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Seeing Through Photographs: Photography as a Transparent Visual Medium

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> One day, quite some time ago, I happened on a photograph of Napoleon's youngest brother, Jerome, taken in 1852. And I realized then, with an amazement I have not been able to lessen since: 'I am looking at eyes that looked at the Emperor.' Sometimes I would mention this amazement, but since no one seemed to share it, nor even to understand it (life consists of these little touches of solitude), I forgot about it.
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> — **Roland Barthes, *Camera Lucida***

Abstract :

The idea that looking at a photograph is akin to face-to-face perception and that photographs provide genuine perceptual access to the objects they depict was notoriously defended by Kendall Walton in 'Transparent Pictures'. Walton's main thesis is that photographs are *transparent* in the sense that we can see objects *through* them. The main goal of this paper is to support Walton's view by providing a full account of photographic transparency. I will argue that the transparency that characterises photography is not metaphorical but in fact exhibits all the essential properties of transparent materials. To understand how a photograph can be transparent, one must understand the special type of causal connection between a photograph and what it shows. Building on Heider's work, I will argue that photography is a visual medium, like air, water, glass or mirrors, capable of transmitting the visual properties of distant objects to the perceiver.

1. Introduction

Although philosophers tend to share Barthes' appreciation of the acute realism exhibited by photographs, few would say, like him, in the opening quote, that we can literally look at the eyes of Napoleon's brother through a photograph. Many philosophers believe, on the contrary, that photography is essentially different from face-to-face seeing and that a proper understanding of photographic realism amounts to spelling out this difference. Gregory Currie, for instance, writes:

> How much overlap is there between ordinary seeing and seeing photographs? Not much; not enough for us to agree that seeing photographs is strikingly analogous to ordinary seeing (1995, 65-66).

The idea that looking at a photograph is akin to face-to-face perception and that photographs give a genuine perceptual access to the objects they depict was notoriously defended by Kendall Walton in 'Transparent Pictures'. Walton's main thesis is that photographs are *transparent* in the sense that we can see objects *through* them. He argues in particular that photographs are prosthetic devices that, like mirrors, telescopes and microscopes, enable us to see things we could not see without them. Walton writes:

> Mirrors are aids to vision, allowing us to see things in circumstances in which we would not otherwise be able to; with their help we can see around corners. Telescopes and microscopes extend our visual powers in other ways, enabling us to see things that are too far away or too small to be seen with the naked eye. Photography is an aid to

> vision also, and an especially versatile one. With the assistance of the camera, we can see not only around corners and what is distant or small; we can also see into the past. We see long deceased ancestors when we look at dusty snapshots of them. To view a screening of Frederic Wiseman's *Titicut Follies* (1967) in San Francisco in 1984 is to watch events which occurred in 1967 at the Bridgewater State Hospital for the Criminally Insane. Photographs are *transparent*. We see the world *through* them (1984, 271).

The main goal of this paper is to defend Walton's view by providing a full account of photographic transparency.[1] I shall argue that the transparency that characterises photography is not metaphorical but in fact exhibits all the essential properties of transparent materials. To understand how a photograph can be transparent, one must understand the special type of causal connection between a photograph and what it shows. Building on Heider's theory of perceptual media, I shall argue that photographs, like other visual media, but unlike most opaque objects, store and transmit visual properties of remote objects by transmitting and preserving the

[1]The present proposal does not endorse all aspects of Walton's approach to photographic transparency. It shares however many of its central ideas. Like Walton's account, it argues that photographs enable the viewer to literally see the photographed scene and it provides a realist explanation of their transparency that accounts for their special epistemic advantage over other pictures. It also brings out the similarities between photographs and other prosthetic devices by spelling out the similarities between their causal roles and by explaining how "perceptual contact can itself be mediated—by mirrors or television circuits or photographs" (Walton 1984, 273).

structural organization of the incoming light rays and that they are therefore, in a sense to be explained, both transparent and opaque.

The thesis of photographic transparency defended in this paper is therefore realist in the sense explained by Cavedon-Taylor:

> Those accounts that, like Walton's and Currie's, seek an explanation in terms of the nature of the photographic medium itself, I shall call 'realist'. The label is appropriate insofar as these accounts appeal to (putative) facts that are, in an important sense, viewer independent. Photographs are transparent, or are traces, independent of our believing them to be so (2015, 73).

