Bartosz Stopel
Wydział Humanistyczny
Uniwersytet Śląski w Katowicach
https://orcid.org/0000-0002-2100-2182

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Marvellous Cognition: Why Fictional Worlds Are Incoherent (And Why It's Good)

Abstract: It is well-established in cognitive narratology that all fictional worlds are necessarily incomplete and are only modelled in more detail by the story consumer's mental operations. In addition, I argue that the mental models prompted by narratives are typically incoherent, too. Interestingly, neither poses a serious problem for cognition or appreciation of narratives, but contrary to popular belief, this does not happen due to conventional suspension of disbelief. Since our cognitive capacities for creating representations and drawing inferences involve the same processes for cognizing fiction and for mapping the real world, appealing to conventions is a hasty answer underneath which are hidden certain facts about human cognition: that in both cases the constructs tend to be similarly illusory and incoherent and that cognition itself tends to be messy and limited to the most important tasks at hand, guided by a narrowly understood practicality. I argue that in the end, we do not really have to imagine the fictional fantastic in detail, because the fantastic (or the marvellous) enters all cognition.

Keywords: cognitive narratology, incompleteness, incoherence, fictional worlds, cognition, the fantastic

Introduction

Within a broader category of unnatural narratives,[1] stories belonging to fantastic or fantasy genres are seen as relatively unproblematic for the human cognitive apparatus. They are not as "disconcerting or estranging"[2] as postmodern fiction with its outright impossible narrators and characters or disruptions of the flow of time and space. Tales of magic seem to be mostly less experimental and highly conventionalized to the point where seeing or reading of magical creatures or wizards casting spells raises no eyebrows. We are less surprised by the fantasy genre because we typically are more accustomed to it, whereas in experimental

1. Jan Alber, *Unnatural Narrative: Impossible Worlds in Fiction and Drama* (Lincoln and London: University of Nebraska Press, 2016).
2. Alber, *Unnatural Narrative*, 7.

unnatural narratives we may need to revise cognitive schemas so as to create new blended spaces of understanding. We perhaps take no mental effort to imagine a fire-spewing dragon, as its schema is stored in our memory, though we might be more surprised by the protagonist of Philip Roth's *The Breast* who happened to turn into a female breast. In the end, however, regardless if a narrative tends to be experimental or conventionalized, our capacity for modelling and imagining a world is superficial, as we tend to limit our mental models as much as we can. In this way, constructing mental models of postmodern, fantastic, or mimetic fictions, as well as those of the real world can be in some ways equally perilous activities as in both cases our models tend to be rough sketches: incomplete, misguided and only seemingly coherent.

In cognitive narratology, it is a well-established claim that whatever narrative we are presented with, it is best understood as a collection of fragmentary cues that prompts readers/spectators/video game players, etc. to generate a more comprehensive mental model of a storyworld[3] which fills in some of the missing information that a specific story cannot convey. This happens for a couple of reasons. First, a complete model of a storyworld would be tediously elaborate, if not infinite, so only its most relevant aspects are selected, eliminating redundancies. Second, this can be used as a strategy to deliberately make the story's recipient more active and challenged in their sense-making operations. The reader, thus, constructs a storyworld model roughly following certain rational procedures that aim at making best-informed and probable guesses, relying on cognitive schemas based either on real-world knowledge or fiction conventions and striving to make the model as streamlined and unproblematic as possible.[4]

Although, this is true in a fairly rudimentary fashion, the reality of the human sense-making and mental modelling operations is messier and more superficial in the sense of the roughness of a mental sketch. Importantly, the human brain is not really guided by the principle of creating faithful representations of the perceived phenomena. As the cognitive literary scholar Karin Kukkonen observes, following numerous neuroscientific studies, ordinary everyday cognition is nothing short of fantastic, as it boils down to the brain generating fantasies (the Greek *phantastikos* refers to the ability to create mental images) in the form of models about the world, which may occasionally "coincide" with reality, or perhaps more

3. David Herman, "Narrative Ways of Worldmaking," in N*arratology in the Age of Cross-Disciplinary Narrative Research*, ed. Sandra Heinen and Roy Sommer (Berlin, New York: De Gruyter, 2009), 71–87.

4. David Bordwell, *Narration in the Fiction Film* (Madison, WI: University of Wisconsin Press, 1985).

accurately, are subject to socially established negotiation.[5] As the brain continually creates models of events that would help it predict future occurrences, they are only updated when too many prediction errors occur. Simply put, according to predictive processing theories in cognitive sciences, it is irrelevant for the human brain whether the mental model is actually a faithful representation of reality. Survival, rather than truth or faithfulness, is crucial, and survival can be ensured with the help of various models, however deficient or incomplete they may be. It suffices if a model is simply good enough not to generate an overwhelming amount of prediction errors while carrying out any given task at hand. It can be faulty, messy, incomplete or even incoherent in a broader sense, but as long as it somewhat helps to go through a given task, even in a flawed way, it will do.

