The Feelings of Presence, Reality, and Virtuality

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Abstract

This essay focuses on the feeling of presence, its relation to the feeling of reality, and the implication and alterations of both types of feelings in virtual reality environments. The feeling of presence is a pervasive aspect of our ordinary experience of the world, although it does not always accompany what otherwise seem like genuine perceptual experiences. It involves the feeling that objects are available to bodily action, but also the experience of being spatially connected to them and the experience of self-identification with a living body. It is often the feeling that the perceived objects are really there, but the feeling of reality is a distinct experience, which may not involve the feeling of presence. Finally, virtual reality is a good test case for exploring the subtle phenomenological variations with which feelings of presence and reality accompany our perceptual experiences. The phenomenology of virtuality is not homogeneous but can be shaped in different ways by these feelings.

Keywords: Feeling of presence, Feeling of reality, Perception, Derealization, Virtual reality.

1. Introduction

When we look around us, objects in our environment normally feel present to us. It is not as if we were watching a film, for instance. What is the nature of the feeling of presence? Is it part of the essence of perception? How does it relate to the spatial content of perceptual experience and to our capacity to act on its objects? These are the main questions to be addressed in what follows.[1]

Traditional analytical philosophy of perception has largely missed the phenomenological subtilities associated with the feeling of presence. In contrast, tra-

[1] The following discussion is about feelings of presence in relation to perceived objects. Among these objects are subjects of experience, including ourselves. The analysis to be given should apply to the latter as well, although there might be more specific feelings of social presence.

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ditional phenomenology has studied what was considered to be an essential aspect of our experience of the world (which Husserl, 1907, labelled "Leibhaftigkeit").

Part of the explanation of the "phenomenological turn" of recent analytical philosophy is the growing interest in cognitive science as an experimental approach to the mind and perception. The fragility and subject-relativity of phenomenological description can now be tested against subpersonal mechanisms and processes. The recent studies of the feeling of presence do not escape this development. Many recent analytical philosophers of perception now consider the feeling of presence to be a genuine experience, which has neural and functional underpinnings in the brain.[2]

The essay is structured as follows. The first section introduces the feeling of presence, which has been invoked to deal with perception in contrast to other sensory or quasi-sensory experiences, involving imagination, dreams or picture perception. In the next two sections, two analyses are offered of the feeling of presence, which focus respectively on the spatial content and on the pragmatic dimension of our experience. The remaining sections discuss the feeling of presence in virtual reality. Although the feeling of presence is typically the feeling of real presence, some intentional objects can feel real but not present. The distinction between the feeling of presence and the feeling of reality can help capture many subtle variations in the phenomenology associated with perceptual experience, including in the context of virtual reality.

2. The Feeling of Presence

Philosophers of perception from various traditions have noted that the objects of ordinary sensory perception are experienced in a particular way, namely as *present* to the subject. Following Matthen (2005), we may call this experience "the feeling of presence". The notion of feeling of presence has been most often introduced to capture a contrast between perceptual experiences and other sensory or quasi-sensory experiences:

- *Picture perception* or *"seeing-in"* (Matthen 2005; Nanay 2015; Ferretti 2018).
- *Imagination* (Husserl 1907; Sartre 2010; Kriegel forthcoming).
- *Dreams* (Barkasi 2020).
- *Depersonalization-derealization* (Dokic and Martin 2014).
- *Virtual reality* (Slater 2009; Seth et al. 2012).

We can see a golden mountain in a painting (Wollheim 1980), but the golden mountain does not feel present to us. Similarly, we can visually imagine, or dream about, a golden mountain, which does not feel present to us. The perceived world does not feel present to the depersonalized-derealized subject either.[3] Finally, some experiences in virtual reality present sensory objects as present, but others do not.

[2] Some of these studies are mentioned below. For instance, Matthen (2005)'s account of the feeling of presence in visual experience relies on functional and neuroanatomic hypotheses about the visual system (see Section 4 below), while de Vignemont (2021) uses the psychological notion of peripersonal space to analyse a type of feeling of presence.

