Emotion and Ethics in Virtual Reality

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It is controversial whether virtual reality should be considered fictional or real. Virtual fictionalists claim that objects and events within virtual reality are merely fictional: they are imagined and do not exist. Virtual realists argue that virtual objects and events really exist. This metaphysical debate might appear important for some of the practical questions that arise regarding how to morally evaluate and legally regulate virtual reality. For instance, one advantage claimed of virtual realism is that only by taking virtual objects and events to be real can we explain our strong emotional reactions to certain virtual actions, as well as their potential immorality. This paper argues that emotional reactions towards, and wrongs within, virtual reality are consistent with its being merely fictional. The emotional and ethical judgments we wish to make regarding virtual reality do not provide any grounds for preferring virtual realism.

Keywords: Virtual reality; emotion; ethics; fiction; imagination; immersion.

1 Virtual Realism and Virtual Fictionalism

> Axe-wielding maniac captured marauding in Houses of Parliament.

How I react to the above sentence greatly depends on whether I take myself to be reading the latest popular thriller novel, or the daily newspaper. The consensus view in the philosophy of fiction concurs: how we engage with a form of media depends on whether it is fiction or nonfiction.[1] For instance, Peter Lamarque and Stein Haugom Olsen claim:

> [T]he classification of narrative into fiction and non-fiction is of the utmost significance; not only is it a precondition of making sense of a work, but it determines how we should respond both in thought and action. (Lamarque and Olsen 1994: 30)

One explanation of why a narrative's status as fiction or nonfiction matters is that different attitudes seem warranted for each. If I take myself to be reading nonfiction, then, given my

[1] Matravers (2014) constitutes a notable exception, holding that the same mental modelling is involved in our engagement with fictional and nonfictional narratives.

source is trustworthy, I *believe* what I read; if I take myself to be reading fiction, then I only *imagine* its content (Walton 1990; Currie 1995: 144; Weinberg and Meskin 2006). Since different attitudes are required, it seems an important question whether something is fiction or not.

A debate of this kind has emerged regarding the metaphysical status of virtual reality.[2] Virtual reality offers immersive, interactive, computer-generated spaces, at present typically produced through the medium of head-mounted display goggles.[3] Virtual fictionalists such as Neil McDonnell and Nathan Wildman (2019; 2020) argue that objects and events in virtual reality do not exist and are merely fictional. This is a specific *Waltonian* form of fictionalism, inspired by Kendall Walton's (1990) influential theory of fiction.[4] Walton holds that fiction is just that which functions as a 'prop', prescribing us to imagine various things.[5] McDonnell and Wildman argue that virtual reality prescribes us to imagine various objects and events, hence virtual reality is fictional.

On the other hand, virtual realists such as David Chalmers (2017, 2019, 2022; see Zhai 1998, Heim 2000, and Velleman 2008 for earlier precursors) argue that objects and events in virtual reality are digital but genuinely *real*: they exist, have causal powers, are mind-independent, and are non-illusory. Virtual objects are ontologically dependent on digital objects—structures of physical bits and bytes within computers (Chalmers 2022: 195). Virtual realists further claim that proper engagement with virtual reality does not require imagination. We can engage with it using our regular faculties of perception and belief (Chalmers 2019: 473; see also Velleman 2008: 414). We perceive and have beliefs about virtual objects just as we do nonvirtual objects.

Both the virtual fictionalist and the virtual realist, then, can admit that digital objects exist (Wildman and McDonnell 2020: 494ff and 497–8). There are certain physical data structures on computers. The disagreement between the two positions regards the *existence* of the virtual objects we seem to encounter when we put on a virtual reality headset, and the *relation* between these and the digital objects that each agree do exist. The realist claims that virtual objects are ontologically dependent on certain digital objects: bits and bytes on computers. Thus, since the relevant digital objects exist, so do virtual objects. The fictionalist, on the other

[2] Alternative approaches eschew virtual reality's metaphysics, focusing on its aesthetic and pictorial qualities. Oliver Grau (2002) investigates how illusionistic image spaces such as frescos and ceiling panoramas offer early precursors to virtual reality, whilst Grant Tavinor (2021) proposes a related pictorial conception of virtual reality in line with media such as painting, film, and photography, attempting to deflate the metaphysical debate about virtual reality. Rami Ali (2024), meanwhile, connects virtual reality's pictorial nature to its metaphysics.

[3] I will note below where my discussion applies to other virtual worlds such as videogames, which lack the same perceptually immersive qualities of headset-based virtual reality.

[4] Walton's account involves an antirealist view of fictional objects (1990: ch. 10). Rival views take fictional objects to exist as abstract, possible, or Meinongian objects. See Juul (2019) and Beisbart (2019) for discussion of alternative fictionalist approaches to virtual reality.

