

The World Machine

Self-Reflexive Worldbuilding in *OneShot*

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Abstract Worldbuilding in video games is typically associated with the creation of immersive virtual environments. In the independent puzzle adventure *OneShot* (Little Cat Feet 2016), however, worldbuilding becomes the game's central theme in a highly self-referential manner. *OneShot* presents a multilayered universe in which not only characters and players but the game's very code seem to move freely between ontological levels. Drawing attention to the aesthetics and mechanics of worldbuilding and deconstructing the architecture of its own game world, *OneShot* invites reflection on the relation between fiction and computation; the virtual and the actual.

Keywords Worldbuilding, video games, self-reflexivity, metalepsis, immersion

Introduction

Imaginative worldbuilding, researchers from the cognitive sciences to transmedia narratology agree, is an activity that comes naturally to us as human beings and helps us to make sense of the 'real world' (see Holland 2009; Wolf 2012; Ryan 2015a). We engage with the fictional worlds presented to us in various media or construct our own imaginary worlds because we take pleasure in the experience of being transported to a different reality. With the rise of cognitive narratology, engagement with fictional worlds has also been linked to empathic growth, attitude change, and improved theory of mind (Mar and Oatley 2008; Kidd and Castano 2013; Nünning 2014; Fitzgerald and Green 2017).

While an increase in the popularity of worldbuilding can currently be observed across media (see Wolf 2012), video games seem to find themselves in a privileged position when it comes to creating elaborate simulated environments that the player can enter. Their interactive qualities allow almost direct access to the objects and individuals populating game space. Technological affordances such as detailed designs

of 3D geographies, responsiveness to user input, motion capturing, and photo-realistic graphics further contribute to an experience that nips at the heels of transparent immediacy (Bolter and Grusin 2000, 21–24). Almost paradoxically, these in-game environments are at once thoroughly mediated and profoundly spatial. They are the product of a complex informatic architecture—most of which remains invisible to the player—and yet, they are experienced as habitable worlds in an almost physical sense. As Marie-Laure Ryan writes in her 2016 co-authored monograph *Narrating Space/Spatializing Narrative*: “[W]e have developed the habit of thinking of computers as machines that take us into a separate reality—a domain conceived in terms of spatial metaphors” (Ryan et al. 2016, 101). The game’s landscapes and textures, its objects and inhabitants, and the affordances to explore and interact with the world all contribute to creating a “sense of place that binds players to virtual worlds” (ibid., 114).

This chapter approaches the question of video games as world phenomena and the player’s sense of immersion through the analysis of *OneShot* (Little Cat Feet 2016), an independent video game that self-consciously exposes its own underlying mechanisms of narrative and ludic worldbuilding. *OneShot* can be described as a top-down puzzle adventure game. Originally developed in 2014 as freeware using RPG Maker 2003, the game was expanded and republished on Steam in 2016. *OneShot*’s story follows Niko, a child lost in an unfamiliar world, on their¹ quest to restore the world’s “sun”—a lightbulb—to its original location at the top of a tower in the centre of the world. Gameplay mainly consists of solving puzzles with the help of characters, items, or the environment. Some puzzles, and this is the truly noteworthy feature of *OneShot*’s gameplay, even go beyond the game window: they require the player’s engagement with not only the game’s diegetic world but also with parts of the game’s informatic architecture that lie outside the story world, such as the content stored in the computer’s filesystem.

In the following, I first introduce a theoretical framework for understanding the game world of *OneShot*. Inspired by possible worlds theory as well as by cognitive approaches to immersion, this frame seems particularly promising for a discussion of the complex levels of embedding and metaleptic transgression characteristic of my case study. Subsequently, the worldbuilding strategies employed in the game are addressed in more detail, focussing on the ways in which *OneShot* draws attention not only to its strategies for constructing a fictional game world but also to the architecture of its structural layer: its mechanics, data files, and the spatial metaphors of the computer’s user interfaces.