[3] The depersonalization-derealization syndrome involves the persistent experience that things around us are not real, or that we are detached observers of ourselves (see Sierra 2012).

Felt presence should be distinguished from what may be called "intentional presence" (see Fortier 2018a). There is intentional presence when a mental state is intentionally directed on a specific object, which is given in the content of the experience. A special case of intentional presence is phenomenal presence, when the mental state is a sensory or quasi-sensory experience. When I think about my friend Pierre, he is intentionally but not phenomenally present. When I see or seem to see him, he is both intentionally and phenomenally present. All the contrast cases involve objects that are intentionally and even phenomenally present but do not feel present. Thus, intentional presence does not entail felt presence.

Does felt presence entail intentional presence? Is the feeling of presence akin to an emotion, which needs a cognitive base, namely an independent intentional experience of its object?[4] There are rare cases which seem to involve free-floating feelings of presence, i.e., feelings of presence without cognitive bases. Consider for instance Sacks's (2012) description of patients with Parkinson's disease, who explicitly report illusory feelings of presence:

> Ed W. often describes a persistent feeling of a 'presence'—something or someone he never actually sees—on his right. […] The sense of someone there is so strong that [Professor R.] sometimes wheels round to look, though there is never anyone to be seen (Sacks 2012: 81).

The feelings of presence reported by these patients do not seem to require a cognitive base: they do not depend on any sensory experience (visual, tactile, or otherwise) of what feels present. Admittedly, though, free-floating feelings of presence are the exception rather than the rule. Felt presence is typically accompanied by intentional presence. What is felt present is most often also independently experienced by the subject, for instance via sensory perception.

A fair question is whether a single notion of presence can and should cover all the contrast cases.[5] The answer to this question depends on whether a unified analysis of the feeling of presence is possible. The next sections discuss two such analyses.

3. A Preliminary Analysis

Consider the view that the feeling of presence depends on the experience of the perceived object and oneself being *co-located*. When this experience is missing, the object does not feel present to us. For instance, when we look at a picture of a woman, we do not perceive a continuous spatial path connecting ourselves to the depicted woman. As Matthen puts it, "[t]he picture lacks a 'here'" (Matthen 2005: 316). The picture itself has a spatial content, but "[t]he space within the picture is not part of the picture viewer's space" (Lopes 2012: 68). Thus, we do not have the feeling that what is depicted is present to us.

Analogous remarks can be made about sensory imaginings. Sartre observes that when I visually imagine Pierre to the left, "he does not appear at the same time to the right of the armchair which is actually before me" (Sartre 2010: 180).

[4] The notion of cognitive base accounts for the fact that the objects of emotion are provided by independent mental states (their cognitive bases), such as perceptual experiences (see, e.g., Deonna and Teroni 2012: 5). For instance, our fear of the dog barking at us depends on our seeing or hearing the dog.

[5] For a negative answer to this question, see Fortier 2018b.

In fact, Pierre "bears no relationship to me" (Sartre 2010: 181). On this view, the imagined object does not feel present to me because I do not experience the imagined object as being co-located with myself.

The case of depersonalization-derealization is more complex. Depersonalized-derealized subjects report experiencing the world, but also themselves, as unreal. They have normal perceptual competences (they can identify and act on objects around them) but the objects do not feel present to them.[6] They often report that perceiving the world is like watching a movie of the world rather than being directly connected to it. As one subject says: "Through the eyes I look out at a world that might be a picture of the world" (Shorvon et al. 1946: 784).

Depersonalized-derealized subjects understand that there is a special object in the world, namely their own body, but they fail to *self-identify* with it. They experience objects in their environment as being co-located with their body, but not with *themselves*. This explains why they frequently use pictorial metaphors to describe their experience. Like depicted objects, perceived objects do not feel present to them.

We can leave open here the question of the nature of self-identification. Some have argued that it is a perceptual achievement: "in experiencing objects as spatially related to one, one literally experiences the bodily self as located in the perceived world" (Cassam 1994: 52-53). If this is right, derealized-personalized subjects have a selective perceptual deficit after all. An alternative claim is that self-identification is a cognitive operation over and above perception. If Perry is right and "I am not in the field of vision: no component of my visual experience is a perception of me" (Perry 1993: 205), then self-identification must be at least partly non-perceptual.

