

Immersion as the Experience of World Involvement

John R. Sageng

Introduction

Computer games should successfully manage to be *engaging* to their players by being fun, competitive, contemplative, high-paced, challenging, humorous and so on. One form of engagement that is often held to be of particular importance is that they should provide *immersive experiences* to their players. The player is not simply to perform a range of tasks in the course of play, but she should experience them as though she is “in the game”.

Immersion is sometimes held to consist in certain subjective psychological states and sometimes to be a form of representational completeness of a work. In this paper I argue that neither of these views capture the nature of immersion. I aim to outline a theory that makes immersion in games out to be an *aesthetic attribute* of a work, one that is similar to properties like the ominous, stylish or beautiful, which have a hybrid representational and affective character.

I hold that immersion is the result of a game structuring user experiences around an ontological structure I will call the *world-substance* which constitutes the core of fiction, gameplay as well as the affective modes the game is designed to induce in the player.

In the first section I comment on cases of immersion and common views about what it is supposed to be. I then outline a Spinoza-inspired proposal for an ontology of a game world and put it to use in showing how the gaming system utilize strategies to combine imagination and objective gameplay in order to create immersive experiences. Finally, I return to the issue of how this notion of immersion can contribute to our understanding of other psychological phenomena central to player engagement.

The Phenomenon of Immersion

We now and then have occasion to use the word “immersion” in everyday language, for example if we say of a friend that he is immersed in work or that your vacationing parents are immersed in the cultural heritage of Puglia. However, prior to its modern use for the experiences specifically offered to the users of VR or computer games, the everyday use of the notion does not seem to carry with it any of the considerable theoretical baggage attached to comparable words like “action”, “fiction”, “depiction” or “emotion”.

A wordbook definition typically offers two types of descriptions for the general sense of the word. One is by giving a *metaphor* of being literally submerged in a liquid, and the other with a *literal description* of psychological states of mind like “absorbing involvement” (Webster, 2019), or “deep mental involvement” (Lexico, 2019).

When the notion of “immersion” is used about VR, computer games or telepresence, however, the notion is required to provide a theoretical understanding of the phenomena that goes far beyond the simple understanding required in everyday speech. Such settings introduce analysanda that require further presuppositions in order for us to understand what it means and the notion is required to take on technical conceptual roles specific to their explanatory contexts.

There are perhaps three types of contexts like this that have introduced explanatory needs that calls for a more substantial account of the phenomenon.

The first originated in the phenomenon that a participant in *VR* or *telepresence* has the peculiar experience of being transported to another place through perception or interaction. The psychological phenomenon in question is then experience of “being there” which is associated with standing in a CAVE automatic virtual environment installation, or performing long distance interaction in a telepresence artwork. This is the phenomenon of “presence” where “a person’s cognitive and perceptual systems are tricked into believing they are somewhere other than their physical location” (Cosgrove et al, 2000) and which may well be regarded as a form of immersion.

A second explanatory context is found in the study of the subjective attitudes of the player in computer games, where the player is typically interacting with a gaming system that mediates actions at a controller to a multitude of actions on the screen in a graphic representational environment with the aid of computing power. In these cases putative cases of immersion might be found in playing Tetris, MMOs, or otherwise in 3d rich games that gives the player a powerful sense of “being there” in a similar manner to VR and telepresence, but more generally as a “degree of involvement with a game” (Brown and Cairns, 2004). The subjective attitudes, however, are also associated with social interaction, imagination, challenges and the like, rather than the mere experience of displaced location as in presence.

A third explanatory context is the need to evaluate the aesthetic qualities of computer games. In such cases the word “immersive” is used as an adjective of appraisal, as a desirable and distinctive characteristics that make games like Skyrim, (Bethesda Game Studios, 2011), Alan Wake (Remedy Entertainment, 2010) or Unreal (Epic Megagames, 2008) different in that respect from other games, like Pong (Atari, 1972) or SimCity (Maxis,1989). As a reviewer says about the game Alan Wake: “Alan narrates what’s happening around him.. this helps make the game feel real and immersive and shows us that Alan is more than just CGI, pixels and a voice actor” (Anwer, 2012).

It is clear that there are overlaps between the different uses, and in particular it is probably mostly taken for granted that the use of “immersive” as an adjective of appraisal simply is dependent on the other uses, i.e. that the aesthetic characteristic simply is the result of the features listed under the other explanatory contexts. I will later argue that the aesthetic context is in fact the primary one, but for now let me comment on the other ones.

Regardless of explanatory context, there seems to be two ways of approaching the phenomenon. One is to identify it with a special kind of *representational richness*, in that immersion is supposed to be “hermetically closed-off image space of illusion” (Grau 2003) or that its “pleasures” consists in its “ability to sensually transport the participant into an illusory, simulated reality” (Salen and Zimmerman, 2003).

On the other hand, much of the literature on the notion of immersion is framed in terms of the broadly psychological question of what features of mind and body that *produce an experience of immersion*. Thus, Brown and Cairns (ibid.) in a much cited study attempts to replace the conceptual question of what immersion is with the psychological question of how players self-report their level of *mental intensity* when playing games. They propose that immersion can be classified into three different “stages”, which ranges from “engagement” over “engrossment” to “total immersion”, in which the last stage is so that the player is pulled out of the ordinary reality is and is totally “in the game”. The last stage is a departure from the two earlier stages, since it identified with the phenomenon of presence.

