



Original Research

What is Real in the Metaverse? Realities of Image-Based Communication in Virtual, Augmented, and Mixed Realities

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Received: 05/29/2023; **Accepted:** 01/09/2024; **Published:** 02/23/2024

Abstract: The term metaverse characterizes computer-supported media in which primarily image-based forms of virtual realities, augmented realities, and mixed realities can be communicated. Considering these three media forms, two peculiarities stand out. First, pictorial signs create an immersive experience that makes images largely obsolete as a classic form of visual communication. And second, the three media forms cause social constructions of pictorial realities to become increasingly elastic. The following considerations will show how communicated realities in images become more elastic in varying between fact, fake, and fiction, or between sign and matter. Societies construct their image-based knowledge, but this remains purposeful only when consensual corridors orient what is to be considered real, virtual, actual, and moral. Further, the often-misunderstood oppositions between real and virtual are taken up to argue that the virtual is real but not actual. The social construction of image-based knowledge creates a virtual reality in the metaverse. This virtual reality is collectively experienced as real, but in its materiality it is often said to lack actuality. In the last century, the screen still protected the viewer from contact with the physical world. In the twenty-first century, the viewer is supposed to feel immersively involved in order to intensify real contact with virtual matter and virtual energy. The paper explores the question: How elastic can image-based knowledge be to be action-oriented when the actuality of virtual realities is collectively determined?

Keywords: *Virtual Reality, Augmented Reality, Mixed Reality, Image-Based Knowledge, Semiotics, Sociology*

Introduction

The term “metaverse” often characterizes computer-aided media in which primarily pictorial forms of virtual realities, augmented realities, and mixed realities can be communicated. Considering these three media forms, two particularities stand out: First, pictorial signs in virtual reality (VR) create an immersive experience for observers, which makes visual communication largely obsolete. If everything appears to observers as an image in virtual reality, then nothing is an image to them anymore. Secondly, the three media forms mentioned above lead to social constructions of pictorial realities becoming increasingly elastic. “Elastic” here means that fictions and so-called facts blur into a “probable reality” (Esposito 2007, 31) for observers. In the system-theoretical interpretation, “virtual” and “real” do not characterize something antithetical. Rather, the terms “virtual” and “real” characterize the relations of tension in communicative dealings with image-mediated realities. Similarly,

“real” and “fake” do not mark “binary concepts” (van Doorn et al. 2021, 71), but they indicate poles of a “rich continuum” (van Doorn et al. 2021, 71). Moreover, van Doorn et. al. remind us, “playing with the perception of reality is an innate part of human nature” (van Doorn et al. 2021, 43) Image-mediated realities have always been playfully “stretched” to represent fantasies or dreams as well as something actual or physically experienceable. Previously known visual cultures used pictorial signs to elastically tune their reality for respective purposes of visual communication. For example, in order to know what a guardian angel looks like, one does not have to have actually seen one—a picture of one is sufficient for that. Moreover, some think that guardian angels are real because they have experienced them, although they cannot photograph them.

In the culmination of these two changes, the following considerations would like to demonstrate how the virtual makes its pictoriality forgettable in order to make a virtuality physically experienceable as reality. Using the example of the images of the virus SARS-CoV-2, it will be further illustrated how the transitions between probable realities vary and how thereby the realities communicated by means of images in societies become more elastic. Thus, it will be shown how societal constructions of realities increasingly offer more nuanced orientations that become significant in respective lifeworlds by means of actual, virtual, and fictional orientations. To begin the investigation, the following question must be answered: How do pictorial signs signify a reality?

How Do Pictorial Signs Signify a Reality?