Although the thesis of photographic transparency endorsed in this paper does not rest on mind-dependent facts, it is crucial to spell out the kind of perceptual experiences elicited by photographs. Following Briscoe (2016), I shall argue that photographic perception does not involve the perceptual experience of an intermediate surface, as philosophers have frequently assumed. I shall argue that, although we direct our eyes to photographic paper or to a screen when looking at a photograph, we do not perceive the features of the paper or the screen.[2] I shall suggest that the features stored

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[2] Following a tradition in philosophy of depiction, dating back to Ernst Gombrich, (1961/2000), the present paper denies that photographic perception involves a visual awareness of the photograph's surface. As I will explain in §5 and §6, it is possible to perceive the visual features of the photographic paper, but it is a different experience than the experience of looking at a photograph. Moreover, these experiences are incompatible. Or in Gombrich's words : "is it possible to 'see' both the plane surface and the battle horse at the same time? (…) the demand is

and transmitted by the paper or the screen are the visible properties of the objects that were captured by a camera. Although this approach seems to be consistent with common sense and the phenomenology of photographic experience, it runs against the view of many philosophers who maintain that the perception of pictures in general and of photographs in particular involves two or more perceptual states. According to this common view, picture perception is twofold in that it involves both the awareness of the picture's surface and the awareness of the depicted object (Wollheim 1980).

The realist view of photography defended in this paper has many interesting consequences. First, from an epistemological point of view, photography is notoriously different from other kinds of pictures. As is often stressed, no other depictive object can compete with a photograph when it comes to emotional impact. From the horrors of war and the distress arising from natural disasters, to the sexual drive, astonishment over the unfamiliar and tenderness for the familiar, the emotional intensity occasioned by photographs seems to be rooted in the immediacy of their objects and the undeniable evidence they carry. As Susan Sontag notes, photographs 'furnish evidence. Something we hear about, but doubt, seems proven when we're shown a photograph of it […] A photograph passes for incontrovertible proof that a given thing happened' (2005, 3). By arguing

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for the impossible. To understand the battle horse is for a moment to disregard the plane surface. We cannot have it both ways" (1961/2000, 279).

that looking at a photograph and face-to-face seeing are experiences of the same nature, this paper provides a straightforward explanation of the evidential weight and the resulting emotional impact of photographs.

A correlative consequence of this approach concerns the aesthetics of photography. It has been argued that the aesthetic appreciation of pictures relies on the capacity to perceive both the picture's surface and the depicted scene or object (Wollheim 1980; Scruton 1981; Friday 1996; Lopes 2003). If, as I shall argue, looking at a photograph does not involve the perception of its surface, this approach to the aesthetic appreciation of pictures must, in the case of photography, be reconsidered.

In the following section, I introduce the notion of perceptual media and describe in greater detail the fundamental characteristics of a material that transmits visual properties. In §3, I discuss the notion of transparency and its relation to light, opacity and visibility. The possibility that opaque surfaces can be transparent is explored in §4, where I consider along the way optical devices like mirrors and the camera obscura. Having argued that opaque surfaces can serve as visual media, I show in §5 how the same line of reasoning can be applied to photography and consider its consequences for epistemology. In §6, I discuss some of the challenges the account faces and indicate how they might be answered.

2. Perceptual media

Walton's thesis of photographic transparency has been abundantly discussed, but few have considered the notion of transparency in its own

right.[3] If some materials, like glass or pure water, are said to be transparent, what does it mean to say that photographs are transparent? Does it mean that photography shares a property with glass or pure water, or should we rather regard photographic transparency as sui generis or somewhat metaphorical?

Although the notion of transparency is often used in relation to vision to characterize some materials, like glass or pure water, it in fact concerns all sensory modalities. Transparency occurs, indeed, when some object is perceived *through* something else: it occurs when we look at the sky through a window, hear a laugh through a wall, feel a caress through a blouse, but also observe Neptune through a telescope or hear a crowd cheering and clapping through the radio.[4]

Transparency, defined as the property of that through which perceptual objects appear, is therefore intimately related to the problem of perception at a distance and the notion of perceptual media. As recognized by Aristotle, although the interspace between the perceiver and the observer may seem empty, perception at a distance is possible as long as

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[3] Since Metelli's work was published, it has been customary to distinguish between psychological transparency and physical transparency. Psychological transparency has been discussed in relation to pictorial perception (Kulvicki 2014; Newall 2015; Briscoe 2016), but little has been said regarding the relation between photography and physical transparency. This paper intends to fill this gap by showing that photographic transparency is grounded in physical transparency.

