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# Interactive Fiction Video Games as Cyborg Theatre. A Postphenomenological Approach

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## Abstract

Parker-Starbuck's notion of the cyborg theatre (Parker-Starbuck, 2011) for performance art, through the incorporation of bodies and technologies, indicates an interesting field of research for video games, and specifically for the contemporary, real-time, 3D and avatar-based interactive fiction (IF) genre. In order to establish a framework of analysis for video games and IF as a type of cyborg theatre, the current article suggests postphenomenology as the relevant theoretical and methodological research vehicle. This article investigates the basic concepts of postphenomenology and how they apply to IF, introducing postphenomenology as an appropriate methodology for game design, gaming as a type of (virtual) performance, and game analysis. The present discussion serves as an analytical, postphenomenological specialisation of Parker-Starbuck's cyborg theatre notion for IF.

**Keywords:** Interactive fiction video games, cyborg theatre, phenomenology, postphenomenology

## Introduction

According to Parker-Starbuck, cyborg theatre means the integration of on stage bodies with technology in the performance as a means of re-imagining subjectivities in a post-human age

(Parker-Starbuck, 2011). Cyborg theatre is about the possible merging between the organic and the non-organic, the body with technology, and their potential (Parker-Starbuck, 2011). The term also includes video gaming as an integration of the player with a digitized system and a mediated virtual world. The interest for cyborg theatre is to see the body-and-technology apparatuses performatively on stage (in the virtual game world in the present case of IF) as agents for form and content. Cyborg theatre is a fluid system of continuous renegotiation of bodily configurations with technology, in their different subject, object and abject performance roles to define the state of body-and-technology variability. Such a state remains incomplete as it is always in process, (Parker-Starbuck, 2011). Bodies on stage (or gamers with their avatars in the game world) are placed as equally weighted components with technology, creating seemingly seamless immersive spaces and symbiotically coexisting as a larger cyborg subjectivity (Parker-Starbuck, 2011).

The subject, as body or technology, is the active component of the performative interrelation. The object, as body or technology, is the ‘other’, on which ideas have been inscribed and transposed. An objectified body is *tabula rasa* for the meaning inscribed on it by the performing subject (Parker-Starbuck, 2011). The term abject for cyborg theatre is used as a tension of alienated subjectivity (bodies made “foreign”) in the various body-with-technology embodiments. Body with technology interrelations in performance arts, and also in video gaming, produce a performing abject, a theatrical cyborg, consisting of the physical body with the embodied technology as one entity.

Contemporary IF that is avatar-based within digital real-time 3D environments, is a highly interesting case for study within the framework of cyborg theatre because it presents a characteristic interrelation between: (a) the gamer's physical body, (b) an embodied gaming technology, (c) a digital stage (the game world), (d) a virtual, digital performing proxy body (an avatar), while the

gamer perceives the performance through a technological device, such as a screen or a virtual reality (VR) headset. IF are specific genres of video games with a strong emphasis on storytelling and drama. They are based on a computer system of interactive narrative, that is advanced using dramatic themes and conflicts and with the active collaboration of the player(s) and that all contribute to the story development. Historically, the genre emerged from text-based and classic point-and-click adventure games, without directly controllable avatars in real-time graphical environments. The current research focuses on a later avatar-based version of the genre. Hence, the term IF presently refers to the contemporary, real-time, 3D and avatar-based types of IF specifically. These types of IF (hereinafter referred to as IF) mainly introduces a virtual type of a performing bodily abject as the theatrical cyborg (gamer-technology-avatar) which mostly exists in the game world, thus, virtually. Therefore, this suggests postphenomenology as a possible vehicle for the analysis and understanding of IF video games as a type of cyborg theatre. This paper continues Parker-Starbuck's reference to classical phenomenology, mostly based on Maurice Merleau-Ponty's emphasis on the body's relationship to experience, as a means of perceiving (Parker-Starbuck, 2011). However, this paper also extends the existing phenomenological analysis of the gamer-avatar interrelation, by game studies scholars (Rehak, 2003; Klevjer, 2012; Vella, 2014; Micallef, 2016), with particular reference to IF, and examining the level of applicability of postphenomenological analysis.

## 1. Basic Human-Technology Relations in Postphenomenology, and IF

Postphenomenology continues the program of classical phenomenology and sets practical case studies of the relationship between humans and technologies, including digital technologies, from which human subjectivities and meaningful worlds emerge. Postphenomenological studies typically aim to interpret the roles of technology in the relation between humans and the world, and their

impact on humans, culture and society. Moreover, postphenomenological studies require empirical work to understand human-technology relations, and for philosophical reflection on the human-technology experiences, practices and implications. Therefore, postphenomenology focuses mainly on case studies, although it does not follow a strict methodology. It principally employs an empirical openness to analyse the different networks of human-technology relations, sharing a common set of concepts and vocabulary. Don Ihde's contribution to the categorization of different forms and variations of technological mediation is fundamental in this field of study. Ihde distinguishes four main types of technological mediation: **embodiment relations**, **hermeneutic relations**, **alterity relations** and **background relations** (Ihde, 1990). We start with these terms and their application to IF video games.

### 1.1 Embodiment Relations

With the notion of **embodiment relations**, Ihde points to the mediation of those technologies that transform a user's active and perceptual engagement with the world. When technology is embodied, a user's experience is reshaped through the device, with the device itself in some ways taken into the user's bodily awareness. The technological mediation between a user and the world can be represented as (Ihde, 1990):

$$\text{Human—Technology—World} \qquad (1)$$

and the embodiment relation to technology can be represented as (Ihde, 1990):

$$(\text{I—Technology}) \rightarrow \text{World} \qquad (2)$$

A pair of eyeglasses as they are worn are part of the user's perceptual experience of the world, and the wearer embodies the eyeglasses technology this way (Ihde, 1990):

(I—eyeglasses) → World (3)

The eyeglasses, when worn/embodied, become a **transformative mediation** of the bodily-perceptual relationship between the user and the world and not simply an object that the user may perceive among others in the world.