The case of depersonalization-derealization shows that the notion of self-object co-location is best decomposed into two separate conditions, which leads to a preliminary analysis of the feeling of presence:

An object *o* is felt as present to a subject S if and only if:

(i) S has a perceptual experience as of *o* (*Intentional Presence*).

(ii) S experiences *o* as being spatially connected to S's body (*Spatial Connectedness*).

(iii) S self-identifies with S's body (*Self-Identification*).

As we have seen, sensory imagination and seeing-in fail to meet Spatial Connectedness. In contrast, the perceptual experiences of derealized-depersonalized subjects do meet Spatial Connectedness. They present the world from a bodily point of view. However, they do not meet Self-Identification. Although the subjects have perspectival experiences, they fail to identify themselves with anything in the world.[7] It follows that objects in their environment do not feel present to them, which is consonant with their own spontaneous descriptions of their predicament.

[6] As we shall see (Section 6), the feeling of presence and the feeling of reality are distinct experiences. I assume that depersonalized-derealized subjects lack both types of feelings (or at least have very attenuated forms of them). This assumption is supported by their spontaneous narratives but also by the fact that the depersonalization-derealization syndrome is an affective disorder, in which the general ability to feel the world and oneself is diminished. See Sierra 2012.

[7] For our purposes here, self-identification with a body need not entail that the body is experienced as being *identical* with oneself, but only that it is one's own body.

As it stands, though, the preliminary analysis is not quite right. The conditions just listed are not jointly sufficient to yield the feeling of presence. Consider the experience of what may be called "ephemeral objects". Ephemeral objects are fugitive appearances, which often depend on a single experience or perspective. Some hallucinatory objects are ephemeral, as are objects experienced while looking at stereoscopic or anamorphic pictures. Consider for instance the Swiss artist Felice Varini's paintings on buildings and other material structures. The paintings are so arranged that ephemeral geometrical shapes appear from one vantage point but broke into separate fragments from other points of view.

A plausible claim is that ephemeral objects are phenomenally present but usually do not feel present. If this claim is correct (I will give an argument for it in the next section), the preliminary analysis is incomplete. When we look at one of Varini's paintings from the right vantage point, a two-dimensional geometrical pattern is given (Intentional Presence), it is perceived as spatially connected to ourselves (Spatial Connectedness and Self-Identification), but there is no feeling of presence. Fig. 1 summarizes the situation so far (focusing on visual experience).

	Spatial connectedness	Self-identification	Feeling of presence
Ordinary seeing	+	+	+
Seeing-in	–	+	–
Derealized seeing	+	–	–
Seeing ephemeral objects	+	+	–

Fig. 1

4. A Refined Analysis

Ephemeral objects show that we can feel present in an environment, because we self-identify with a body within it, while some objects of our perceptual experiences do not feel present, even though they are experienced as spatially connected to ourselves. Ephemeral objects do not feel present to us because, intuitively, they are not ready to hand. They have a location in phenomenal space (roughly in front of us), but it is not clear that they have a location in behavioral space (they do not seem graspable or otherwise reachable). A refined analysis of the feeling of presence starts from the hypothesis that an object feels present to a subject only if it is ready to hand, or more generally *available to bodily action*. This is a general hypothesis, which can be given different specific interpretations. Matthen (2005) relates the experience of being available to bodily action to processes within the motion-guiding system, which assigns locations to perceived objects in the subject's behavioral space. Alternatively, one might acknowledge several levels of bodily action in relation to perceived objects, not only to grasp or manipulate them, but also to walk or orient oneself to it (as in the case of distant objects such as stars).[8]

In the special case of a (visual) ephemeral object, I suggest that there is a conflict between motion-guiding vision and what Matthen (2005) calls "descriptive vision". The visuo-motor system, which ground motion-guiding vision, does