[4] For a recent account of radio and auditory media as transparent, see Mizrahi 2020.

there is a causal intermediary connecting the remote object to the sense organ. He claimed, in particular, that the colours of distant objects could not be perceived if there was not a suitable medium capable of acting directly on the organ of sight. This idea is clearly expressed in De Anima (ii 7 418b13–22; Smith in Barnes 1984b, 33–34):

> The following makes the necessity of a medium clear. If what has colour is places in immediate contact with the eye, it cannot be seen. Colour sets in movement what is transparent, e.g. the air, and that, extending continuously from the object of the organ, sets the latter in movement. Democritus misrepresents the facts when he expresses the opinion that if the interspace were empty one could distinctly see an ant on the vault of the sky; that is an impossibility. Seeing is due to an affection or change of what has the perceptive faculty, and it cannot be affected by the seen colour itself; it remains that it must be affected by what comes between. Hence it is indispensable that there be something in between—if there were nothing, so far from seeing with greater distinctness, we should see nothing at all.

Following Aristotle's view of the nature of perception, I shall argue that perception is essentially mediated by a medium and that a proper understanding of perception cannot therefore be obtained without a suitable account of perceptual media. When comparing photographic perception to face-to-face perception, it is indeed important to remember that face-to-face perception is always mediated by a perceptual medium, even if it doesn't surface at the phenomenological level. The next step of this study of photographic transparency is therefore to explain the role of perceptual media in general and how it applies to photography. It is only at

the end of this investigation that the reasons for considering photographic perception and face-to-face perception to be of the same ontological kind will become clear.

A detailed account of perceptual media can be found in Fritz Heider's 'Thing and Medium', in which the notion of a perceptual medium is regarded as a central part of the causal approach to perception. Like Aristotle, Heider addresses the problem of perceiving at a distance and suggests that a special kind of mediator between the perceiver and the object perceived is needed in order to carry the perceptual information from the perceived object to the perceiver. This perceptual mediator, he argues, should be able to interact causally with the perceived object and the observer, but also to guarantee that this causal mediation occurs without interference. That is, it is crucial that media, as intermediaries, do not interfere with the information they convey. Otherwise the information would be not only about the perceived object, but also about the medium itself. As Heider stresses, "the configuration of light rays which meets my eyes, is coordinated to the object, the stone, in a special way. Even a small change of the surface of the stone changes the stimulus configuration. It is not coordinated to any specific properties of the mediator" (1959, 3). Although it is correct to maintain, with Heider, that the perceptual medium causally transmits information about the environment, it is equally important to stress that this information constitutes only a tiny portion of the information available. To grasp fully the role of media in perception, it is indeed imperative to realise that the environment is causally dense and

very complex and that only a limited fraction of the world that surrounds us is accessible by our senses. We see coloured surfaces, hear sounds and smell odours, but we do not perceive a large number of causal processes that take place right before us. For example, we don't perceive radioactivity, geological changes or most electromagnetic processes. Heider's notion of perceptual media is an invaluable resource for explaining how perception extracts information from this complex web of causal relations.

The kind of information conveyed by a medium is directly correlated with the kind of causal process involved in that medium. Consider water: like air, it is a medium for sound and light, but it is also a good conductor of electricity. It is therefore unsurprising that electroreception is found in most aquatic animals. In fact, it appears that the capacity to detect electrical signals in the environment arose early in evolutionary history but was subsequently lost in those vertebrates that crawled on to land, because air, a poor medium for electricity, replaced water as their natural habitat. Perceptual media enable the transmission of information, but they also select what kind of information is available to the perceiver. This is why perceptual media, although not perceived, fundamentally shape the way we perceive the world.

The central claim of this paper is that photographs, like air, water, and glass, are visual media (Mizrahi 2018). This claim certainly faces some difficulties. After all, is it not obvious that we perceive photographs as we perceive ordinary objects of our environment? Is our physical interaction

with photographs not a confirmation that we can see photographs just as we can see any blank sheet of paper?

I agree with these observations, as well as with the claim that photographs are opaque: they reflect incoming light and don't transmit light as do common transparent materials. I think, however, that photographs are special visual objects with multiple properties. I argue that photographs, unlike most opaque objects, store and transmit visual properties of remote objects by transmitting and preserving the structural organization of the incoming light rays and that they are therefore, in a sense explained below, both transparent and opaque.

3. Transparency, opacity and visibility

As stressed by Aristotle and Heider, the notions of visual media and transparency are intimately connected. By transmitting light from the perceived object to the perceiver, a visual medium like air or water creates an environment where visual perception can take place without obstruction. Unlike opaque objects, which impose visual resistance, transparent media offer an openness through which sight can pass. Transparency and visibility therefore appear to be opposite notions. In order to see behind or through something, there must be no visible obstacle. If an object O is spatially located between the observer and the background, the background is visible only if O is not seen. Conversely, in order to be visible, the surface of an object must be opaque. To say that something is transparent is to say that we can see through it, whereas to

say that an object is opaque is to say that we cannot see behind its surface. It is also interesting to note that opacity and transparency seem to be complementary and gradational characteristics. The more transparent an object is, the less opaque its surface. On the level of physical description, this complementarity appears to be quite simple, because for a body to be transparent, it must transmit light. Therefore, the higher the light transmission, the higher the transparency.

