

How Fictional Worlds Are Created

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Abstract

Both adults and children have the ability to not only think about reality but also use their imaginations and create fictional worlds. This article describes the process by which world creation happens, drawing from philosophical and psychological treatments of this issue. First, world creators recognize the need to create a fictional world, as when starting a pretend game or opening a novel. Then, creators merge some real-world knowledge with the premises of the fictional world to construct a fuller representation, though there is some controversy about how much of the real world is represented in any given fictional world. After the world is created, events can be set in motion within it. While it is generally accepted that this basic process is used for a wide variety of fictional worlds, including fictional stories, pretend games, and counterfactual scenarios, this process of world creation can vary over the course of development and depending on the use to which it is put.

One of the most fascinating aspects of human cognition is that we have the ability not only to think about reality but also to think about situations that do not reflect the current truth of the world – to imagine. This ability to construct fictional worlds arises early in development, most notably in young children’s pretend play, and is implicated in a wide variety of thought processes, including creating and comprehending fictional stories, thinking counterfactually, planning for the future, daydreaming, regretting, and hypothesizing (D. S. Weisberg and Gopnik 2013; Gopnik 2009; Harris 2000; Lillard 2001; Seligman et al. 2013). What all of these activities have in common is a core ability to move beyond the boundaries of reality and construct a representation. This representation is a fictional world (Currie 1990; Lewis 1978; Skolnick and Bloom 2006a; Walton 1990).

This article considers three key questions about fictional worlds: What is the process of constructing fictional worlds? How might this process differ across the range of applications to which it is put? How might this process differ across the lifespan?

1. *How Do We Construct Fictional Worlds?*

What happens when an adult or a child creates and interacts with a fictional world? Answering this question requires a mix of philosophical and empirical background, since this is simultaneously a question about properties of fictional worlds and about psychological activities involving these worlds. There are many philosophical theories that bear on this question, but unfortunately many of these issues have not yet been investigated psychologically. In this section, my goal is to draw out the common threads from the available philosophical treatments of world creation and to provide empirical support for these claims where it is available.

1.1. MOVING OUT OF REALITY

Before beginning world creation, a creator must recognize the need for such a creation, whether implicitly or explicitly. That is, the adult or child must realize, on some level, that the situation

requires a representation of events or entities that do not currently exist in reality. These situations are usually marked in the environment, making the accomplishment of the first step relatively easy. For example, opening a novel is a signal that one must move outside of reality and create a representation in which the events in the story can unfold. It also involves a reader's implicit agreement that he or she will imagine that what the author says is true, even though the reader knows that it is not. Picking up a block and calling it a cookie likewise involves a child's understanding that he or she is imagining something that isn't true, namely, that the block is a cookie.

This process highlights two key features of fictional worlds themselves: These worlds aren't real, and we know that they're not. Inferences made in the course of imagining thus generate truths about the fictional world, not about the real world (Leslie 1987; Nichols and Stich 2003; Weinberg 2008). In this, imaginative processes contrast with other types of cognitive activities that also require mental representation, such as theory of mind or memory, which are meant to represent things that are (or were) true in reality. Thinking about the content of others' minds or about the past generates propositions about the real world, in contrast with imaginative processes that generate propositions about fictional worlds.

Not only are fictional worlds aimed away from reality, but the creators of fictional worlds must know that they are. A genuine fictional world is one that the creator fully understands is not real. This distinguishes imagination from cases of deception or hallucination, in which one has a false representation but believes that this representation truly reflects reality. In general, beginning the process of fictional world creation involves recognizing that one is meant to adopt (or imagine, or take on) a counterfactual premise or premises.

One can then actually adopt this premise or premises, whether these are provided by an author or artist or created for oneself. This is the point at which the fictional world comes into existence. The term 'make-believe' seems most apt for this part of the process, since one is indeed making oneself believe that certain things are true, albeit true in a representation and not in reality.