Kukkonen took this observation to convincingly demonstrate how fictional narratives frequently draw readers into tracing this messy process of perception itself, focusing on Todorov's idea of the fantastic[6] – the type of ambiguous narrative which plays with the reader with respect to the reality or illusion of the events presented. I want to develop that point so as to encompass the other component in Todorov's theory: the marvellous (which is much closer to what we tend to label as fantastic/fantasy or supernatural narratives these days) and to illustrate how it reveals even more uncomfortable facts about cognition of reality and fiction. What I mean here is not only that the mental models we create are incomplete or may contain errors, but it is much worse: they are routinely incoherent, by which I mean that they contain information, assumptions and beliefs about how a given storyworld operates that contradict each other to the extent that they make it impossible to function the way it appears to.

In supernatural worlds, how we imagine and expand on narrative cues to build a comprehensive model of a storyworld will inevitably lead into paradoxes of how a given world really functions in terms of its laws: magic will produce contradictions and paradoxes for natural sciences, logic and human psychology when one begins to inspect its underlying mechanics. At the same time, it is almost never an obstacle in comprehending, imagining and enjoying a fantasy world, as we typically do not bother to maintain a fine-grained coherency of the mental model we generate. However, we tend to create mental models of the real world (social, natural, etc.) quite similarly and even without the presence of magic, they tend to be both incomplete and incoherent, containing a body of information,

5. Karin Kukkonen, "Fantastic Cognition," in *Cognitive literary science: Dialogues between literature and cognition*, ed. Michael Burke and Emily T. Troscianko (New York: Oxford University Press, 2017), 151–167.

6. Tzvetan Todorov, *The Fantastic: A Structural Approach to a Literary Genre* (Ithaca, NY: Cornell University Press, 1975).

assumptions and beliefs that contradict each other. Yet, we are almost never required to (and perhaps we are incapable of that) outline a comprehensive mental model of the real world: we only need whatever works for completing a given task with the least possible cognitive effort. Thus, we are able to maintain the illusion of coherence of our mental models. In this way, the cognition of Todorov's marvelous depends on ignoring the incoherence of its models we create, but the same principle applies to cognition of the real world. We can only navigate it using the incoherent models we are able to construct. Marvelous cognition is then no different than ordinary cognition.

I will begin with discussing some parameters of designing fictional worlds, such as granularity, density and scope, and then talk about the principles of generating storyworlds from the narratives we are presented with drawing from various media to illustrate my points. Concepts such as granularity or density are crucial parameters describing the design of fictional worlds. They can be seen as tools that regulate the focus and information flow about a given storyworld to its consumer. Thus, understanding how they engage perception and mental modelling is essential here.

Granularity in Designing Fictional Worlds

Granularity as a concept applicable to the study of fictional worlds was introduced by Leonard Talmy in his outline of a cognitive framework for narrative.[7] Talmy listed it as one of the parameters of relative quantity within a created world, along with scope and density. In this typology, scope implies the local amount of information, or the quantity of a given structure within a specific narrative context as relative to the full amount of that structure as present in the work as a whole. For example, full scope may be equivalent to a story which presents large scale spatial and temporal movements of characters, and a small scope would mark a shift of focus to characters moving in small spaces and in short time. Granularity is then understood as a level of scope, or "coarseness or fineness of the grid with which one attends to the contents within the chosen scope."[8] In other words, granularity captures the level of detail in a description of a given aspect of a fictional world. Talmy illustrates this by saying that a description of a room will be fine-grained if it represents small-scale objects, such as details of wallpaper, ashtrays, or facial features of characters. Coarse-grained description would instead adopt a yard-size grid showing furniture or people but without any smaller details. Finally,

7. Leonard Talmy, *Toward a Cognitive Semantics: Typology and Process in Concept Structuring* (Cambridge: MIT Press, 2000).

8. Talmy, *Toward a Cognitive Semantics*, 456.

density marks the relative amount of elements present within a given level of granularity. To use the earlier examples: sparse and fine-grained description may include wallpaper design and cigarette pack location, but a denser description would include stains on the walls, candles, cups, etc. Talmy notes that narrative genres typically differ greatly concerning density, and as I would add, concerning granularity, too. For instance, live-action films typically contain much denser and fine-grained representations than animations or comic books.