It seems, however, that this simple equation between transparency and light transmission does not fully capture the sense of transparency, because it fails to spell out the relation between light transmission and visibility. As Gibson stresses, light 'is never seen as such, it follows that seeing the environment cannot be based on seeing light as such'(1979, 55). Although the presence of light is a necessary condition for seeing to occur, light is a condition for visibility only because it contains information about visible things. As Gibson notes, light is informative insofar as it is structured by the environment. Therefore, light plays an essential role in visibility not by virtue of its own physical characteristics but rather because it can be structured by the environment.

The same idea is expressed by Heider, who explains why the information conveyed *by* light is not *about* light itself. From an ontological point of view, light does not possess the characteristics it conveys because light is composed of a manifold of independent light rays that vary independently. When a particular structure emerges from this manifold, it

does not therefore characterise the manifold but rather the event or the object that imposes its structure on it. Heider explains:

> The mediator processes which meet our sense organs are spurious units; they have unitary form not because they are coordinated to objects. If one does not refer them to their unitary cause, they are unexplainable. A manifold of light rays which has been produced by a source of light cannot be compared to an event, such as the fall of a stone, which also had its causes but which it stands, so to speak, by itself. The light rays have no 'reality' without their cause. They contain a strict order which cannot be attributed to the waves themselves since they are independent of each other (1959, 7).

Therefore, visibility and light transmission are intimately connected because the materials transmitting light preserve the structure of the environment conveyed by light.

Consider Gibson's contrasting example of a case of light *without* structure:

> It would arise if the air were filled with such a dense fog that the light could not reverberate between surfaces but only between the droplets or particles in the medium. The air would then be translucent but not transparent. Multiple reflection would occur only between closely packed microsurfaces, yielding a sort of microillumination of things too small to see. At any point of observation there would be radiation, but without differences in different directions, without transitions or gradations of intensity, there would be no structure and no array. Similarly, homogeneous ambient light would occur inside a translucent shell of some strongly diffusing substance that was illuminated from outside. The shell would transmit light but not structure.

> In the case of unstructured ambient light, an environment is not specified and no information about an environment is available. Since the light is undifferentiated, it cannot be discriminated, and there is no information in any meaning of that term. The ambient light in this respect is no different from ambient darkness. An environment could exist behind the fog or the darkness, or nothing could exist; either alternative is possible (1979, 52).

Unlike perfectly transparent materials, translucent objects are only partially transparent. Although they transmit light like other transparent materials, they also scatter the light, hence destroying the configuration of the incoming light and imposing a new arrangement of light rays. Depending on how much it transmits light and how much it scatters the light, a translucent material is more or less transparent.

> Most transparent materials mediate the visibility of distant objects by allowing light to pass through, but what really matters for a perceptual medium to be able to transmit visible properties to the perceiver's sense organ is not its capacity to transmit light itself, but its capacity to preserve and transmit characteristic patterns of light rays caused by the perceived objects. This is the case because what is visible is not the light itself but the visible properties of objects which are nothing other than the properties (color, shape, texture…) that cause objects to interact with light in a particular way. This is why transparency, even when applied exclusively to visual media, cannot be restricted to the property of transmitting light but must be understood more generally as "a condition on the visibility of other things" (Kalderon 2018, 235).

I shall argue that some opaque objects, which reflect or scatter the incoming light, can mediate the visual perception of distant objects and therefore perform the role of visual media. I shall also argue that these opaque objects, although they do not allow light to pass through, are genuinely transparent and, in a sense explained below, invisible.

4. Seeing through opaque surfaces: mirrors and screens

Following Heider and Gibson, I have argued that light conveys information about the visible properties of objects because the structure of the light waves reaching the eyes of the perceiver is coordinated with the structure of objects affecting the properties of the incoming light. But for this structure to reach our senses, the information must be conveyed by light via a medium, such as air or water. The role of the medium is to relay this causal process by preserving the structural unity of the information without alteration. Although most common visual media perform this function by preserving the original direction of the light rays, some visual media preserve the structural organisation of the incoming light rays but change their direction. This is the case with refractive materials, like water, or reflexive surfaces, like mirrors. Because mirrors reflect light and do not allow light to pass through, mirrors are said to be opaque.

Although mirrors share properties with coloured opaque surfaces, they differ from such surfaces in multiple ways. Mirrors are opaque in relation to objects located behind them, but they are transparent in relation to objects located in front of them. If a mirror hangs on a wall before me, I cannot see the portion of the wall covered by the mirror, but I can see my

face, my body and most of the details of the room in which I stand. Unlike opaque surfaces that have a colour, mirrors are colourless. The colours we see in mirrors are the colours of the objects we see in them: the mirror ‘looks’ blue if it reflects the sky or white if it reflects snow. Unlike opaque objects, mirrors therefore appear to be transparent in relation to the objects they reflect.