An important function, which Ihde adds to the human-technology relation is **transparency**, referring to the degree to which a device (or an aspect of that device) fades into the background of a user's awareness, becoming familiar, barely noticed and a habit of bodily action and perception when it is used (Ihde, 1990). Embodiment relations and transparency constitute a **double desire**, as Ihde puts it: we want technology to transform our relationship to the world optimally, and at the same time we want to experience the means of that transformation as transparently as possible (Ihde, 1990). The notions of embodiment and transparency are reminiscent of Heidegger's idea of the ready-to-hand tool (Heidegger, Macquarrie and Robinson, 2008). However, the notion of embodiment relations in Ihde's model is only one of several possible forms of mediation. The degree of transparency of an embodied device depends on each particular case. Therefore, Ihde's notions of embodiment and transparency are part of a larger concept, emphasizing the variability and context-dependency of human-technology relations, in contrast with Heidegger's holistic definition (Ihde, 1990).

The variability of embodiment relations, as much as in human-technology relations generally, is also reinforced by the **magnification/reduction structures** that they build (Ihde, 1990).

Embodiment relations magnify or amplify and reduce or place aside, simultaneously, everything that is experienced through them. Ihde describes a pair of binoculars as an example, which enables one to see from a distance but reducing or canceling short range vision and awareness of the close surroundings. Similarly, a telescope permits us to see the surface of the moon in great detail but at the same time removes the moon from its context (the sky), by focusing on it (Ihde, 1990). A notable duet of ideas is also **microperception**, referring to the individual bodily perceptions, and **macroperception**, referring to the cultural, historical, and anthropological dimensions of an embodied experience (Ihde, 1993). Even though the critique against splitting these two dimensions (body and culture) into distinct concepts may relegate issues of culture, gender, race, and difference into separate conversations, there is some practical value of the micro/macroperceptual distinction with postphenomenological case study methodologies (Rosenberger and Verbeek, 2015).

Attempting a first approach of examining IF video games through Ihde's concepts, we can clearly notice the embodiment relations of a gamer with a game controller (game-pad, joystick or mouse) in conjunction with the screen or a VR headset. There is an establishment of a bodily and perceptual technological mediation between the gamer and the game's devices for the exploration of the (virtual) world. Taking for example, the puzzle-platformer, survival-horror, adventure game, *Little Nightmares* (Tarsier Studios, 2017): by holding a gamepad and playing the game, while perceiving on screen, the gamer embodies the gamepad as a kinesthetic device through which he/she controls a tiny (for her environment) human figure; a girl called Six. Six tries to escape from a dark and mysterious, labyrinthian vessel interior, inhabited by monstrous creatures and ghosts. The connection between the player and the gamepad-and-screen (as a combined device) is an embodiment relation exactly because they become an extension of the gamer's body, and not another observed object in the world, through which the gamer navigates and perceives the in-game

world, gains agency, and becomes immersed in this environment. Following Ihde's example, we can primarily express this relation as:

$$(\text{gamer—gamepad/screen/...}) \rightarrow \text{GameWorld} \qquad (4)$$

The amount of familiarity and ease of use of the device by the player adjusts the level of the embodiment's transparency. The level of transparency influences the level of agency and immersion in the game's world, which plays a significant role in the overall enjoyment of the game. The gamer's double desire is a tendency for a high level of control and high level of awareness (transparency) in the use of the gaming controllers and devices as mediators. In gaming, we can state that this is practically translated as physicality/directness in the gamer's actions and effects; in their control and feel, which set a postphenomenological definition for this game design's ultimate goal.

The magnification/reduction structures in *Little Nightmares* is also an interesting case study for two reasons: Firstly the general chiaroscuro, achieved with a constant central spotlighting system of the gaming stage, leads the focus of the gamer onto a limited area around Six. This effect serves not only to create a mysterious mood of the location and the moment, but it also amplifies the tension of Six's acts, and it reduces the gamer's short range vision leading to concentration on the central area. Secondly, the body size relations between Six, her environment and the other creatures function as a magnification of otherwise small things in the surroundings. For example this perspective magnifies the body size of the monsters, who are actually smaller in relation to the indoor furniture and objects. In many cases, the game's screening is set in a surreal low point of view perception for the gamer, and some tiny and otherwise unnoticed locations are amplified in space.

Rooms' floors are perceived as grand squares from Six's (and the gamer's) point of view; tables as hills that she jumps up and down or crosses through underneath; ramp-walls as steep tracks between cliffs in narrow mountains, and so on. Additionally, these magnification/reduction bodily relations of the avatar and her space, as perceived through a highly transparent embodied relation of the gamer with the gamepad/screen technology, is expected to offer a sense of transformative mediation for the gamer as a little creature moving around a (magnified) miniature dark environment. It is a phenomenological effect of structural magnification/reduction which is present as a gaming-theatrical effect in several cases in the game.

Another characteristic example of this is in the action-adventure video game *Rango* (Behaviour Interactive, 2011), where the protagonist chameleon-cowboy avatar must avoid obstacle objects and escape from spaces, which are magnified for his size, but are actually small for human proportions. All these are referring to the individual bodily relations within the game; or to the microperception in postphenomenolgy terms.

In addition, Rosenberger (Rosenberger, 2012, 2014b) develops two more variables that, like the notion of transparency, could characterize a user's technologically mediated field of awareness, what he calls **field composition** and **sedimentation**. A human-technology relation with **field composition** is one in which a user's field of consciousness/awareness is somehow significantly reconfigured by technological mediation. As an example, looking through binoculars the user's field of awareness becomes filled by the content that is brought forward by the device and a circle of darkness frames the totality of the user's vision.

The experience of watching a movie in a theatre is a more encompassing example of a human-technology relation that is typically highly characterized by field composition (Rosenberger, 2012,

2014b). As the theatre darkens, when the movie begins, and as the viewer becomes engrossed in the story, his/her awareness is acquired by the film's content. It is not the surrounding theatre, even the seat below that attention is focused on, and the distance between the viewer and the screen take on a certain degree of transparency. It is instead more appropriate to say that the movie content stands positively forward, and its visual and audio content permeates the user's field of awareness. Through the technological mediation of the movie theatre, the viewer and the world are co-shaped (at least in the most engrossing moments) so that the movie content itself composes the entirety of the world as experienced (Rosenberger, 2012, 2014b). That is, the movie-watching experience is a human-technology relation highly characterized by field composition.

**Sedimentation** refers to the force of habit associated with a given human-technology relation. A relation which is highly sedimented is one that is steeped in long-developed bodily-perceptual habits. For example, in an embodiment relation with eyeglasses, the glasses are experienced with a high degree of transparency for the accustomed user. This transparent relation can also be said to be highly sedimented, with its transparency becoming immediate and persistent that reflects the strength of the user's entrenched bodily habits (Rosenberger, 2012, 2014b).