Granularity, thus is an important parameter shaping information flow and focus, as well as influencing generic conventions. Consequently, it greatly affects the level and type of cognitive engagement of a storyworld consumer. Moreover, it has even more far-reaching impact on fictional worlds involving system simulations, such as video games, since gameplay, and thus, an entire genre will change depending on the attention to details in simulation of a given system.[9] Take simulation of body functions in a game such as *The Witcher 3* (CD Projekt, 2015). Its granularity could be called coarse. The player-controlled witcher can be fed or ordered to rest so as to restore energy, but it is unnecessary to do that: the character's energy restores itself overtime. Such a level of granularity allows the player to focus more on the standard role-playing game components: story, character development, collecting artifacts, combat or exploration. The game never simulates such physiological functions as hunger, sleepiness or the need to relieve oneself. The witcher can get tired after excessive running, though this only slows him down for a few seconds. Likewise, the player does not have to worry about permanent damage inflicted upon her character, body mutilation, loss of limbs or blood, or weight changes. If, on the other hand, eating, resting and dressing wounds were mandatory, and thus, body simulation would be more fine-grained, the gameplay and the genre would be altered, involving more features of a survival game, shifting its focus towards obtaining necessary resources, finding medicine and safe resting areas, strategizing over time and energy use, etc.

As noted above, granularity's significance is far greater than that of a parameter that merely indicates a level of detail of descriptions. Apart from the genre-defining potential noted by Talmy and Arjoranta, it is widely used for meaning-making and aesthetic effects. Assuming that we all share a certain basic level of attention to detail in everyday standard perception of our surroundings, deviational manipulations of granularity in literary works can effectively draw readers' attention to what is intended to be particularly significant in a given aesthetic design; to foreground and defamiliarize something. It is also routinely used to indicate an abnormal state of mind whose perception differs greatly from expected standards as in the

9. Jonne Arjoranta, "Narrative Tools for Games: Focalization, Granularity, and the Mode of Narration in Games," *Games and Culture* 12 (7–8) (2017), 696–717.

case of *American Psycho*'s Bateman's obsessive attention to details.[10] Both of these salient features of granularity are of utmost importance for literary narratives due to the fact that the access to the representation of a literary world is always narrated and mediated, but they become less significant in other media, such as films or video games, where the presence of a narrator is either minimal or contested in general, and where the access to storyworlds is not typically mediated by another consciousness. In such cases, the genre-defining feature of granularity is emphasised, along with its obvious significance for worldbuilding in general, and the parameter itself seems to be more suggestive of objective aspects of the world and not necessarily that of its representation. This, however, remains dubious, as even though films or video games are not typically mediated by a narrator, and thus give the illusion of direct access to the actual storyworld, they nevertheless remain only representations of a fictional world which serve as sets of cues concerning what storyworlds their consumers are to construct. I will return to the clash between granularity of a fictional world and that of a representation of this world in the final sections of this paper.

Granularity and the Supernatural

Granularity of a single aspect of a fictional world can be a decisive factor for categorizing works into subgenres within a broader group. Such is the case with speculative fiction and with a degree to which it accounts for the supernatural and futuristic. On the one hand, the unexplainable and mysterious stories of the supernatural that leave its anti-realistic component ambiguous or unexplained are marked by a coarse level of the fantastic – this is the case of Todorov's fantastic and of the Jamesian *Turn of the Screw*. On the other end of the speculative fiction continuum one might find works of hard science fiction that attempt at outlining the functioning of futuristic technologies in a detailed and convincing manner without departing too much from actual scientific knowledge, say the works of Stanisław Lem. Within fantasy genre, low fantasy, such as Martin's *The Song of Ice and Fire* and sword and sorcery subgenre, such as Howard's *Conan* series, typically involve coarser and sparser amount of the supernatural than high fantasy, such as Tolkien lore. Apart from the rather obvious role in shaping setting, it is often the case that the difference between fantasy/supernatural and science-fiction lies in the varying granularities of the unrealistic component. Science fiction typically involves fine-grained accounts of technology, whereas the workings of magic remain relatively coarser and unexplained. This is evident in works which blend fantasy and sci-fi elements, such as *Star Wars* or *Marvel*

10. Peer Bundgaard, "Means of Meaning Making in Literary Art: Focalization, Mode of Narration, and Granularity," *Acta Linguistica Hafniensia* 42 (2010), 64–84.

Cinematic Universe: in both cases, the underlying mechanics of technology is given or implied to involve much more complex explanations than the fantastic components. This issue becomes surely more convoluted with the emergence of hard fantasy genre, where one could say that an important difference regarding the worldness of hard fantasy and hard sci-fi is that the former leaves the workings of the world fundamentally incoherent on the level of assumptions by the introduction of a supernatural element, even if it is quite fine-grained. In other words, meticulous explanations of how magic works in a given lore could render a work hard fantasy, but they will never entirely do away with the underlying incoherence of a world where magic exists. It merely delegates the matter to deeper investigations of the world mechanics until its paradoxical nature is revealed.