1 Since Niko is never gendered in the game, I will refer to them using the pronoun singular ‘they’.

Worldbuilding and Immersion in Video Games

In video games, even more than in other media, worldbuilding is associated with the ideal of full-body immersion and the creation of virtual environments that players can enter. For the video game industry and its target audience, immersion has also become something of a catchword, advertising a particularly engaging and pleasurable gaming experience. When it comes to systematic scientific description, however, immersion has remained notoriously elusive, and theories are scattered across disciplinary traditions. Various understood as an experience, a mental process, or a phenomenon arising from the interaction between artefact and recipient, immersion is associated with feelings of intense concentration and the loss of awareness of one's (actual) physical surroundings when engaging with an imaginary world (Murray 1997; Gerrig 1999; Ermi and Mäyrä 2005; Ryan 2015a).

Expanding on the idea of immersion as movement from one world to another, Marie-Laure Ryan speaks of the recipient's "fictional recentering" into a possible world: a typically fictional alternate universe that consists of a habitable environment with objects, individuals, and events (2015a, 63). Imaginary worlds typically deviate in interesting ways from the actual world, but these creative inventions are not random. Even fantastic worlds must remain plausible and stick to a coherent internal logic if they are to remain believable (Wolf 2012, 33–43). While engaged in immersive gameplay (or reading/viewing), the fictional world may become the player's (reader's/viewer's) primary frame of reference, so that she experiences it as actual while in it (Ryan 2015a, 73).

OneShot introduces its world through the perspective of its protagonist Niko, a child who one day wakes up in a strange bed in an even stranger world, only to learn that they are supposed to be its saviour. Initially, the player and Niko share a level of knowledge about the world—or rather a lack thereof—and thus a sense of strangeness and disorientation. This provides an ideal set-up for a slow discovery of the game world and its internal logics; in particular those differing from the actual world. Niko's unexpected transportation from their home into the game world even mirrors the player's recentering from the actual world into the fictional world of the game.

Niko serves as the player-character in the sense that they can be controlled by the player, but the game emphasises their status as a fictional being rather than a mere projection of the player's agency in the game world (on player characters, see Vella 2016, 80 et passim). The player's agency as such extends over several ontological levels in the game. Firstly, players can explore and interact with the two-dimensional geography of the fictional world inside the game through Niko. However, rather than being embodied in Niko as an avatar figure, the player is positioned as the world's God, a being speaking and acting from a higher level onto the fictional world, and who provides divine guidance for the hero on their quest. Secondly, as we shall see in a later part of this chapter, the game foregrounds the player's access to the architecture of the game

itself, i.e. to the components and processes of the computational level that make the game playable in the first place.

OneShot's emphasis on the distinction between player and protagonist echoes the idea of characters as 'possible individuals' that is put forward in narratological and cognitive accounts of worldbuilding (e.g. Vella 2016, 80 with reference to Margolin 1990). Using the concept of mental simulation, Ryan explains how recipients construct mental models of the fictional world they encounter from cues provided by a text or artefact as well as their real-world knowledge. Following this idea, we can assume that players, too, construct mental models of the settings, events, and characters they encounter in the game. These models can be imagined as dynamic simulations of a fictional world, which aid the comprehension of its internal logics, of the progression of its narrative, and help players keep track of the overall state of the world (Ryan 2015a, 79). From their quality as mental simulations, it follows that the world and its inhabitants are imagined to exist independently of the signs (words, sounds, images) that produce them (ibid., 62–63). Readers or players, though remaining aware of its fictionality, perceive the game world much like an actual, geographical space and may even be able to imaginatively place themselves in the characters' minds, sharing their point of view, thoughts, and emotions (e.g. Zunshine 2006; Kidd and Castano 2013; Nünning 2014). *OneShot* supports such an understanding by explicitly portraying Niko as a character with a mind of their own and even a life beyond the game world in which they are controlled by the player.