In the case of IF video games, as in *Little Nightmares*, the effect of field composition applies similarly to a movie theatre. The use of VR headsets, for the latest VR types of games, can reinforce the effect in the gamer's perceptual experience. A video game, firstly as a type of an imaging device, transforms an otherwise insensible (virtual, existing only in the machine) world into a sensible, understandable visual form. The player interprets this world's image on the screen and this is why field composition of the screen (even more in the case of VR headsets) play a significant role in the transparency of the bodily-perceptual relation.

This paper puts forward the view that where video games seem to differentiate from films, movie theatres, binoculars and other devices, is on the function of the sedimentation effect. The fact that the gamer himself has to act in the game while perceiving it increases the force of habit associated with the human to game devices embodied relation. This type of relation becomes, therefore, highly sedimented as it gradually gets more immersive, because the bodily-perceptual habits in gaming are highly developed over time. An accustomed gamer gains, this way, a higher degree of transparency than a moviegoer and, therefore, a higher degree of sedimentation. The gamer's high level of transparency becomes immediate and persistent in the gaming mode, which strengthens bodily-perceptual habits further and the embodied relationship with the game technology that is being embraced. Sedimentation and field composition in games reach a higher level than cinema and produce a higher level of human-technology embodiment relation. Furthermore, the embodiment relation is not the only type of technological mediation that we can explore in gaming.

### 1.2 Hermeneutic Relations

**Hermeneutic relations** are about technologies which are used through an act of perceiving and interpreting the device's readout (Ihde, 1990). In hermeneutic relations, instead of experiencing the world through the device, as in an embodiment relation, the user experiences a transforming encounter with the world, via the direct use and interpretation of the technology itself. For hermeneutic relations, Ihde's scheme is (Ihde, 1990):

$$I \rightarrow (\text{Technology—World}) \qquad (5)$$

The wristwatch is a typical example of a hermeneutic relation (Ihde, 1990). The day and time emerge immediately in a **perceptual gestalt**, once the person who wears the watch has a particular level of familiarity for the interpretation of the device's readout. The transparency of hermeneutic relations depends on the level of familiarity one has with the perceptual gestalt (Ihde, 1990).

A video game sets both embodied and hermeneutical relations as gamers act and also perceive simultaneously to interpret the game device's readout. The game's readout include all types of information which are brought to the gamer's attention: any type of graphical user interface (GUI) information and game statistics; in-game maps for directions and destination guiding; visual or auditory warnings; objects' and props' "flashing" indications for various gaming purposes; time and location information within the game; sonic and visual informative elements; several types of voice-overs or even cut-scenes. The screen (or the VR headset) and the speakers or headphones are the main devices of the game's readout. The gamepad's vibration can also be part of it.

In the previous example of *Little Nightmares* (Tarsier Studios, 2017), we discussed how both the screen and the gamepad become part of the technological embodiment for the gamer. The concept of hermeneutical relation reveals more about the role of the screen for the gamer's perceptual gestalt to achieve a high level of familiarity for the interpretation of the game's readout, which also serves the goal of transparency. The digital in-game representations of this kind are a transforming encounter of a world – the algorithmic game world – that exists inside the computer in this case, with which the gamer also sets an embodied and perceptual relation through the same devices. Drawing on Ihde's schematic, we can represent the hermeneutic relation alone (excluding the embodiment relation), between the gamer and the game devices as:

$$\text{gamer} \rightarrow (\text{gamepad/screen/speakers/...—GameWorld}) \qquad (6)$$

### 1.3 Alterity Relations

With **alterity relations**, Ihde refers to devices with which we relate and interact similarly to other human beings. In this type of relations, some forms of the interface are devised specifically to mimic the shape of person-to-person interaction, and sometimes we encounter a device itself as a presence with which we must interrelate (Ihde, 1990). The term alterity is used in phenomenological discussions to refer to the special experience of engaging with another human being, an “Otherness” (Ihde, 1990):

$$I \rightarrow \text{Technology}—(—\text{World}) \qquad (7)$$

Computer interfaces and other kinds of machines that incorporate in a type of dialogue with the user, like ATMs, form alterity relations. This does not mean that the devices are mistaken for actual people, but only that the interface takes analogous forms. However, as technology advances an increasing number of devices are designed with an alterity type of interface, e.g. automated interactive customer services, talking GPS devices, voice personal assistants applications, and so forth (Rosenberger and Verbeek, 2015).

For IF video games, the alterity relation is set between the gamer and the characters within the game. The computer as a gaming device generates avatars and non-player characters (NPCs) that mimic (through AI technology) some characteristics of humans or human-like living creatures, encouraging some person-to-person interaction with the gamer. Within a game, players interrelate with their avatars and other algorithmic behavioural entities. The level of this interrelation is determined by the level of transparency in the embodiment relation, the cogency of the AI

behavioural system, and the gamer's disposition of disbelief, making an engaging experience of "Otherness" possible in an immersive gaming narrative. Following Ihde's schematic, we can represent the alterity relations of a gamer with the game world's human-like "Otherness" as:

$$\text{gamer} \rightarrow \text{gamepad/screen/speakers/...—(—GameWorld)} \qquad (8)$$

This schematic does not include any of the previous phenomenological relations. In *Little Nightmares* (Tarsier Studios, 2017), alterity relations between the gamer as Six and the AI creatures in the game are mostly based on an interactive performative and gestural system of actions, instead of language communication. Six hides in dark corners, trying to escape from one room to another, but if she appears in a lighted space within a monster's view, she is hunted, in a different human-like behavioural manner by each type of monster. In contrast, the sense of "Otherness" in *The Walking Dead* (Telltale, 2013), is mainly based on a dialogue system between the gamer's avatar and other NPCs, trying to solve very complicated issues for their survival.

In general, both language, gestures and body action are commonly used in human-like algorithmic characters within IF games. The game's theme and genre determine the type of behavioural system, which is mostly emphasized in each title for the establishment of "Otherness". War and first-person shooters (FPS) games like *Call of Duty (Activision, 2018)* or *Crysis (Crytek, 2011)*, invest in war-hostile language and in fighting, hiding and shooting bodily actions. *Beyond Two Souls* (Quantic Dream, 2013) and *Heavy Rain* (Quantic Dream, 2010) are built up in a social context using different types of conversations (including strong language) and social behaviour (violent in some cases). Alterity relations are essential, specifically for IF games and interactive computer narratives in general. They are also a central concept around which IF video games

become a cyborgean type of theatre, forming meaningful human-like performance in a digital framework.