My point here is that fantasy worlds are typically incoherent regardless of how fine-grained and dense they may be and it is a direct effect of introducing the supernatural. Upon investigation, there will always be a moment where the introduction of the supernatural breeds paradoxes as to how such a world is supposed to function, rendering it incoherent and only superficially logical. Such a formulation is slightly different than how fantastic narratives are conceived of in contemporary cognitive narratology, which includes speculative fiction into an even broader category of unnatural narratives. In Jan Alber's words, the category of unnatural narratives are equal to impossible worlds that violate standard human scientific knowledge or logic: the category includes

> scenarios or events [which] have to be impossible according to the known laws governing the physical world, accepted principles of logic (such as the principle of non-contradiction), or standard human limitations of knowledge. In other words, the unnatural deviates from 'natural' cognitive parameters, i.e., real-world frames and scripts that are derived from our being in the world.[11]

Whereas Alber simply calls unnatural worlds impossible, I would like to explore this point a bit further. I suppose it is generally true that we might divide impossible worlds into those that break the laws of logic, those that go against human cognitive capacities and those that diverge from current scientific-materialist knowledge. This typology can be further extended by admitting that sometimes the impossibility of a world is strictly tied to its underlying incoherence. One type of such a relation between impossibility and incoherence would clearly be incoherence stemming from obvious contradictions of logical principles, such as, predictably, the principle of non-contradiction which can find frequently

11. Jan Alber, "Unnatural Narratology: The Systematic Study of Anti-Mimeticism," *Literature Compass* 10/5 (2013), 449.

challenged in experimental and postmodern fiction. However, another type, and the one that is more relevant for my discussion is not necessarily a logical incoherence of non-contradiction and other principles, but one resulting from not taking into consideration the logical consequences that one aspect, or system, of a world might have on its other systems. Uncovering such forms of incoherence may require deeper investigations into a world's mechanics, as upon standard perception and modelling, it may seem coherent. This, however, is an illusion resulting from the earlier quoted facts about how humans only tend to make rough sketches of the worlds they interact with.

Arguably the most trivial illustration involves the areas of applicability and inapplicability of magic. In fantasy worlds, magic's use is typically limited in ways which cannot be accounted for without producing paradoxes and thus incoherence, as in the perennial problem of why magic is never used to solve socioeconomic problems of a given fantasy world and eliminate hunger, poverty, disease, etc. Or, why is magic used only in some contexts and not others where it might be both useful and logically possible? To use rather famous problems in two celebrated fantasy franchises: why were the members of the Fellowship of the Ring sent on a perilous and long journey to Mordor rather than being safely transported at least part of the way by some magical means? In the *Harry Potter* franchise, the arch-villain places bits of his soul in a few almost indestructible small artifacts, making it extremely difficult (though not impossible) to ultimately obliterate him. One might question his item choice and wonder why would he not confide his soul to an object whose destruction would cause a real dilemma for his opponents? The whole of the planet Earth, maybe? One way to address these issues is to simply argue that the stories are poorly written. Perhaps they are, and there definitely are more carefully designed fantasy narratives, but such issues will never really vanish precisely because, fantasy worlds must be incoherent in the sense suggested above. Ultimately, analyzing a supernatural storyworld's mechanics, one will come across a point where its natural laws clash with the laws of operating magic producing unsolvable paradoxes and absurdities. There cannot be any definite answers to the questions posed above and I suspect increasing fineness and density of the fantastic component of a world would not eliminate the supernatural-induced incoherence, but as suggested earlier, delegate it to another level of investigation. Importantly, such incoherence, though potentially a cognitive challenge, rarely becomes one, as I suppose the fans of fantasy fiction vastly outnumber grumblers that specifically complain about possible incoherence of their worlds' design. It is typically assumed, also in unnatural narratology,[12]

12. I should perhaps add that Alber lists at least nine reading strategies for coping with unnatural narratives, not only the one appealing to conventions. They include " the blending of frames,

that recipients of such narratives simply accept it as a conventional feature and suspend disbelief so as not to distort their comprehension and enjoyment of such worlds. I think it is only a partial explanation, and the fantasy case highlights, in fact, a more important fact about human cognition, but in order to elucidate my point, I first need to delve deeper into fiction theories.