There are many definitions of what an image is. Based on the semiotic theory of Charles Sanders Peirce, the following practical definition suggests: A picture in visual communication contains three dimensions. In the syntactic dimension of our globalized media culture, it has structure of color and form. In the semantic dimension, it often signifies something by similarity. Moreover, in the pragmatic dimension, the image means something. Most often, images present themselves as limited surfaces that iconically designate something with which they themselves are not identical. The art system offers exceptions to this general definition, but the globalized culture of visual communication by means of pictorial signs remains largely unaffected. Iconic designations per similarity often deceive recipients about the fact that images never eliminate their arbitrary separation of signifier and signified. For pictorial forms are by no means as “freely shaped in syntactic form”, i.e. “arbitrary” (Saussure 2016, 29ff), as described by Saussure for linguistic or symbolic signs in a culture. Images bear symbolic and indexical designations, but images fascinate their recipients because their designations, by similarity, seem to suspend the arbitrary separation of signifier and signified, but of course never do. Furthermore, all signs, such as photographs, can only figuratively designate something if they are not themselves this actual object, i.e. the denotate. The denotate as a fact in the extra-symbolic reality can inevitably not be a sign, but a probable

object, i.e., an object that cannot be completely determined (Morris 1973). In many cases, the success of images lies in the fact that images replaced their denotates in dreams, fantasies, or myths in order to achieve a certain satisfaction as “substitute objects” (Morris 1973, 305). Goodman would conceive of these substitute objects as “null denotation” (Goodman 1969, 23), when, for example, a dragon remains a pictorially represented fantasy and is never actually encountered. Images without denotates always communicate a reality, even though there is no extra-symbolic reality to be found for them.

What is the Pictorial Reality of the Coronavirus (SARS-CoV-2)?

For example, what is the reality of pictorial signs that signify the pathogen SARS-CoV-2 and visually communicate its existence? As described above, the pathogen SARS-CoV-2 and the image of it are necessarily not identical. The recipient distinguishes the image from the pathogen SARS-CoV-2 in order to signify it pictorially. Every sign generally signifies something that it itself is not. Therefore, pictorial signs are also clearly distinguished from what they signify as reality.

Esposito (2007, 8) points out, with Niklas Luhmann: “For the observer, reality only arises when there is something in the world from which it can be distinguished” (Luhmann 2000, 58). Therefore, in order to visually communicate the visible reality of the pathogen SARS-CoV-2, pictorial signs are needed, otherwise it would not be visible to the human eye as communication.

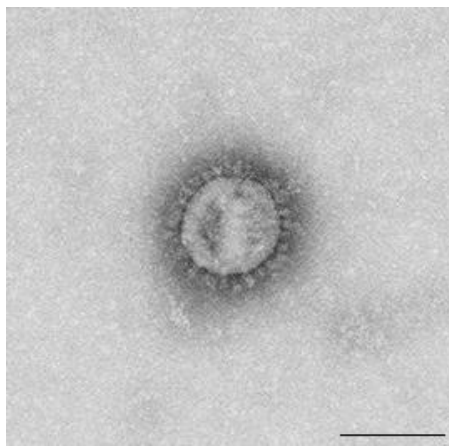


Figure 1: Isolate SARS-CoV-2 Scale: 100 nm.

Source: Tobias Hoffmann, Robert Koch Institute 2020

Even an optical microscope fails to obtain an image of the virus. For this reason, electron microscopes are used, which bombard the virus with electrons to produce an image of the object from the trajectories of the electrons. Signs of a reality of something are necessary to

distinguish from this something. This “something” can never be fully known in Karl Popper’s theory of science of critical rationalism, but at best can be determined in degrees of probability in an approximation hope (Popper 2005). For example, pictorial representations of the coronavirus vary widely to show a reality of what the SARS-CoV-2 pathogen might probably look like. The media’s visual communications construct a reality from which observers assume the SARS-CoV-2 pathogen probably looks as depicted. There are many examples of the different representation of the pathogen SARS-CoV-2, which communicates its reality visually. For example, in pictures, the pathogen SARS-CoV-2 looks like this:

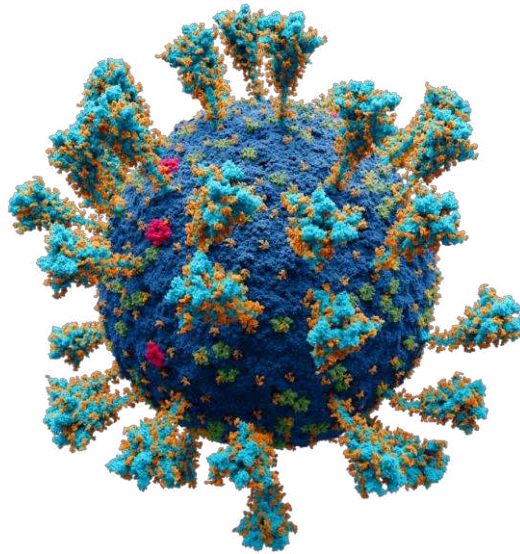


Figure 2: Scientifically Accurate Atomic Model of the External Structure of SARS-CoV-2

Source: Alexey Solodovnikov 2021¹

The Paradox of Observation by Means of Images

Images of the pathogen SARS-CoV-2 illustrate the paradox of a pictorial sign. The paradox is that an image is created by means of the electron microscope to observe something that obscures an image. Electron microscope images create the “probable reality” (Esposito 2007, 76) of a pictorial sign of what the SARS Cov-2 pathogen might look like. It takes an image of the pathogen to be able to communicate it as a reality for us. Esposito points out that our reality is produced by representing it to ourselves through signs, although the signs are not then, what they represent. Signs remain necessarily distinct from their signified object, that is, their denotate. Since the beginning of the twentieth century, Ferdinand de Saussure has offered a sign-theoretical explanation for this situation. Saussure characterized linguistic signs as

¹ <https://de.wikipedia.org/wiki/SARS-CoV-2>

“arbitrary” (Saussure 2016, 16) in order to show that the signifier as signified was freely chosen in its syntactic form and signifies its object, i.e., the signified, on the basis of social conventions. Based on signifiers, we imagine objects (concepts), which is why signifiers remain distinct from real, material objects (denotes). Berger and Luckmann name this communicatively divided world as the “symbolic world of meaning” (Berger and Luckmann 1980, 112); (Schütz and Luckmann 1979, 49). In the “symbolic world of meaning” there is an unquestionable certainty as to what counts as reality, although at the same time every symbolic world of meaning also remains “potentially problematic” (Berger and Luckmann 1980, 114), since much could also be otherwise possible, i.e., contingent. Images thus show a reality as long as within the symbolic world of meaning they remain unproblematic and offer orientation. This consistency check of a reality is therefore dependent on the communication system, as Luhmann clarifies: “Reality is elaborated within the system by sense-making” (Luhmann 2017, 15).