So far, I have largely equated the concept of the game world with a fictional world that happens to be inside a game. This warrants some qualification. As Sebastian Domsch (2013) and others have rightfully pointed out, game worlds are not identical with the fictional worlds we find in, say, a novel. Emerging from the interplay of multiple components, including interactive gameplay, narrative script, mechanics, algorithms, and audiovisual rendering, game worlds differ from more 'conventionalised' subcreations in at least three crucial ways.

Firstly, game worlds are rule-based. Players' mental models must therefore encompass both the story world and the game as simulated physical environment based on algorithms and mathematical rules (cf. Nitsche 2008, 8; cf. Buselle and Bilandzic 2017, 19). The ways in which the story world differs from the recipient's actual-world context are defined by textual rules. Within the world of *OneShot*, for instance, it is a fact that robots are powered by jars filled with glowing shrimp, and may obtain consciousness. Genre conventions may contribute further rules and specifications. *OneShot's* main narrative arc follows an archetypal quest plot revolving around a hero's obstacle-ridden journey towards a goal. Guided by the player, the protagonist Niko is tasked to restore the world's sun to its original position at the very centre of the map. Coded rules, by contrast, determine the affordances and limitations of the player's ludic interaction with the game. In *OneShot*, the environment itself, or rather Niko's competencies

vis-à-vis the rules that govern the gameworld, typically pose the main ludic challenges. Niko can, for instance, move in horizontal and vertical directions, but they cannot cross squares representing water or chasms. Often, these rules are also endowed with narrative meaning, for example that Niko—unlike some of the NPCs—cannot swim or fly (see also Domsch 2013, 18–22). As productive constraints, coded rules enable the creation of spatial puzzles such as labyrinths, mazes, or problem-solving challenges such as finding and repairing a boat in which Niko can cross the water.

Secondly, since game worlds are typically responsive to player input, the player must consider previous decisions and outcomes as well as the affordances still available to them (Caracciolo 2014, 20, 161). Monitoring the state of an interactive game world thus requires the construction of a second, dynamic set of models that need to be continually updated and may differ significantly across playthroughs. Activities such as strategising may also constitute forms of interactive engagement with the world even when players are not actively providing input (Calleja 2011, 41–42).

Thirdly, following Espen Aarseth (2001; 2019), worldbuilding in games is first and foremost concerned with the representation, implementation, and negotiation of space.² Especially when achieving embodied presence in the game world by means of an avatar figure, players can experience the orientation of their body in space almost as if they were dealing with the actual world (Calleja 2011, 75). Unlike the passive observation of movement through space in non-interactive film, motion in video games is experienced as navigation, and objects and environments may respond to the presence and actions of the player (cf. Günzel 2008, 171–72, 180–81). Rather than merely encountering space as representation, players can inhabit the game space and experience a sense of ‘being there,’ or presence. Engaged players will start to build cognitive maps of their surroundings, which include recognisable routes and landmarks, or the location of relevant objects and NPCs. As the geography of the game world becomes increasingly familiar, “a sense of comfort and belonging settles in, creating an attachment between player and game environment” (Calleja 2011, 87), which is in turn conducive to player immersion.

To sum up, worldbuilding in games, for the purposes of this chapter, refers to the interaction between visual, aural, verbal, ludic, and mechanical cues and the cognitive activities of the player, all of which contribute to the illusion of a coherent fictional world. Typically, the (re-)presentation of the world is to some extent shaped by the player’s behaviour and it dynamically reacts to her decisions. Closely related to worldbuilding is the concept of immersion: the state of feeling transported into such a game world.