The case of mirrors is therefore of particular interest here, because they consist in a medium that can be both opaque and transparent. To understand how this kind of mediation occurs, we must spell out Heider’s distinction between thing and medium and explain how it is fundamentally determined by their respective physical properties. Heider distinguishes between things, which are internally conditioned, and media, which are externally conditioned. The fact that media are externally conditioned corresponds to the fact that their parts are causally independent of each other. Any air molecule can move freely without affecting the way the other air molecules behave. By contrast, all the parts of an internally conditioned object are interdependent. By moving the back of a chair in one direction, for example, we induce a motion of its legs.

The notion of externally conditioned entities explains how media can causally contribute to perception without being part of its phenomenal content. Because the medium's parts are causally independent of each other, the medium as a whole can remain undisturbed by a particular process even while the medium's parts are directly affected by it. As Heider writes:

> The process on the surface of the stone, which reflects the light rays, is a process which is conditioned by the substratum . . . the fact that this particular kind of process occurs, namely, one which contains waves of particular lengths arranged in certain patterns, is determined by properties of the stone. The process in the medium, on the other hand, is conditioned externally. What happens in it is dependent on the form of the impinging process; the special state of the medium is to a high degree irrelevant for the form of the process in it (1959, 4).

Although Heider doesn't explicitly identify mirrors with visual media, he clearly points to the fact that mirrors are externally determined. He contrasts mirrors with the surfaces of visible objects:

> It is very important that the order of the direction of light rays is changed at the surface of an object […] In the case of the mirror, however, they are reflected independently of each other. A mirror changes the direction of light rays; but it changes the direction of all rays in the same way so that the configuration is preserved. At each point there is a multitude of rays of different directions, and the composition is determined externally. With an object which has not the properties of a mirror, however, the kind and direction of incoming light rays are more or less irrelevant (1959, 16).

Unlike the direction and frequency of the light reflected by opaque surfaces, those of the light reflected by mirrors are determined by the properties of the incident light. This physical property of mirrors explains why mirrors preserve the structural organisation of the incoming light and therefore why they do not affect the information they convey.

Despite their opacity in relation to the objects located behind them, mirrors are therefore visual media allowing vision to reach objects located

in front of them. Although they impose a change of perspective, mirrors faithfully transmit visual appearances by ensuring that light rays shaped by the environment are independently transmitted to the observer without alteration (Mizrahi 2019).

Heider also discusses cases in which visual transparency is achieved by opaque materials. He considers situations in which the variations of light reaching each point of a uniform opaque surface are not the result of the ambient light but are correlated to the way distant objects respond to the incoming light. Consider first the simple case of a shadow play in which hands are used to project shadows of different shapes on a wall. Whereas the silhouettes that appear on the wall appear to be exclusively correlated to the way the hands and the fingers are positioned, the perception of the shadows would not be possible without the special contribution of the physical properties of the wall. It is indeed only because the uniform wall reflects separately, and in a similar way, each ray falling on each point of the wall that we can perceive the visual properties created by the clever arrangement of the hands. As Heider stresses, we perceive distinct and distant configurations of light rays insofar as there is a medium able to transmit those configurations without imposing its own structure on them.

The same line of reasoning holds for more complex cases of perception using light projection on a screen. Consider the photographic camera's first ancestor: the camera obscura (or pinhole camera). A camera obscura is a simple optical device in the shape of a closed box with a small

hole in one of its sides and a screen inside the box behind the pinhole. When an object is placed outside the box in front of the hole, all light rays outside the box are blocked from entering the box except for one ray from each point of the object, each of which can pass through the small opening and reach the screen. As light travels in a straight line, each point on the screen receives only one ray coming from a unique point of the object. Because each point of the screen varies according to the light rays coming from a particular point of the object, the configuration of reflected light rays on the screen correspond to the configuration of light-reflecting surfaces of the object. As Heider maintains, when we look at light projections on a screen, we do not perceive the screen, but only the external causes of the configuration of light rays on the screen. He writes:

> A solid thing has not one but many points. Can we consider the sum of wave events at all these points a unit? No. It is a composite event. It is possible to illuminate each single point separately and, by using different illuminations, to force upon the thing entirely arbitrary configurations. For example, consider what appears upon the motion picture screen simply as the result of selective illumination. In these cases, the screen serves as a mediator. We do not see the screen; we see something else. And that again is only possible because single events on the screen are independent of each other (1959, 17).