Realities of signs according to C.S. Peirce and N. Goodman

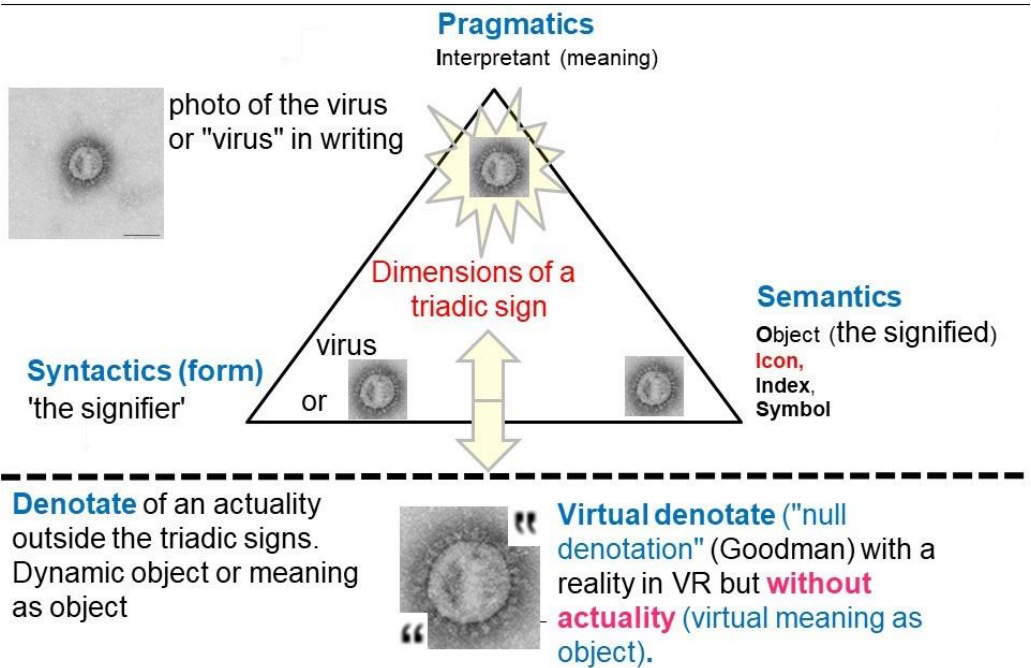


Figure 3: Distinction between a denotate of actuality and a virtual denotate without actuality of an extra-symbolic reality to which syntactically, semantically and pragmatically ordered signs refer according to C.P. Peirce and N. Goodman

Source: Photo of Electron Microscopy - Robert Koch-Institut 2022

The above illustrates that iconic images signify their object less arbitrarily than linguistic symbols. Syntactic forms of images often signify something in iconic semantics that viewers assume would be in a relation of similarity to the denotate. Therefore, recipients follow moving film images effortlessly because the image offers them a visual idea (concept) without having to broach the issue of the relative arbitrariness. Pictorial signifiers are watched directly by recipients because, on the one hand, they resemble the signifiers and, on the other hand, they do not refer to the moving position of the recipient in the perspective shift, so they never completely lose their arbitrariness. This was made clear by Nelson Goodman (1969, 5) when he wrote: “no degree of resemblance is sufficient to establish the requisite relationship of reference.” He further added: “Denotation is the core of representation and is independent of resemblance” (Goodman 1969, 5). Although images can probably resemble their denotate, they remain arbitrary and therefore a construction of the symbolic world of meaning. This symbolic world of meaning may be, for example, a “world of scientific explanation,” as Romanyshyn points out as follows:

When we create a world where all objects lie on the same plane, we are ready to make a world where all objects can be explained. Linear perspective vision creates such a space, and in doing so it prepared the way for us to create the world of scientific explanations. (Romanyshyn 1989, 177)

In front of an electric screen, the recipient remains and feels protected from all material objects. For example, almost no one today shows a reaction when images of heavy stones on a screen fly unpredictably through a depicted room. Similarly, almost no one fears being infected by the iconic image of the pathogen of SARS-CoV-2. The magic of an image is necessarily improbable in the symbolic sense world of science. In science, a screen acts, in a sense, as a “protective screen,” revealing physical, innocuous signs to viewers as reality. Nonetheless, the sciences, as well as everyday citizens, create their “photographs” by means of indexical signs whose denotates are based on an actuality of “measurements” (Romanyshyn 1989, 34) or “dynamic objects” (Peirce, Hartshorne, and Weiss 1960, 4.539, 8.300) or bodily experienceable “object meanings” (Holzkamp 1973, 25). In this way, scientific images reveal the reality of the coronavirus or a black hole as the construction of a symbolic world of meaning in science.

From their practical visual experience with scientific images, it is familiar to the viewers that the pictorially signified can signify an event that could have, does have, or did have a reality. Indexical object references in scientific images thus reveal a communicatively effective reality. Surveillance cameras, live images, or images of established newsrooms, for example, can communicatively “touch” viewers because their constructions of reality are interpreted as trustworthy. The coronavirus has, without question, a reality for recipients. In this reality, it has been equipped with little crowns, because the virus has always been communicated in

this way in its pictorial representations and because it also symbolically bears Corona, i.e., “crown,” in its name. And there is no doubt that images support a fear of becoming infected. In this respect, pictures function on the one hand as a protective screen against the realities, and on the other hand, they create the realities, which may or may not be experienced as symbolic worlds of meaning.