2 See also Marc Bonner’s chapter in this anthology.

The (Im)Possible Worlds of *OneShot*

As already indicated above, worldbuilding in fiction can be visualised using Ryan's adaptation of possible worlds theory. A (hypothetical) real world is surrounded by possible worlds: the non-actual but somehow conceivable worlds of dreams, desires, and stories. Engaging with the story world of a game, the player may recentre from her individual version of the actual world into the possible world of the game. While immersed, players experience the game world 'as if' it were actual. The game world, in turn, is surrounded by the possible worlds of the characters' dreams, desires, or stories, making it possible to create complex multilayered worlds without disrupting immersion (Ryan 2015a, 70–75). In *OneShot*, however, the coexistence of parallel worlds, the presence of multiple layers of embedding and the complex entanglement of ontological levels within a single work (see Ryan 2015b, 22) entail a number of logical problems that Ryan (2013) identifies as characteristic of impossible worlds. The most prominent among them are contradiction and ontological impossibility. In video games, contradiction may occur as soon as a game is played more than once since details of the world may differ from playthrough to playthrough. Typically, this is ignored by both player and game for the sake of immersion in the individual playthrough. *OneShot*, by contrast, explicitly engages with the possibility of coexisting versions of the same world.

Once we unravel its complexly layered levels of embedding, *OneShot*'s universe can be said to consist mainly of "the World," referring to the world in which Niko and the player find themselves at the beginning of the game. "The World" is populated by regular "NPCs [whose] memories do not last beyond the scope of a session" (*OneShot: Solstice*, Little Cat Feet 2017). All versions of "the World" are embedded in an overarching frame narrative situated on a higher ontological level, on which the mysterious Author is identified as the creator of "the World." In records left by the (fictional) Author in "the World," information on his implementation of the 'multiverse theory' can be found. According to his notes, alternate versions of "the World" are created according to the laws of probability, like "the rolling of dice" (author's journal p. 6; *OneShot*). Some characters seemingly exist across levels: they appear in the embedded world but are aware of its iterability, as well as of the fact that it is embedded in a frame world. Addressing the fact that a game can be played more than once, and that the game world differs across playthroughs, *OneShot* ironically subverts its own premise: "you only have one shot."

The digital nature of "the World" is made even more explicit in the *Solstice* DLC chapter, which adds highly self-reflexive content to new game plus versions of *OneShot*. Not only do specific characters now indicate awareness of the fact that the player has "successfully bypassed the 'one shot' restriction" to play the game again, but they even seem conscious of the technological, narrative, and cognitive processes of

worldbuilding involved in order for “the World” to come into existence in the first place. As Prototype, a character in *OneShot: Solstice*, explains:

Prototype: [“The World”] doesn’t really exist unless Theresa³ initiates the program.

Niko: The... program?

Prototype: The World Machine. A Universe Simulator that runs on Theresa’s computer. We are all in it right now.

Niko: SO WE ARE NOT REAL?

[...]

Prototype: Think of it like... one of your dreams. When you wake up it’s gone. But unlike a dream, this world has a physical location inside a computer, which Theresa operates. (*OneShot: Solstice* 2017)

OneShot self-reflexively frames its own game world as a simulation on a computer and thus draws attention to its mediatedness. The game’s very premise, it seems, is to formulate an allegory of worldbuilding in digital media. Prototype’s explanation even chimes with recent cognitive theories of player engagement with the game world. The “World Machine” cannot be “run independently” but “requires the mental processing abilities of a real person from another universe” to conjure up an immersive secondary world.

The complexly layered multiverse structure of *OneShot*’s game world sets the stage for yet another logical problem: the transgression of world boundaries by way of metalepsis. A form of ontological impossibility, metalepsis describes the paradoxical movement from one ontological plane to another. This can take the form of the physical movement of characters from one world to another on a higher or lower level of narrative embedding (ontological metalepsis), or of characters displaying awareness of these different worlds and/or speaking across their boundaries (epistemological metalepsis) (e.g. Nelles 1992, 94; Kukkonen 2011, 1–2). Prototype’s explanation above can thus be conceptualised as epistemological metalepsis, whereas Niko’s relocation to “the World” is a case of ontological metalepsis. Even the player herself metaleptically transgresses the boundary between the actual and the fictional to achieve presence in the game world as its deity. Niko, as well as a few NPCs, are aware of the player’s presence and the control she exerts over the game world. At times, Niko will also directly address the player, asking her for guidance or comfort.