Heider's account of visual media explains how a uniform surface can be used as a mediator and why in this situation the surface's own physical properties are not perceived and the surface is therefore transparent for the perceiver. The transparency of screens is attested phenomenologically by the fact that the colours perceived on the screen, when it reflects light

correlated to an outside object, do not appear to belong to the screen but rather to the surface of the object perceived through the screen. Imagine that you place a red apple outside the camera obscura. The redness you will perceive on the screen appears to belong not to the surface of the screen but rather to the perceived apple.

That said, because a screen is a surface with chromatic properties, it can be perceived, like any other coloured surface. In such cases, the screen is not a visual medium but an object with visual properties. Depending on the circumstances, a white wall can be a screen and disappear behind Robert De Niro's yellow cab or it can be a perceptual object and be perceived per se. There is no contradiction in this ambivalence but only a perceptual incompatibility related to the fact that two different perceptual experiences with different objects cannot occur simultaneously: either you look at De Niro's yellow cab or you look at your living-room wall.

Heider notes that for an opaque surface to serve as a mediator, the surface must be uniform in order to preserve the configuration of the light rays reflected by the screen. If the screen is not uniform, the original configuration of the light rays is partially or totally destroyed, and the screen loses its transparency. At the phenomenological level, what happens when a screen is not uniform and some of its physical properties cannot serve as mediators is identical to what you get when looking

through a partially transparent medium: information from the medium and information from the objects perceived through it are mixed up.[5]

5. Photographic transparency

It was with the intention of making permanent what he saw through a camera obscura that Nicéphore Niépce invented photography. Although there has been continuous development in the technologies used to produce photographs, Niépce's goal of capturing and fixing permanently what could be seen with a camera obscura still distinguishes photography today.

Whereas a camera obscura transmits to the observer the arrangement of light rays coming from a particular region by selecting the incoming light via a small aperture and projecting it on a screen, a photographic camera records the light rays selected by a lens by means of light-sensitive chemicals or electronic sensors and transmits their arrangements through a screen or a printed surface. Like the coloured shapes perceived on the screen of a camera obscura, the chromatic discontinuities on a photograph are the end result of a complex causal process that relies on the fact that the multitude of points – or pixels – constituting the surface of the

[5] This is the technique used cleverly by Abelardo Morell to create images in which the inside and outside of a room are nested together. See for instance 'A. Morell, Camera Obscura: View of Volta Del Canal in Palazzo Room Painted with Jungle Motif, Venice, Italy, 2008'.

photograph are individually correlated to properties of the light rays selected by the lens. Like any other visual medium, a photograph is therefore transparent because it relays information conveyed by light by preserving the configuration of the light rays shaped by the perceptual objects. As stressed by Heider, a photograph can function as a mediator because photographic film and paper can register and store the characteristic patterns of light rays caused by the interaction of light with the photographed object. Photographs are, in this regard, special kinds of traces, similar to footprints left in sand or impressions sealed in wax. Heider explains:

> Something static, too, can serve as a mediator, and such mediators are generally called traces. Changes in the position of parts of solid bodies, or changes on the surfaces of soft materials are traces though which we can recognize their causes. Again we find the same relations. The trace is more characteristic of the source the more possibilities of change the mediator had at the moment at which the trace is produced, that is, the more it pictures that which produced the trace[…]If the substratum of the trace loses its mediator characteristics[…], the trace becomes permanent and the material cannot serve for further mediation. This is what occurs in every "fixation", whether applied to photographic film or a drawing; the hardening of a plastic mass in casting serves the same purpose (1959, 21-22).

The theory of photographic transparency defended here explains how the physical properties of some materials or surfaces are directly responsible for their capacity to serve as mediators. It doesn't rest on subjective

experiences and can therefore be considered objectivist or realist. Unlike Metelli's approach to transparency, it doesn't involve a distinction between perceptual transparency and physical transparency (Metelli 1974). It explains transparency through the causal process that ensures the transmission of the visual properties of photographed objects to the observer's sense organs. This approach to transparency, however, has direct consequences regarding what kinds of mental states are elicited by photographs and the way they are experienced. More specifically, it supports the view that photographic perception is a species of ordinary seeing. According to this view, the same perceptual capacities are at work when looking at a photographed red apple as when looking at a red apple through air, because it assumes that in both cases the visual process relies on a configuration of light rays structured by the spatial and physical properties of the apple. Moreover, this view is in accordance with empirical studies of pictorial perception showing that similar visual responses are caused by depicted objects and objects perceived face to face (Cutting 2003; Rogers 2003; Briscoe 2019).