[5] This account of fiction notably outstrips our ordinary notion, as Walton (1990: 3) admits, including intuitively nonfictional works such as vivid historical accounts which equally prescribe imagining (Friend 2008).

hand, denies that virtual objects exist. Digital objects, as well as the images, sounds, and haptic feedback that virtual reality provides, function as props which prompt us to *imagine* that virtual objects exist (McDonell and Wildman 2019: 391–2; 2020: 497). What are only data structures on computers and pixels on a screen prompt us to imagine that there are people, places, objects, and events. These virtual objects we seem to encounter do not *really* exist, however. They are merely imagined to.

Which of these views is correct might appear significant. Virtual reality constitutes a fast-growing but largely unregulated space with increasing financial value. Virtual land is sold for millions of dollars, with brands hoovering up plots to build stores selling and promoting their products. Multiplayer games set in virtual worlds make the news as spaceships worth tens of thousands of dollars are stolen. Some of these virtual actions seem to warrant similar treatment to their nonvirtual equivalents. Extortion is still extortion, whether in-person, by email, over the phone, or in virtual reality. Murdering a user's avatar, however, is very different to murdering the user themselves. As the popularity of virtual worlds grows, we will require new ethical and legal frameworks for evaluating actions within them. Answering whether virtual objects and events are real, or only fictional, may appear an important precursor.

In §2, I introduce a case discussed by Chalmers—that of sexual assault in virtual reality—which he suggests the emotional impact and wrongness of which can only be explained by virtual realism. I draw out several puzzles regarding such actions for the virtual fictionalist, which I proceed to offer solutions to in §§3–6. Positing virtual objects and events is explanatorily redundant in this case and, I argue, more generally. The emotional and ethical judgments we wish to make about virtual reality do not provide any reason to favour virtual realism.

2 Two Puzzles for Virtual Fictionalism

Chalmers (2017: 317–9) offers various arguments for virtual realism, for instance from the regularity of virtual and digital objects' causal powers, such that the former are ontologically dependent on the latter.

An alternative argument for virtual realism, however, is that the commitment to existent virtual objects is essential to explaining our engagement with virtual reality. One extremely troubling issue in virtual reality is the prevalence of harassment and violence, especially against women. Cases abound of sexual harassment and assault of female-presenting users, with such behaviour enabled by anonymity and the lack of meaningful punishment.[6] (Readers should be advised that the proceeding discussion will centre on such cases.) It is important that we can adequately account for these wrongs committed in virtual reality, and it would be a mark against a metaphysical account of virtual reality if it precluded such ethical condemnation.

[6] See, for instance, media coverage of recent cases (Wong 2016, BBC News 2022, Camber 2024), as well as Danaher (2023) for a more general overview.

Chalmers discusses a case of this kind where a user in a text-based virtual world performed sexual and violent acts on other users.[7] He claims that virtual realism better accords with how we wish to evaluate this case:

> Almost everyone agreed that [the assaulter] had done something wrong. How should we understand this wrong? Someone who thinks virtual worlds are fictions might say that the experience is akin to reading a short story in which you are assaulted. That would still be a serious violation, but different in kind to a real assault. That's not how most of the community understood it, however. The technology journalist Julian Dibbell reported a conversation with one of the victims recounting the assault:
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> > Months later, the woman … would confide to me that as she wrote those words posttraumatic tears were streaming down her face—a real life fact that should suffice to prove that the words' emotional content was no mere fiction.
>
> Virtual realism gives the same verdict. The assault … was no mere fictional event from which the user has distance. It was a real virtual assault that really happened to the victim. (Chalmers 2022: 350–51)

Chalmers' example comes from a purely text-based virtual world, yet similar distressing experiences are even more common in contemporary, headset-based virtual reality given the phenomenal similarity of one's experience to nonvirtual events. Here, you do not merely read that your avatar has been assaulted, but it perceptually appears as if *you* are being assaulted, adding to the traumatic impact of such actions.

Elsewhere, Chalmers elaborates on how such examples might function as an argument for virtual realism:

> If these virtual worlds were merely games or fictions, then the ethics of virtual worlds would be limited to the ethics of games or fictions. People could wrong each other in the ways they do when playing games, but not in the richer ways that they do in ordinary life. Once one sees virtual worlds as genuine realities, however, then the ethics of virtual worlds becomes in principle as serious as ethics in general. (2022: 353)

Cases of sexual assault and sexual harassment in virtual reality ought to be treated as serious cases of wrongdoing. Yet if virtual reality is merely fictional, we may seem unable to provide such condemnation. Likewise, a significant part of the harm of such actions is their emotional impact on victims, which is unlike that of most events appearing in fiction, from which the audience is distanced. If virtual reality is fictional, our emotional reactions towards, and potentially lasting trauma from, virtual events seems difficult to make sense of.

There are thus two initial puzzles for the fictionalist, each of which virtual realism solves:

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[7] In fact, in this case, one user made it appear that *another* user was performing these actions towards two further users. I will restrict my focus to simpler cases in which one user assaults another, although in §§4–5 I will briefly discuss cases below where a user assaults, or is assaulted by, a computer-controlled character.

The Emotional Puzzle: It seems unfitting, irrational even, to have such strong emotional reactions towards what does not exist, and what has not happened. Virtual realism holds that virtual objects and events exist, hence our emotional reactions are fitting and we are not irrational.