Which Reality Establishes a Virtuality?

If societies produce their visual communicative reality by means of images, what reality does virtuality create? Esposito points out that the discussion on virtuality in many cases moves “between the poles of reality and non-reality or virtuality” (Esposito 2007, 119). It is discussed if “virtual worlds” would lack any reality and thus be a non-reality. In this discussion of virtuality, however, the insight that both communicated reality and communicated virtuality are based on signs is often lost. Signs make it possible at all for real as well as virtual worlds to be communicated in societies. Without signs, the real could be experienced, but reality and virtuality could not be signified or socialized as a collective world. Due to the signs themselves, a reality is created in virtuality for recipients. A non-reality without signs would be invisible in a head-mounted display—it would not exist and ultimately not be virtual. Likewise, an image without a sign would not be an image.

Iconic realities and iconic virtualities are based on signs that are assigned a different status in “symbolic worlds of meaning” (Berger and Luckmann 1980, 104) or “lifeworlds” (Berger and Luckmann 1980, 17) of a society. In this symbolic world of meaning, a photograph of the coronavirus usually shows the reality of a virus for the viewer. Meanwhile, recipients interpret a virus representation in a head mounted display as something virtual that does not signify reality. However, when a remote medical operation is performed by means of a head-mounted display, the participating physicians naturally see themselves in their reality. The difference between reality and virtuality obviously does not result from their reality status as signs of visual communication. Rather, recipients use the term “virtual” to mark whether a denotate of the sign exists or has existed in some way as an actuality. In the following, it will thus be shown that not reality but actuality marks the opposite of virtuality. Therefore, everything that is communicated as a sign of symbolic worlds of meaning exists as a virtual reality. The socialized reality of a symbolic world of meaning remains elastic and swings back and forth between actual denotates and virtual denotates in VR, depending on the situation. Romanysyhn (1989, 178) regrets that the magic of images often disappears with the “objective, measurable world of facts and explanations” because, for example, angels cannot be photographed. However, it can be seen that a certain magic of symbolic worlds of meaning with “null denotations” (Goodman 1969, 21) returns as a reality in VR as well as in computer games.

Recipients experience a virtual reality (VR) in a head-mounted display as real. This is because VR recipients know that they are in a lifeworld of signs in which all materialization, or denotates, are actually and physically impossible. Material and sign-mediated realities can undoubtedly be distinguished, although they both acquire real meanings in the consciousness of the recipients. If heavy stones were flying around in a virtual reality simulated by a head-mounted display (HMD), then recipients would often involuntarily cringe or physically react. If recipients of a head-mounted display were routinized in VR, then they too would probably no longer have an involuntary reaction but would respond to virtual reality as calmly as they are accustomed to when viewing pictorial signs. The interaction frame of VR would be inaccurately described if it were to be understood with Oliver Grau as “image space” (Grau 2001, 15) or “polysensory experience of images” (Grau 2003, 5). With the metaphor of “space” as well as with the use of the concept of image, the interaction medium of VR remains conceptually largely undefined.

In the last century, the screen still protected viewers from contact with the physical world. In the twenty-first century, the viewer should feel immersively involved to intensify real contact with virtual matter and virtual energy. This is because the screen does not protect in psychological terms as it does in physical terms. Rather, in psychological terms, realities become elastic. In VR, the signs have a stronger or weaker real effect on the recipient’s psyche to simulate virtual (non-actual) matter and virtual (non-actual) energy. The protective function of the screen also cancels the so-called augmented reality. Augmented reality blends the virtual world with the actual world to form one reality. This superimposition of signs of flexible realities could have the consequence that the perceived reality is either “enigmatized or else trivialized” as Leschke (2020, 22) points out.

