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# The Oneiric-Technological Chiasm
## A Phenomenological Account of VR Embodiment

**Giulia Andreini**

**Abstract.** *VR systems have often been accused of reinforcing «the rationalist dream of the disembodied mind, part of the long Western tradition of body denial» (Penny, 1994). Such a perspective precisely insists on the constitutive disembodiment of VR experience. Similarly, imagination and, even more radically, dreams have often been dismissed as disembodied experiences, even within the phenomenological tradition. Against this assumption and based on a confrontation with recent accounts of dreaming (Windt 2015) and VR experiences (Besmer 2015; Buongiorno 2019; Heft 2023), the paper argues for the embodied character of both experiences. Drawing on Husserl's notion of* Ichspaltung *and Maurice Merleau-Ponty's insights on body-schema plasticity (2012; 2020), the contribution delves deeper into the peculiar modes of embodiment prompted by these experiences, uncovering unprecedented analogies. Considering the long-standing link between dreams and media (Morin 2005; Grossi 2021), the paper proposes to understand it as a chiasm, and as a theme accommodating multiple variations, not least that introduced by VR.*

**Keywords.** Dream, virtual reality, embodiment, phenomenology, ego-splitting.

**Giulia Andreini** holds a Ph.D. in *Visual and Media Studies* from IULM University (Milan). In 2023, she was a Visiting Research Scholar at the Claire Trevor School of the Arts, University of California, Irvine, where she conducted research on the intersection of dance and digital technologies. She also holds a master's degree in French Phenomenology from University Paris I Panthéon-Sorbonne, where she completed a dissertation on Maurice Merleau-Ponty. Her research interests lie primarily in the fields of dreaming, phenomenology, and new media's aesthetics. Her doctoral thesis, *Phenomenologies of Immersion. Dream and Virtual Environment*, explores user experience in immersive VR through a phenomenological lens, drawing a comparison with the oneiric experience. She has published articles on dreams, imagination, and digital aesthetics in several academic journals.
**EMAIL:** giuliandreini.94@gmail.com

Commenting on the early cinematic experience in *The Cinema, or the Imaginary Man*, Edgar Morin observes that «the technical and the dream are linked at birth» (Morin 2005, 9). By sharing a common «magical» origin, both oneiric activity and media experience arise from a primal human quest for illusion – a desire to escape the suffocating constraints of reality, by temporary accessing an elsewhere. Yet, while dreaming is a private, spontaneous state that occurs during sleep, the moving-image experience is fundamentally intersubjective and designed, and happens during wakefulness. Indeed, if the dream finds in its private non-sharable nature its essential trait, expressing a Heraclitean ἴδιος κόσμος, cinema offers instead an intersubjective and collective experience, akin to a magical ritual.

From dream to media experience, then, a significant shift occurs from psychic, solipsistic interiority – a view hallowed by Freudian psychoanalysis – to material, shared exteriority. The underlying promise of new media devices is indeed that of *externalizing the imaginary*, making it perceivable, potentially reproducible, and, consequently, intersubjectively experienceable. Machinery's allure then lies in this visceral connection to the dream dimension, which it claims to capture and materialize, crystallizing its fleeting phantasmatic nature. This uniquely oneiric capacity not only to generate heterotopias but also to transport the subject from real space into the realm of representation – immersing them in a spatial-

temporal elsewhere – is precisely what the cinematograph, according to Morin, seeks replicate. It does so by deploying a series of techniques, such as montage, displaying many «oneiric analogies» (Morin 2005, 78).[1] In this way, this technology attempts to reproduce our dreams, that are «projected and objectified […] industrially fabricated, and collectively shared» (Morin 2005, 218) – though not without a price to pay.

If iconic or theatrical representations already materialize the appearance of an alternative world within the real one, inviting the subject to immerse, an attempt to physically transport the viewer into the image space only emerges around the early 19th century (Grossi 2021). As Erkki Huhtamo duly notes, this era is marked by a true «quest for immersion» (Huhtamo 1995, 159), as the proliferation of visual apparatuses – panoramas, dioramas, phantasmagorias, stereoramas, and so on – reflected an increasing obsession with evoking dreamlike experiences, seeking to dissolve the boundaries between the real and imaginary spaces, by creating enveloping images fostering in the user a sense of immersion (Grau 2003) akin to the one experienced during the dream (Grossi 2021).

The 19th century not only witnessed media's early attempts to replicate dreamlike immersive states – exemplified by phantasmagorias that fused the imaginary and perceptual to produce quasi-hallucinatory experiences and panoramas that evoked dreamlike immersion through 360° illusionistic environments – but also marked the period when dreams began to be treated as scientific objects and conceptualized in medial terms. Indeed, pioneering «sleeping psychologists» such as Alfred Maury (1861) and Hervey de Saint-Denys (1867) compared oneiric experiences to the ones offered by these optical devices.

The cinematic medium, although reinstating a distance between viewer and image, continued this relationship with the dream, incorporating the oneiric logic into its functioning, proceeding through ellipsis, temporal dilation, and fragmentation. In contrast, VR technologies – emerging in the 1960s with head-mounted displays (HMD), computer-generated imagery (CGI), and interactive modalities – more directly pursue the quest for total immersion by providing dynamic, multisensory environments that respond directly to user movement (Huhtamo 1995). Unlike cinema's collective experience, VR more carefully mimics the solipsistic structure of dreams, allowing individual exploration of virtual environments.

From 19th century panoramas to virtual reality, the common denominator is a unique relationship with the image seeking to evoke the sensation of being transported and immersed in another world, mostly exemplified by dreams. With VR, the possibility of effectively experiencing an escape in heterotopia acquires new depth. Consequently, the link between media for image consumption and dreams is renovated and revolves around a quest for immersion, which demands further philosophical inquiries.