The Ethical Puzzle: Actions like virtual sexual assault are significant wrongs, perhaps even on a comparative level to corresponding nonvirtual actions. According to the fictionalist, virtual actions are of a very different nature and seem to warrant significantly diminished ethical and legal treatment. Virtual realism holds that virtual actions are just as real as their nonvirtual counterparts, hence can be evaluated similarly.

The realist's explanation of each puzzle appeals to the reality of virtual objects and events. Virtual fictionalism, without a similar commitment, is unable to offer these explanations. Only virtual realism, then, seems able to account for the emotional responses we have towards virtual reality, and the ethical judgments we wish to make. In cases like virtual sexual assault, the metaphysical status of virtual reality seems to matter.

I will argue in what follows, however, that virtual fictionalism can explain each of the above emotional and ethical puzzles, as well as strengthened versions of them, without positing virtual objects and events. Accounting for the emotional impact of, and ethically condemning, actions such as virtual sexual assault does not provide grounds for virtual realism.

3 The Emotional Puzzle

The *emotional puzzle* claimed that we should take virtual reality as real since we react to it in similar ways to other existent objects and events. It is first worth noting, however, that a similar puzzle arises for other media such as literary fiction and film. We feel strong emotions towards fictional characters despite knowing they do not exist. If virtual reality is fictional, it seems no more of a puzzle that we experience strong emotions as that we do when we watch horror films or read thriller novels.

Nonetheless, that we experience such emotions towards fiction at all warrants some explanation. This wider issue of our emotional engagement with fiction is often known as the *paradox of fiction*, and can be summarised as the following triad of individually plausible but jointly incompatible claims:

1. We feel emotions towards fictional characters and events.
2. We do not believe in the existence of fictional characters and events.
3. To have an emotion towards something, we must believe that it exists.[8]

Attention to the paradox of fiction, however, offers us an immediate solution to the *emotional puzzle*. The broad consensus on the paradox is that we ought to reject the third claim. We need not believe that something exists to have an emotion towards it. Perhaps imagining is sufficient for genuine emotion (Lamarque 1981: 300–301; Carroll 1990: 79–88; Matravers 1998: ch. 4), or

[8] Friend (2022: 257). Similar inconsistent triads are given in Currie (1990, 187) and Gendler (2010, 228). For further discussion of the paradox, see Radford (1975), Walton (1978), Friend (2016), and Matravers (2014: ch. 8). Friend (2020) notably also offers an alternative formulation of Radford's challenge.

perhaps emotions can occur without any cognitive states of belief or imagination (Prinz 2006: ch. 2; Robinson 2007: 143–46). Either way, this solves the *emotional puzzle* for the virtual fictionalist. Even if virtual objects and events are merely fictional and do not exist, they can still constitute proper objects of emotion, just as other forms of fiction do.

The initial formulation of the *emotional puzzle*, then, admits of a simple solution once we consider virtual reality in relation to other forms of fiction where we experience similar strong emotions. This comparison between virtual reality and other forms of fiction, however, overlooks certain pertinent differences between the two cases, which enable the realist to pose a strengthened version of this puzzle—one specific to virtual reality.

4 The Strengthened Emotional Puzzle

Whilst the initial *emotional puzzle* can be solved, the virtual realist can offer a strengthened version. We often experience emotions such as stress more intensely in virtual reality than when engaging with other fictional media (Meehan et al. 2002). Compared to reading about each, experiencing a plane crash in virtual reality may be more frightening and climbing a steep rockface more exhilarating. Our emotional reactions to virtual reality often seem stronger than those towards fiction and are more like those towards real events. The virtual realist can thus argue that we tend to treat virtual reality as real in this respect, rather than as we do other forms of fiction. In the case Chalmers discusses where a woman suffered posttraumatic symptoms, virtual reality clearly has a strong and sustained emotional impact like that of real events.

A further puzzle for the virtual fictionalist, then, is this:

The Strengthened Emotional Puzzle: Emotions towards virtual reality are often stronger than those towards fiction and are more like those towards nonfictional events. Virtual reality being genuinely real explains this.

Of course, our emotional reactions towards virtual reality are not *always* stronger than analogous reactions towards fiction. One common use of virtual reality is for training purposes. Pilots and surgeons employ virtual reality to practice skills in a risk-free environment. Yet neither the pilot who crashes in the flight simulator, nor the surgeon who fails when practicing a difficult surgery, is kept up at night with guilt at the virtual lives lost. Even actions such as virtual assault vary greatly in how psychologically damaging they are, as some simply brush them off. Whilst some virtual situations prompt strong emotional reactions, others can have no such effects.

Sometimes, it is only our immediate reactions towards virtual reality that are on a par with those to analogous nonvirtual events. Whilst the pilot does not feel long-lasting guilt for crashing in the flight simulator, they may feel stress and panic as they struggle to control the simulated aircraft. In other cases, such as virtual assault, we can experience intense emotions in a more sustained fashion. I will argue that there are various ways in which virtual reality generates such affective reactions, each of which the virtual fictionalist can explain, solving the *strengthened emotional puzzle.* Our emotional responses to virtual reality therefore do not require taking it to be real.