This approach to immersion which attempts to provide a categorization of affective states or how they are produced, rather than an account of the concept itself, has been a common theme in the literature. Thus Ermi and Mäyra (2005) introduces a player experience model which categorizes immersive experiences into sensory induced experiences, challenge based experiences and imagination based experiences (the SCI-model for short) and conducts an empirical study of how the different elements enter into player experience.

Gordon Calleja takes issue with the underlying premise for such a categorization, since he doubts that the wordbook definition of immersion of the sort we started with can be made to cover all such cases, and argues that what we need is a *media-specific concept* in response to the particularities of the medium. He calls for a replacement concept that he calls “incorporation” that catches what it means for a player to be “in the game” and works out a Player Involvement Model that encompasses a range of affective modi of involvement, such as kinesthetic, spatial, shared, narrative, affective, and ludic (Calleja 2011).

From the perspective of regarding immersiveness as adjective of appraisal, there is something deeply unsatisfying with all of these attempts to capture the intuitive notion of immersion. Representational richness is certainly conducive to immersiveness in many games, such as in Half-Life (Valve, 1998) or Skyrim (Bethesda Softworks, 2011), but it is also widely off the mark to say that this constitutes the core of immersiveness. A game may be immersive for entirely different reasons that produces an “illusion” of the real world. These games are immersive because they manage to convey a palpable sense of a *subjective relation* to the world of the game, not merely a perceptible illusion. For the same reason, the immersion does not necessarily need to be an attempt to create a realistic illusion at all, but may rather be concerned with conveying the world from this subjective standpoint. Furthermore, this immersion is clearly also attained through many forms of active involvement that are explored by Ermi and Mäyra and Calleja (cf. “the immersive fallacy” Salen and Zimmerman, 2003).

On the other side, from the perspective of regarding immersion either as *stages* or *forms* of affective involvement, these approaches also fall short of capturing the characteristic in question. Whether a game qualifies for the aesthetic attribute of immersiveness, is independent of the degree of intensity of involvement or attentivity. Immersiveness in this sense is rather concerned with whether the game makes the player experience that she “is

there” with a subjective take on the world as such. The effect is similar to a movie scene being ominous, which correctly identified as conveying a content of being ominous or whether or not the viewer is actually spooked.

Such attempts are furthermore likely to be highly specific to the medium in question. The SCI model as well as the Player Involvement Model rely on listing up forms of engagement that do not fit not all settings that immersion is likely to take place. You can have immersion without ludic engagement or immersion without challenges, for example, and similarly for any other engagement property.

There is no point in holding that immersion is either a *conjunction* of all of these engagement properties, or a *disjunction* of groups of them for different contexts, since this will not tell us why these add up to what we want to call immersion. In the case of conjunction, it would be similar to list up all the brand names when asking the question “What is a car?”, or by listing different propulsion methods or chassis types. Nor do they necessarily amount to immersiveness as aesthetic attribute. Calculating the taxes with pen and paper may engage a range of engagement modalities without being an immersive experience.

The question we are faced with now is whether it is possible to get deeper below such notions as transportation, participation, emotion, imagination and the like, in order to single out some literal characteristics that fit with the metaphor of being submerged in a liquid.

If we look closer at immersiveness as an aesthetic attribute, we will find there is an allusion to a specific kind of *representational content* rather than just to modes of attentiveness. This is evident in Brown and Cairns, which identifies the most intense stage of immersion as being “in the game”, which corresponds well with one sense in which it is used as an aesthetic attribute. The attribute is simply that such games manage to place their players in a subjective position which is directed at the *world of the game*. The key to understanding the significance of this notion is that we should not replace it with other notions, such as involvement, engagement, presence, habitation and the like, but rather attempt to see it as a representational form of engagement that encompasses all the others. The problem is that “being in the game” and the notion of a “game world” as they stand are metaphors just as much as the notion of immersion itself. In the following I will therefore raise the question of what it means to *be surrounded by a world* in our experiences, and propose that we can analyze the world as an ontological structure that binds our representations together.

Truth and the Concept of a World

While it is clear Unreal or Skyrim in some sense has a “world,” it is perhaps less clear whether games like Tetris or Pong have one. The reason why it is easy to say that these games have a world is likely because they realistically depict a fictional setting that - as far as ontological features are concerned - are exactly similar to the ordinary world in which we form our cognitive patterns and in which we learn our language. The worlds in these games are for the most part fictional worlds that rely on our understanding of the ordinary world we live in. In order to understand the notion of a world in the game we must investigate what it means in this original context, and then see to what extent we can apply this concept to games and other immersive settings.