### 1.4 Background Relations

**Background relations** are formulated by the type of technologies that make up the user's environmental context, i.e. the user may not directly use but interacts with these technologies as they shape his/her experiential surroundings (Ihde, 1990). An operating refrigerator, air-condition or a heating system that switches on and off automatically during the day are some examples of this kind of technology: devices that function in a phenomenologically distinct way as in a kind of absence (Ihde, 1990). We could suggest an equivalent for this relation scheme:

$$I \rightarrow (\text{Technology})—\text{World} \qquad (9)$$

Taking into account the formation of in-game worlds, one can realise that background relations exist between gamers and video games. Secondary animation (of plants by wind or water in a river, for example) on the background of game scenes, environmental sounds (of birds in a forest, or cars in a city and so on), and even game engines' day to night lighting systems set background relations with the gamer. They are in-game technologies that shape the game's environmental context without directly interacting with the gamer while shaping his/her experiential surroundings. In many cases, they function in a kind of absence, as they are not the main point of the gamer's attention. However, they can seriously influence a gamer's bodily-perceptual relation with the gaming technology and the perceptual gestalt (the overall readout of the game in this case).

## 2. Fusion and Immersive Relations: Towards the theatrical Cyborg in IF

From embodiment, hermeneutic and alterity to background relations, human-technology intersections appear to be transforming from a state of body extensions, readable artifacts and human-object interactions to the background of our experience. Human-technology relations become more intimate and the physical boundaries between humans and technologies become more blurred as technologies merge with our bodies. Background relations become “environmental” or “ambient”, and the human-technology relation becomes a **relation of immersion** (of high transparency), in which a technological background interacts actively with the human being (Verbeek, 2005). Augmented reality technologies also produce **relations of augmentation** by adding an extra layer to our experience of the world (Verbeek, 2005).

This way, humanity and technology set a more complicated type of relation: a **fusion relation** in which technologies merge with physical bodies (Verbeek, 2005). Characteristic examples are neuro-implants for deep brain stimulation; cochlear implants that enable deaf people to hear again; or artificial heart valves and pacemakers. In all of these cases, the relations between humans and technologies are more intimate than in a simple embodiment relation, as previously described. Lucie Dalibert speaks of **somatechnologies** (Dalibert, 2014): technologies that blur the boundaries between body and artifact. This cyborg relation can be schematized as:

$$(I / Technology) \rightarrow World \qquad (10)$$

It is a **fusion relation**, from which hybrid intentionality emerges. Instead of being a technologically mediated form of human intentionality, it is the intentionality of a new, hybrid entity: the cyborg –an abject body, as described by Parker-Starbuck (2011).

In **immersion relations**, the configuration of humans and technology takes yet another shape. In these type of relations, technologies do not merge with the body but with the environment (Verbeek, 2008). The relation between humans and this hybrid environment is interactive: smart environments "perceive" their users as well, and they act upon them. Some examples are "smart toilets" that automatically analyze and produce a medical report based on human excrements, or "smart beds" in hospitals that detect if someone falls or steps out of bed. Schematically, immersion relations are represented as (Verbeek, 2008):

$$I \leftrightarrow \text{Technology/World} \qquad (11)$$

The intentionality of these type of relations has a bi-directional character: human beings are directed towards technologies that are also directed towards them. In addition to this type of **sensory relation** we establish with the world through technology, we also have a relation to the information it gives us (Verbeek, 2008). With the use of Google Glass, people both have an embodiment relation with the Glass itself, and a hermeneutic relation with its screen, which offers a representation of the world. Therefore, it offers not only one, but two parallel relations with the world. Schematically (Verbeek, 2008):

$$\begin{array}{l} (I\text{—Technology}) \rightarrow \text{World} \\ \qquad\qquad \searrow (\text{Technology—World}) \end{array} \qquad (12)$$

The intentionality involved in such augmentation relations can be indicated as **bifurcated intentionality**: there is a split in people's directedness at the world because two **parallel fields of attention** emerge (Verbeek, 2008).

The case of IF video games appear to be an even more complicated postphenomenological case of study in that they can be considered to constitute both fusion and immersion relations between digital technology and the gamer. They include immersion relations because the game world reacts actively towards – interacts with – the gamer, within a bi-directional, sensual and bodily-perceptual relation, and also in a state of high transparency. They also include a fusion relation as the gaming technologies (gamepad, screen, VR headset, headphones and computer) merge with the gamer's body forming a hybrid (interconnected-double) intentionality between the gamer and the computer, which indicates a displacement from a simple embodiment extension. It is rather a case of somatechnology, even if the technological parts are not implanted but only worn on the body's sense organs.

This leads us back to Parker-Starbuck's idea of the abject body (Parker-Starbuck, 2011), in a state of a double performing subjectivity: the gamer and the game technology as two interrelated performing subjects. The gamer acts in the game world via a digital proxy, and also perceives not only the effects of their actions but the active participation of the digital environment, its' properties and the AI NPCs. The technology becomes an active performative subject in this case. No matter if the state of this performance is pre-programmed, the transparency of the embodied, hermeneutic, altering and background relations that are produced can form an interactive performance along with the gamer; a happening; a type of cyborgean theatre in Parker-Starbuck's sense (Parker-Starbuck, 2011). As gaming technology builds multiple bodily-perceptual relations with the gamer (embodied, hermeneutic, alterity, background, and so on), it also splits people's directedness in the digital world. There are parallel fields of attention for the gamer, indicating bifurcated intentionality. Trying to represent this postphenomenological, multi-relational concept for IF video games, the following new schematic is suggested (Figure 1):