4.1 Immediate Emotional Reactions

First, we experience an immediate emotional reaction to perceiving certain events, whether real or fictional. I feel a jolt of fear when the monster jumps out at me in virtual reality. I react similarly when the monster jumps out in a horror film. In each case, I quickly realise that the monster is not really there, and my fear subsides.

Yet we might think that in virtual reality such immediate emotional reactions are both more common and more intense than in other media, even other visual media like film. Virtual reality is often described as illusory in various respects. One obvious sense is that virtual reality presents a *plausibility illusion*: it appears that what one is seeing is really there, rather than just on a screen (Slater 2009). Another illusory aspect is the perceptual illusion of *presence*: it seems that one is really *in* the virtual environment (Slater 2018). Finally, in virtual reality there is often a *body ownership illusion*. It seems as if you have a different body in virtual reality—that of the avatar you control (Petkova and Ehrsson 2008; Slater et al. 2009, 2010).

These various senses of illusion, which are typically less pronounced in other visual media, offer the virtual fictionalist an explanation of why we experience immediate emotions more intensely in virtual reality. Given the appearance that I am present in virtual reality and that my avatar's body is *my* body, I may have immediate emotional reactions to actions affecting my avatar like those I would have towards analogous actions affecting *me*. Before I become consciously aware that what I perceive is not physically happening, I affectively react as I would towards the same situation outside virtual reality. For a second, it seems like the monster is rushing towards *me*, and I feel a flutter of panic. The panic quickly subsides as I realise that the monster cannot physically harm me. Just as we flinch when an object flies towards the camera on the television, there is an immediate reaction to virtual events which appear to affect us.

Other forms of fiction typically do not present similar illusions, hence our diminished immediate emotional reactions. The presence and body ownership illusions are most pronounced in visual media featuring a first-person perspective, as is common in virtual reality and videogames (Slater et al. 2010; Petkova, Khoshnevis, and Ehrsson 2011). The use of first-person perspective is rarer in media such as film. Yet when it is used, it does seem to have the same effect of heightening our immediate emotional reactions. First-person shots are commonly found in horror films and generate similarly intense affective responses. Again, it momentarily seems that what is on screen is really happening to us and we react accordingly, even though we quickly realise that it is not real and do not run out of the cinema in terror.

In the case of undergoing a virtual assault, then, we may have an immediate emotional reaction as it *appears* as if someone is assaulting us, perhaps just for an instant, which can be terrifying. Even if we are immediately aware that it is all only virtual and we are in no physical danger, this experience may be extremely distressing.

Virtual reality exposure therapy is often used in treatment of post-traumatic stress disorder, as one can encounter feared situations that would not be safe to do so in reality (Kothgassner et al. 2019; Eshuis et al. 2021). A combat veteran can confront battlefield events, building up a tolerance to revisiting traumatic memories. The flipside is that virtual reality might give rise to such conditions through presenting severely distressing situations. Even once we know that a situation was merely virtual, our experience can still have lasting impacts. But this is all

consistent with virtual reality's being merely fictional, and provides no justification for taking the represented events to be real in any sense.

4.2 Immersed Emotional Reactions

A second way in which we experience more sustained emotions in virtual reality than in other forms of fiction is due to our becoming *immersed* in the virtual world. The pilot in a highly realistic virtual reality flight simulator may become immersed, and subsequently feel fear as they struggle with the controls, rapidly descending towards the ocean.

Immersion is a nebulous concept, often used to mean slightly different things. We can become immersed in an activity, a narrative, a fictional world, a particular outlook, and so on. These various forms of immersion each seem to comprise *attentional* phenomena: immersion constitutes attending to and being aware of certain things at the expense of others (Liao 2017). When immersed in an activity, everything else fades into the background as we singularly focus on the task at hand. In narrative immersion, we get lost in a story by attending more to our mental states concerning the story-world than those about the actual world (Harris 1990: 48; Atencia-Linares and Sebastián, forthcoming). In imaginative immersion, such as when an actor becomes fully absorbed in a role on stage, we attend to the content of our imagining—aspects of our character and *their* psyche—rather than the fact that we are only imagining being them (Liao and Doggett 2014: 272–3; Liao 2017: §5).[9]

Equally, however, we can describe a particular medium as being *perceptually* immersive, in that it recreates an experience as if we were genuinely undergoing it (Chalmers 2022: xii, 39–40). Virtual reality's main appeal is that it recreates how certain experiences look and sound. A medium's being perceptually immersive may (although need not) give rise to a state of immersion as described above. Let us first consider how being *immersed* might result in increased emotional reactions in virtual reality, before turning to how a technology's being perceptually *immersive* might affect user's emotions, even as they remain acutely aware of the virtual nature of their experience.