Generating Fictional Worlds

In what follows I will elaborate on the principles of generating fictional storyworlds, defined as "intentionalist-pragmatic […] normative abstractions about ideal mental representations based on actual medial representations"[13] along the lines put forward by Gregory Currie[14] and Jan-Noel Thon. This means storyworlds are intersubjective ideal constructs tied to the intentions attributed to the designers of their representations. Further, as Thon argues, these representations may be grossly incomplete or incoherent, but this will not always result in incoherent normatively generated storyworlds. It is this latter point specifically on which I want to elaborate.

One could say there are two broad strategies, or principles, of dealing with incomplete representations. One is ignoring certain aspects of the representation and the other is filling the missing portions with knowledge about the real world. This latter fact was noted by many scholars working in reader-response and fiction theories and was notably captured by Marie-Laure Ryan as "the principle of minimal departure"[15] and by Kendall Walton as "reality principle."[16] To use Ryan's own example, Sherlock Holmes's stories never explicitly state whether the detective was a ladies' man or whether he did not care for women, but the second option simply seems more plausible. If neither Holmes, nor any other character addresses this issue, we would not typically infer that the elegant detective engages in lewd sex acts with multiple women in his fictional world but never in the stories

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generification (evoking generic conventions from literary history), subjectification (reading as internal states) foregrounding the thematic, reading allegorically, satirization and parody, positing a transcendental realm, do it yourself (using the text as a construction kit to build our own stories), the Zen way of reading" (Alber, *Unnatural Narrative*, 47–48). I find the list convincing, though maybe not entirely exhaustive and propose yet another approach to what we do with the fantastic.

13. Jan-Noël Thon, "Narrative Comprehension and Video Game Storyworlds," in *Video Games and the Mind: Essays on Cognition, Affect and Emotion*, ed. Bernard Perron and Felix Schröter (Jefferson: McFarland, 2016), 20.

14. Gregory Currie, *Narratives and Narrators: A Philosophy of Stories* (Oxford: Oxford UP, 2010).

15. Marie-Laure Ryan, "Fiction, Non-factuals, and the Principle of Minimal Departure," *Poetics* 9/4 (1980), 403–422.

16. Kendall Walton, *Mimesis as Make-Believe: On the Foundations of the Representational Arts* (Cambridge: Harvard UP, 1990), 144–150.

told about him. Conversely, however, we assume that Holmes has a standard set of body organs, bleeds when he is hurt and his beard grows if he doesn't shave, though these issues might not be discussed in Holmes stories at all. Of course our potential for filling in a fictional world is not unlimited. Quite frequently an aspect of a fictional world will remain undetermined, though it might also acquire varying degrees of probability:[17] we might never know how many children Lady Macbeth had, whether she has birthmarks or whether in her storyworld Africa exists and she knows about it (the latter seems, however, more probable than the previous one). We might never certainly know if she visited a marshland, though it is quite probable. As a result, even though some areas of a fictional world will remain undetermined, its consumers will always strive to make it complete, coherent and meaningful, drawing rational and probable inferences and filling it in accordance with conventional and real-world knowledge. Granularity might then be described as a parameter that indicates how much story consumers need to rely on their own cognitive schemas and knowledge, and how much information is already provided by a representation. One might conclude, as Peer Bundgaard, following both Ingarden's phenomenology and modern cognitive science, that fiction is the art of providing excessive information, "the art of introducing explicit elements that individuate objects, sceneries or experiences."[18]

Apart from the principle of minimal departure and the reality principle, there are others discussed by Walton. The mutual belief principle requires recipients to accept that an author created a fictional world which contradicts reality principle and expects them to take it for granted. The principle of charity holds that we tend to block or ignore certain elements of the world's representation so as to avoid paradox in a constructed storyworld model. For instance, we do not imagine Othello to actually speak in poetic verse all the time[19] and be a gifted poet, or we ignore the fact that Geralt of Rivia wields two swords during gameplay and only one during a cinematic cut scene that follows immediately.[20] Just as we fill in missing parts of a representation provided by narrative discourse, we also routinely ignore others. To ask why these respective representations involve such inconsistencies as the ones mentioned is, according to Walton, to ask silly questions which cannot be answered, but whose seemingly problematic nature is easily resolved by appeal to established conventions of representation. Perhaps then, one could just say

17. One might argue that the following examples are no different than the „Holmes did not care for women" scenario, though I suppose the Holmes case is almost certain while the following are clearly less probable.