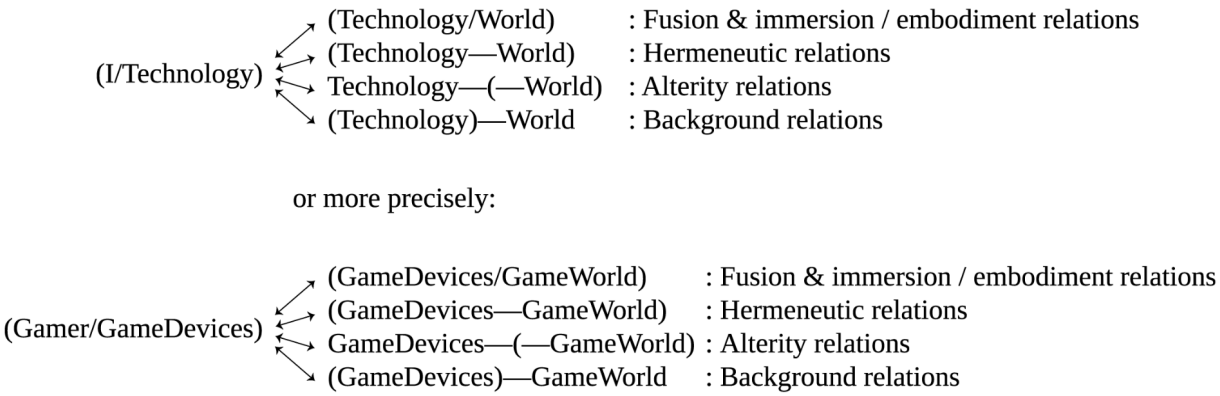


**Figure 1** A new schematic for the gamer's parallel fields of attention and bifurcated intentionality.

With the above parallel fields of attention the aim is to demonstrate the different versions of matching between body (Gamer) and Technology (GameDevices and GameWorld) for IF video games, in postphenomenology terms. Parker-Starbuck suggests a corresponding scheme for subject, object and abject body-with-technology interrelations, through her general model of the mutating double helix for cyborg theatre (Parker-Starbuck, 2011; pp. 38). The double arrow in the above parallel fields of attention represents the bi-directional cyborgean relation, forming the abject (or dynamically subject or object, according to different cases) performative body in IF; a hybridized body with technology that presents a tension of alienated subjectivity in its' various bodily-perceptual relations. In this case, the schematic "A ↔ B" means "A towards B", and "B towards A": "A", as an active subject, towards "B", as a receiver of the action (an object), and at the same time the opposite (double intentionality: performative abject). This duality also implies a cyborgean postphenomenological method for game analysis and game design, searching for the possible subject-object-abject roles that the gamer can play in multiple types of relations with the game technology and the game-world entities. In background relations, for example, technology gains a subject's role; In alterity relations, the gamer becomes both an active subject and a receiver of action, in an abject body state within the established bi-directional intentionality with the computer.

Moreover, The idea of **bodily ownership** (De Preester, 2011), is the determining factor for our understanding of bodily incorporation, in a phenomenological and not in a physical sense. Bodily ownership cannot be determined by a simple distinction between external devices and prosthetic/implanted devices that are incorporated into our bodies, or on their level of transparency. Every tool that is used brings its' characteristic into the sensorimotor body. In result, technologies that extend our bodily awareness can be embodied with a high degree of transparency, causing changes in motor and sensory abilities, but not in body ownership. Actual incorporation, in comparison, brings changes in the state of body ownership itself (De Preester, 2011). This concept reveals a plurality of ways in which a distinction between body extending and body incorporated devices applies to perception transformations and extending cognition technologies, or prosthetic body part technologies.

In the case of video games, we experience a relationship with external body incorporated devices, although this relation and its implications – the materialization of the abject body – appear mostly in the game world; the cyborg exists principally in the game and not actually in the physical world. The cyborgean performance happens inside the computer and not on a physical stage or place like in other types of new media theatre and computer-aided performance. This is one main difference between IF video games and other types of cyborg theatre. Hence, Parker-Starbuck's notion of cyborg theatre takes on a more specific form for the case of IF video games, through the present postphenomenological analysis. The question that arises next is how does the cyborg as an abject body take shape in the game world, thus, in a phenomenological (or actual?) "distance" from the gamer's physical body. This occurs in a state of re-embodiment.

### 3. Re-embodiment and Somatic Proprioception: IF as Proxy-Based Cyborgean Performances

An important idea in phenomenology is that our sense of presence is closely related to our material body, so being here or there means that we are physically embodied here and there (Rosenberger and Verbeek, 2015). However, latest technologies of telepresence, like video games, immersive virtual environments and remotely operated robotic systems complicate the concept of presence. Users of these technologies gain a sense of presence in the remote, either real or visual, environment. This altered sense of presence, both here and there, is called **re-embodiment** (Rosenberger and Verbeek, 2015). In postphenomenological analysis, there are two varieties of technological re-embodiment. **Virtual re-embodiment** occurs in video games and mostly in immersive virtual environments, in different ways. **Robotic re-embodiment** occurs with tele-robotic systems, such as tele-surgery and remotely-operated vehicles, again to varying degrees.

What interests us most, in the framework of the present discourse is the notion of virtual re-embodiment. Generally, in video games, the player somehow identifies with their avatar, which makes sense because the avatar functions as the locus of perception and agency, allowing the gamer to adjust to the game's environment. While doing so, the player transposes many of the elements of the physical world embodiment and spatiality into the virtual environment (Rosenberger and Verbeek, 2015). As an example, players controlling a human-like avatar often move their physical bodies simultaneously, bending or ducking when their avatar also needs to bend or duck and so on. Furthermore, by moving the avatar's body in the virtual space, players gradually develop a sense of its spatial dimensions. For example, they can easily understand if the avatar's body fits through a door. Therefore, they not only identify with the avatar, but they also seem to inhabit the avatar, adapting its movement and its sense of body dimension in the virtual space. This assumption is supported by the empirical research of social psychologists Jeremy Bailenson and Jim Blascovich with their studies about human experiences in immersive virtual environments (Bailenson *et al.*,

2003; Yee and Bailenson, 2009; Blascovich and Bailenson, 2011). Additionally, their evidence shows that when players move an avatar in virtual space, they appear to respect the personal space of the other avatars. They do so even in the cases of NPCs. Similarly, when other avatars approach and occupy their avatar's personal space, they move their avatar away. Bailenson's and Blascovich's studies demonstrate that real-world behaviours concerning socially defined interpersonal space and physical interactions with others seem to be transferred in the virtual environment (Bailenson *et al.*, 2003; Yee and Bailenson, 2009; Blascovich and Bailenson, 2011).