Virtual reality is particularly apt at producing certain kinds of immersion, which result in increased emotional responses. We become immersed in the actions we perform, such that our awareness that we are sat in our living room, and not really flying a plane, fades into the background. We become immersed in the virtual world, feeling like it is really there. The continued plausibility, presence, and body ownership illusions described above can lead to our losing awareness that what we perceive is all computer-generated. When wearing a virtual reality headset, various features increase the sense that one is really there compared to other visual media such as film. Turning one's head does not take one away from what is happening. Directional audio gives the sense that one is really surrounded by the virtual world.

Just as the actor might become absorbed in a role, with diminished awareness that they are acting, the virtual fictionalist will hold that in virtual reality we can become immersed in

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[9] Susanna Schellenberg (2013: 507) offers an alternative description of imaginative immersion as *doxastic*: there is a shift in our attitudes, rather than our attention, as actors immersed in a role hold mental states on a continuum between believing and imagining. See Liao and Doggett (2014) for objections to this proposal.

imagination, losing awareness that we are only pretending that what we perceive is physically there. Certain props are especially appropriate for certain imaginings (Walton 1990: 303). It is hard to imagine a blanket as a phone, easier to imagine a banana as one, and easier still to imagine a plastic phone as a phone. In virtual reality, the artificial sensory input is exactly what we are meant to imagine that we are experiencing. In an especially well-done flight simulator, it all looks exactly like one is flying an actual plane. We have to do so little work in imagining that we become immersed, losing awareness that we are only *imagining* that things are as they seem to be.

In the previous case of our immediate emotional reactions in virtual reality, we quickly realised that the object flying towards us in virtual reality was never going to physically hurt us, and the fear subsided. In cases of immersion, we are less aware of the virtuality of what we perceive, hence our emotional reactions do not immediately dissipate. The pilot feels sustained fear as they struggle with the controls, plummeting towards the ocean, because the simulator so closely replicates the experience of flying a plane that in many respects it does not seem like a simulation at all.

Awareness that we are in virtual reality is difficult to fully eliminate, however. When we begin a virtual reality experience, we are acutely aware that what we see is not physically there. After ten minutes, this awareness may have eroded as other aspects of the experience demand our attention, but we often still remain dimly aware that we are in virtual reality. Furthermore, the current iterations of virtual reality headsets often do not perfectly recreate the phenomenology of certain experiences, reinforcing this awareness. We still feel a bulky headset strapped to our head. Our visual field is not fully covered by the screen, such that we see beyond the edges of the displays immediately before our eyes. We might see pixels as being in a grid-like display as we experience the 'screen door effect'—a common perceptible element in current virtual reality. Consequently, we typically remain vaguely aware that we are in virtual reality, dampening our emotions compared to analogous real events. The pilot plunging towards the ocean in a flight simulator may feel fear, but likely not the same terror as if they were *actually* about to crash.

Even if often less intense than responses to real events, our emotions when immersed in virtual reality might still be severely unpleasant. Immersion therefore plays a significant role in virtual reality's producing potentially traumatic experiences. Whilst we do not physically feel the impact of being assaulted in virtual reality, many of the perceptual aspects of the experience are as they would be in a nonvirtual case. And when immersed, we are only dimly aware that what is happening virtually is not real. That there is no impact on our physical, nonvirtual body does not prevent the experience being intense and potentially traumatic. Yet none of this requires taking virtual reality to be real. It is consistent with virtual reality's being fictional, on a par with media such as film and literature, but featuring certain perceptual qualities that generate increased emotional responses.

4.3 Belief-Discordant Emotional Reactions

In the above cases of immersion, we experience distress towards virtual events due to a diminished cognitive awareness that what we experience is only virtual. In other cases, however, we remain acutely aware of the virtuality of what we experience, but we nonetheless feel strong emotional reactions due to the *perceptually* immersive nature of virtual reality. The pilot may remain fully aware that they are just simulating flying, and reassure themselves that

they are not actually about to crash into the ocean. Yet they may still feel panicked and fearful as they plummet out of the sky. When walking through an abandoned mineshaft in virtual reality, I might repeat to myself 'This is not really there', but this does not fully vanquish my fear. We frequently experience strong emotions in virtual reality *despite* discordant beliefs and awareness. Consequently, whilst novice users of virtual reality might become easily immersed and be harmed as they take their experience to be real (Chalmers 2017: 327), even the veteran user who remains aware that what they perceive is virtual might still find certain virtual situations distressing.

Once again, however, the fictionalist can explain such reactions without holding that virtual reality is real, or is taken to be. Cases of this kind are instances of a broader phenomenon where we react affectively based on our perception in ways discordant with our beliefs.[10] When confronted by a tiger behind bars at the zoo, I may feel a fear come over me, despite believing that I am perfectly safe. When leaning against the glass at the top of a skyscraper, I do not believe that I am likely to fall, yet I still feel uneasy as I stare down at the streets below. Our more sustained responses of discomfort to horror films are similar. I believe and am aware that I am sitting comfortably on my sofa watching a film, yet I still feel fear. These scenarios where we react in ways at odds with our beliefs often occur when our perceptual faculties indicate that we are unsafe in some way.