Images Differ from a Virtual Reality with Respect to Their Tasks

Users use images as a medium to visually communicate fictional or real events to each other. VR, however, primarily aims at interaction with something virtual. Communication between actors takes on a secondary function in VR because the actors must first be virtually present in the medium in order to then be able to communicate with each other. Thus, users use VR as a medium to experience something in physical practice within a virtuality. Such a bodily practice could be, for example, a surgical operation or a dance choreography practiced in a VR. Here, practice means a “socially, regulated typified, routinized form of bodily behavior (including sign-using behavior)” (Reckwitz 2010, 135) However, with the term virtual reality it remains unclear what exactly is meant to be characterized by “virtuality.”

In common usage, virtuality often denotes the property that something seems to actually exist, although it is not as materially and physically actualized as it appears, but is rather simulated by signs. Thus, recipients experience virtual realities as absolutely real. The question of the reality of VR is beyond a doubt and distracts from the essential character of

VR. The essential character of VR is marked by the simulated actuality of a materiality, which is perceived by recipients as objectless or substanceless and which is feigned in virtual realities by means of signs. According to Goodman, virtuality represents nothing. Virtuality is a representation with a “null denotation” (Goodman 1969, 21). And yet, VR shows its reality as if its matter were also actually present, although it is simulated or attempts to “imitate” by means of signs (Goodman 1969, 6).

Users of a virtual reality remain aware that they are entering both an effective reality and a fictitious materiality. A VR simulates its material efficacy as actuality exclusively symbolically. Therefore, VR inspires its users to experience the reality of the virtual as physically effective, although they remember or know that what they are experiencing is not actual or timely. However, Smith and Neff’s study shows that two individuals communicate with each other as fully embodied avatars as if they were in a current lifeworld together (see Smith and Neff 2018). Here, Holischka’s (2016) comment is in line with Deleuze (1991) that the virtual seems fully real because it is as effective as all signs and their meanings themselves. As a sign, every virtuality seems real. Peirce would have described something virtual as a sign as well. For he made it clear that the meaning of any sign consists in the concept or notion of its effect that arises in the consciousness of its respective agent (Peirce, Hartshorne, and Weiss 1960).

Postmodern societies practice in symbolic worlds of meaning in which signs seem real with high degrees of freedom independent of their materiality. In particular, “the ease with which reality has become malleable is the essence of the new media revolution” (van Doorn et al. 2021, 43). These realities have a meaningful effect on individuals, just as Santa Claus, for example, has an effect as a sign, although there are no indexical measurements or denotates for him that would give an indication of his actuality. For the societal construction of reality, the materiality of something is not a prerequisite for its effect and meaning in a society. Fictional images, fictional films or VR worlds etc. belong to the realities that individuals experience and communicate in their society (Esposito 2007) or with which they “play” (van Doorn et al. 2021, 41). Accordingly, the so-called metaverse provokes a socialized reality that remains virtual in merely some aspects, can therefore never attain actuality, but offers relevant realities in terms of its symbolic worlds of meaning. “The world as our home is always multi-leveled” (Romanyshyn 1989, 182). This quotation from Romanyshyn expresses that the world society certainly communicates multiple realities with the new media, although the planet earth itself very probably exists as a singularity.

The Effect of a Placebo as a Sign with Virtual Denotate

If something virtual as a sign acquires a real effect for recipients, this does not mean that virtual and digital cannot be distinguished. Beinsteiner, Blasch, and Hug (2020) point out with Massumi how virtual and digital differ. They point out, as argued above, that the opposite of virtuality is the actuality of something material, whereas the opposite of digital

(discrete, distinguished) occurs as analog (relative). For example, placebos can act as “dummy” medication when patients interpret them as positive signs of their psychosocial context. A placebo seems virtual because it alters reality by virtue of its sign-ness, but a substance effectiveness on a patient’s body remains fictitious and can never be proven as a timely, actual, or causal response. Likewise, the virtual in VR has a real and effective sign-like quality, while continually simulating the actuality of a materialization. Hence, what happens in VR happens effectively, but does not materialize at any time, which is why it will not have actuality at any time. Therefore, the virtual does not actualize something real. The virtual realizes something as signs that allow for multiple interpretations, as Deleuze also notes in connection with Bergson (Deleuze 1991). According to Bergson, the virtual can potentially be there or created, although it has not yet become actual or materialized (Bergson 1919). The virtual can therefore seem real, although it cannot be proven to be actual.