We sometimes use the notion of a “world” about our planet, and in this sense there are many worlds. However, when calling our planet “the world”, we are merely using the concept as an instantiation of a more general concept, like we do when talking about the world of Skyrim, the world of fashion or the world of sport. All of these uses of world are contained within all encompassing world, which is basically *all that exist*. Our relationship to the world in this ultimate sense is based on how *it appears in our mental states*. Thus we have knowledge, emotions, we attain goal, we have imagination, and affective attitudes like fear, sorrow, pleasure and so on about the components of the world. These attitudes can (for the most part) be identified by their *propositional* contents, such as the fact that Steve believes that there is a dog in the garden, that Mary fears that winter is coming early, or that Dan imagines that Santa Claus is coming to town. We can say that our conception of the original world is as the *counterpart to those of our propositional attitudes that are true*. This view is famously reflected in Wittgenstein’s Tractatus, which within a metaphysics based on a particular view of logic came to hold that “The world is all that is the case”, and “The world is the totality of facts, not of things” (Wittgenstein, 1961)

According to this idea the notion of a world can be analyzed as what our true propositional attitudes have in common. The relationship between world and thought is shown by the logical structure of the propositions in question. We can study our ontological commitments by identifying the referential counterparts to the variables used in the conditions that account for their truth (Davidson, 1984b). As such, we may discover the exact way that our true thoughts presupposes ontological structures like events, facts, processes, time and space, and whether one kind of category can be reduced to another.

Perhaps the most basic feature of the propositional content is the relationship between subject and predicate in a sentence, such as when we say that “the house is red”. The difference in logical role between reference and predicate can be taken to in basic cases to reflect the fundamental ontological difference between *substance* and *attribute*. The ontological category of “substance” is famously worked out by Aristotle as “that of which everything else is predicated, while it is itself not predicated of anything else” (Ross, 1924).

We find a famous application of this ontological structure in Spinoza, who thought that the *world itself is a special kind of substance* which contain all other forms of beings within it. I will in the following utilize this relationship between our understanding of truth and the notion of a world substance to analyze the concrete content of world involvement in our original situation where we acquire or concepts of truth and the world. The goal here is to outline a conception of truth for the propositions that determine the contents of our attitudes in order to have a concrete grasp of a. The ontological structure of the what we call a world and b. The epistemic and affective directedness we have towards the world *in so far as it is a world*.

We can say that our propositional attitudes have the following form:

(1) S ϕ that *p*.

Where S denotes some person, and ϕ is a schema letter for a propositional attitude of epistemic, conative or affective sort (eg. believe, wants or fears). In so far as attitudes that conform to (1) are true, they can be said to *correspond to the world*, so that if it for example is true that “there is a chest in the tavern” then this proposition is true if and only if there is a

chest in the tavern. Because the proposition in the setting in which it true is logically connected to other propositions, such as the fact that the tavern has a floor, that people were standing on it, that the tavern is in a valley and so on until this particular truth is seen to be merely one tidbit about *all the true facts* that together make up a world (Davidson, 1984a).

Let me then try to characterize the notion of a world that is hidden behind the fact that our attitudes are true or false. We conceive of the world as something that is opposite to us, something that our minds are about. The world is essentially *different* from us, which is seen by the fact that we make a distinction between fantasy and reality, where the former is a product of our own making, while the latter essentially is not. We can say that this differentness is the *alterity of the world*, and it is both an inescapable part of our conception of a world and a requirement for something to be called a world. Our conception of the world is identical with having certain position to the world, as reflected by the subjectivity of these attitudes. The fears, beliefs and intentions towards the world are *mine* and no one else's, and our conception of our world is thus inextricable from a notion of subjectivity. What it means to be placed within a world is tied to how *our subjective take* on it is constituted in relation to it.

Our very understanding of truth can thus be analyzed as the *practical ability to master the correctness-dimension of truth*, that is of being able to handle, from a subjective standpoint, what it means to be true to the facts, what it means for something to be true to the facts. According to an influential idea introduced by David Wiggins, any theory that accounts for the extension of the actual use of the truth-predicate for a language must respect a number of “marks of truth” that situates the property of truth to its relationship with the user’s epistemic situation. (Wiggins 1985). Applied to the notion of a world substance, these subjective requirements can be summarized in this way:

If S ϕ that *p*, then S is committed to regarding *p* as being about an objective world substance by possessing implicit understanding and mastery of the role of *p* as true, expressed by the following three principles.

Correspondence-principle: if *p* is true then *p* belongs to a set of beliefs other attitudes about a world substance that is epistemically *independent* of whether *p* possesses the attitude question.

This condition holds that the world to which we have attitudes of beliefs, hopes, goals and so is not of our making. The principle expresses a practical understanding of the fact that it is *up to the world* and *not to us* whether our beliefs are true, our hopes are fulfilled, or goal attained.

Unity-principle: *p* belongs to a set of true beliefs and other attitudes in which the predicates, singular terms and open variables denote objects and properties that belong to *the same world substance*, and where every true proposition is logically consistent with every other true proposition in the set.

This principle expresses that the world is necessarily reflected in thought in such a manner that the propositions are logically and metaphysically so related so that they all successfully correspond to *one world*. The unity in question is successfully tracked by logical consistency, but does not consist in logical consistency, as would be the case for a correspondence theory

of truth, but the attitudes are consistent because they are attributes of the world substance. Thus, truth presupposes the *metaphysical unity of a world substance*.

Convergence principle: If p is true, then S should possess the capacity to assess whether or not p converges on the fact in the world substance in a given situations of assessment.

The last principle holds that knowing the conditions under which p is true is manifested in an ability to correctly assess whether a particular epistemic situation improves upon another epistemic situation with regard to the truth of p . It holds that knowing truth is manifested in an ability to maneuver assessments as to whether p approaches or diverges from the attribute of the world substance that it expresses. Examples of this are found in perceptual situation where you know how to improve the epistemic situation by moving closer, get better light and so on. Similar abilities to recognize what counts as epistemic improvement or deterioration is also found in non-perceptual situations.