18. Peer Bundgaard, "Roman Ingarden's Theory of Reader Experience: A Critical Assessment," *Semiotica* 194 (2013), 187.

19. Walton, *Mimesis*, 174–183.

20. Thon, *Narrative*, 24–25.

that dwelling on why Lord Voldemort did not think his soul-containers choice through is to ask silly questions, as it is simply conventional for fiction that he could not have and we are to disregard it altogether. Whereas I generally agree with Walton that there is an extensive list of silly questions we should not answer when it comes to conventional features of fiction, I do not think this approach is useful in the case mentioned above. For one thing, we assume characters in *Othello* do not really speak to each other in verse: poetry represents their speech but is not really part of the fictional world, whereas the villains' actions in *Harry Potter* decisively are. Second, fantasy genre as a whole is far from being highly conventionalized in a way traditional fairy tales are. Fantasy narratives are not the type of structures where there is no point asking why the first event of the story is the Proppian Absentation or why the villain tends to appear in plot point number four, and so on. With complex narratives and worlds it is entirely justified to look for plot holes rather than turn a blind eye to them under pretense of them being silly questions.

Incompleteness and Incoherence

It is uncontroversial that when generating a fictional storyworld out of the representation perceived we strive for coherence and continuity. Our struggles to generate a storyworld involve filling in and ignoring portions of the representation provided by narrative discourse, specifically in terms of coherence of story, character, time, or space, as these are the most directly experienced elements of narratives. In some cases, it is relatively easy to generate a storyworld of high-level of completeness, as with the *Harry Potter* universe where I suspect we assume Earth to be roughly the same as in reality, except for the explicit magic-related differences highlighted by the narratives. In other fictional cases, the storyworlds remain vastly incomplete. In the Witcher universe, we only know about a part of a continent. We do not know its size, shape or whether there are others. We perhaps assume it to be on a planet in a galaxy, but that might be the most we can assume. Jesper Juul famously argued that in addition to being incomplete, video games' storyworlds specifically are often incoherent: apart from the aims of gameplay, there can be no way to justify why Mario has three lives.[21] As Juul rightly points out, there is a contradiction between the requirements of gameplay and the logic of narrative. When generating a storyworld on the basis of Mario's gameplay, players would typically not assume that narratively Mario has three lives. Then again, such inconsistencies are frequent in other media where there is

21. Jesper Juul, *Half-Real: Video Games between Real Rules and Fictional Worlds* (Cambridge: MIT Press, 2005), 123–130.

no contradiction between the requirements of a gameplay and of a story.[22] Time never changes in Superman comic strips, as Umberto Eco noticed, whereas Wile E. Coyote is able to buy sophisticated ACME devices and survive being smashed with boulders or falling from impressionable heights. One cannot, in the end, understand the precise workings of these fictional worlds: they are only superficially coherent, but their comprehensive generation would render them impossible. TV shows, cartoons, comic books and other types of popular fiction use what Juul calls incoherence on a regular basis. Of course one could make a point that the incoherence is only a matter of representation provided and it does not appear in the proper mental model that spectators or players construe: in the actual storyworld as modelled in the consumer's mind, Mario does not have three lives. Then again, why would we not be able to construe a storyworld that has precisely such a premise? And would we say that in the proper storyworld model of Coyote and Roadrunner, the former does not go through the impossible ordeal of all the crushes, explosions and accidents without scratch? What would then happen in the mental representation of their adventures? Would it ignore the central idea of their narratives? Obviously not.

It might be then quite accurately argued that there is no specific form of incoherence attributable to video games. It is just a form of incompleteness which emphasises what is normatively deemed central to a given work or genre: for example, slapstick comedy about a coyote and a roadrunner or giving player more chances to beat the game, rather than assuring the world design is logical and complete. Just as in the case of fantasy worlds' incoherence, there are two ways to address this problem: either ignore it due to generic conventions or confer a negative aesthetic judgment blaming poor design. The problem with the latter is that such judgments become increasingly suspect when comparing across genres: how to meaningfully compare a slapstick comedy cartoon with a serious adult animation show? One could plausibly argue that *Harry Potter*'s plot holes are disappointing against the background of more sophisticated fantasy works, but within slapstick comedy, Coyote and Roadrunner remain excellent. We are then left again, it seems, with a rather conventional suspension of disbelief as a way to tackle this problem. Are we, though?

The Super Mario example illustrates that within the category of highly conventionalized forms of incoherence, we could further distinguish two levels of incoherence in video games. The first would be the widespread, transmedial phenomenon of the incoherence of design of fictional fantastic worlds, as in unnatural narratives (sentient animals in cartoons, magic in fantasy stories, time travel),

22. Edward Wesp, "A Too-Coherent World: Game Studies and the Myth of 'Narrative' Media," *Game Studies* 14, no. 2 (2014).

the other would be incoherence stemming strictly from gameplay (three lives, no need for food or rest). I should, however, emphasise that it is not entirely clear whether in most cases of the latter, these are incoherent representations, and not the actual storyworlds. Perhaps we would not typically assume that Geralt never eats, but in other cases, such as Mario's ludo-narrative dissonance, it is not clear. In most cases we are able to dispose of the gameplay-induced incoherence simply by recognizing it as such, or by appealing to the principle of charity as in Thon's examples of sword disappearance. Obviously, however, it is sometimes difficult to establish whether a feature of the world represented in narrative discourse should be retained, charitably ignored or implied to be motivated by gameplay reasons. It is the tension between the three that I finally turn to.