Virtual reality offers similar cases of belief-discordant emotional reactions, and is especially apt at producing them. We can remain fully aware that what we are experiencing in virtual reality is not physically happening, yet this is not enough to shake off the emotions we feel. The perceptually immersive experience of being in the abandoned mineshaft still triggers feelings of unease, even though I know that I am sitting safely in my living room. The immersive qualities of virtual reality, where it perceptually appears that I am there and things are happening to *me*, result in my feeling strong emotions despite believing that none of what I perceive is physically happening.

I have argued above that we face immediate and immersed emotional reactions from a lack of awareness of the virtual nature of what we experience. Yet even when we remain aware that a situation is only virtual, we might still experience strong emotional responses. This is how victims of virtual sexual harassment and assault frequently describe their experiences—they knew that what was happening was only virtual, but that did not make it any less distressing. Virtual reality can therefore be traumatic even when users are aware that what they experience is not physically happening. But again, this does not require taking what occurs in virtual reality to be real. The comparison with other belief-discordant reactions illustrates that virtual reality can be incredibly distressing even if its objects and events do not exist, and users are explicitly aware as much.

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[10] Tamar Szabó Gendler (2008a, 2008b) explains such cases by positing a novel mental state of *alief*—an affective, content-bearing state triggered by certain perceptual inputs—which Claire Benn (2019: 95) applies to explain our emotional reactions to virtual reality. For alternative explanations of belief-discordant reactions, see Currie and Ichino (2012) and Kwong (2012).

4.4 Emotional Reactions to Nonvirtual Elements

I have argued that part of our having strong emotional reactions in virtual reality is the perceptual stimulus it offers, which generates our immediate emotional reactions, as well as those we experience when immersed or even aware that what we perceive is virtual. Another damaging aspect of actions such as virtual sexual assault, however, is the nonvirtual background and motivation behind them, which is present even in purely text-based virtual worlds.

I am targeted, perhaps because of my avatar's gender and appearance, and am insulted and harassed. When I strongly identify with my avatar, I feel violated despite the knowledge that I am not physically affected in any way. I cannot control or stop such actions. Even removing the headset does not prevent the actions continuing in social virtual reality experiences. I wonder what kind of a person would do such things. Even if the assault was just imagined, another user forcibly manipulated my imagining to be of this highly distressing content. There is often no possibility of punishment for the assailant. These factors (which are equally present in media such as videogames) each contribute to the traumatic impact that actions like virtual sexual assault can have despite victims' knowledge that they are only virtual. If someone wrote a horrific fictional short story about me, the fictionality of its content, and the fact that I only imagine it when reading, would not preclude my being upset. The nonfictional act of someone producing this story is what I am upset with. Much the same is true of virtual reality, where we can be rightfully upset that others have generated representations of horrible actions involving our avatar, or have inflicted upon us highly distressing perceptual experiences.

These nonvirtual elements are typically restricted to cases where the assailant is another user. When one knows it to be the automated behaviour of a computer-controlled avatar, the above interpersonal elements are absent, and our emotional reaction may be diminished (although the aforementioned perceptual elements may still render the experience distressing). Nonetheless, one might feel targeted, even if not by another user, then by the software developers who may have deliberately programmed such unpleasant encounters (Danaher 2018, 382).

In summary, then, our various emotional responses to virtual reality do not warrant taking virtual objects and events to be metaphysically real. Chalmers' case of virtual sexual assault, and the subsequent trauma that victims suffered, is consistent with virtual reality's being merely fictional. Virtual reality is simply highly apt at producing strong emotional reactions, like those we experience towards analogous nonvirtual events, due to its perceptual character, as well as the nonvirtual elements of such actions. The virtual fictionalist can thus explain both our strong emotional reactions to virtual reality, as well as why these reactions are often stronger than those in response to other forms of fiction. Both the initial *emotional puzzle* and its strengthened version fail to provide grounds for virtual realism.

5 The Ethical Puzzle

Let us now turn to the *ethical puzzle*: virtual sexual assault of another user's avatar seems to constitute a significant moral wrong, even if not as immoral as nonvirtual sexual assault. This provides a different argument for virtual realism. Realism holds that virtual sexual assault is just as real as nonvirtual sexual assault, hence we might think we can better explain its wrongness. Virtual fictionalism, on the other hand, holds that virtual events are merely imaginary, hence virtual sexual assault is of a very different kind to nonvirtual sexual assault. Virtual assault

merely prompts the victim to *imagine* that they are being assaulted, which seems far less morally reprehensible.

Of course, a virtual action's being real does not by itself justify treating it morally as we do its nonvirtual equivalent. Take an action such as virtual murder, where we kill other users' avatars. According to the realist, virtual murder is just as real as nonvirtual murder. Virtual murder is clearly far less morally wrong than nonvirtual murder, however; we only murder someone's avatar, rather than the person themselves. Similarly, virtual torture of a user's avatar is far less bad than nonvirtual torture of the user themselves. For many actions, especially those involving some physical aspect, very different moral standards apply to their virtual and nonvirtual instances, for the virtual version only harms an avatar, rather than the user controlling them. Consequently, holding that virtual sexual assault is real does not by itself explain why it is wrong.