These principles about what it means to master a concept of truth can in turn be used to inform our concept of a world substance. Spinoza's proposal is to view the world as a kind of substance which is the ultimate ontological ground for being, in the sense that ordinary objects, events, states of affairs and so on, merely are attributes of this world substance. This substance, while serving as a structuring and ontological ground for all that happens, is very different from the individual substances that they contain, since to say that that the world substance is "one" is not an enumeration, since the world is by definition simply the ultimate ground for all that exists. For this very reason it is also a substance which is absolute in the sense that can only be conceptualized from *within* and never from *outside*. It is furthermore distinguished the ontological characteristic that the attributes of objects, properties etc are *within it* and not attached *to it* as is the case for ordinary substances.

Finally, we can also find in Spinoza a powerful vision that adds to the pure semantic requirements of the concept of truth. Phenomenally, the world appears in under two aspects, as the *natura naturans*, which is the world as eternal driving principle, and *natura naturata*, which are all the individual substances, events, properties and processes that happen within it. In a sense, the permanence that constitute the singular "the world" throughout the changes that we perceive, is the world as *the principles drives the world through time*. Thus, the world can be seen as the aggregate of all objects and events under the domain of its driving principle, and it can be seen as a permanence which is defined by the principle that underlie all of it.

Immersion and the Alterity of the Game World

With this outline of the notion of a world as a special type of substance, we have the resources for addressing the phenomenon of immersion as an aesthetic characteristic of works like games. According to this proposal, the concept of a world has its origin the original subject-object relationship that we grow into in perception, action and language. This world structures our representational contents and has a normative role in our conception of truth.

It follows from this understanding of truth and world-situatedness that the foundational form of immersion is nothing other than the original object-subject relationship as it is formed when growing into the world through perception, action and social interaction. The

implication for representational art, music, games and virtual worlds is that they are artifactual echoes of the original form of world-directedness. Some such settings aspire to create a world-substance with attributes can be experienced from within and the way it is done can lead to what we recognize as immersive experiences. Furthermore, we can identify such world-substances by their driving principles and as the concrete objects and events they create as they play out. In the case of games the distinction is not between *natura naturans* and *natura naturata*, but rather between *lūdus lūdēns* - a game playing, and *lūdus lūsus* - the game played.

Because the world substance in such settings exist in virtue of being imposed by an artist, we can say that there are two factors of particular importance when subject-world structure is transposed to settings created by aesthetic artifacts: a. the completeness of the world and b. the affective modes that the user is supposed to have to the world.

First, an important difference between aesthetic uses of the world-structure and the original setting of immersion, is that original world is fundamentally *concretized*. Our original world is always complete, since a particular fact is a particular fact among many others with which it exist in conjunction. Compare this to telling a simple one-sentence story “A man went fishing”, which you can fill in with imagination. In this case we are basically free to make up any story we like. Although this story takes place in a world, it minimally immersive because we know so little of it. The reason why lack of concretization prevents immersion is not simply that it lacks detail, but rather because it for this reason violate the marks of truth.

When telling e.g. a story which invokes imagination, such as there was a man that went fishing, the world evoked in imagination remains minimally satisfied with regard to the truth-principles. We are basically free to make up a story as we like. The world-substance that this little story takes place is minimally world-involving because it violates all the conditions of truth, and therefore *the experience of the alterity of the world*. Nothing that upholds epistemic independence and it lacks unity in the sense that there is very little to unify: We do not know when this is happening, who the person is, nor anything that is about to happen.

Secondly, the experience of immersion should be affected by the way in which the artifact manage to induce affective states that are *directed toward the world substance* that has been created. Our everyday experience of the world is not simply a world-oriented structuring of propositional attitudes, but is also accompanied with an *affective coloring* which is specifically directed at the world substance. While we often have emotions that are directed at particulars like events, substances or situations, such as being irritated over a friend arriving late at a particular point in time, or laughing at a joke that has been told, many emotional states can be said to have the *world-structure itself as an object*. Thus, when you walk through a darkened forest as a child, the experience has an affective state which is directed at the world *through the aspect of being in a forest*. Similarly, the sorrow in having lost a loved one is not simply a feeling directed at the person itself, but rather at the events and properties of that person as giving meaning in the world that you have shared with the person in question. It is here we find a difference between original and aesthetic immersion, since the latter by design may attempt to convey an affective coloring through world-involvement, and which thus cannot be distinguished from its world, while for the former this association is merely a contingency of life.

In computer games we find this affective coloring induced through many of the forms of involvement that Emri and Mäyra and Calleja has explored, such as imagination, narrative, play, social interaction, kinesthetic interaction and so on. Let me now turn to a few examples before I outline the more systemic problems and challenges with creating immersion in a computer game system. I emphasize that I do not aim for either a complete description of ways in aesthetic ways in which computer games create immersion, nor to provide very original examples, but rather to connect the formal aspects of the proposal to features of play in computer games regarded as being important to immersive experiences in games.