The concept of virtuality defined by Bergson clarifies the mode of reception of virtuality in a Head Mounted Display (HMD). The above-mentioned example of “flying stones in a room” showed in sign-theoretical terms how head-mounted displays and images differ in their mode of reception. In everyday practice, viewers effortlessly distinguish whether an object is a denotate or whether an image of the object is a signifier. For example, if a viewer were shown the image of a stone so that they would hand over a stone, but they then handed over not a stone but another image thereof, they would have missed the intended denotate of the image in the communication context. Usually, recipients see iconic signifiers in images that resemble what they signify. A head-mounted display (HMD) uses two screens to simulate a virtual reality. In the screens of an HMD, however, recipients seemingly no longer visually perceive the signifiers, but instead experience them as if the signifiers (concepts) were no longer arbitrary but could be visually perceived in the same way as real objects. This change from signifier to virtual denotate marks the immersion that recipients temporarily experience as an experience of consciousness. Immersion can therefore not be a technical quality, as Slater, Wilbur, and Bailenson (1997) assume (cf. Bailenson 2018). The virtual reality in the HMD has a psychological and perceptual immersive effect on recipients (Lombard and Ditton 1997); Biocca and Levy 1995). In psychological and perceptual immersion, it appears to perceivers as if they are actually seeing genuine, material objects that the screen presents to them as a real, sign-like, and interactive *trompe l’oeil* or virtual denotate. When perceivers experience virtual realities immersively, virtual denotates have been successfully simulated to them as reality (Wiesing 2015; Slater and Wilbur 1997).

Images differ from VR in an HMD in the way they are received. An HMD is based on two image surfaces, but their moving images present an eye-like appearance that lets the recipient see virtual objects in virtual spaces. With this optical trick, an HMD creates the impression that signifiers become interactive denotates. In other words, the HMD manipulates the pictorial signs as if material objects were to be visually perceived in an interactive, physical experience. Presumably, an HMD rarely achieves its ideal characteristic

feature permanently. Therefore, users can be expected to develop a split “self-model” (Metzinger 2014, 18). Users of an HMD know that they are a subject in their material lifeworld and at the same time experience visually, that they can find themselves in the body of an avatar in a symbolic lifeworld. The more users temporarily forget themselves as a subject in a sign-like lifeworld of VR, the stronger the symbolic lifeworld of VR has a subjectively immersive effect on them.

VR is an Interaction Medium and Not a Communication Medium

The immersive effect of the medium VR provokes a fundamentally different mode of reception than traditional, pictorial media. In social practice, images serve as communication media with which actors communicate something visually. A virtual reality, however, hardly takes over tasks of a communication medium. Actors use VR primarily as a medium of interaction that allows spatial and representational virtuality to be experienced visually and physically. The interaction medium VR provides, for example, a virtual airplane cockpit in order to control a virtual airplane with one’s virtual hands. Of course, material as well as simulated cockpits communicate their interpreted functions, just as, for example, furnishings of an apartment communicate something about their furnishers. In terms of social practices, however, the communicative message of interaction media takes a back seat to the interactive message of spaces and objects. The medium of VR conveys the message: it is a holistic medium that integrates “all” other media—including images (Schelske 2020, 8). Ideally, users experience VR immersively in order to move through the medium of virtual space using an avatar and interact with virtual objects. Images convey signifiers to signify something iconically by resemblance, whereas VR simulates virtual denotates to resemble the actuality of objects themselves. Therefore, the mode of reception of images consists primarily in viewing. The mode of reception of VR, meanwhile, consists primarily in a physical action and practice within the holistic medium. Augmented reality combines the techniques of a communication medium with an interaction medium to make virtuality in actuality accessible to users as augmented reality.

