem* and *Call of Cthulhu: Dark Corners of the Earth* both do this well, but this is as far as is possible with current game engines. At present, the only other possibility for escaping the confinement of the 3D Euclidean space is by breaking through the fourth wall. *Eternal Darkness: Sanity's Requiem* also does this expertly as I have written about elsewhere [7], but it is a far cry from what cosmic horror literature can produce in our minds.

4   Conclusion

In this paper, we explored the challenges associated with making games that engage with cosmic horror as we know it from literature. We identified six specific challenges and discussed works that addressed them, and we identified the specific techniques used as well as challenges where few or no techniques were available. The discussion focused on story-driven horror games, either cosmic horror or survival horror games, even if the latter did not feature Lovecraftian elements. (Despite its name, survival horror is undoubtedly the horror game subgenre that is best suited for cosmic horror, even if not all the titles discussed here are cosmic horror games per se.)

We observed that several of the challenges had to do with *making sense* (of the events that take place, of the gameworld's geometry) in one way or another. Some of the six challenges could be addressed by a simple inversion of the genre conventions that most games use. For example, in cosmic horror games that are faithful to the literary tradition, agency and knowledge must both lead to failure, not to success as is otherwise the convention in games. In other cases, the challenge is more difficult to overcome and solutions are less obvious. In particular, the Euclidean space model that underlies game engines falls into this category. We found two particular areas where games and game technology could benefit from further work in order to capture the feelings of

experience of a Lovecraft story authentically via mechanics and design: The potential for deliberately "punishing" players (or the playable characters) for pursuing knowledge with particular fervour (Sect. 3.4), and the need for a game engine that is free from the constraints of Euclidean space (Sect. 3.6). It is up to future game developers (and game technology developers) to develop solutions to this problem in order to support better interactive cosmic horror narratives.

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