3 The game automatically uses the computer’s default username to address the player.

While metalepsis can draw the player further into the game world, aid with construction of mental models and thus increase immersion (Klimek 2009, 183–84),⁴ its perhaps more frequent functions are associated with self-reflexivity. In this sense, the game's direct address of the player and blurring of ontological boundaries becomes the vehicle for a metacommentary on game design and encourages reflection on the ontological status of game worlds more generally. The use of the metaphor of divine guidance, as a case in point, can also be read to problematise the player's God-like position in, and power over, the worlds of video games. Furthermore, the fact that the game makes the fictionality of its world explicit threatens to disrupt the aesthetic illusion of being immersed in a secondary world. Niko, when made aware of the fact that the world of *OneShot* is simulated by a computer, expresses a sense of betrayal and even despair: "What am I even supposed to save if everything is just... FAKE?! [...] [to the player:] Why do you keep bringing me back [to "the World"]? Theresa... aren't you supposed to be a kind god?" (*OneShot: Solstice* 2017). Implicitly, the game here invokes commonly held reservations against video gaming, such as the player's 'naive trust' and escapist attitude entailed in immersion, or the seemingly futile and unproductive activity of play. However, it also poses much more uncomfortable questions related to the moral implications of the player's emotional experience, who, after all, derives sufficient aesthetic pleasure from the suffering of a vulnerable character to "keep bringing [them] back" (*ibid.*).⁵ To stretch the interpretation even further, this passage by extension alludes to a form of existential angst often associated with metalepsis, namely the suspicion that in a potentially infinite succession of embedded worlds, our actual world may be just another 'fake.'

Breaking the Frame: Self-Reflexive Worldbuilding

In *OneShot*, metaleptic transgression is not limited to the level of the story world but also involves the game interface and its mechanics. When immersed in a game world, players typically focus their attention on the mediated plane of the fictional world and its landscapes, objects, characters, or events. The code level, by contrast, remains "hidden unless it jumps into the foreground and causes unexpected behavior" (Nitsche

- 4 In *OneShot*, for example, the possibility of direct and seemingly unmediated communication facilitates moments of bonding between player and protagonist, and make Niko seem more real than the average fictional character. Their innocence and dependence on the player further help to experience Niko as an individual, rather than a string of code. Players, who are after all in control of Niko's movements and decisions, may feel a heightened sense of responsibility and emotional attachment towards this character.
- 5 Fritz Breithaupt uses the term "empathic sadism" to describe this 'dark side' of narrative engagement (2015, 441–444).

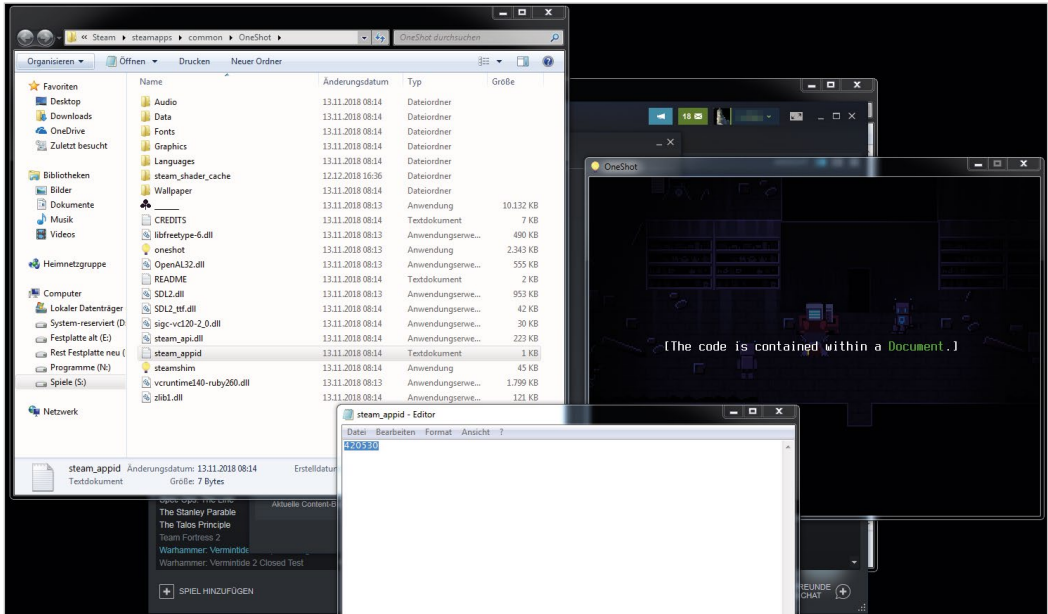


Fig. 1 Looking for clues in the documents folder of the actual computer interface system.