This is precisely the purpose of the paper, which aims to explore the scope of the dream-technological convergence adopting a phenomenological framework, and by considering an often-overlooked aspect of both experiences, namely embodiment. Indeed, VR technologies have been criticized for reinforcing a Cartesian view of the mind-body relationship and for attempting to produce a disembodied experience – a critique also supported by feminist theorists (Balsamo 1996; Hayles 1999). Similarly, dreams have often been dismissed as disembodied, particularly in phenomenology (Sartre 2004).

In contrast to this view, a phenomenological consideration of VR and dreams will prove them to be fundamentally embodied experiences. Furthermore, drawing on insights from Edmund Husserl and Maurice Merleau-Ponty's considerations, in dialogue with

[1] Unlike other languages, English does not clearly distinguish between «technique» and «technology». The latter, originally coined in the 16th century to describe a system for classifying the arts, was indeed resemanticized by American scholars in the early 20th century – later becoming a keyword in global academic discourse – to translate the German *Technik*, and referring to «the industrial arts in general along with the material means of production» (Schatzberg 2018, 116).

neuroscientific observations, it will be argued that dreams and VR consumption rely on an analogous rearticulation of embodiment, reaffirming the body as the site of subjective meaning-making and world-disclosure. Rather of than disembedding the user from its corporeal self, both experiences are deeply rooted in bodily dynamics, further demonstrating how intentional experience is rooted in the ongoing negotiation between bodily awareness across virtual or imagined realities. As a result, corporeality emerges not as a fixed and static entity. Instead, within these experiences, embodiment reveals as a fluid, relational, and plastic process, constantly reshaping its boundaries and, consequently, that of experience itself. Consequently, it is hypothesized that VR leverages the inherent plasticity of human embodiment to replicate, albeit in a mediated fashion, through digital screen and prosthetic devices, the distinctive embodied state characteristic of dreaming.

## 1. Are dreams disembodied experiences?

Imagination and, even more radically, dreaming have often been dismissed as disembodied experiences. The complex relationship between dream and embodiment is well captured by the current neuroscientific debate.

As Jennifer Michelle Windt observes, dreams and their relation to embodiment have recently sparked a debate, fostering various hypotheses that can be positioned along a spectrum (Windt 2015, 298-300). At one extreme lies the so called «no-body hypothesis», which denies dreams any form of embodiment, citing the absence of bodily awareness. According to this view, oneiric experiences lack a fully integrated sense of one's physical body, meaning bodily awareness is altered, if not entirely absent. Thomas Metzinger, for instance, claims that dreams often disrupt of the "phenomenal self-model" – the stable, sense of self typical of waking life grounded in bodily awareness (Metzinger 2003; 2009). During dreams, this model is partially if not fully disrupted: while some dreams feature a complete lack of bodily presence, others seem to unfold from a third-person perspective. This is mainly due to the lack of sensory inputs coming from the body, as dreams, Metzinger contends, are not actually grounded in bodily sensations located in the physical body but occur as disembodied simulations. Cognitive neuroscientist Antti Revonsuo (2005) similarly highlights the inconsistency or total lack of bodily awareness in dreams, linking it to brain functioning during REM sleep, when external sensory input is largely blocked, and the brain operates instead in what Revonsuo defines an internally generated "simulation" – a not random word's choice. In a 1995 essay, the neuroscientist defines dreaming both as a conscious experience, arguing its position against scholars like Malcolm and Dennett, and as an internally generated virtual reality – conscious yet often disconnected from the real body – thereby supporting the idea that dreams can be disembodied.

At the other end lies the «bodily duplicate hypothesis», which holds that dreams replicate wakeful embodiment through a simulated bodily self, functioning as a counterpart to the waking body. Rather than being disembodied, most dreams involve a stable sense of bodily presence, as they are typically experienced as spatially situated, sensorimotor-capable, and anchored in a coherent bodily self-model and sense of self-awareness, even though certain distortions may occur (Windt 2015, 393-395). For instance, a dreamer might experience flying unaided or extending an arm impossibly far to grasp an object yet still retaining the subjective sense of "being in a body". Such cases suggest that the dreamer's body, though altered, remains fundamentally embodied. This view aligns with the studies by J. Allan Hobson, a pioneer in dream neuroscience, who proposed viewing the oneiric activity as an embodied simulation, as the brain generates internally simulated bodily sensation – supported by the activation of motor and sensory areas (Hobson 1997).

## 2. Debunking a phantasy-related bias

This divergence can be better framed from a phenomenological perspective, shedding light on the long-standing clash between perception and phantasy, which, in return, has influenced dream consideration.

In his famous 1904-1905 lectures on *Phantasy, Image Consciousness and Memory* (Husserl 2005) Husserl outlines two fundamental types of experiences: «presentations (*Gegenwärtigungen*)», involving the original intuitive offering of an object (such as perception), and «re-presentations (*Vergegenwärtigung*)», which are modifications of such acts, including phantasy, memory or expectations. While perceptions present their object directly, «in the flesh», representations posit their objects as unreal, existing in an «as if» mode. While in perceptual acts an object is presented, in phantasy, by contrast, it is just re-presented, and its appearance is accompanied by the awareness of its «as if» quality. Thus, phantasy involves a paradoxical consciousness: an act occurring in the present but directed toward something that is not present.