This aspect of world creation has been most fully developed by Kendall Walton in his description of mimesis (Walton 1990). For Walton, to engage with a work of art is just to engage in a game of make-believe. The artwork prompts us to imagine certain things about the entities it describes or depicts, and we need to imagine these things, or to pretend that they are true, in order to access the world of the artwork. These arguments emphasize that *imagining* is the basic skill required for interacting appropriately with the premises presented in books, movies, and paintings.

1.2. MERGING REAL-WORLD KNOWLEDGE WITH IMAGINATION

After recognizing the need to create a fictional world, there is some controversy within the philosophical literature about what should happen next. The main issue is that it would be impossible for any set of premises, no matter how long, to offer a full description of a fictional world. One thus needs additional information in order to sustain the events of a story, say, or in order to allow one to make inferences about what could happen in the future. Creators of fictional worlds must thus supply additional information from sources outside of the story in order to make these worlds rich enough to sustain a narrative. But there are several ways in which this could happen.

One possible method would be to build the world from the ground up, so to speak, taking premises from the story (or prop, to use Walton's term) and constructing the world piece by piece. For example, the first sentence of J. R. R. Tolkien's book *The Hobbit* is 'In a hole in the ground there lived a hobbit'. A reader encountering this sentence would create a mental

representation of the hole and the hobbit, following Tolkien's encouragement to do so. At this point in the creation process, a fictional world exists. But this world is extremely impoverished; it contains only this premise or set of premises. If someone has read only the first sentence of *The Hobbit*, he or she would have in mind only a hole in the ground and a hobbit, and probably only a very sketchy imaginary image of the latter, since hobbits have not yet been described in the text. A reader would have to continue the story in order to continue building a full view of the world. Indeed, in the case of *The Hobbit*, the second sentence requires several modifications to the hole that was created by the first sentence:

Not a nasty, dirty, wet hole, filled with the ends of worms and an oozy smell, nor yet a dry, bare, sandy hole with nothing in it to sit down on or to eat; it was a hobbit-hole, and that means comfort.

At this point, readers would have to use their background knowledge and implicit theories to fill in the gaps in the fictional world, importing appropriate facts and structures from reality into the fictional world. So a reader of *The Hobbit* would use his or her existing knowledge of what holes are like in order to flesh out the imagined world. Importantly, on this view, this happens on an as-needed basis; when a hole is mentioned, real-world information about holes is imported into the fictional world.

A different possibility is that one begins the process of world creation with a full representation of the real world. Rather than building up a world from scratch and adding information as needed, on this view, creating a fictional world would involve making modifications to reality. This method of creating a fictional world follows the Principle of Minimal Departure (Ryan 1980), which states that everything about reality is true in a fictional world, unless it is explicitly forbidden by the provided premises. As a result, the representation of the fictional world will contain enough detail to fill in the gaps that necessarily exist in a story's text. One of the most influential versions of this principle comes from David Lewis (Lewis 1978). He argues that the events in fictional stories should take place in a fictional world that is as close to our own as possible while still being able to support the events of the story. For example, in the absence of contradictory information, we should represent human characters in a fictional story as having two ears and not three. A world with three-eared humans is more different from the real world than a world with two-eared humans; according to Lewis, the closer world should be used to represent the story.

While this principle is intuitive and is widely accepted in the philosophical and psychological literature on the subject (e.g., Gendler 2000; Gerrig 1993; Onishi et al. 2007; Skolnick and Bloom 2006a), some philosophers endorse slightly different versions of it. The disagreement mostly centers around the completeness of the fictional world: How much of reality should be imported into any given fictional world? While most researchers agree that world creators start with some representation of reality rather than a blank slate, it remains unclear exactly what this representation should contain.

Some philosophers argue that more inferences are needed in the creation process, beyond simply making the background facts from reality consistent with the story's premises. For instance, Nicholas Wolterstorff claims that a fictional world should contain what is explicitly stated in the text, plus what is entailed by what is explicitly stated, plus everything that the author wishes the reader to assume and whatever is entailed by that (Wolterstorff 1980; see also Eaton 1976). On this view, it would be appropriate to think about what kind of world Tolkien may have been trying to evoke and use this information, in addition to the text, to create Middle Earth.