[8] See Vishwanath 2021. A broad notion of action availability is needed on pain of reducing the feeling of presence to the more specific feeling of being here (in contrast to being there), as analysed by de Vignemont (2021) using the notion of peripersonal space.

not locate the object in behavioral space, but at best assigns different locations to different parts of the object. In contrast, the visuo-semantic system, which grounds descriptive vision, gives the object a phenomenal location in relation to other objects in visual space.[9] This conflict blocks the generation of the feeling that the ephemeral object is present. The feeling of presence is lacking because the object is not experienced as being ready to hand, even though it has a phenomenal location. It appears to us as a purely phenomenal object. This leads to a refined analysis of the feeling of presence:

An object *o* is felt as present to a subject S if and only if:

(i) S has a perceptual experience as of *o* (*Intentional Presence*).

(ii) S experiences *o* as being available to bodily action (*Bodily Action Availability*).

(iii) S self-identifies with the acting body (*Self-Identification*).

On this analysis, the feeling of presence is the experience of the spatial presence of the object to oneself as *agent*, and not only as mere bodily perspective. Furthermore, what makes the feeling of presence a truly affective experience—a genuine *feeling*—is that it is rooted in the motor and affective systems of the living body.

The depersonalization-derealization syndrome demonstrates the need for Self-Identification as a separate condition, for reasons similar to those prevailing for the preliminary analysis. Derealized-depersonalized subjects are certainly capable of bodily action in relation to their perceived environment. They have intact motor-guiding vision: throwing a ball at them will make them duck. Still, they do not self-identify with the acting body. Thus, Bodily Action Availability does not entail Self-Identification. The feeling of presence is not just the experience of an object as being ready to hand; it also involves the sense that *I* can act in relation to it.[10]

What is the relationship between Bodily Action Availability and Spatial Connectedness? In particular, does the former imply the latter? These conditions are associated at least in typical cases. Objects around us are experienced as being both available to action and spatially connected to us. We can then self-identify with a single body experienced as a locus of action and as part of the same space as the perceived object.

Subjects with severe visual agnosia may feel objects to be ready to hand while failing to coherently see any spatial connection to them. This is part of the empirical evidence for the claim that motion-guiding vision can be dissociated from descriptive vision. Does it follow that Bodily Action Availability can be met without Spatial Connectedness? Not really. The feeling of presence arguably has some spatial content, even when it is free-floating: we feel the presence of something around us, here or there. Now, either its spatial content comes from the feeling of being ready to hand or, if the latter feeling turns out to be spatially neutral, it

[9] The neurological and functional distinction between the visuo-motor and the visuo-semantic systems was proposed by Milner and Goodale (1995), although later developments have shown that that there are many more connections between the systems than originally thought. For the philosophical significance of this distinction to the philosophy of perception, see Jacob and Jeannerod 2003 and Nanay 2014.

[10] The discussion here connects with the literature on the sense of agency (see, e.g., Gallagher 2012). The feeling of presence need not involve the feeling of agency, since the subject need not act on the object to feel its presence, but it always involves the sense of being "actable", or somehow available to action.

comes from a distinct experience. In both cases, Bodily Action Availability and Spatial Connectedness are met.

In conclusion, the refined analysis of the feeling of presence is best considered to be a conservative extension of the preliminary analysis. This holds if the experience of one's spatial connection to the perceived object is already involved in the feeling of being ready to hand (or more generally, available to bodily action), but also if this experience is provided by one's sensory, e.g., visual, awareness of the object.

5. Virtual Reality: Immersion

The notion of presence has played an important role in recent theorizing about virtual reality, especially about so-called "immersive" virtual environments. Typically, immersive virtual environments are generated using headsets with a stereoscopic display, stereo sounds, and sensors like accelerometers and gyroscopes, while non-immersive virtual environments are displayed on computer or television screens. Now consider Chalmers's characterization of immersive environments (see also Chalmers 2022):

> An immersive environment is one that generates perceptual experience of the environment from a perspective within it, giving the user the sense of "presence": that is, the sense of really being present at that perspective (Chalmers 2017: 312).