This opposition concerns not only the quality of the intentional act – «proper» in presentations and «improper» in re-presentations (Husserl 2005, 51) – but also their sensory contents. While perceptions sensory content is composed of actual sensations, phantasy ones consist of phantasms, which appear in a separate field. As a result, phantasy formations are always accompanied by an awareness of their inactual character, distinguishing them from perceptual objects as they appear located in a different spatio-temporal horizon (Husserl 2005, 11), a «there and then» opposed to the «here and now» of perception (Conrad 1968, 59-62). Phantasy consciousness, then, implies the possibility of experiencing a stable contrast (*Widerstreit*) between re-presented and perceptual contents.

The peculiar structure of this consciousness can be better framed through the process of *Ichspaltung*, (Ego-splitting), allowing the emerge of phantasy consciousness (Cavallaro 2017, 174), and dreaming consciousness itself (Husserl 1994, 119). When phantasizing, «I can have a world belonging to phantasy hover before me» which «presupposes a centre of apprehension at which I can continually place myself» (Husserl 2005, 556). As a result, «we have precisely two Egos, the Ego of the phantasy world and the actual Ego, to which the act of reproducing belongs», and «likewise we have the duality of Ego-experiences, those that belong to the phantasy Ego […] and those that belong to the phantasying Ego» (Husserl 2005, 556). The phantasying subject, then, can develop an imaginative apprehension only by producing a second phantasy pseudo-Ego, a modified one, inhabiting the pseudo-world of phantasy. This doubling, both of intentional consciousness and of the Ego itself, although still not a true split (Richir 2004, 12), corresponds also to a dual self-consciousness: in the now of the perceptual world, and in the then of the pseudo-fantasy world. And it is precisely the structure of Ego-splitting that ensures the possibility of developing the consciousness of contrast fundamental to all phantasies.

Considering now embodiment, the opposition between perceptual and phantasy consciousness, often causes the last to be regarded as a disembodied experience. According to this view, the empirical body does not really participate in the phantasy experience, as this last involving a phantasy-Ego, it takes place precisely in the splitting off or de-anchoring (*désancrage*) (Richir 2000, 261) from the empirical Ego and its body. Indeed phantasy, entailing doubling of the Ego and, consequently, of the stream of consciousness, provokes a temporary detachment of the subject from the field of presence and from the phenomenal body itself. As a result, *Phantasie* would be disembodied, as it arises precisely in the "shadow" of the body. This hypothesis is particularly expressed by Jean-Paul Sartre, who advocates the radical opposition between perceptual and imaginative consciousness (Sartre 2010) – an opposition that will later be mitigated, hinting at their possible interplay. As

the counterpart to perception, phantasy would therefore also lack the condition of embodiment exclusive to perceptual experiences.

However, as Nicolas de Warren (2009) rightfully points out following the considerations of Marc Richir (2000, 137), the alleged disembodied character of the phantasy-Ego is rooted in a fundamental misunderstanding: that of confusing the *leibhaft* presence of perceptual objects with embodiment character. This claim would suggest, quite problematically, that the *Phantom*, because is given in absence, equally implies a disembodied absence experiencing it. However, even Sartre, one of the strongest proponents of the disembodied character of phantasies, admits that bodily reactions occur «during image formations» (Sartre 2010, 136-137).

A similar acknowledgment can be found in Husserl's analysis. For instance, when I perceive, «I will apperceive my friend Schwarz in relation to myself, just as I apperceive all external objects in relation to myself», that is, «in relation to my body, my head» (Husserl 2005, 207-208). During perception indeed one is always conscious of the position of the different objects within the perceptual field in relation to its body, serving as a point of orientation in space – a point later elaborated by Maurice Merleau-Ponty through the notion of *schéma corporel* (Merleau-Ponty 2012). Not dissimilarly, when phantasying, «in a certain sense I also see, for example, that my friend is sitting across from me», meaning that «the appearance of the external object is put into relation to the appearance of my body, which is somehow more or less clearly co-presented in all phantasy of what is external» (Husserl 2005, 208).

How the body is "more or less" co-presented in re-presentations is an open question. As a matter of fact, in re-presentations the empirical Ego engaged in imagining is indeed situated within the field of presence through its body. However, the latter is not the one who quasi-perceives the phantasy world. To understand phantasy's embodiment, it is then crucial to differentiate between the egoic experiences in front of a fantasy and those within the fantasy. In phantasying, the empirical body does not fully participate in the imaginative experience (de Warren 2009) which unfolds precisely through what Richir has named a disengagement (*désancrage*) from the empirical Ego and body. This is because, the Ego-splitting challenges the continuity of the embodied experience, by giving rise to a duality of self-awareness.

This hypothesis finds a confirmation in Husserlian texts, where he notes that «in phantasying, I often project myself into the phantasy world in such a way that I phantasy myself as *someone else*» (Husserl 2005, 557). For instance, «if I call to my mind my childhood, I see myself as a child» meaning that «some image of my corporeal existence as a child plays a part […] and becomes the bearer of my experiences»; nevertheless, «along with this» I have «a direct Ego-consciousness to which my corporeal existence belongs in direct and familiar form, in which I presently find myself in living reality as having a body» (Husserl 2005, 557). A similar claim can be found in some later writings (Husserl 1973, 273), where Husserl observes, more radically, that objects in fantasy are always quasi-perceived from a particular orientation, through quasi-sensory data and quasi-apprehensions that support quasi-judgments within *Phantasie* itself.