However, others believe that fictional worlds should not even include the entirety of real-world facts. Umberto Eco, while endorsing a version of the Principle of Minimal

Departure, argues that fictional worlds are not nearly as rich as the Principle makes them. Fictional worlds, according to Eco, should contain enough real-world information to understand the story that takes place within them, but not necessarily enough to completely fill out the world. On this view, readers should not expect to find any definitive answers to questions that go beyond the scope of the text (Eco 1990). There may no fact of the matter about the exact shade of Bilbo's hair, for instance, or the arrangement of rooms in his hobbit-hole, since these are issues that are referenced but not described precisely in the book. If this is the case, then fictional worlds differ fundamentally from the real world in that many aspects of fictional worlds may remain unspecified.

Regardless, starting the process of world creation with some subset of information about reality means not having to add this information one piece at a time, allowing for a rich set of background knowledge to inform the creation process. However, the build-from-scratch method has its advantages too, since some stories are set in worlds that are extremely different from current reality (Middle Earth being a good example). For such worlds, it would take a very long time to modify reality in the right ways to get it to look like the story world.

A possible middle-ground position might be having particular genre templates (e.g., fantasy world, superhero story) that are neither reality nor a full fictional world (see Liao et al. 2014). Knowing that *The Hobbit* is a fantasy book, for example, may help us to incorporate magic more readily into the structure of the world or to automatically exclude various types of technology that exist in reality, even before these issues have been mentioned by the text. A further advantage to this strategy is that some fictional worlds exist in clusters that are unrealistic in similar and systematic ways (e.g., the worlds of fairy tales tend to contain fantastical animals and allow for the operation of magic).

It might also be the case that different processes for creating worlds are in operation depending on the nature of the world itself: Watching a Western might involve activating a genre template and modifying it appropriately, while constructing a close counterfactual might involve starting with reality. A key variable in this importation process is thus similarity. The more a fictional world resembles reality, the more real-world facts that should hold true in this fictional world. On the extreme end of this continuum are close hypothetical and counterfactual worlds, which may look exactly like reality except for a single change and its immediate logical or physical consequences ('What if I were to flip this switch?' or 'What if I had eaten soup for lunch instead of a burrito?'). But most fictional worlds will be unrealistic in at least some ways, necessitating a judgment of how to modify our real-world background knowledge so that it accurately represents the fictional world.

Empirical work can inform exactly how this modification process works. One relevant study (D. S. Weisberg and Goodstein 2009) gave adult participants three brief stories and asked them to judge whether certain facts were true of the world described by the story. Participants made their decisions about the story worlds by using their preexisting knowledge about the real world in combination with what they could deduce from the presentation of the fictional world. For example, we know that bananas are yellow to us; Superman's world is quite similar to ours; bananas are yellow to Superman.

However, participants in this study did not merely create a world identical to our own and then change only what need to be explicitly changed in order to imagine the story. Participants additionally used the description of the story to induce what the fictional world might look like, going beyond what was strictly required by the text. For example, one of the stories in this study described a boy who had a talking dog and was able to teleport from place to place. Although nothing was mentioned in this story about social conventions, like the fact that it is rude to pick one's nose, participants judged that this rule was much less likely to hold in the story world than in the real world. These results suggest that people do not follow

a strict Principle of Minimal Departure, though the extent to which they violate this principle and the circumstances under which they do so remain unclear. Further empirical work is needed on this point to clarify the process of how we construct fictional worlds.

1.3. SETTING EVENTS IN MOTION

However it happens, imaginers are able to construct a fairly rich representation of the target fictional world, based partially on adopted premises and partially on background information imported from reality. Having accomplished this, the creator can now proceed setting the events of the fictional world in motion. In the case of fictional worlds that have been created for us, as is usual for stories, this process involves following the fictional narrative and using the world representation to imagine the events of the story. In the case of worlds that we create ourselves, including pretend games and counterfactuals, this process involves making inferences from the adopted premises and using background knowledge and our normal inference-making mechanisms to push the narrative forward (see D. S. Weisberg and Gopnik 2013; Nichols and Stich 2003).