In other words, gamers do not see their or others' avatars as simple representations or animations. Instead, they appear to inhabit their avatars as their own bodies, and this occurs immediately after they start controlling their avatar. Thus, one appears to have a strong identification with his/her avatar's virtual body (being the avatar), and also transpose the restrictions, anticipations, expectations and perspectives of physical and social embodiment into the virtual environment. The term **virtual re-embodiment** describes this type of phenomena about inhabiting a remote virtual body, which occur in different degrees and with real-time visual access and feedback (Rosenberger and Verbeek, 2015). In other words, the gamer achieves an inner sense of the Avatar's body as their own, developing a feeling of **somatic proprioception** of the Avatar (or as the Avatar) that they control – noting that the term **proprioception** refers to the persistent prereflective awareness that one has for one's own body in space – (Rosenberger and Verbeek, 2015). Proprioception is an immediate, non-perspectival awareness of one's body. For example, because of proprioception, one can point to one's ankle without seeing it, even in the dark. Moreover, because of somatic proprioception, we have a constant pre-reflective awareness of our body throughout its movements, which is also essential for motor control. Somatic proprioception relies principally on information from kinetic, muscular, and cutaneous sources (Gallagher, 2005).

Furthermore, any remote activity with a tele-operated system requires constant visual and mental concentration. The operator focuses on the target object of the intended action and the remote machinery. In tele-surgery, the surgeon focuses on the operated body-part as well as on the position and the movement of the robotic arms. **Visual proprioception** (Gallagher and Cole, 1995) plays a vital role in remote activity operations; it is the sense one has of the nearness and farness of objects in one's visual field while moving in the environment. One must do so with one's object body as the constant orienting referent. Driving a car gives a clear example of visual proprioception's function (Rosenberger and Verbeek, 2015). An experienced driver puts minimal attentive awareness of the spatial boundaries and the precise location of nearby objects. When driving an everyday route, such as between home and work, one dives deep in one's thoughts while keeping the sense of obstacles to be avoided at the margins of the visual focus (Rosenberger and Verbeek, 2015).

Therefore, it is put forward here that IF video games give a similar sense of being "inside" and driving an avatar in the virtual space. There is a feeling of visual somatic proprioception when, eventually, the Gamer/GameDevices relation reach a certain level of transparency and sedimentation. It is visual proprioception that forms the Gamer/Avatar virtual re-embodiment in the game world and sets the conditions for a proxy-based, cyborgean performance in cyberspace. As a result, the gamer can sense the bodily relations of the avatar with its environment, and drive its' movements and actions in the game world. This way the gamer as Six in *Little Nightmares* (Tarsier Studios, 2017) can hide, run and jump around obstacles with precision, and escape from the monsters' hunt; the gamer as Kratos, can fight body-to-body with his enemies in *God of War* (SIE Santa Monica Studio, 2018); the gamer as a drifter, called John Deacon, can ride his motorbike – his basic and extensively used mode of transportation – in *Days Gone* (SIE Bend Studio, 2019), and so on.

As proprioception is a pre-personal bodily self-awareness, we can incorporate the idea of **proprioceptive spatiality** of the body (Gallagher, 2005). **Proprioceptive spatiality** is an intracorporeal unity in which the ordinary spatial relations (based on a notion of extension between objects) do not apply. Merleau-Ponty states that bodily space can be distinguished from external space, and it can envelop its parts rather than laying them out side by side (Merleau-Ponty and Landes, 2013). Merleau-Ponty's analysis implies a particular part-whole relationship that resists the inner/outer distinction; it also resists notions of near and far, understood as ways of describing spatial distance in which discrete things are separated by extension (Merleau-Ponty and Landes, 2013). It makes no sense to say that our noses are nearer to us than our toes. When it comes to proprioceptive spatiality of the body, there is no centre and no origin. There is the body as a diversity-in-unity (Rosenberger and Verbeek, 2015). Such a system of organization is a differentiated unity of mutual self-envelopment and overlap by the various elements or parts.

Accordingly, the diversity-in-unity of the bodily/perceptual relations abolishes distance not only in the sense that a gamer's body, for example, is always "here" in its entirety even co-opting with the game devices; but, more importantly, proprioceptive spatiality abolishes distance also in the sense that the very notion of distance cannot be applied to the self-perceptive body. Therefore, understanding the embodiment relation between gamer and game devices (the theatric-gaming cyborg) implies an absence of factual distance (i.e., all tools, the gamepad, the screen or the VR set and everything is 'very close' to the gamer's body). The concept of distance does not apply to the resulting gamer/avatar bodily-perceptual unity; between the gamer and their digital proxy in the game world. The gamer's body is "here", in physical space, and in the game world at the same time, virtually embodied in his digital proxy (the avatar), as much as the game devices are embodied.

## 4. Body Schema and Body Image: Towards new Cyborg-Cultural Body Synthesis

There are three critical similarities between virtual and robotic re-embodiment (Rosenberger and Verbeek, 2015): (a) They both need a kind of interface equipment, like a joystick or mouse, game-pad, head-mounted display, keyboard, and so on; (b) both require visual access and feedback from the remote (or virtual) environment; and (c) the ability to be active and effective in the remote (or virtual) environment is essential. Virtual and robotic re-embodiment are technological extensions of carnal embodiment, like the blind man's cane in Merleau-Ponty's famous description (Merleau-Ponty and Landes, 2013), because both expand the perceptual access and agency. The cane of a blind man is at first experienced as a detected object, but after he gets used to it, the focal awareness of the cane is diminished, and it becomes a perceiving object; a transparent device through which a blind man senses his surroundings. Once the stick and its' use is mastered, it becomes an element of a blind man's **motor-perceptual repertoire**, which means that it does not only extend the body outside its natural boundary as a **bodily extension**, but it is rather brought into the body as a **bodily incorporation** (Rosenberger and Verbeek, 2015).

Merleau-Ponty refers to the body as a material object, the **objective body**, which persists in objective space and has an "inner" and an "outer" side separated by a boundary (the skin). However, his account refers also to the **phenomenal body**: the lived body, the body as a locus of intentional activity in the world and its relationships of habit, forming the **body schema** (Rosenberger and Verbeek, 2015). When a used technological artifact is mastered, it withdraws from the focal attention and integrates into the body schema. Then a **new body synthesis** emerges: a renewed body schema with expanded perceptual capacity and extended agency capabilities (Rosenberger and Verbeek, 2015). Drawing on Merleau-Ponty's study of the blind man's cane, the body is a venue of intentional activity, and it represents an open structure which is modified by the

integration of non-bodily objects (tools), allowing further potentiality to itself (Rosenberger and Verbeek, 2015). It is, therefore, methodologically correct to distinguish between two types of technologies as bodily extensions, the ones that can be integrated into the **body schema** and the ones that only remain on the level of **body image** (De Preester, 2011; Rosenberger and Verbeek, 2015).