This would suggest that phantasies, because of the Ego-splitting characterizing them, give rise to a peculiar form of double embodiment. Thus, while the imagining Ego relies on an actual *Leibkörper*, through which it can remain open towards the stimuli from the perceptual surroundings, the phantasy-Ego, less vivid, yet entirely aligned with the image formations it produces, does not rely on the unified sensorial-experiential *Leibkörper*. Instead, phantasy consciousness involves a temporary distancing from the phenomenal body, to assume what Husserl defines as an «indeterminate corporeality» (Husserl 1973, 298), serving as an orientation point within the re-presented imagined space. Even in those cases where

the phantasy Ego is not explicitly represented through an image of the body, phantasy still exhibits a center of orientation, structuring the imaginary space and its objects.

The Husserlian suggestion have been furtherly explored by Richir through the notion of the *Phantasie-Leib* (Richir 2000, 137), which designates not merely an image of the body, but rather the preservation, within the phantasy formations, of the orienting function of the body. Even in fantasies, then, the *Leib* indeed still functions as a *Nullpunkt* – a non-localizable point in real space, indispensable for the constitution of the *Phantasie-Welt*. This is because the re-presentation of an object still requires an egoic polarity endowed with a corporeality, capable of synthesizing the object across its various appearances.

Although both *Phantasie-Ich* and *Phantasie-Leib* are not directly perceivable, but rather co-present in Phantasie's re-presentations (Richir 2000, 147), the imaginative experience proves to rely on the living body's kinaesthesis. It is then the *Leib*, temporarily dethatched from its phenomenal situation, and thus becoming an indeterminate *Leib* that allows me in phantasy to «[feel] my eyes, moving through the phantasy landscape, [feel] my feet, feel my body» (Husserl 1973, 305).

Nonetheless, when phantasying, the phenomenal *Leibkörper* does not vanish, as the Ego remains an open to the perceptual surroundings. Rather, at best the phenomenal embodiment temporarily recedes from focal attention, into the background of consciousness, allowing the momentarily displacement of the egoic polarity and its corporeality into the phantasy pseudo-world. Following these leads, phantasy would thus imply the paradoxical albeit temporary condition of a double embodiment, both in the phenomenal *Leibkörper* and in the *Phantasie-Leib* necessary to inhabit the imaginary world, so that, the more the Ego is immersed in phantasy, the more the egoic polarity shifts toward the Phantasie-Ich, causing a temporary detachment from the *Leibkörper*. A similar dynamic is at stake in dreams, which, nonetheless, exhibit a more radical condition.

## 3. The oneiric embodiment: an actual Ego-splitting

If dream has made the object of few phenomenological considerations, even less has been said about its embodiment. This is because, within phenomenology, the oneiric experience, as a degeneration of phantasy consciousness, has often been considered as radically disembodied. This claim is notably supported by Sarte, which considers the dream as the perfect realization of an imaginary closed in on itself, and the dreaming consciousness as an imaginative consciousness «has lost its being-in-the-world and recovers it only on awakening» (Sartre 2004, 170). Consequently, hypostasizing the opposition between perceptive and imaginative consciousness, the dream would imply a totally detachment from the perceiving, embodied Ego.

Nonetheless, the reduction of the dream to mere phantasy remains a debated issue even among phenomenologists. Very original considerations on dreaming and the embodied condition of the dreamer can be found in Maurice Merleau-Ponty's texts (Morley 1999). Arguing his positions precisely against Sartre's statements (Andreini 2021; 2022), the phenomenologist insists precisely on the fact that dream must be conceived instead starting from the body, as «the subject of dreams» is an embodied subject «rather than the "imagining consciousness"» (Merleau-Ponty 2010, 148). This point is furtherly addressed in a working note from 1960, at the end of *The Visible and the Invisible*, where Merleau-Ponty returns on the dream, insisting that it must be understood «starting from the body: as being in the world […] without a body, without "observation", or rather with an imaginary body without weight» (Merleau-Ponty 1968, 262).

This passage then suggests that dreaming requires a form of corporeality that is not, as one might already suspect, the perceptual body. Rather, it relies on a more fundamental

form of corporeality, «of which the observation and the articulated body are special variants» (Merleau-Ponty 1968, 262). It is the double dimensionality of the body, «welding to one another the two outlines of which it is made» (Merleau-Ponty 1968, 136) that provides the means to understand how such a type of embodiment can occur. Indeed, on the one hand, as *Körper*, it is a perceived among the perceivable, but, on the other hand, as a *Leib*, it occupies a very peculiar position, as it is the measurer of all things. These two fundamental aspects are intertwined in the *Leibkörper* unity: two dimensions whose relationality is ensured by the narcissistic phenomenon of chiasmatic reversibility, especially exemplified in the tactile experience revealing a constitutive dehiscence, meaning a distance between oneself and oneself, that is the interstice where the flesh of both my body and the world is rooted.

Therefore, as Richir observes commenting on this passage, to state that the oneiric embodiment consists of an imaginary body without weight, means to conceive of a *Leib*, a living body, temporarily freed the material weight of *Körper*, its material counterpart – the latter being what makes it a thing among things, transforming it into a «being-in-situation», and providing it with a specific spatiotemporal placement. Hence, according to this view, the dream would not result in a disembodied experience, but rather rests on a mode of disanchored embodiment, typical of a *Leib* prevented from being a *Körper*. The dream would thus rely on same *Leib* of *Phantasie*'s apperception, that is, «the same *Leib*, disanchored from *Leibkörper*» (Richir 2000, 277), allowing to momentarily sever from the phenomenal body to transpose oneself into a foreign one, while nonetheless remaining anchored to one's *Leibkörper*.