As events unfold, the base set of facts that are true in the fictional world is likely to change, necessitating additions or modifications to the representation. Continued engagement with the fictional world thus involves continued repetition of the process described above – adding to the world, revising information within the world based on the premises, and making inferences about the world from combinations of the premises and real-world knowledge.

Although creating fictional worlds for interacting with stories presents the most straightforward case, the same aspects of the world-creation process operate for a variety of other types of fictional worlds. For example, when children play pretend games, they begin by understanding or signaling that a fictional world is required, perhaps by taking on a pretend identity, conjuring an imaginary companion, or assigning a pretend identity to an object. In doing so, children leave the realm of reality and explicitly engage in an alternate world that operates with a slightly different set of base assumptions. In reality, there is a block; in the fictional world of the child's pretend game, there is a cookie (D. S. Weisberg 2015; Leslie 1994). Because this fictional world can be filled in with real-world facts, the pretend cookie has all the properties that a real cookie would: round, good to eat for snack, crumbly, etc. The presence of this real-world information in the pretend game allows children to make productive inferences about what should happen next and provides them with information on how to interact with the pretend objects that have been created (Golomb and Kuersten 1996).

Like this simple pretend game world, and unlike many fictional stories, the fictional worlds created to represent counterfactuals and hypotheticals also usually require few changes to our representations of reality. Indeed, it would be difficult for counterfactuals and hypotheticals to function as they do if they were too different from reality, since they are meant to give us information about how things might happen or might have happened in reality.

2. *How Might This Ability Change Across Applications?*

Many researchers agree that a wide variety of imaginative activities rely on the same mental processes (e.g., Gopnik 2009; Harris 2000; Lillard 2001; Seligman et al. 2013; D. S. Weisberg and Gopnik 2013), since they all involve constructing representations that do not fully reflect the truth of reality. This means that every time we create a fictional world, whether for reasoning counterfactually or playing a game of pretend, the process works in the same way. This theory is cognitively parsimonious and helps us to draw essential links between young children's abilities in pretense and adults' abilities in planning and doing science. Acknowledging these deep similarities can reveal interesting developmental trajectories and suggest ways to bolster young children's developing counterfactual and hypothetical reasoning abilities.

But there are challenges to this unitary view. One particularly interesting one draws on empirical studies demonstrating that children have trouble constructing counterfactual scenarios that are genuine alternatives to reality (Beck 2016; Beck et al. 2006). Other work finds that children's apparent success at counterfactual reasoning tasks may rely on an ability to compute general conditionals rather than thinking about fictional worlds (Rafetseder et al. 2010). These results call into question whether children really can think counterfactually, given that they may not be able to adequately visualize alternatives, and in turn suggest that counterfactual thinking may be dissociated from other types of imaginative activities, at least in development.

Another challenge is that the line between fiction and fact is not always clearly drawn. While it is obvious that picking up a book, starting a pretend game, or beginning a train of thought about a possible future necessitate the process of world creation, there are other cases that may not signal the need for this process as directly (see Friend 2008). For example, one could turn on the television and find a narrative that depicts a battlefield scene set in the early 20th century. Without any further context, it could be impossible to tell whether this is a fictional drama or a historical reenactment. What sort of representation should be constructed to follow the events in this narrative? Should this be a fictional world, or a different kind of representation with a more uncertain reality status? And if the latter, how many different types of representations are necessary in our ontology of worlds?

A similar set of questions arises when one seems to remember an event but is not entirely sure whether it happened. Such cases also occur for hypothetical reasoning, particularly in science, which often uses some imaginative thinking in constructing hypotheses of possible explanations. These possibilities are usually plausible but may not fully capture the way the world works, so one could represent them while remaining neutral about whether they apply to real life or not. A special instance of this phenomenon is scientific models and thought experiments, which may or may not be genuine fictional worlds (Frigg 2010; Godfrey-Smith 2006; M. Weisberg 2012).