The distinction between body image and body schema is both conceptual and functional. The **body image** refers to the bodily self-awareness in a self-reflexive form of intentionality, and it involves perceptual, conceptual, and affective modes (Gallagher, 2005). For example, observing one's own body in different contexts (medical, aesthetical, and so on) in a mirror is an attitude of self-reflexive intentionality of the **body image**. In contrast, **body schema** defines a complex scheme of **sensory-motor functions** that operate beneath the level of self-referential intentionality, within preconscious, subpersonal processes that guide posture and movement (Gallagher, 2005). Body schema is a pre-reflexive set of multiple bodily systems' input, as proprioceptive, visual, and vestibular types of information, which construct, constrain, and enable intentional bodily activity (Gallagher, 2005).

Thus, although body schema is conceptually distinct from body image, they are frequently functionally interrelated. Body schema supports normal, everyday intentional activity, and it achieves the sub-personal body procedures which allow the body's habitual movements almost automatically in every normal intentional activity (Gallagher, 2005). Similarly, body image, being the attentive awareness of one's body position, contributes to the alteration of the body schema. As an example, when learning a new dance move and while concentrating on the body's position and movement (perhaps in front of a mirror), the dancer's actual effort is to make the move habitual and sufficiently **sedimented** in their body so it can be executed without much effort and rather

automatically – in a pre-reflective (body schema) mode of engagement – (Gallagher, 2005). The functional combination of body image and body schema is effective after learning the use of bodily collocated tools. Even though the input from the visual sense contributes to the synthesis of a body schema, proprioceptive information from kinesthetic, muscular, and cutaneous inputs is necessary to form the **body synthesis** that creates a **sense of bodily unity** (Gallagher, 2005).

Accordingly, a tele-operator, a game player or a participant in an immersive virtual environment, must first build a high sense of familiarity with the bodily co-located interface equipment in order to step beyond focal awareness and integrate into a **new body schema**. Manipulating an avatar in a virtual environment needs the same attentive visual focus as the tele-operation of remote machinery. This means that how one embodies the co-located interface equipment in a virtual embodiment differentiates from the experience of inhabiting the avatar's body (Rosenberger and Verbeek, 2015). The interface equipment – joystick, mouse, keyboard, VR device, and so on – can become an almost transparent medium of one's intentional activity, even though the avatar remains as an object on the other side of this (visual) intentional relationship, like the remote machinery of a tele-robotic system. The avatar functions as the locus of perception and agency in the virtual environment (Rosenberger and Verbeek, 2015); it is, therefore, an inhabited proxy-body. How one identifies with the avatar depends on a self-referential mode, which is indicative of an intentional body image. One's avatar does not integrate into one's pre-personal body schema the same way the remote arms of a tele-robotic system do not (Rosenberger and Verbeek, 2015). There is a significant difference between virtual and robotic re-embodiment. In robotic re-embodiment, the remote environment is a remote location in the actual, physical world, either on earth or space. In contrast, the 'remote' environment in virtual embodiment is virtual, and the gamer's perception and action occur in a virtual space. However, the reality principle remains, and spending time in virtual environments leads to real emotional experiences (Rosenberger and Verbeek, 2015).

It is evident that the screen or the VR headset, play a significant role in the body image function in video gaming. While a gamepad or joystick is actually incorporated in the gamer's body (as a kinesthetic extension for their hands), the notion put forward here is that it is the synthesis of the game tools in their whole – including the display devices – that create the body synthesis of the gaming cyborg; a performative cyborg in-between the physical space and (principally) the game world. The cyborgean entity is both in the material (objective) and the phenomenal body of the gamer, within the gamer/avatar relation, and this gives shape to the performing body schema in the game. This body synthesis within the gaming framework constitutes a new type of proxy-based performance, in line with Parker-Starbuck's general notion of cyborg theatre. An IF video game is, therefore, both a game and a performance in which the interrelation of body schema and body image within the game, signify cultural and theatrical meaning. We can assume that the game technology, which is held or worn, and the game rules and mechanics are mostly related with the formation of the cyborgean body schema, while display devices mainly concern the perception of the gaming-performative body (the body image). Therefore, in order to understand a case of an IF video game as cyborg theatre (the cultural meaning of the gamer/avatar performance), we need to examine the new body synthesis – the interrelation between body schema and body image – that each case builds. The postphenomenological methodology can assist this search through **variational analysis**, supporting a formalistic dramaturgical approach specifically for the IF genre and for video games as a medium.

## 5. Multistability, Variational Analysis and Relational Strategies: A Dramaturgical Methodology for IF as Cyborg Theatre

Technology is designed to serve humans' purposes, but it also influences, leads, restricts or controls us, becoming a performing subject in Parker-Starbuck's terminology. Technologies are not one thing, but they belong to multiple contexts. What technologies become depends on their use each time and this is investigated through Ihde's notion of **multistability** (Ihde, 1986, 1999, 2007, 2012). **Multistability** refers to the idea that any technology can be put to multiple purposes and can be meaningful in different ways to different users (Ihde, 2012). In this vocabulary, **multistable technology** has **multiple stabilities** or **variations**. However, technology cannot mean simply anything or be used for anything; only some relations prove experientially stable (Ihde, 2012). A technology that supports multiple stable embodiment relations is one which could offer multiple potential transformations of a user's bodily-perceptual encounter with the world (Ihde, 2012); and in the case of a video gamer with the game world.

Expanding on Heidegger's hammer analysis, Ihde claims that Heidegger's hammer is a simple example (Ihde, 1999): a hammer is "designed" to do certain things – drive nails into the shoemaker's shoe, or into shingles on a shed, or to nail down a floor – but the design cannot prevent the hammer from becoming an object of art, a murder weapon, a paperweight, and so on. Heidegger's insight was that an instrument is what it does, in a specific context of assignments. He did not elaborate upon the multistable uses and complexes of assignments that any technology can fall into (Ihde, 1999).