Nonetheless, the virtual realist can claim that taking virtual actions to constitute real events is *required* to explain their moral significance. A virtual assault is a real event, hence it can be morally evaluated, even if we treat it differently to actual assault. The fictionalist, on the other hand, holds that virtual actions do not exist. It is therefore difficult to see how such actions can constitute wrongdoing.

Yet upon reflection, the fictionalist can equally explain the wrongness of virtual actions, even without holding that they exist. We perform various actions in engaging with virtual reality devices. We really press buttons, make hand gestures, and so on. It is *these* actions that the fictionalist can claim constitute wrongdoing when they inflict distressing and potentially traumatic experiences on other users. As in cases such as cyberbullying and harassment, the psychological harm caused by a virtual action can equate to that caused by the same nonvirtual action (Hamm et al. 2015). Consequently, the fictionalist can solve the *ethical puzzle* by holding that the wrong of actions such as virtual sexual assault consists in the actions we perform in engaging with virtual reality devices—actions that can be wrong when they inflict distressing experiences on others, as discussed in §4. Taking virtual actions to be real is therefore redundant for explaining how they can be wrong. We can instead explain virtual wrongdoing by appeal to these real actions we perform in engaging with virtual reality devices.

The virtual realist might insist that this only explains the wrongfulness of actions that affect *other users*. The fictionalist explanation of virtual assault's immorality is that it inflicts distressing experiences on others. But we might think that there is still something morally unacceptable in performing such actions towards non-player characters (NPCs), controlled by the computer rather than by other users. The fictionalist explanation above does not identify anything wrong with assaulting an NPC, which does not experience distress.

The morality of our actions towards NPCs in videogames, however, has received extensive discussion from which the virtual fictionalist can draw to explain such wrongs. Some standardly immoral actions seem permissible when virtually performed, such as killing NPCs in violent videogames. Other actions, however, like the sexual assault of virtual representations of children, seem morally criticisable even when this does not harm any actual children and does not influence the player's actions outside the game. Morgan Luck (2009) has argued that there is no principled reason to judge virtual murder permissible yet virtual child abuse impermissible—his 'Gamer's Dilemma' holds that we must either judge both permissible or both impermissible. Many have attempted to defuse this dilemma, however, offering

explanations for why virtual murder is permissible yet virtual child abuse impermissible. Some hold that virtual child abuse alone is wrong because, unlike virtual murder, it typically derives from a vicious motivation (Bourne and Caddick Bourne 2019; Van de Mosselaer 2020: 251ff; Bartel 2020: ch. 5-6; against this approach, see Young 2013).[11] Others claim that enjoyment of virtual child abuse comprises a lack of sensitivity and sympathy towards actual victims of child abuse in a way that virtual murder does not (Patridge 2011, 2013).[12] The virtual fictionalist might adopt either explanation of the wrongness of actions towards NPCs.

For the fictionalist, then, virtual actions can be wrong in two different ways. Some virtual actions are wrong because of the distressing effects they have on other users; others are wrong because of the kinds of actions they represent—virtual child abuse is wrong, despite not harming any actual people, because it shares a motivation with or comprises a lack of sensitivity towards victims of the real actions it represents. This time in the ethical domain, then, taking virtual objects and events to be real offers no explanatory advantage for the virtual realist.

6 The Strengthened Ethical Puzzle

Once again, however, the virtual realist can further sharpen their puzzle. Whilst the fictionalist has explained the immorality of actions like sexual assault, other virtual wrongdoing poses different problems.

We seem to count certain virtual actions as real (Brey 2014: 45; Chalmers 2022: 203; Ali 2023: 5). If you and I have a conversation using virtual reality headsets, we had a *real* conversation. If I bully someone in virtual reality, we might count this as *real* bullying. Sexual harassment and extortion can similarly occur through the medium of virtual reality. Such actions can be instantiated in virtual reality, or through other media such as email, for the way they are characterised does not depend on their occurring in a physical or face-to-face context. I shall follow Chalmers (2022: 203) in referring to such actions as *virtual-inclusive.* Virtual-inclusive actions are actual members of the class of actions they simulate, rather than mere virtual versions which warrant different moral treatment.[13]

Virtual-inclusive actions might appear to support virtual realism—these virtual actions are *real*. Not only might it have similar psychological effects, but harassing someone in virtual reality constitutes *real* harassment, and ought to be treated as such morally and legally. This presents a further puzzle for the virtual fictionalist:

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[11] How best to characterise desires in virtual and imaginative contexts is a matter of debate. Doggett and Egan (2007) posit imaginative analogues of desires (i-desires), whilst others (Kind 2011) maintain that regular desires function within imaginative contexts. See Van de Mosselaer (2020) for a discussion of i-desires within virtual contexts and applied to the Gamer's Dilemma.

[12] Others attempt to dissolve the Gamer's Dilemma altogether, claiming that once we hold fixed contextual elements of virtual murder and virtual paedophilia, there is no moral difference between the two (Ali 2015; Ramirez 2020). See Ali (2022) for scepticism regarding whether there is a single Gamer's Dilemma at all.