As mentioned above, a game that is rich in detail will naturally feel immersive, and one example of this VR. In this case the world is a result either of fictional make-believe, as is the case in Skyrim, or it can be a case of perceptual illusion in the case of highly realistic VR. Such experiences are indeed experienced as immersive because the level of detail give a concretization of the fictional or illusory world that contributes to the experience of alterity. The mere fact that it is detailed also makes it satisfy the conditions on truth, especially if you can move around, since the high levels of perceptual concretization make you satisfy convergence and unity for your propositional attitudes. We find another aspect of immersiveness when the world as an active principle is manifested through the perceptual details. Thus wind blowing in the grass or the shadows of moving branches will increase the experience of alterity because they manifest the driving principles that operate in the world in question.

Nevertheless, the fictional or illusional world projected by realistic graphics is only a small part of the immersive experience in a game, because the world is experienced through other modi of involvement than visual perception. We see this when immersiveness breaks down because these modi do not fit with fictional world depicted. In multiplayer games, the projected world may easily break down because player conversation forcefully brings with it presupposition of everyday life, agendas, and beliefs. Responses-patterns and references in such communication break with the principles of correspondence, since the attitudes no longer correspond to a single world to which a person is directed at in her experiences, nor is it possible to establish unity or convergence. The result is *loss of alterity*, and hence the player is pulled out world that was aesthetically intended, and the ordinary world takes over.

Consistency in the world created by interaction has become a major factor for immersion in computer games because actions performed by the player do not necessarily add up to correspondence, unity and convergence. The fictional world of a game is full of inconsistencies and limitations that do not add up to a unified world substance when fiction and game mechanics is combined. Take for example the game Dead Effect (inDev Brain, 2013), which awards the player with game money for tasks accomplished. These can be used in the interface to buy respawns without any regard to the fact that there is no world in which you can buy such things with money from yourself. Such features do not add up to a unified world substance and hence work against immersivity.

This is one example where the game interface is a constant distraction from unity, and it is attempted solved by moving aspects of the game mechanics from the interface to fictional world. Examples of this are health stations mounted on walls in Half-Life or upgrade stations in Bioshock, which is designed to increase consistency and therefore the immersive qualities in the game. Of course, such devices nevertheless break with the principle of convergence,

since there are no good reasons to accept that health can be affected by health stations or that potions should be available in dispenser machines.

Another example is how affective modes through gameplay can work in favor of an experience of a game substance. A prominent example of immersivity is *Deus Ex* (Eidos Interactive, 2000), in which the solutions available to the player is skillfully designed so that the player can choose courses of actions that to a great extent depends on the skills and weapons you have acquired. It seems that there is usually at least three ways you can solve a given task depending on the skill sets you build. This contributes tremendously to immersivity because the concretization of the world performed by action gives a powerful feeling of agency that is in close alignment with the fictional world.

On the other hand, many games do not care much about bringing in-game accomplishments cohere with a game world. A simple fictional story in a game about dating, for example, may be broken up with gaming tasks that have nothing to do with the narrative, such as crossing the street Frogger-like (Konami, 1981). Such games may well turn out to be engaging and even fun, but they will not be immersive in so far as they do not provide affective responses directed at the fictional world.

When affective modes associated with action are made to match the fictional content, these can create powerful feelings of immersions in other ways than concretizing the game world. In the game *Unreal* you are a prisoner in a ship that crashlands on the world Na Pali. The player must perform the usual task of breaking out the cell area, opening doors and solving puzzles. An omen of the world outside is shown by the presence of a Skaarj in the distance. The outcome of the tasks is to exit the stranded prison ship and the feeling of accomplishment in so doing plays into the display of a magnificent world where beauty hides evil at every point. Here the elation of escaping the ship reinforces the experience of the fictional setting as a world and is skillfully reinforced by the use of music.

While there are many aspects to immersion in games, examples such as this show that immersion in a classic case of computer games are tightly tied to how a world emerges from the *actions prescribed by the game mechanics* and the *fictional world* in which these actions are taking place. This setting is what we most often think of as the “gameworld” in computer games, and for this reason we need to examine the challenges and opportunities that are created by this setting.

Let me comment on some specific problems/features for the gameworld in computer games and how it addresses immersivity. As Jesper Juul has pointed out, it is possible to view the game environment as a world which is “half-real” because it depends “imagining a fictional world, while playing with rules” (Juul, 2005). It is probably not correct to say that computer games are “half-real” for this reason, nor that the reality of the computer games are due to the fact that they have rules in the same fashion like non-digital games, but the observation that computer games are hybrids of fictional imagination imposed on real actions performed with the gaming system is key to the understanding of worldliness and therefore immersion in such games. A fundamental predicament for computer games is to negotiate the conflicts and restrictions of combining objective gameplay with fictional imagination.

I will here provide an overview of this issue from the perspective that computer game must create truth-directed attitudes that satisfy the conditions for being a game substance that matches player actions in order to be immersive to the player.

The basis for immersion in computer games is found in its gameplay. In the typical examples of computer games, we are talking about an action that is performed in a graphically depicted 2d or 3d world. The player is performing certain actions at the controller, which is transformed via computing to actions performed with graphical shapes on the screen. These graphical shapes are then attributed properties from objective gameplay as well as properties that derive from imagining actions in the fictional world of the game.