2008, 26). *OneShot*, however, brings the latter to the fore, flaunting its own game-ness and addressing the player in her hybrid role as presence in the game world but also the operator of a computer.

As Niko's and Prototype's remarks referenced in the previous section already suggested, the game emphasises the materiality and situatedness of the game world as a digital simulation which has "a physical location inside a computer" (*OneShot: Solstice* 2017). This motif is accentuated by means of gameplay elements reaching beyond the game's story world and puzzles that can only be solved by interacting with both the fictional game world and the interface of the actual computer. The password for the in-game computer can for instance be found in a document hidden among *OneShot's* 'regular' game files (» Fig. 1).

In a particularly striking example near the end of the game, players are asked to help Niko to navigate a labyrinth consisting of rooms and doors. While, prior to this scene, the game space had been presented as continuous, this labyrinth is shown frame by frame. Rather than corresponding to the logics of geographical space, it follows the computational logic of text-based adventure games in which space becomes a network of nodes or rooms connected by links (cf. Fernández-Vara 2007, 75–76). Directions such as left/right or north/south become meaningless: if Niko enters a door to the

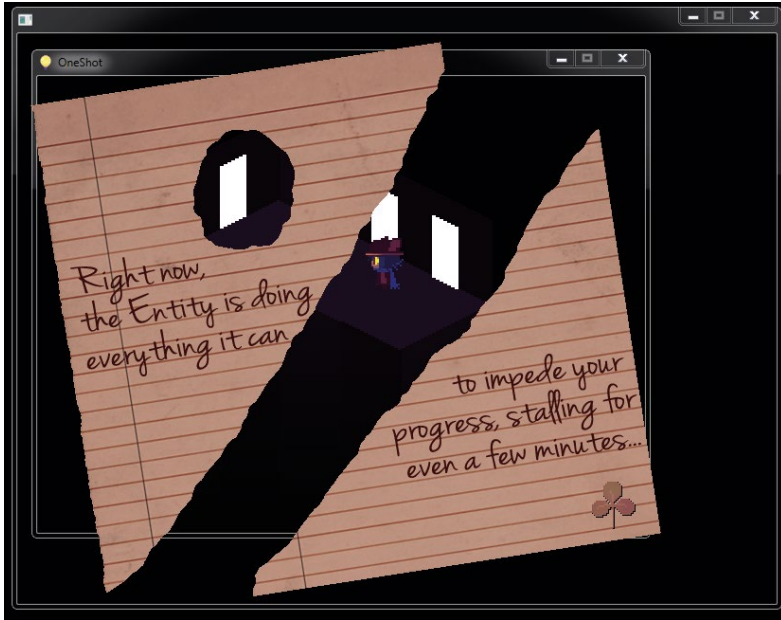


Fig. 2 Superimposed game windows of *OneShot*.

right, they do not head east but follow a link that may lead to any one of the rooms available, including the one they just left. Disorienting the player and privileging the “discontinuity of digital communication” over “illusions of real space” (Aarseth 2001, 164), the game challenges players to think beyond the representational level of the game to also take into account its specific digital materiality.