What Chalmers calls here "the sense of presence" refers to self-presence in the virtual environment, which corresponds in our analysis to self-identification with the origin of a perspective, or a virtual object acting as the subject's avatar. Now as the case of ephemeral objects has demonstrated, this may not be enough for the subject to feel the presence of the virtual objects themselves. Some virtual objects may be like ephemeral objects: we might have the sense that we are present in the virtual environment and spatially connected to virtual objects that nevertheless do not feel present to us. For instance, our motion-guiding system might not assign locations to virtual objects in behavioral space. We would then experience purely phenomenal virtual objects.

To get the feeling that virtual objects are present, we must self-identify with a virtual object as the locus of action in the virtual environment. This might require the virtual environment to be interactive in Chalmers's sense, "when actions by the user make a significant difference to what happens in the environment" (Chalmers 2017: 312). An environment can be interactive in the absence of self-identification within it. In some cases of teleoperation, we can exercise our sensorimotor knowledge to make a difference to what happens in a distant environment within which we do not self-identify. For instance, a surgeon may use robotic arms to operate at a distance, viewing a 2D image of the surgical field. The surgeon may feel present where the robotic arms are, but not where the person operated on is. However, self-identification in a non-interactive environment would be much harder to achieve.

This suggests a distinction between several levels of immersion in a virtual environment (see Fig. 2). The zero level of immersion, or non-immersion, involves the (more or less confused) perception of an interface between us and the virtual environment, such as a computer screen or headsets that are experienced

(e.g., via visual or proprioceptive cues) as mediating our interaction with the virtual objects. Such an interface prevents self-identification within the virtual environment.

At the first level of immersion, we perceive and act on the virtual environment via an avatar, but we fail to self-identify with the latter even though there is no perceived interface between ourselves and the virtual environment. We experience virtual objects from a perspective within the virtual environment, but we are subject to a form of "local derealization". Virtual objects do not feel present to us because we do not feel self-present in the virtual environment. Our temporary derealized experience might not come with a sense of being depersonalized if we self-identify with another body, experienced as part of the real, non-virtual world.

The second level of immersion involves self-identification with an avatar, and so the feeling of self-presence, without the feeling that the virtual objects seemingly around us are present. Such an experience would be akin to the experience of ephemeral objects. We would feel like being there, in the virtual environment, while the virtual objects would remain purely phenomenal.

The third level of immersion, or full immersion, corresponds to the cases in which virtual objects truly feel present to us. Chalmers's notion of presence as self-presence covers both this and the second levels.

The same virtual reality device might generate immersion at any of the first three levels, depending on the subject's response. In particular, the generation of a realistic experience involving a spatial egocentric perspective on the virtual environment is no guarantee that we self-identify with an avatar or that other virtual objects feel present to us.

Finally, levels 1-3 are about *experiential* immersion, and they are compatible with various *beliefs* that we may have about the presence or reality of what we seem to perceive. For instance, a virtual object may feel present while we do not believe that it is. Experiential immersion is not doxastic immersion.

	Level 0 (non-immersion)	Level 1	Level 2	Level 3 (full immersion)
Perceived interface	+	–	–	–
Self-identification within the virtual environment	–	–	+	+
Feeling of presence of virtual objects	–	–	–	+

Fig. 2

6. Virtual Reality: Presence vs Reality

Mel Slater and collaborators (Slater et al. 2009, 2010) have suggested that the sense of presence in virtual reality really has two components, which are mutually independent. First, there is "Place Illusion", namely the experience of being in the virtual environment (rather than in the room where one is using the virtual reality device). In our analysis, Place Illusion is self-identification with an avatar or at least the origin of a subjective perspective in the virtual environment. Although it does not entail the feeling that virtual objects are present, it is a central aspect of this experience. Second, there is "Plausibility", which is the experience

that "what is apparently happening is really happening" (Slater et al. 2010: 3). Plausibility is what we call "the feeling of reality", i.e., the feeling that the virtual objects are real or really exist.