The different ways of receiving images and virtual realities have a different effect on the desired elasticity of reality. The realities of image communication are meant to communicate something, how something looks, to communicate it as real, virtual, or fictional in a society. The realities of VR are primarily meant to make something present for physical action and experience, in order to make it virtually manageable in a society. The physical interaction with virtual denotates of an immersive living world characterizes the so-called metaverse. Image communication enthralled its viewers over the last centuries with zero denotates, which, as virtual ghosts, angels, unicorns and Santa Clauses, could organize fantastic realities in societies without any actuality. For a visual communication through images, Goodman (1969, 6) argues “that the world is as many ways as it can be truly described, seen, pictured,

etc., and that there is no such thing as the way the world is.” Undoubtedly, Goodman’s assertion also applies to virtual reality. Nevertheless, an immersive world of VR seduces one to experience that which is visually presented as would be evoked by the very similar world. Images do not and should not achieve this kind of psychological and visual immersion.

Deep Fake in Pictures versus Deep Fake in Virtual Reality

A deep fake is characterized by the fact that an image shows a reality that never had any actuality—i.e., never took place. Deep fakes “are used maliciously to spread false information” (van Doorn et al. 2021, 43). Often, deep fakes use the technique of face swapping, in which a person’s face in a picture or video is swapped with the face of another person. For example, videos exist on the Internet that show a speech by Obama, although he never actually gave that speech. Using digital technology, deep fakes create a reality that technically simulates a known denotate of the image with a virtual null denotate. In painting as well as in photography, such deep fakes have been in existence for a long time. What is surprising at present is that remarkably convincing deep fakes in video have become technically possible. Such deep fakes can be a sort of successful disinformation, which puts them in a line with so-called “fake news”. However, van Doorn et al. (2021, 72) point out that the “concept of ‘real’ and ‘fake’ are not sufficient to capture all the various degrees of reality.” For example, in the game of realities, the pop band Abba shows how the computer technology of deep faking can be used to create a virtual show. The four band members felt they were too old and faked their show with virtual avatars to look young on the screen. For moral evaluation, it depends on the “frame” (Minsky 1974) how elastic realities with the technique of deep faking should be interpreted. A technique is neither good nor evil in itself, but the way it is used makes deep fakes morally reprehensible. The musicians of Abba chose a reality that virtually rejuvenates them because they want their current aging to go unrecognized. In the case of Obama, the public are deceived. In the case of Abba, the public may be deceived because the protagonists wish to hide their actuality. The metaverse is therefore attractive because it stages realities as a communicative game whose virtuality can by no means always be experienced as actuality.

Conclusion

Steven Spielberg’s movie *Ready Player One* (2018) shows that virtuality in the metaverse does not function as the opposite of a social reality. Rather, the movie makes clear that social constructions of different realities can be experienced in the virtual metaverse. The virtual in the metaverse, of course, shows a reality that can also be seen, for example, as a virtual show of the pop band Abba. Undoubtedly, there is no actuality of young musicians, but only of the old musicians of Abba. In this respect, the virtual show of Abba communicates a social reality, which, however, communicates a null denotate with regard to the age of the

musicians. For the social construction of reality in the metaverse, there is no need for communicated signs to have current denotates. Images, in particular, as well as the metaverse, are fascinating because they visually communicate realities that remain without actualities. For example, virtual pop bands communicate in the metaverse even though their reality remains without physical actuality in social construction. Images of a virtual pop band have null denotate in the scientific worldview. Likewise, images of, for example, virtual influencers on Instagram have null denotate—e.g., the influencer imma.gram. Virtual influencers never actually exist, although their realities could be experienced virtually by many. The importance of a sign for the social construction of a reality is decided in the way it is used. For the social construction of a reality, it is often irrelevant whether something can be experienced virtually or actually. For example, placebos can have a positive effect on health because they act virtually as a sign, but not actually as a substance.

AI Acknowledgment

Generative AI or AI-assisted technologies were not used in any way to prepare, write, or complete essential authoring tasks in this manuscript.

Conflict of Interest

The author declares that there is no conflict of interest.

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