Let us take the example of an action performed within in a particular game world G . These are commonly reported as have the following form (cf Sageng 2012):

(2) S performed ϕ -ing in the world of G

Given the dual level model, we can say that this in typical examples consist of two actions:

(2a) S performed a C- ϕ -ing with the graphical shapes *depicting* G

and

(2b) S performed a C- ϕ -ing she make-believes to be ϕ -ing *in* G

The crucial semantic feature of computer games compared to non-interactive systems is that the fact that the user is attaining goals forces a *concretization of the world* towards which the player is directed. Any such action is *particularized*, and the player, because of correspondence, unity and convergence, is committed to adopt the world that is implied by all that is logically implied from realizing the action in question. Furthermore this concretization is due to an action that contain alethic attitudes toward gameplay properties while maintaining non-alethic attitudes towards the fictional world.

Thus if Carl shoots a splicer in the world of Bioshock, then there follows a commitment for Carl to assume that all facts that follow the fact that he shoots a splicer with the appropriate degree of epistemic strength. This carries with it the implication that there is a particular location in which he shot a splicer, that there are shotguns, that someone owns the shotguns, that someone has made these shotguns, that splicer has been through a history of genetic modification, that this modification was performed with machinery at some point in time and so on. While not all of these existential commitments are actually concretized, they are just out of the picture, and due to the principles of unity and convergence, they must take place in a fully concretized world implied by the game. The way in which the affective components of an action - such as the pleasure of making a good hit, the fear of seeing a monster, the eeriness of a dark room - are granted validity as experiences of the game world, they must be reciprocally dependent on the semantic concretization of that world.

This leaves us with the question of what this concretized world is supposed to be. One possibility is that there are in *two* different world-substances, one that belongs to the level of ludic goal attainment, and the other one where the fictional world applies. In this option the

ludic layer only serves to trigger make-believe in the same manner that letters in a book serve to trigger make-believe mandated by its their content.

Hower, this option is probably not right. The players make no distinction between the world of the game and the world of fiction when they refer to the happenings in the course of the game. Furthermore, there is a very close relationship between the alethic attitudes towards the game system and the make-believe they prescribe, because the make-believe serves to individuate the real actions performed with the gaming system. Thus, we know how to identify the real actions that are performed with the gaming system when you shoot someone in Bioshock only from the fact that they serve to prescribe make-believe of the corresponding fictional event.

So the answer is, as Juul intimates, that the gameworld is a *hybrid* and *impure* world substance that relies on a shotgun marriage between the ludic and the fictional layers. The game world seems in fact to be constituted by a *second-order make-believe*, according to which the actions performed by objective gameplay and fictional make-believe actually belong to a world substance that satisfy the desiderata for truth. Thus the game world is a shimmering and unstable substance that may well deserve the pejorative “half-real”.

I now mention some techniques that work towards supporting the make-believe that objective goal attainment and prescribed make-believe of fictional actions constitute attributes of the same world substance. These can be identified as utilizing *bridge principles* that help mediate the concretization between real and fictional action in order to support the experience of the alterity of the game world.

The *similarity principle* holds that the actions performed with the gaming system should be conatively similar in real goal attainment and fictional goal attainment. This principle is obvious, but it is important to be clear about how it works as a semantic underpinning of the concretization of the game world. When the player is clicking the controls in Guitar Hero or walking around in Bioshock, her real actions are different from her fictional actions, since she is not actually playing or walking. Walking in a game is not an actual walking, but they are both *delocalization actions*. This means that it is easy to make-believe that she is performing the fictional action, since the affective components of the real on-screen actions actions directly support the corresponding make-believe of fictional action.¹

One use of similarity is to appropriate affective components of one type action for use with some other type of action. Examples of this may be mini-games that has nothing to do with the fictional task solved, but in where the actual task accomplished can feed into a feeling of accomplishment that is supposed to follow from completing the fictional task. Examples of this are the waterpipe puzzles that are used as a substitute for hacking in Bioshock. The player is required to make-believe that her accomplishment in solving the puzzle is an accomplishment in hacking a lock. In this way the affective component of what is actually done is co-opted for the make believe.

¹ For more information about the analysis of game actions that these sections are based on, see “The Ontological Status of Game Ecologies” (Sageng 2016) and “Agential Properties in Computer Games” (Sageng 2015). For a *locus classicus* about fiction as make believe see Kendall Walton’s seminal work *Mimesis as Make-Believe* (Walton 1993).

Weapons tuning is an example of concretization by making the display actions match the affective components of make-believe. In *Horizon: Zero Down* (Guerilla Games, 2017), for example, the mechanics of the bow is tuned to feel powerful to the user by mimicking the structural similarities between the on-screen actions and the fictional actions.

A final example of the similarity principle is that the game can reverse the similarity by co-opting the game mechanics for prescribing a make believe that matches the actual goal attainments, such as when the game mechanics of *Braid* imposes the fiction that the player-character is going back in time by spatially reversing its image on the screen.

The *masking principle* holds that the game mechanics should be so designed that it never puts the player in the position that the concretization force the imposition of a world that diverge from the marks of truth that constitute the alterity of the game world.

Examples of masking are the invisible walls that prevent the player from deviating from the path imposed by the designers through the game, e.g. by an impassable ravine or some such thing. In this case the impossibility of concretizing the world by going on is prevented by the make-believe that the path is blocked.