Open World Incoherence

The final question of this paper might be formulated as follows. How big a portion of the storyworld can we and do we generate out of its representation and how coherent does it tend to be?[23] In some cases, narratives leave so few clues that it seems risky to even begin speculating on the matter. What kind of storyworld should we construct out of Coyote and Roadrunner stories? Is it alternative mid-twentieth century United States where everything stays the same as on real Earth with the exception that there exist two sentient and indestructible animals in an eternal conflict that routinely goes against a materialist vision of the universe and which are somehow able to buy infinite amounts of tools and weapons and get them delivered in the middle of the desert? Perhaps. But it is hard to validate any claim about such fundamentals of the storyworld as the narrative's scope is infinitesimal, its granularity is coarse and its density is staggeringly thin. The storyworld here is greatly incomplete. In fact, it is extremely hard to generate any larger fictional structure here apart from what is literally represented in the cartoons. Furthermore, such storyworld would also have to be incoherent due to the introduction of the supernatural component: its underlying mechanics must consist of facts that contradict each other. For example, how to reconcile what we know about biological organisms, such as Coyote and Roadrunner seem to be, and their endurance with our knowledge of physics involving falling from heights, collisions of bodies, explosions, etc? How sentient are they if they never reflect on their actions? And so on, and so on.

On the one hand, this seems trivial: we are unable to generate a fairly extensive storyworld if the narrative presents only scarce information about it or is

23. Here I feel obliged to repeat Thon's proviso that what follows is entirely theoretical and intuitive and as such would welcome empirical testing (Thon, *Narrative Comprehension*, 27–28).

placed in highly confusing environments. On the other hand, it is difficult to avoid incoherence even when modelling a storyworld on the basis of a meticulously designed, complex and interactive fictional representation. This is most evident in complex open-world environments as in the acclaimed *The Witcher 3*. The game takes place within a rather conventional fantasy environment which resembles pseudo-medieval Europe enriched with a supernatural component: the use of magic, the presence of fantastic monsters and other creatures, or travel through alternative universes. Both the strictly narrative and the ludo-narrative incoherence are overtly present. One, which is mostly connected to the world design that incorporates the supernatural and involves the paradoxes of magic, and the other stemming from the needs of gameplay where ludic action does not easily translate into narrative events. There are however cases of another type of incoherence, when inconsistencies of representation cannot be easily attributed to either conventions of fantasy genre, conventions of gameplay, or ignored altogether by the principle of charity (the latter, I believe, refers mostly to cases of gameplay-motivated incoherence, the ludo-narrative dissonance). I will now turn to give examples of all three.

The incoherence of the supernatural component is the most obvious one and the one which can be easily disregarded by appeal to fantasy conventions. The use of magical spells and potions, the existence of supernatural creatures and artifacts does not seem to be perceptibly incoherent or contradictory, but it rests on incoherent assumptions about the functioning of the fictional universe. The witcher can use magical signs which work like simple spells: one of them sends a wave of fire in front of the character. Sending waves of fire can damage enemies and kill animals, yet it leaves neutral characters unharmed, though upset. There is no permanent damage caused to the environment. I believe this can be easily explained by appeal to gameplay requirements. In the storyworlds we construct, Geralt simply is not the type of character that would harm innocent humans and pointlessly set houses or forests on fire. We would probably acknowledge that flammability of materials in the Witcher universe is not fundamentally different from our own, so both living creatures, plants and some materials could burn. It simply is never carried out by Geralt in the *Witcher 3* storyline, and thus we charitably do not assume it actually happens in the storyworld, in spite of its obvious presence in the discourse representation. It leaves us, however, with a slightly paradoxical form of fictional representation where we see people panicking upon seeing Geralt casting fire spells, even though no damage is ever done to environment. There seems to be no straight answer, however, to why magical spells do not work under water. This could be explained by gameplay needs: it makes the game harder, or it might be just a peculiarity of the magic system in the Witcher universe, though nothing indicates the latter.