According to this view, the dream strikingly exposes the relationship between *Leibkörper* and the indeterminacy of the *Leib*, anchored in it, introducing a relevant modification though from the phantasy case. Indeed, dreams occurs during sleep, which onset entails a form of involuntary factual *epochè*, in the sense of bracketing, of perceptual reality and, consequently, of the body as the unity of the chiasmatic relationship of the *Leib-Körper*. The process of falling asleep thus allows for the emergence of a unique embodied condition of an imaginary body without weight, that is *Leib* reduced to its pure imaginary dimension (Dufourcq 2024). By unhinging itself from the positionality of the *Körper*, the *Leib* dreaming in us exposes a more fundamental kind of corporeality, of which the articulated body of perception is a secondary crystallization, that coincides with a universal flesh, «a glimmering of reflections in which there are no clear boundaries» (Dufourcq 2024, 260). For this same reason, the process of waking up, as suggested by Marcel Proust, *corporalizes*, reuniting the *Leib* with the materiality of the body.

Thus, bringing these insightful considerations with the structure of *Ich-Spaltung*, dream could be framed as a degeneration of phantasy where the Ego doubling turns into an actual splitting, because of sleeping. The state of dormancy is indeed responsible for the factual distancing of the dreamed Ego from the dreaming one. Consequently, phantasy's double self-awareness becomes a severed one, resulting in a pure *Leib* operating within the dream world independently from the *Körper*, lying asleep in bed. Following these observations, if dreams share the Ego-doubling structure of phantasies, one could argue maintain that, whereas phantasies typically involve a double embodiment – both in the phenomenal *Leibkörper* and in the *Phantasie-Leib* – dreams, occurring during sleep, disrupt the continuity of the *Leib-Körper* unity and reversibility, for as long as the Ego is asleep.

Hence, resulting from an actual severance, dream exhibits a temporary degeneration of a phantasy consciousness, modified by sleep, taking the features of a perceptual one. Consequently, the double embodiment of phantasies is in turn altered, giving rise to a unique embodiment in a pure living body momentarily distanced from the *Leibkörper* unity. In sum, dreams prove the fluidity of embodiment, as the self can exist fully in a dream-world while being completely dissociated from the physical body and its surroundings, challenging the

idea of a stable, unified body. Rather, the oneiric experience plumbs the chiasmatic space where *Leib* and *Körper* articulate, expressing the Ego's constitutive openness towards transcendence.

## 4. Is VR a "disembodying" medium?

Despite the significant aesthetic possibilities opened by VR, this medium has often been accused of relying on and perpetuating a dualistic philosophy, very akin to Cartesianism (Hayles 1999; Bolter & Grusin 1999). According to this view, VR would indeed provoke a deceptive experience, inducing the user to feel immersed and present in a simulated environment through a merely cognitive illusion. By providing a new «home for the mind and heart» (Heim 1993, 84), virtual environments' experience would indeed presuppose a mind-body dualistic worldview. In doing so, VR would promote an experiential mode aligning with Cartesianism, as it postulates the aprioristic mind-body distinction and reinforces the idea of a disembodied mind being the ultimate source of human experience, outrunning «the drag of the "meat" – the flesh – by attaching human attention to what formally attracts the mind» (Heim 1993, 87). As a result, this technology would promote a culture of disembodiment (Hayles 1999, Manovich 2001), by engineering an experience where the body itself is erased, perpetrating a «willful repression of the material body» (Balsamo 1996, 123). Such a perspective is strongly conditioned by science fiction, as proven by William Gibson's novel *Neuromancer* (1984), which precisely insists on the constitutive disembodiment of VR experiences.

Nonetheless, however disembodied it may appear, the interaction between a human being and a computer through an interface remains fundamentally embodied, as it involves an embodied subject engaging with the devices. Indeed, as Paul Dourish (2001) emphasizes, medial interaction is intrinsically embodied, with meaning emerging through active, bodily engagement with the technological apparatus via gestures, postures, and movements. Hence, the claim of VR disembodiment appears more as a narrative than a genuine trait, since all virtual interactions are ultimately grounded in the user's sensory and motor engagement with these interfaces (Hayles 1999; Hansen 2006). A similar claim about VR has been recently expressed by Philippe Bédard, who has highlighted how VR experience, although occurring in the absence of ones' physical body, could rely on the body as «a tool for augmenting virtual reality» (Bédard 2023, 69).

This objection can also be supported by phenomenological evidence, considering once again the embodied nature of subjectivity well captured by Maurice Merleau-Ponty's reflection. By highlighting the fundamental role of embodiment in shaping consciousness' life as the subject of all lived experience is first and foremost an embodied being, the phenomenologist has notably challenged dualistic models where cognition is seen as separate from the body, insisting instead on the fundamental intertwinement of body movement, perception and expression (Merleau-Ponty 2020). Returning the VR case, then, even though most of VR experiences nowadays mainly support audio-visual stimuli, so that scholars maintain that this medium induces a fragmentation of the body or a partial bodily inclusion, the user's bodily engagement remains central for VR experience. Indeed, the diverse technologies composing the VR system, such as motion trackers, controllers and headsets mediating the interaction with the virtual environment, reaffirm the role of the body as the central agent through which the user can navigate the virtual space, extending its sensory and motor reach into virtual realms. Nonetheless, VR experience entails a peculiar form of embodiment, entailing a reconfiguration of embodiment itself (Hansen 2006).

## 5. The double embodiment of VR

To better understand it, the notion of body schema, particularly developed by Merleau-Ponty, should be briefly considered. Extensively discussed in *Phenomenology of Perception*, the *schéma corporel* describes the pre-reflective and immediate relationship with both our body, provided with its own spatiality, and with the surrounding space, constantly situating us within it. The term then designates an immediate awareness of the body as a coherent unity and the position of its parts, to be understood as «a "form" in the sense used by Gestalt psychology» (Merleau-Ponty 1962, 114). Moreover, neither a mental representation nor intellectual judgment, the body schema is a dynamic, cohesive system that allows spontaneous engagement with the environment. As a «system of motor or perceptual powers constantly actualized through movement» (Merleau-Ponty 1962, 177), body schema implies a tacit understanding of the existential situation, providing us with immediate orientation and praktognosic knowledge of possible actions.