[13] See Ali (2023) on what distinguishes virtual-inclusive actions and objects from those which are virtual-exclusive.

The Strengthened Ethical Puzzle: Some virtual actions seem to constitute real instances of corresponding nonvirtual actions, and consequently warrant similar moral and legal treatment to their nonvirtual counterparts.

Virtual fictionalism holds that virtual actions are only imagined, and thus they seem to warrant very different treatment to nonvirtual actions. Once again, however, I will show that the virtual fictionalist can answer this challenge.

Whilst virtual actions do not exist, the fictionalist can again identify moral and legal significance in the actions that one performs in engaging with virtual reality devices. The actions I perform—pressing buttons on a controller, saying hurtful things into my microphone, or making obscene gestures that my avatar replicates—can constitute instances of actions like bullying, harassment, or extortion. Typing offensive messages can be bullying. Pressing buttons on a controller or keyboard can be harassment. For the fictionalist, then, it is not the *virtual* actions that constitute instances of bullying or harassment, for virtual events do not exist; instead, it is the actions we perform in engaging with virtual reality devices.

The law is currently in many ways unsuited to addressing new forms of wrongdoing in virtual reality. Taking virtually-mediated sexual harassment, bullying, and extortion to constitute real instances of these actions, rather than mere representations of them, allows us a way of accounting for their wrongness and punishing offenders. But this is not something that only the virtual realist can hold. The fictionalist can equally claim that virtual actions are immoral or illegal when they constitute instances of nonvirtual wrongs and crimes—it is just that the actions in question are those we perform in engaging with virtual reality devices. We therefore need not endorse virtual realism to explain how actions like bullying and sexual harassment can really occur through a virtual medium.

This solution to the *strengthened ethical puzzle* is analogous to that offered for another notable problem for virtual fictionalism. In 2012, the Dutch Supreme Court upheld the conviction of two teenagers for stealing a virtual item from another player in the videogame *RuneScape*. On the face of it, this judgment presents a puzzle for virtual fictionalism much like those above: if virtual objects are merely fictional, and do not *really* exist, how can they be stolen? Virtual realism, by contrast, explains virtual theft without trouble: virtual objects are real objects, hence can be stolen just as nonvirtual objects can be, by depriving another of a valuable object.

Nathan Wildman and Neil McDonnell (2020), however, show that the fictionalist *can* explain virtual theft. Whilst virtual objects do not exist and hence cannot be stolen, the digital objects on computers that function as their props can be. One can deprive another of these valuable digital objects, satisfying the legal definition of theft.

The solution I have offered to the *strengthened ethical puzzle* is similar. It may seem that the virtual realist, with their additional metaphysical commitment to virtual objects and events, has an explanatory advantage. By treating virtual reality as real, they can explain how and why we interact with it in ways typical of how we interact with the nonvirtual world. Yet the fictionalist can equally explain such matters by appealing to the ways in which we interact with virtual reality devices. Even if virtual actions do not really occur, the actions we perform in engaging with virtual reality devices do, and these can constitute wrongdoing or crimes such as theft.

There are thus various ways that the fictionalist can account for the wrongness of virtual actions. As in §5, they might appeal to the emotional harm that virtual actions cause, which is often more pronounced in virtual reality than in other forms of fiction, or the psychological states behind these actions when performed towards NPCs. Yet in other cases, the fictionalist ought to make the stronger claim that a form of wrongdoing is virtual-inclusive, such that it can be constituted by the actions we perform in engaging with virtual reality devices. The former strategy seems more apt for actions like virtual sexual assault, which we may not want to classify as constituting sexual assault due to the lack of any physical aspect in virtual reality.[14] The latter strategy seems more apt for wrongs with no physical aspect, such as extortion and harassment.

We saw in §§3–4 that our emotional responses to virtual reality provided no reason to prefer virtual realism over virtual fictionalism. In the previous two sections, I have argued that neither do our ethical judgments about virtual actions. Whilst Chalmers claimed that fictionalism cannot capture the richer ways we might virtually wrong each other, I have shown how a fictionalist can equally explain the harms of various virtual actions.

7 Conclusion

Virtual reality might seem to present a case where our metaphysics matters. Whether we class virtual reality as real or fictional appears significant for addressing the pressing practical issues arising with this new form of technology. Chalmers argued in this vein that only by taking virtual objects and events as real can we account for our emotional responses towards and ethical judgments about virtual sexual assault. I have shown how virtual fictionalism can equally explain the initial emotional and ethical puzzles, as well as their strengthened versions. Virtual realism's metaphysical commitment to existent virtual objects ultimately does not afford it any explanatory advantage.

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[14] John Danaher (2023: 273), however, has recently suggested ways in which we might revise our legal definitions of crimes such as sexual assault and rape to include virtual offences. Alternatively, we might think these novel forms of digital wrongdoing require new laws altogether, as revenge porn and upskirting have recently received in the UK.

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