The only ‘map’ to this “unmappable” space (Fernández-Vara 2007, 75–76) is stored off-screen in the form of code that can be read by the program, but not the average player. However, the game plants a second program application (the .exe file marked by the clover-shaped symbol; » *fig. 1*) in the computer’s documents folder which translates computational logic back into signs intuitively legible to the human mind. Once the player starts the second program, a semi-transparent window opens. Superimposing it on the game’s main window indicates the correct path (» *Fig. 2*). In order to progress in the game spatially, as well as narratively, players need to piece together bits and pieces stored in various locations on the computer—including but not limited to the fictional game world. Thus, the puzzle can be read as an allegory of how multiple components (images, texts, interface, operating system, data, code,) work together to create meaningful affordances for navigating the spaces of a video game world.

The dissection of the game world into its components constitutes an almost polar opposite to immersive worldbuilding. As the aesthetic illusion shatters, the player

is ‘kicked out’ of the game world; reminded that what is represented to us as a coherent world is actually the product of code and algorithms realised via a computer’s processing power. Even the game ‘files’ the player is asked to interact with are spatial metaphors whose function is to translate between the mathematical language of the operating system and the minds of the users. These metaphors, the most prominent of which is probably the desktop, have been naturalised to the point of invisibility. *OneShot*, in turn, denaturalises the processes involved in constructing the various worlds of virtual space, and thus makes them visible not only to the designer but also the player.

The metaleptic transgressions in *OneShot*, then, not only engage ontologically different levels of narrative embedding but also take place at the intersection between the game’s story world and the ‘world’ of computation. These transgressions play out and become visible via the graphical user interfaces of the computer, whose functions, aesthetics, and complex and multilayered interactions in turn become the subject of player attention and reflection. The game’s narrative premise of a world in a loop of destruction and recreation finds its thematic continuation on a metalevel. *OneShot* self-referentially presents a game world alternating between construction through worldbuilding and deconstruction by means of metareferential illusion break. At the end of *OneShot: Solstice*, even the metaphor of player transportation is brought full circle as Niko walks out of the game window and across the desktop to seemingly disappear beyond the screen.

Conclusion

The dream of digital technology and especially of computers as “World Machines” (*OneShot: Solstice* 2017) has accompanied the development of video games and VR since their beginnings. As Brenda Laurel puts it in *Computers as Theatre*, the use of spatial metaphors as a basis for interface design has fostered the idea of *the computer as a representative of a virtual world*, rather than a (mere) tool (2013 [1991], 151). Many games, especially open world and adventure games, are primarily concerned with the navigation, exploration, and narrativisation of space, turning interactive 2D or 3D environments into full-fledged possible worlds that can be inhabited by the player, and that she experiences as profoundly spatial. That these possible universes are in turn built on a computational architecture of code, programs, data, or links is normally well hidden beneath several layers of representation, lest the player’s immersion in the world be disturbed. However, recently, there seems to be a trend, especially in independent games, to expose this computational architecture as part of a reflection

on the narrative, cognitive, and informatic processes of worldbuilding that characterise the genre.⁶

OneShot responds to both of these trends—immersive worldbuilding and self-referentiality—by supplementing the presentation of a fantastic story world with a meta-commentary. On the one hand, the game presents an intriguing and multilayered environment for the player to explore, manipulate, and inhabit. It even enacts the player's (metaphorical) movement from the ontological plane of the actual world to the embedded world of the game, which constitutes the premise of immersive play. On the other hand, by drawing attention to the fictionality of its story world, its dependence on rules and mechanics, and to the spatial metaphors structuring the invisible architecture of the game's code and data, *OneShot* self-reflexively addresses its own digital materiality and the ways this affects the construction of said game world. In addition to a puzzle adventure game presenting a fairly conventional quest plot, then, *OneShot* is also a metagame that discusses central concepts of game design. In the context of this volume, *OneShot* is consequently best understood as a self-conscious commentary on the role of video games as world phenomena and hence as a productive critical perspective on the architectonics of game worlds.

Figures

Fig. 1–2: Screenshot by the author (Degica 2016).

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6 E.g. *The Stanley Parable* (Davey Wreden, Galactic Café 2013), *Pony Island* (Daniel Mullins Games 2015), *Undertale* (tobyfox 2015), *Doki Doki Literature Club* (Team Salvato 2017), or *Break the Game* (Fredholm 2019).

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