Apart from the problems with magic, there are many other oddities within the worldbuilding domain of *Witcher 3* which might seem trivial but I am convinced they point to an important fact about our cognition. Consider some aspects of economics in *Witcher 3*. There are three types of currency in the game, all of them being standardized gold coins, but only one can be used for trade. The other two, being foreign currency, must be exchanged in a bank for the main currency at fixed rates. One might wonder why it is necessary to exchange currencies if they are all precious metals. If that were just a silly question, then should we also charitably ignore the substantial portion of the gameplay involving currency exchange and interactions with bankers and merchants? In a like manner, there are tremendous price differences of the same items depending whether they are bought or sold. Typically, an item is worthy much more when we buy it than when we sell it, even if we buy it back from the same merchant we sold it to seconds earlier. If that were the case in the mental model of the Witcher universe, it would make trade impossible, paralyzing price system and destabilizing money value. Again, the point seems to be to amplify the game's difficulty, but are we to simply disregard the whole representation of economics, trade, exchanges, or earning money within the game and imagine it differently in the storyworlds we construct? Narratively, we would be inclined to do that, so as to maintain the coherence and even the very possibility of the storyworld we build as a mental model, but the price is ignoring bulk of the gameplay that is highly infused with narrative anyway.

Finally, take some elements of urban planning in the game. Taking into consideration the rather primitive urban organization mirroring pseudo-medieval Europe, one would expect the cities to literally overflow with garbage, rotting carcasses and waste flowing down the gutters. However, they look rather clean and even though the cities have sewer systems, we never see any of the buildings being connected to them. For rather mysterious reasons, the public water wells are connected to sewers, putting into question the idea of using them for drawing fresh water in the first place. Speaking of casting magic fire signs, we never see fire brigades or any kind of water tanks or any other system whatsoever which would help to fight fires that must have been widespread in an environment of pseudo-medieval engineering and urban planning. Unless, of course, we assume the buildings to be inflammable which would also explain why the fire magic does not work on them, but I doubt any player would make these assumptions. At any rate, the examples show how the fictional world of the game is superficially coherent, yet upon inspection, it is full of contradictions that render proper understanding of its mechanics impossible due to accumulation of incoherences involving its functioning. My point is that this is of course not just limited to this game, or to fantasy worlds, but to varying degrees it affects all fictional representation.

Interestingly, this incoherence in representation mirrors the sketchy nature of the mental models of worlds we build, whether fictional or real ones.

Return of the Unreal

Surely, the above paragraphs could count as nit-picking, were they actual complaints about the game, but they are not. After all, such details are extremely far from any intended point of playing the game, and thus they are not highlighted and designed in a careful way. They do, however, mark areas of clash and paradox concerning the representation of the world which makes it, in the end, impossible to understand because of its incoherent nature. Still, they are not really problems, even though they are examples of indeterminacy and incoherence, because they do not obstruct comprehension and enjoyment of the game. We are not typically affected by these contradictions, because we never really try to generate vast and complete models of the storyworld, irrespective of whether we play a AAA video game, watch slapstick cartoons or art cinema. We only tend to model in a pragmatic and superficial sense, constructing the roughest sketch needed for the ongoing operation that is in focus. This, in fact, only mirrors how we create mental representations of the events in the real world in our daily lives. We are never able to produce a complete and coherent representation of the world, only a highly fragmented and superficial one deemed relevant for the task at hand. If we were to really write down all the underlying rules that establish the functioning of the *Witcher 3* fictional universe we would quickly find that certain facts or claims about economics, physiology or urban planning contradict others.

I suppose that to a large extent this mirrors the relation of our personal knowledge about the real world to independently existing facts about the real world. If we were to verbalize and compile all our knowledge and beliefs about the world, we would inevitably find them greatly incoherent, as some of our beliefs would contradict each other or be false. Such operation would clearly resemble a Socratic dialogue exploring our cognitive unconscious until reaching the point where interrogating our knowledge and beliefs renders them false or incoherent. Most of the time this is not a challenge as we only need pragmatic and sketch-like, superficial mental models relevant for the most basic tasks at hand. And this, finally, is exactly how we approach magic and supernatural worlds. A fictional dragon is not simply impossible because it itself directly contradicts current scientific knowledge. More importantly, the dragon is incoherent because it indirectly triggers paradoxes across domains of knowledge about the fictional world, which, in turn, is partly filled with our knowledge of the real world. Certain facts about its existence, such as spewing fire, its nutrition habits, or ability to fly with the type of physical composition it has entail contradictions within physics, biology, or chemistry, whose consequences we are not able to really imagine. But we do

not care about it and not just because of conventions of the supernatural genres. We do not care about it because the incoherence of magical worlds mirrors the incoherence of our understanding of the real world. In a way, a dragon is as mysterious as any natural phenomena of the material world.

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