Another example of masking is found in stylization of the in-game actions. Sometimes elements of actions that are performed might break with the unity of the world, which can then be prevented from happening. An example of this is the communication system in *Journey* (ThatGameCompany, 2012), which bypasses the problem that ordinary communication would break with the world, by imposing stylized chirps and symbols that only allow propositional contents that conform with the game world. Another example is fictional engagement, such as when letting the player start out without identity solves the problem that the player does not know the history of the character he is playing, or that the NPCs in *Half-Life* talk to the player without expecting an answer back. These techniques frees the game from handling inevitable breaks with unity and convergence, and hence contributes to the immersive experience.

Of course, such masking is often very easy to recognize as an attempt to prevent concretization, and in these cases it can also detract from the experience of the alterity of the world.

Immersion and Player Engagement

We can now return to the issue of what this account of immersion contributes to our understanding of player engagement. As mentioned above, the everyday use of the word is informed by the metaphor of being submerged in a liquid. Does this notion of immersion as world involvement provide a general account of the phenomenon of immersion?

It is natural to hold that metaphorical as well as common usage is too vague to justify the expectation there is a unified phenomenon to be described behind all these uses. Rather, for an everyday term like this it is more reasonable to expect that phenomena in question merely exhibit family resemblances.

What is clear is that there are many uses of immersion that do not fit well with the idea of participation in something with ontological character of a world substance. In particular the

word is often used simply in the sense of being mentally absorbed. According to this usage, it is appropriate to say that a person is immersed in an activity which requires strong concentration of mental resources, such as aiming at a target or balancing a line.

While it is true that the word immersion may well be successfully used to describe such phenomena, I still claim that immersion as world-involvement captures the most central usage of the concept in so far as it is used to explain an aesthetic experience. The situation is similar to the one that may be the case for a concept like play or game, which are used to describe a broad range of different phenomena, like theatre play, free form action or sport contests. Historically, such terms have likely been used relatively carelessly by language users due to surface similarities, but once explanatory pressure is applied to understand the respective phenomena they denote, it turns out that we need to distinguish real from metaphorical uses, such as when we discover that play in games and theatre plays really constitute different kinds of phenomena. So, I would say that to use the word “immersion” for absorption, while acceptable for some practical uses, it should nevertheless be replaced with the word “absorbed” when a contrast with aesthetic immersion is needed. To use “immersion” for absorption is permissible in the same way that it is sometimes permitted to hold that humans aren’t animals.

How plausible is the idea that immersion as the experience of world involvement cover a central range of phenomena and how well does it distinguish between cases that fall within and those that fall outside? I have earlier said that the aim of using “immersive” as aesthetic adjective is to distinguish games like Alan Wake from Tetris. To counter this claim it can be argued that Tetris does have its own game substance as well, and furthermore that it is not at all clear that the game isn’t immersive also in the sense of world involvement. I concede this point, but I think the answer is that immersion as world involvement is a matter of degree. Tetris and Pong do have world substances, but the problem is rather that they are too impoverished to provide a feeling of being in a world. To say that Unreal is immersive is partly to say that that it manages to convey a larger world substance than other games.

How widely can the notion of a world substance be applied? There is a sense in which one finds world substances in other kinds of works. A world substance is just an ontological structures that make their objects, events and properties, attributes of a unified objects that these attributes have “within” rather than “by”. I think it is possible that we find such substances in many cases. The fictional worlds of novels may qualify in so far as they are cohesive, expansive and foster a sense of presence. An abstract piece of writing may completely lack it. It seems to me that music typically don’t have world-substances, although in some cases they may have it.

Music does usually not have worlds because they are designed to have attributes that attach “by” them rather than within them. On the other hand, I think it can be very possible to have an immersive experience in a jamming session, which can have a *lūdus lūdens* that is directed towards an internal telos of which each note is a *lūdus lūsus*. Some settings may feel immersive, but really aren’t. Take for example techno clubs, who intend to submerge the participant in overwhelming and selective stimuli and to make them experience corresponding affective modes. However, the techno club simply do not have enough attributes for the marks of truth to take hold in order to qualify as a world. The techno club typically also contain social interaction that is not an attribute of the club night as a substance, but rather attributes of the ordinary world. More generally, ambient music is not immersive by itself, but it can be

an effective way of conveying affective modes directed at a world substance in movies and games.

This brings us to how this notion of immersiveness is related to other views about what it amounts to. The advantage of the view that immersiveness stems from an experience of a world substance is that it offers a theoretical vantage point from which one can say that immersion is different from similar forms of engagement, such as absorption, presence, illusion, transportation, involvement, flow and habitation, as well as the psychological modalities attached to imagination, narrative, practical challenges, kinaesthetic experiences, social interaction and so on.

The association between absorption and immersion is causal. A directedness towards a world substance will naturally have a tendency to cause the subject to be absorbed in the *lūdis lūsus* or the attributes of the world, but it should not be regarded as identical with this mental state. To repeat a point made earlier, just as an observer can correctly identify music as ominous without actually being spooked or anxious, a player may recognize a game as immersive without actually getting absorbed in the play or the world.

Then there are the notions of “presence”, “transportation” or “habitation”, which are often used to designate presence or immersion. There is certainly some overlap between presence and the notion of world-involvement, since if you are transported to a virtual world then that virtual world strikingly qualifies as a world-substance. However, the experience of “being there” is phenomenally only a *component* in immersion as world involvement, since while world involvement implies presence, immersion primarily regards a directedness toward a concretized world in actions and attitudes. Of course, immersion does not need to be non-veridical, since you can be immersed in a real game with a sufficiently rich game world. Finally, the case of telepresence shows that you can have the feeling of “being there” without being immersed, as may be the case with art installations where you can perform simple actions with others in a distant place. In these cases your body really is “there” in a far away place, but you remain immersed in your original world.