Are these representations fictional worlds like the ones described above? Or are they a different type of representation? It makes a certain kind of sense to posit a different type of representation to fit these cases that seem to be neither fully real nor fully fictional. But if every propositional attitude that we can express can create a different type of representation (e.g., one for propositions we know to be fiction, one of propositions we know to be real, one for propositions we merely hope will be the case, etc.), we risk multiplying entities beyond necessity (see Van Leeuwen 2011). Further empirical and theoretical work is necessary to determine the best way to treat these cases in the gray area between fully real and fully fictional.

3. How Might This Ability Change Across Development?

The argument in favor of the unity of different imaginative abilities also applies across development. Despite some disagreement about counterfactual representations, as noted above, empirical evidence generally supports this continuity. Children and adults use the same abilities to represent fictional worlds. Even children as young as three years have some ability to distinguish reality from fiction (D. S. Weisberg 2013), making them capable of engaging in adult-like ways with fictional worlds, and this separation becomes more firmly established over the course of the preschool years. Young children, like adults, additionally separate multiple fictional worlds from each other (Skolnick and Bloom 2006b), demonstrating early maturity in their abilities to navigate a variety of metaphysical boundaries. Observations of young children's pretend games and interactions with stories also reveal remarkable developmental continuity, as even preschoolers can productively make inferences about premises within fictional worlds (e.g., Harris and Kavanaugh 1993; Van de Vondervoort and Friedman 2014)

and understand the differences between realistic and fantastical stories (Corriveau et al. 2014; Woolley and Cox 2007).

However, there are considerable developmental differences in how children and adults construct fictional worlds, specifically in terms of what kinds of real-world information they include: Children tend to make their worlds more closely resemble reality than adults do (D. S. Weisberg et al. 2013; D. S. Weisberg 2014). That is, children tend to include most real-world facts or causal structures in their fictional worlds, while adults are able to stray farther from reality in their world creation (see also Woolley and Ghossainy 2013). This somewhat surprising finding illustrates the need for more empirical research on this issue. Specifically, future work should investigate why children are more reality-prone than adults, and when and how this tendency changes.

4. *Conclusions and Future Directions*

The philosophical literature has provided a relatively detailed outline of the process of fictional world creation: recognize the need for such a creation, combine the premises of the fictional world with real-world knowledge to construct a new fictional world, and then set events into motion within this structure. However, much empirical work remains to be done in order to further flesh out this outline and to determine how each of these steps is implemented when adults and children engage their imaginative capacities. One particularly interesting set of questions concerns exactly how and when real-world knowledge is brought to bear on a fictional world. Do world creators begin with a full representation of a world that is modified, or with a blank slate that is built up? How do different properties of stories or counterfactual scenarios affect which aspects of real-world knowledge are imported into a given world? Do these processes change over the course of development? Do they change when multiple individuals collaborate on creating a world, as in joint pretense? It could be especially fruitful for future work to use on-line measures, such as eyetracking, to gain insight into the process of world creation as it unfolds.

Further work is also needed to compare different types of fictional worlds, including stories, pretend games, and counterfactual scenarios. The goal of this work should be both to determine how and whether the process of work creation differs among them and to describe their common features. Again, a careful mapping of the developmental trajectory of these abilities can help to provide insight into the similarities and differences among these processes.

More broadly, this area of research provides a good case study of the utility of close relationships between philosophical theories and empirical investigations. Many of the claims made by philosophers in this area are empirically tractable, and much of the empirical work on these topics can be (and often has been) incorporated into philosophical theorizing. Investigations into the creation of fictional worlds can thus serve as a model for the fruitfulness of cross-disciplinary collaboration.

Short Biography

Deena Skolnick Weisberg is a Senior Fellow in the Department of Psychology at the University of Pennsylvania, where she is also affiliated faculty at the Institute for Research in Cognitive Science, the Center for Neuroscience and Society, and the Annenberg Public Policy Center. She received her B.S. in Symbolic Systems from Stanford University and her Ph.D. in Psychology from Yale University. Her research explores imaginative cognition in children and adults, as well as children's and adults' abilities to think scientifically and to reason about scientific topics such as neuroscience and evolution. She has published papers on these topics in journals such as *Cognition*, *Developmental Science*, *Cognitive Science*, and *Science*.

Note

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