The feeling of presence and the feeling of reality are indeed independent of each other. First, the feeling of reality does not entail the feeling of presence. As Lee (2004: 43) observes, "television viewers can feel that virtual objects depicted in a television set are actual without feeling that they are being transported into a television world". As pointed out above, some non-immersive virtual reality devices can enable teleoperation and involve the feeling that real objects, located in an environment in which we are not present, are being indirectly affected by our present actions.

Second, the feeling of presence does not entail the feeling of reality. Consider the Impossible Triangle, a 3D rendition of the Penrose triangle by Brian McKay and Ahmad Abas, which can be seen in Perth. The sculpture looks like an impossible 3D structure from the right vantage point. Perhaps it is felt as available to bodily action if its parts are correctly located in behavioral space, while it is not felt as real since it appears to involve an internal spatial incoherence. Or consider virtual objects that behave contrary to the laws of naïve physics (for instance, we can walk through them). This might affect their evaluation as real objects, while preserving the sense that they are available to bodily action. In these cases, objects may be felt as present but not as real. Admittedly such dissociations are rare, and in most cases the feeling of presence is also the feeling of *real* presence (not to mention the fact that presence itself is a reality cue).

7. A Phenomenology of Virtuality?

Chalmers has argued that sophisticated users of virtual reality can come to experience virtual objects as what they are, namely virtual entities. Unlike naïve users, they do not succumb to the illusion that virtual objects are present. They have a veridical experience of virtual objects as virtual:

> Just as visual experience alters for an experienced user of mirrors, I think visual experience may alter for experienced users of VR. When the sophisticated user of mirrors knows they are looking into a mirror, they have a distinctive mirror phenomenology. When the sophisticated user of VR knows they are looking at virtual objects, they have a distinctive *phenomenology of virtuality* (Chalmers 2017: 331).

Where does the phenomenology of virtuality come from? Chalmers suggests that knowledge that we are using a virtual reality device can "penetrate" our perceptual experience and make the virtuality of perceived objects apparent to us.

This is an intriguing suggestion, but do we really need to posit a phenomenology of virtuality? An alternative account can exploit the subtle variations of the feelings of presence and reality that accompany our experience of virtual objects. For instance, the phenomenology associated with our knowledge (or simply hunch) that we are dealing with a purely virtual environment might be the experience of the virtual objects as being neither present nor real. Another possibility is that virtual objects feel real but not present.

What Chalmers calls the phenomenology of virtuality has interesting affinities with the phenomenology of seeing ephemeral objects. We know that ephem-

eral objects are not real because we know that they vanish at the slightest movement. They are viewpoint-dependent. Virtual objects are also viewpoint-dependent in some sense, where the viewpoint is not a single perspective but a whole mode of experience enabled by a specific technological device. We might know that, and the virtual objects won't feel present, although they are phenomenally present.

In all these cases, the users can have a veridical experience of the virtual environment, as being neither real nor present, or real but not present, showing one of many possible faces of the phenomenology of virtuality.

8. Conclusions

The feeling of presence is a pervasive aspect of our ordinary experience of the world, although it does not always accompany what otherwise seem like genuine perceptual experiences. Following other accounts, such as Matthen's, I claimed that it involves the feeling that objects are available to bodily action. However, unlike Matthen's, the proposed analysis shows that the feeling of presence is a *composite* experience, which also involves the experience of being spatially connected to the objects (at least in normal cases), as well as the experience of a living body as mine.[11]

The feeling of presence is often the feeling that the perceived objects are really there, but I argued that the feeling of reality is a distinct experience, which may not involve the feeling of presence. Finally, virtual reality is a good test case for exploring the subtle phenomenological variations associated with our perceptual experiences. The phenomenology of virtuality is not homogeneous but can be shaped in different ways by the feelings of presence and reality.[12]

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[11] It follows that the feeling of presence is not constitutive of the perceptual attitude itself, as in Matthen's account, since it depends on other, non-perceptual mental conditions. See Dokic and Martin (2017) for further aspects of this criticism of Matthen.

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