This realist view of photographic transparency also provides a straightforward answer to the status of the photograph's surface perception in photographic experience by denying that the photograph's surface perception is involved in photographic seeing. Although it is possible to perceive and visually discriminate the patterns and the colours on the surface of a photograph, this perceptual experience is incompatible with the experience of seeing the scene transmitted by the photograph.

To understand this incompatibility, it is useful once again to consider the role of perceptual media. As discussed above, the kind of causal process involved in a medium is directly correlated to the kind of information it conveys. Perceptual media enable the transmission of information, but they also select what kind of information is available to the perceiver. This is why telescopes are suited to observing distant planets and microscopes to looking at germs, whereas the naked eye is better adapted to spotting berries or bears.[6]

In the same way as the position occupied by the observer determines a spatial perspective, the medium through which perception takes place determines a causal perspective. Visual experiences essentially involve visual standpoints that determine the visual appearances of objects: a coin appears circular or 'elliptical' depending on its orientation to the observer. We can say that perceptual experiences similarly involve causal standpoints that determine what kind of information is available to the observer.

As with spatial perspectives, there are no right or wrong causal perspectives. But all perceptions are essentially perspectival in the sense that they present their objects from a particular point of view. The fact, for instance, that we may notice a huge difference between a drop of blood

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[6] In addition to the refractive lenses used in microscopes and telescopes, there are number of other visual media: colour filters, polarised filters, mirrors, … For a detailed account of how these visual media affect perception, see Mizrahi (2018).

seen through a microscope and the same drop of blood seen with the naked eye does not indicate that one of these appearances is misleading. The same drop of blood, viewed through a microscope and by the naked eye, looks different because these media make different kinds of information accessible. Like spatial perspectives, causal perspectives are objective and mind-independent. They correspond to the fact that perceptions always take place through a particular medium (or a particular combination of media). A particular spatial point of view determines a particular spatial field that delimits what is perceptually accessible for the observer at that particular location. Likewise, we can say that by transmitting particular causal processes but not others, perceptual media determine causal perceptual fields that delimit what is causally accessible for the observer.

When an observer looks at Napoleon's brother through a photograph, s/he does not see the photograph's surface, because the particular causal standpoint that gives access to the visual properties of Napoleon's brother is different from the causal perspective that allows the observer to see the superficial properties of the photograph. Because air is the default visual medium, we tend to forget its presence, but, as explained by Arthadeva, air is as special as any other kind of visual medium:

> Because air is usually completely transparent we tend to neglect its presence, but we must not forget that it exists and is as material as other things. Seeing through air, seeing through water, likewise seeing through other media or through lenses, are different kinds of seeing (1959, 135).

Photographic seeing is not ontologically different from ordinary seeing: both give access to a limited portion of the world. The portion of the world accessed by photography is, however, determined by the special nature of the photographic medium. In the same way, seeing shapes and colours on photographic paper relies on the special nature of air. The incompatibility between seeing Napoleon's brother through a photograph and seeing the visual properties of the surface's paper therefore results from the impossibility of simultaneously perceiving the world from two different causal standpoints. Photographic perception is no different in this respect from the extended perception obtained through a prosthetic device. If you look through a telescope, microscope or periscope, you gain access to a portion of the world that is inaccessible to the naked eye, but at the same time you lose the ability to perceive the objects around you. Looking into a photograph is not different in this respect. It gives access to visual properties of objects distant in time and in space, but it prevents observers from seeing the properties of the photographic surface lying just before their eyes.

6. Objections and challenges

Walton's view of photographic transparency offers a straightforward account of photographs' evidential force and their 'special sense of immediacy'(Walden 2016, 34), but this view has encountered substantial opposition. One important objection revolves around the idea that photographs fail to provide information about the egocentric spatial

location of their objects. Carroll (1995) and Currie (1995), for example, argue that, because looking at photographs does not elicit the kinds of egocentric judgments we can make in cases of ordinary seeing, seeing through photographs cannot count as a genuine case of seeing. Similarly, Cohen and Meskin maintain that photographs cannot be genuinely transparent visual prostheses because they cannot carry "egocentric spatial information about the object" (2004, 201).