This system of kinaesthetic possibilities is not fixed but is rather endowed with an inner plasticity. Structured through habitual processes, accumulated over a lifetime, body schema remains nonetheless always open to new acquisitions and reorganizations (Merleau-Ponty 2020), allowing us to continuously adapt to new existential situations. Constantly evolving, body schema is particularly transformed and revitalized through movement, allowing the organism to adopt new postures and actions according to the circumstances it encounters. Such adaptability becomes particularly evident when acquiring new skills, such as when interacting with technological devices designed to expand the body's perceptual potential beyond its natural limits. These interactions give rise to processes of *incorporation*, by which external objects become included in the body schema, resulting in an *extension* of the body's perceptual reach, and ejections – dynamics already described by Merleau-Ponty in his lectures on *Nature* (Merleau-Ponty 2003, 283).[2]

Post-phenomenological scholars such as Don Ihde have further developed the relationship between the body schema's plasticity and the incorporation of technological artifacts. «Phenomenal incorporation», for instance, relies precisely on both the desire to integrate the non-human into the body, and the acquisition of new capacities through technological devices (Ihde 1990, 79). Unlike other forms of human-device relations, effective incorporation is characterized by its apparent immediacy and transparency, since the artifact gradually withdraws from the subject's focal attention, acting as a true mediator opening new access to the world. Glasses or contact lenses, for instance, restructure the relationship between the subject and the world, but only when they cease to be perceived as separate objects. Similarly, through prolonged use, the use of VR headsets and other devices such as joysticks, can gradually become unattended, allowing the user to direct their attentional focus toward the VR content itself.

In addition, it should be noted that technological artifacts often exploit modes of incorporation already embedded in the body schema; in the case for HMDs, which build on eyeglasses' incorporation and can eventually become transparent through prolonged use. Through this process, the HMD ceases to be the object of conscious attention, withdrawing into the body-schema and extends human intentional reach, granting access to the virtual space. In this respect, as suggested by Federica Buongiorno (2019, 320) rather than responding to an «E-D-R scheme», according to which VR user would undergo a process of «embodiment-disembodiment-re-embodiment», VR devices involve a *double embodiment*, extending the embodied self, while, in return, become embedded within it.

[2] Due to space constraints, the scientific debate on the distinction between incorporation and extension will not be covered here.

Nonetheless, recalling the eyeglasses example, it is worth noting that technological artifacts, even when intended as a corrective tool, inevitably alter embodiment and perceptual powers. As Ihde has already observed, eyeglasses or contact lenses' use subtly modifies one's experience of the world by introducing new forms of mediation, such as framing, reflections, or tactile discomfort (Ihde 1990, 49).

Any extension of the body through technological artifacts involves an invisible counterpart, creating a paradoxical feedback loop in which the body's capabilities are enhanced precisely by constraining its kinetic possibilities, forcing specific postures and limiting freedom of movement (Du Toit & Swer 2021). This dynamic is particularly relevant in the case of VR, where attempts to achieve transparency often result in even greater mediation, as evidenced by the fact that headsets are often very heavy and require constant adjustment. Nevertheless, the VR system reliance on correlating audio-visual and kinaesthetic sensations, can eventually produce a sense of transparency and immediacy through repeated use. However, this integration differs in at least one significant respect from that of simpler tools such as eyeglasses. In VR, the technological mediation does not simply enhance perception but rather allows the user to perceive an entirely new environment, only accessible through the medium. In doing so, the biological-technical coupling gives rise to what Mark B. N. Hansen has insightfully named a *body-in-code*, that is «a body submitted to *and constituted by* an unavoidable and empowering technical deterritorialization – a body whose embodiment is realized, *and can only be realized*, in conjunction with technics» (2006, 20).

Furthermore, it should be noted that the VR experience does not rely solely on device incorporation, as the latter is functional to allow the user to navigate a digital image, appearing as an environment (Pinotti 2020, 595). In fact, through device use, the user is inserted into an unprecedented synthetic environment that can be explored according to specific design constraints. VR consumption, therefore, leverages a second time the body schema's plasticity, drawing on its creative power. This capacity allows the living body to be always able to orient itself in new situations through what James B. Steeves, drawing on Merleau-Pontian insights, has identified as an imaginative function pertaining to the body. Rediscovered as an «imagining body», the body is endowed with a creative power and proves to function as a true «imaginative medium for engaging with reality» (Steeves 2004, 213).

Such an imaginative function, activated by VR consumption, is closely linked to the notion of the «virtual body», introduced by Merleau-Ponty (1962), in his reflections on lived spatiality, in relation to the experiments of Max Wertheimer. The psychologist imagined a person in a room who perceives its surroundings only through a mirror angled at 45°. Initially, movements reflected by the mirror appear distorted, but after a short time, the subject's visual field realigns itself, allowing the scene to be perceived as upright again. In Merleau-Ponty's view, this experiment proves that the body schema is dynamic and actively institutes spatial levels through a dynamic process of adaptation, taking on «the *virtual body* that is demanded by the spectacle» (Merleau-Ponty 2012, 261). This body's adaptability is particularly relevant in contexts where the visual field imposes orientations that differ from the body's actual position – such as when using VR headsets. The body schema's plasticity, then, allows it to reconfigure itself in response to novel sensorimotor experiences, allowing it to effectively inhabit alternative spaces and truly function as an imagining body – one that transcends its immediate situation to perform a creative virtual embodiment.