For the study of the multiple stabilities of technology, postphenomenology uses **variational analysis**: a method of brainstorming stabilities of a multistable technology. Husserl's variational analysis is a method in which an object of study is observed from multiple perspectives for the identification of features that remain present from any point of view. In contrast to Husserl's original concept, postphenomenology rejects the idea that variational analysis enables one to

discover the essence of an object of study (Ihde, 2009). Instead, for a postphenomenologist, the brainstorming of technology's multiple stabilities serves to highlight technology's context-dependent and materially-situated relativity (Ihde, 2009), focusing on a pragmatic commitment to anti-essentialism and context-dependent knowledge.

Accordingly, different uses of game devices and game technologies, and different algorithmic or even gameplay strategies can produce different types of gaming experiences and game genres. In addition, I suggest that game technology cannot be regarded as strictly for gaming in the original contractile ludologic definition of the past, even though it is manifestly produced for this purpose. IF video games are also a means of performance, within a gamified fictional narrative; a cyborg theatre, for which the application of postphenomenological variational analysis can serve as a dramaturgical investigation of the interactive performative form, and the new body syntheses that emerge in each different case. Variational analysis can also serve the artistic research in game design practice and the formalistic study of the function of game devices, game's rules and mechanics.

The notion of multistability is applied in a variety of uses within postphenomenological studies. These can be generally divided into two categories: **positive uses** and **negative uses** (Rosenberger, 2014a). **Positive uses** aim to discover new information in cases of human-technology relations or to re-explain cases in productive ways. In such attempts, variational analysis is applied not only to demonstrate that technology is, in fact, multistable, as it happens with **negative uses**, but also to investigate alternative stabilities to the main or "dominant" one, and to suggest what these alternatives can tell us about the **dominant stability** (Rosenberger, 2014a). This type of analysis also explores how technologies are absorbed via multiple stabilities in actual practice, and considers the implications of multistability in topics like design, scientific research and user training.

Examples of these type of studies are Rosenberger's series of papers about the multistability of user relations with computer interfaces (Rosenberger, 2009, 2013b, 2014b). In these kind of studies, Rosenberger has developed the notion of **relational strategies** (Rosenberger, 2009, 2013b, 2014b) in his effort to highlight the human side in a multistable human-technology relation. A **relational strategy** focuses on the bodily approach that enables a user to relate to technology, forming particular stability. In this case, the interest falls on the type of strategy, the conceptual, comportmental and bodily-habitual approach the user needs to employ to "occupy" technology.

Similarly to the typical hammer example of embodiment relations, one can also consider the relational strategies that are involved with hermeneutic relations. In these cases, a **hermeneutic (relational) strategy** enables a user to realise the meaning of a technology's significance within a particular stability, and do so in a bodily and perceptual manner: a **perceptual gestalt** (Rosenberger, 2011a, 2011b, 2013a). Such a hermeneutic strategy works in an interpretive framework and needs perceptual training to enable a user to read particular stabilities. So, if a person can first see only one stability, they may become able to see another one after another person points to an alternative hermeneutic strategy. In a hermeneutic strategy, as Ihde explains, stories and names are used to create an immediate noetic context, and the story creates a condition that immediately sediments the perceptual possibility (Ihde, 1986). Variational analysis and relational strategies form the empirical methodology that deals with the main research question in postphenomenology: How do different technologies reshape a user's overall field of awareness (their level of transparency) and in what different ways? Answering this will involve the development of a **postphenomenological field theory**, which is also the case for IF video games.

Variational analysis and relational strategies for the investigation of the gamer/avatar stabilities, in an IF video game, can involve research questions about the parallel fields of attention; the types of bodily-perceptual relations that are formed (embodied, hermeneutical, alterity, background, fusion and immersive relations) by the means of performance: the game devices, the game mechanics, the rules of the game, the narrative, and the audio-visual setting of the game world. Postphenomenological field theory for IF video games should also involve ethnographic research between different gamers and hermeneutical strategies for the practical and cultural meaning of a game within particular stabilities and bodily-perceptual manners. Such a method of dramaturgical game analysis could also serve an innovative game design practice and the development of new, innovative kinds of game technologies. The demonstration of particular examples of research and case studies on this line of thought could therefore become the focus for ensuing scholarly and artistic inquiries.

**Conclusions**

The present article investigated IF video games as a type of cyborg theatre: a notion introduced by Parker-Starbuck as a general term for human-technology incorporated performances (Parker-Starbuck, 2011), and it indicates postphenomenology as a relevant framework for such a study. Examples have introduced the basic types of postphenomenological relations (embodiment, hermeneutic, alterity and background) on IF video game titles. IF as a specified type of cyborg theatre has been indicated through a system of parallel fields of attention: an integration of all the examined types of gamer's bodily/perceptual relations with the game technology. This conceptual scheme emerges from the idea of fusion and immersive relations in postphenomenology, and it constitutes a postphenomenological explanation or version of cyborg theatre in the case of IF. The postphenomenological cyborg model that is presently introduced can also be related to Parker-

Starbuck's general model of the mutating double helix for cyborg theatre, and her definitions about the subject-object-abject performative body (Parker-Starbuck, 2011; pp. 38).

The cyborgean type of performance in IF emerges as a virtual re-embodiment of the gamer through a proxy (avatar) in the game world, and the cyborg takes shape mostly in the virtual game world. Somatic proprioception and proprioception spatiality, secures the gamer-avatar sense of bodily unity that is necessary for the cyborgean performance. The bodily unity consists of the collaboration of the gamer's body schema and body image, producing dynamically new performative experiences and cultural signification.

As technology has multiple stabilities, game technology can also be multistable beyond a dominant purpose. These different purposes and meanings can be researched through variational analysis and the application of various relational and hermeneutic strategies, forming particular stabilities. While gaming is a performative, cyborgean task (as currently indicated), it should thus be examined further as a theatrical, cyborgean performance, using various ways of application. Postphenomenological field theory, supported by experiential case studies is an appropriate research methodology for IF as cyborg theatre.

General research questions that are raised by this conclusion, concern the forms in which different technologies reshape a user's overall field of awareness (their level of transparency) and in which different ways? What type of phenomenological relations are being formed, and what happens with the body-with-technology object-subject-abject, performative intentionality? How exactly does the gaming technology influence and (re-)shape these relations; new body schemas; new body images; the bodily unity; and new stabilities? Answering such questions involves the development of a postphenomenological field theory, as a post-dramaturgical approach to IF.

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## mini bio

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