I agree with the observation that photographs do not provide egocentric information, but it seems to me that there is no valid reason to assume that getting or being able to get egocentric information is a necessary condition of seeing. Although it is true that in most visual experiences, the appearances of objects we perceive change according to our spatial relations to them and that these continuous changes ground the way we localise these objects in egocentric space, there is no obvious reason why carrying spatial egocentric information should be a condition of seeing. In fact, the present paper's account of the transparency of photographs suggests quite the opposite. According to this view, visual perception is possible insofar as some perceptual media can transmit information contained in light. Yet, the kind of information that is available to the subject varies according to the medium. The fact that face-to-face perception provides egocentric information that is relevant to the subject's actions and movements is not surprising, because air, as the default medium, has been selected to deliver information that can be immediately used by the subject to adapt her/his behaviour to her/his direct

environment. Photography, by contrast, was invented to transmit information to observers who do not occupy the same immediate environment. Photographs are indeed visual records that make information about visual appearances accessible to different subjects occupying different environments and different times. The fact that photography does not deliver egocentric information is therefore somewhat trivial. Because the observer and the objects perceived through photography do not inhabit the same immediate environment, the kind of information delivered by photography cannot be exploited by the observer to anchor and orient her/his behaviour in relation to these objects. To sum up, the lack of egocentric information manifested by photography is not a problem for the view defended in this paper, because it has been argued that the kind of visual information accessible to an observer varies according to the nature of the visual medium. Photographs fail to provide egocentric information about their objects, not because they are not transparent, but rather because the kind of information they provide is not affected by the observer's position.[7]

Another challenge faced by the thesis of photographic transparency arises from obvious discrepancies between the way the world appears through photographs and the world as it is. Consider the example of black-and-white photography. Although the world is colourful, in black-and-white photographs, the world appears in shades of grey. If, as has been

[7] Notice that the same remark is valid for the information provided by a camera obscura.

argued, photography is transparent, how can photography make the world look different from how it really is? The answer to this challenge rests again on the distinction between the two kinds of experiences that photographs elicit. If it is correct to say that the surface colours of photographs consist of shades of grey, this is not true of what is perceived through the photograph. Consider Matthew Zimmerman's iconic photograph of Marilyn Monroe in a dress undulating around her. Although the dress may be perceived as white, Marilyn's skin clearly does not appear grey. If that were the case, Marilyn would look like a zombie and not a perfectly healthy young woman. Although the surface properties of photographs can be said to be 'black and white', what these photographs capture and transmit is indeed achromatic. Because the first photographic films and papers could capture only light variations of the entire visible spectrum without wavelength segregation, they could not record information corresponding to chromatic variations but only information about a surface's lightness (or albedo), that is, the proportion of incident light that a surface reflects. When looking at a black-and-white photograph, we do not see a world in black and white; we see a world deprived of colours, a world of relative lightness and darkness only.

One last worry about the theory of photographic perception provided here is that, if the surface properties are not perceived, or not accessible to the subject's awareness, then the experience of looking at a photograph would be indistinguishable from seeing the photographed object face to face and would therefore involve a kind of illusion or

hallucination.[8] This approach corresponds in fact to the illusion theory defended in Gombrich (1961/2000), where pictures are considered to elicit the same experience as face-to-face seeing and cause therefore non-veridical experiences. Although, like Gombrich, this paper rejects a twofold account of photographic perception, it denies that the subject's inability to perceive the surface properties while seeing a photograph elicits some kind of illusion. Unlike the Gombrichian account, the present proposal does not explain the similarity between perceiving Marilyn through a photograph and perceiving her 'in the flesh' by similarities about the phenomenal features instantiated by these experiences. What explains their similarities is that both perceptual experiences, through a photograph and face to face, are directed to the same intentional object, i.e. Marilyn.

Recognizing that photographic seeing and seeing face to face are experiences of the same psychological kind does not prevent them from being different and therefore distinguished as such. [9] The theory of perceptual media offered in this paper argues indeed that perception through different perceptual media differs because they give access to different visual properties. Although air and water are transparent and

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[8] Thanks to an anonymous referee for raising this complication.

[9] For a similar account, see Robert Briscoe : "That the content of the experience caused by a picture of a horse typically does not match the content of an experience that might have been caused by an actual horse does not conflict with the claim that they are experiences of the same psychological kind" (2018, 72).

invisible, seeing through water and seeing through air can be distinguished by the kind of visual information they transmit. Similarly, that photographs are transparent and do not differ in this respect from the other visual media does not prevent photographic seeing and face-to-face seeing from being phenomenally distinct. Although photographic seeing and face-to-face seeing are both onefold, there seems to be no reason to assume that they cannot have distinctive phenomenologies.

Like other visual prostheses, such as telescopes and microscopes, photography extends our perceptual abilities by opening new perceptual routes to portions of the world otherwise concealed from us. But unlike telescopes, which viewers can aim at a variety of planets, or microscopes, whose magnifying power viewers can adjust when examining a specimen, photographs do not allow viewers to manipulate the range or focus of their visual experience. The portion of the world accessible to the viewer through a photograph is selected by the photographer. Photographers do not create new worlds, but they have the power to disclose previously hidden realities – realities that can be compassionate, humorous, sharp, disturbing, tender or simply beautiful, according to the photographer who holds the camera.[10]

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