It is precisely an identification with a virtual body shaped by the image's regime, albeit not spontaneous, that the VR experience seems to technologically induce. A phenomenon also described in terms of *body ownership illusions* (BOIs), where the identification with a virtual body, based on body schema's creative power, is triggered by congruent sensorimotor interactions (Slater *et. al.* 2009; Kilteni *et. al.* 2012). This effect is furtherly encouraged

in VR using HMD, which adopt first-person perspective thus forcing the identification with the virtual body required by the digital image-environment.

And yet, the VR experience does not just evoke a body capable of inhabiting it. Rather, it often visually materializes that body. As a result, the virtual body required to inhabit the image-world is no longer merely a virtual but is offered to the user through an actual *body image* to identify with (Incao & Mazzola 2021, 135), enhancing the embodiment process. In these cases, the avatar, through which the user can inhabit the virtual space, is visually represented on the screen. More than just extending the user's intentional power and its body, the avatar actually relocates it «in the space of the screen, through a reconfiguration at the level of the phenomenology of the body» (Klevjer 2012, 28). In this sense, the avatar both extends the body's reach into the virtual space, while also «*channeling* our body into shape and place, into screen space», functioning as a «prosthetic *proxy*» (Klevjer 2012, 28). Indeed, the avatar extends the perceptual and kinetic reach of the living body, by positioning the *Leib* and serving as the point of orientation and action within the screen space. In this sense, the image-world is therefore always experienced at a distance, since it «unfolds not from my rootedness "here and now", but from the avatar's standpoint» (Geniusas 2022, 18).

Nevertheless, the avatar is not a *Leib*, since it is not the field of sensations of the real self. Indeed, kinaesthetic sensations always remains localized in the living body, not in the virtual one, which constitutes, at best, a *Körper*, a proxy of the *Leib*, granting it access to the digital environment. As a matter of fact, the virtual body, then, can never fully replicate the phenomenological structure of the perceptual experience, as the phenomenal body remains the field of sensing (Geniusas 2022, 18). In other words, it is always *Leib* that constitutes the spatial level within virtual environment, as sensations are always referred to the living body. In turn, in VR experience the body itself comes to be experienced «at a distance» (de Warren 2014, 108), through the pseudo-world of the image, where the avatar serves as a point of orientation within the virtual environment. This is particularly evident in videogames, where the embodiment in the virtual body requires considerable imaginative effort (since the avatar is simply seen from the outside). HMD-based VR precisely attempts to reduce this gap, relieving the user of the projective effort into the virtual body while nonetheless, most of such VR cases prevent the user from seeing the avatar – except for some rare cases, where some parts of the body are visible (Heft 2023).

As a result, VR seems to bear significant consequences for the *Leib-Körper* reversibility — whose functioning, as is well known, is exemplified by touch, which has the unique feature of involving a double apprehension: that of a sensation and that of its localization, both of which are crucial for the constitution of the body as *Leib*. This remark is particularly relevant when ones considers that most VR systems nowadays still do not provide haptic interactions, and that very often users' hands are involved in the manipulation of devices. Turning again back to videogames, they provide a unique embodiment, as they temporarily inhibit the phenomenon of bodily reversibility. Indeed, the avatar being a *Körper*, it can at best be phantasmatically visible on screen, but never actually proprioceptually experienced. In this case, however, reversibility can easily be actively restored by the user by directing the gaze outside the screen. The situation changes significantly in VR, which seems more successful in disrupting the reversibility and unity of the *Leib-Körper*, as the phenomenal living body is prevented or at least discouraged from experiencing itself as an object, offering at best a partial body image through the avatar. VR thus seeks to produce a quite unique kind of embodied condition: that of a *Leib* that is temporarily denied the ability to present itself as an object to itself.

From a phenomenological perspective, then, VR experience thus entails the paradoxical condition of a «double technological embodiment» (Besmer 2015) resulting from the fact that VR «is not just an extension of our body, but the simulation of *another body* […] with

*another environment*» (Buongiorno 2019, 324). While remaining anchored to its phenomenal body, engaged in manipulating the devices, the user simultaneously performs a second embodiment in the virtual body through which it can move within the virtual space, facilitated by kinaesthetic correspondences and the use of the subjective.

Although the relationship between these two embodiments remains to be clarified, one can already observe that, as the user learns to use the devices, these gradually withdraw from focal attention, incorporating the devices into body-schema it contextually reinforces the second embodiment within the virtual body, prompting a peculiar re-articulation of the *Leib-Körper* reversibility. Thus, VR experience seems to produce a peculiar simultaneous embodiment in both the phenomenal *Leibkörper* and the virtual body, facilitated by the avatar's presence. It could be argued, then, that rather than alternating, the two embodiments seem to build on one another, as the mastery of the devices allows for the second embodiment to emerge and persist. This embodiment is then not mutually exclusive, rather, it suggests that virtual embodiment is nested within the first one. Their alternation would at best concern bodily awareness and could be understood in terms of an attentional dynamics, leading to shifts in proprioception (either directed to the phenomenal *Leibkörper* or to the virtual body as it navigates within the virtual space), which will need further analysis. This would once again prove that VR experience does not fall neatly into the category of bodily extensions, as it grants access to another reality, thereby involving a more radical reconfiguration of the user's embodiment.