Concluding Thoughts

In this paper I have investigated how the experience of immersion can contribute to our understanding of player engagement. I have outlined the idea that immersive experiences should be identified with propositional attitudes towards a world structure. This structure has the ontological character of being a world-substance, with attributes that attaches to the unity of the world from a place within it. It is known both through the permanence of its driving principles and through the particularized objects and events that find places inside. The world and the attitudes directed at it are constituted by holistic conditions for truth about the world in question. This means that the experience of immersiveness depends on the degree to which it is *concretized* on the one hand and to the extent it exhibits *world-oriented affective modes on the other*.

Computer games, according to this analysis, rely on game worlds that combine objective game play and fictional imagination. Their worlds are held together by a *second order-make believe* that there exists a world that satisfy the marks of truth for the player’s attitudes toward that world. While I have made some brief attempts to illustrate the how immersion in

computer games is determined by a negotiation between game mechanics and fictional imagination to achieve this end, work remains to be done to examine whether immersion as world involvement gives us a phenomenally insightful analysis of the experiences of their players.

Games

BIOSHOCK, 2K Boston, 2K Australia, 2K Games, 2008.

PONG, Atari, 1972.

THE ELDER SCROLLS V: SKYRIM. Bethesda Game Studios. Bethesda Softworks, 2011.

UNREAL. Epic MegaGames, GT Interactive, 1998.

HORIZON ZERO DAWN: Guerrilla Games, Sony Interactive Entertainment, 2017.

DEUS EX. Ion Storm. Eidos Interactive, 2000.

DEAD EFFECT. inDev Brain, BulkyPix, 2013.

FROGGER. Konami, 1981.

SIMCITY. Maxis, 1989.

BRAID. Number None, Number None, 2008.

ALAN WAKE. Remedy Entertainment. Microsoft Game Studios, 2010.

FLOWER. Thatgamecompany. Sony Computer Entertainment, 2012.

HALF-LIFE. Valve. Sierra Studios, 1998.

References

Anwer, Rizwan."Alan Wake: A Journey from Light to Darkness", WWFCTECH, 2012.
<https://wccfttech.com/review/alan-wake-journey-light-darkness-2/>

E. Brown and P. Cairns, "A grounded investigation of game immersion," in Proc. of ACM CHI 2004, pp.1297–1300

Calleja, Gordon. In-Game: From Immersion to Incorporation, MIT Press, Cambridge, MA, 2011.

Patrick E., Cosgrove D., Slavkovic A., Rode J.A. Verratti T., Chiselko G. Using a Large Projection Screen as an Alternative to Head-Mounted Displays for Virtual Environments. CHI Letters 2(1) 478-485, 2000

Davidson, Donald. "True to the Facts", in *Inquiries into Truth and Interpretation*, Oxford University Press, 1984

Davidson, Donald. "The Method of Truth in Metaphysics", in *Inquiries into Truth and Interpretation*, Oxford University Press, 1984

Dictionary by Webster, Merriam-Webster, 2019.

Ermi, Laura and Frans Mayra. *Fundamental Components of the Gameplay Experience: Analyzing Immersion*. Paper read at DIGRA 2005: Changing Views: Worlds in Play, Vancouver, 2005.

Grau, Oliver. *Virtual Art: From Illusion to Immersion*. Cambridge, MA : MIT Press, 2005.

Juul, Jesper. *Half-Real: Video Games between Real Rules and Fictional Worlds*. Cambridge, Mass.: MIT Press, 2005.

Lexico, Oxford, 2019.

Murray, J. *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*, MIT Press, Boston, 1998.

Ross, W. D., 1924, *Aristotle's Metaphysics*, Oxford: Clarendon Press.

Spinoza, Benedictus, *The Collected Writings of Spinoza*, Vol 1., Edwin Curley, translator, Princeton: Princeton University Press, 1985.

Salen, K. and Zimmerman, E., *Rules of Play: Game Design Fundamentals*, MIT Press, Boston, 2004.

Sageng, John R. "In-Game Action." In *The Philosophy of Computer Games*, edited by John Richard Sageng, Hallvard Fossheim, and Tarjei Mandt Larsen, 219–32. *Philosophy of Engineering and Technology 7*. Springer Netherlands, 2012.

Sageng, John R. "Agential Properties in Computer Games." In *The Philosophy of Emerging Media*, 2015.

Sageng, John R. "The Ontological Status of Game Ecologies", conference paper for PCG2016 in Krakow, 2016.

Salen, Katie, and Eric Zimmerman. 2003. *Rules of Play: Game Design Fundamentals*. Cambridge, MA : MIT Press.

Walton, Kendall L. *Mimesis as Make Believe: On the Foundations of the Representational Arts*. New Ed edition. Cambridge, Mass.: Harvard University Press, 1993.

Wiggins, David. "What Would Be a Substantial Theory of Truth?" In *Philosophical Subjects: Essays Presented to P.F. Strawson*. Oxford: Oxford University Press, 1980.

Wittgenstein, Ludwig. *Tractatus Logico-Philosophicus*, 1961, D. F. Pears and B. F. McGuinness (trans.), New York: Humanities Press.