By enabling a multilayered form of embodiment, VR then provides, as Mark B. N. Hansen has suggested, a true «laboratory for exploring embodiment» (Hansen 2006, 111), illuminating how human experience can simultaneously unfold across multiple bodily states. By technologically deterritorializing the *Leibkörper*, VR experience then exhibits the decentering power inherent in the embodied subject, always transcending itself. At the same time, however, by inducing a double form of embodiment across physical and virtual domains, if not even distributed (Waterworth & Waterworth 2014), the VR experience leads, in a rather Merleau-Pontian spirit, to challenge a static and monolithic view of embodiment, proving once again its plasticity and suggesting its multidimensionality. This allows for a radical reframing of how we understand embodiment, where both the analogue and the digital coexist and influence one another.

In view of these considerations, VR seems to offer a promising space to rethink the nature and possibilities of embodiment. Navigating virtual spaces through devices, rather than simply extending the user's sensory and motor abilities, opens up new possibilities for distributed and multi-layered embodiment, calling for a more integrated understanding of how technological artifacts extend, transform, and redistribute human embodiment across physical and virtual domains.

## 5. Towards the oneiric-technological chiasm: a proposal

Contrary to the disembodiment narratives often accompanying both the dream and the VR experience, this study has evidenced their rootedness in the subject's embodied nature. Rather than being mere deceptions of a disembodied mind, a phenomenologically informed analysis has demonstrated the relevance of the subject's embodied nature. Indeed, both of these experiences rely on the subject's inner capacity to temporary distance itself from the phenomenal *hic et nunc*, and from its phenomenal body, in order to experience an alternative *ibi et tunc* by adopting another *virtual* body, thereby causing a peculiar re-configuration at the level of embodiment. In fact, both experiences involve a similar condition of double simultaneous embodiment: in the phenomenal body and a virtual body that allows the subject to inhabit simulated environment or an imaginary world. Nonetheless, dreams, which

occur during sleep, entail a significant difference, since this double embodiment is not consciously perceived, as the awareness of the phenomenal body temporarily ceases.

Thus, while VR may seem to present an unprecedented form of embodiment, it could be suggested that it fundamentally engages a pre-existing capacity to transcend bodily constraints to adopt alternative bodies, radically exposed by dreams.

In view of these observations and building on Morin's observations regarding the dream-technological convergence, it could be beneficial to frame the convergence between VR experiences and dreams in terms of an *oneiric-technological chiasm*, borrowing a term dear to Merleau-pontian phenomenology. In fact, such a framework proves particularly effective in seizing the complex relationship between dream and technology, since, as Grossi (2021) has noted, the dream experience has been persistently captured through medial terms and has even been influenced by them,[3] while the technological experience, in turn, has strived to replicate the oneiric one. This peculiar relationship is well captured by the chiasmatic structure, referring to the dynamic intertwining of two elements that reflect, intersect and influence each other. Thus, the oneiric-technological chiasm, to be understood as a theme encompassing infinite variations, not only seize the fact that these two domains have historically been intertwined (Carbone 2019), constantly calling forth the other in a dynamic process of mutual evocation. In addition, it allows one to insightfully frame of the future sensible manifestations of this chiasmatic relationship.

Within this framework, VR materialises a specific manifestation of this theme, where the relationship with the dreams is carried out at the level of embodied experience. Both dreams and VR draw on and display the body schema's plasticity, allowing the subject to feel present in alternative environments.

In dreams, however, this reconfiguration occurs through an actual albeit temporary severance, whereby the Ego detaches from the sensory stimuli of the surrounding space and from the corporeal body. Consequently, the dreaming subject can inhabit the dream world through a *Phantasieleib*: a peculiar embodiment that relies on the temporary but stable disconnection from the corporeal body induced by sleep. Yet, as Merleau-Ponty points out, even in dreams a pre-reflective awareness of the body persists as «the place of the world has to remain marked within him» (Merleau-Ponty 2010, 146), otherwise awakening would not be possible. Similarly, by inducing a device withdrawal into the body schema, VR experiences foster the emergence of a second embodiment in the virtual body, through which the Ego can inhabit the digital image-environment.

Yet, unlike the dream case, this second embodiment does not entail an equally consistent disruption of the unity and reversibility of the *Leibkörper*, as it remains in wakefulness. Rather, the second embodiment arises precisely from the bodily incorporation of the devices. As a result, unlike the dreamer, the VR user remains persistently aware – at least at a pre-reflective level – of its own phenomenal body. This sense is preserved because, contrary to dreaming, the VR experience relies on the user' physical engagement to influence the VR experience itself. As a result, VR facilitates a double embodiment, as the user remains simultaneously self-aware, at least at a pre-reflective level, of both its physical body and the virtual one. Thus, in contrast to dreaming where the imaginary body operates somehow independently of the corporeal one lying in rest, VR consumption not only allows for, but also depends upon the interaction between the phenomenal and virtual bodies.

Whether VR experiences entail a doubling of the Ego remains to be questioned. Nevertheless, both VR and dreams challenge conventional understandings of embodiment as a

[3] A similar hypothesis had previously been suggested by Jean-Louis Baudry (1986), regarding the convergence between cinematic experience and dreaming. Referring the work of the psychoanalyst Bertram D. Lewin, Baudry already noted how the dream behaved like a cinematic experiences, relying on a screen.

fixed and determined condition. Rather, they emphasize that embodiment is a fluid, adaptive process that can occur across a range of experiential domains. These two experience, then, not only depend heavily on the subject's embodied nature, proving that every cognitive process results in a reconfiguration of embodiment. But also, and more fundamentally, they prove that the *Leibkörper* unity is inherently adaptable and constantly reconfigured by experience. And it is precisely the chiasmatic space where *Leib* and *Körper* articulate, the invisible «dimensionality» or «texture» (Merleau-Ponty 1968) of the *Leibkörper*, that the dream exhibits, and that the VR experience brings to the fore.

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