The Particularity of Photographic Experience

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Abstract:

A common view in the philosophy of perception holds that states of seeing objects face to face have particular contents. When you see, say, a dog face to face, your visual state represents the particular dog that is in front of you. In this paper, I argue for a related claim about states of seeing objects in conventional photographs. When you see a dog in a photograph, for example, your visual state represents the particular dog that was in front of the camera when the photograph was taken, that is, the photograph's depictum. The argument in this paper proceeds in two steps. In the first step, I discuss states of seeing objects face to face. I argue that such a state represents the particular object whose surface is responsible for the optical information that the visual system uses to construct the state's attributive representational content. In the second step, I apply the result of this discussion to states of seeing objects in photographs. I argue that a state of seeing an object in a photograph has a particular content that represents the object that was in front of the camera when the photograph was taken.

1. Introduction

Suppose you look at a dog that is right in front of you. If the light is good, if you are not deceived or hallucinating, and if your visual system functions properly, you will see the dog face to face. According to a common view in the philosophy of perception, states of seeing objects face to face have particular contents: when you see the dog face to face, your visual state represents the particular object that is in front of you. Now suppose that you take a photograph of the dog from your position. When you look at the photograph and everything goes well, you will be visually aware of a dog, you will, as we might say, *see* a dog *in* the photograph. But does your state of

seeing-in represent the particular dog that was in front of the camera when the photograph was taken? In other words, does your visual state represent the photograph's depictum?[1]

I believe that the answer to this question is affirmative. A state of seeing an object in a photograph represents the particular object that was in front of the camera when the photograph was taken. Even though several authors have argued in favor of this claim, it is not universally accepted.[2] For example, Newall argues that when you see an object in a photograph, you actually see the photograph, but misrepresent it as its depictum.[3] On this view, your visual state represents a particular object, but this object is the photograph and not the depictum. Zeimbekis suggests that states of seeing objects in photographs represent property instances, rather than depicta.[4] On this view, your visual state represents the particular colors and shapes instantiated in the surface of the photograph, but not the depictum. Aasen argues that we see universals in photographs.[5] On this view, your visual state represents an abstract entity. My goal in this paper is to counter these views by developing a new argument in favor of the claim that states of seeing objects in photographs represent depicta.

In order clarify my strategy in this paper, it will be helpful to briefly consider Walton's now classical papers on this topic.[6] Walton holds that states of seeing objects in photographs have particular contents because photographs put us, as he expressed it, in 'perceptual contact' with

[1] Two important points: First, in this paper, I will always speak as if a photograph represents a single object. This is a simplification. Photographs usually represent scenes containing multiple objects. The same holds for states of seeing objects in photographs. Second, I use the term 'depictum' here as referring to the particular object that was in front of the camera when the photograph was taken. One might argue that photographs sometimes depict other objects. For example, a photograph of Omar Sharif in a costume might be said to depict Sherif Ali. In this case, I think it is best to say that the photograph depicts Omar Sharif dressed up as Sherif Ali. However, my argument does not depend on this. Readers who do not want to identify the particular object that was in front of the camera when the photograph was taken with the depictum can just replace all occurrences of the term 'depictum' with 'the particular object that was in front of the camera when the photograph was taken.'
[2] Proponents of this claim include Walton (1984), Lopes (1996, 2010), Martin (2012), and Yetter-Chappell (2018).
[3] Newall (2009, 2011)
[4] Zeimbekis (2010)
[5] Aasen (2018). See also Matthen (2005).
[6] See Walton (1984, 1986, 2008).

their depicta (Walton 1984, 273). In order to support this claim, he argues that states of seeing objects in photographs belong to the same natural kind as states of seeing objects face to face.[7] Many criticisms of Walton's argument target this central claim.[8] A common strategy here is to first point out that states of seeing objects face to face necessarily represent egocentric locations and then to argue that this is not the case with states of seeing objects in photographs.[9] When you see the dog in the photograph, for example, it does not seem to you that the dog is present in front of you. Although I will not address these criticisms in this paper, I believe that they successfully undermine the claim that the two kinds of states belong to the same natural kind.

But, and this is the important point about my strategy in this paper, the fact that states of seeing objects in photographs do not belong to the same natural kind as states of seeing objects face to face, does not imply that the former do not represent depicta. If Walton's critics are correct, states of seeing objects face to face necessarily represent egocentric locations and states of seeing objects in photographs do not represent egocentric locations. Nevertheless, it is still possible for a state that belongs to the first kind to represent the very same particular as a state that belongs to the second kind. This motivates an alternative strategy in support of the particularity claim, which

[7] Walton defines the common natural kind in terms of two necessary conditions. First, both types of states maintain belief-independent patterns of counterfactual dependence. Had the dog been different, the photograph would have been different. And, by extension, the same holds true for the content of the viewer's visual state elicited by the photograph. Second, both types of states preserve real similarity relations. The relations between the properties instantiated by the photograph are similar to the relations between the corresponding properties instantiated by the object. Again, by extension, the same holds true for the properties represented by the visual state. Walton concludes that even though states of seeing objects in photographs are indirect, they nevertheless represent the particular object that was in front of the camera when the photograph was taken. For a very clear explication of Walton's argument, see Costello (2018, 108-113). I would like to point out that Walton's argument is also sometimes interpreted as a slippery slope argument. But, if I understand this correctly, he uses slippery slope considerations only in order to motivate his argument in favor of the two necessary conditions described above, that is, in favor of what he calls 'transparency.' Lopes (1996) follows a similar argumentative strategy. Like Walton, Lopes argues that the two types of states belong to the same natural kind because photographs are transparent. Yetter-Chappell uses a slippery slope argument in order to show that the two kinds of states belong to the same natural kind.

[8] See, for example, Carroll (1995), Carroll (1996), Currie (1995), Cohen and Meskin (2004), Nanay (2010), and Warburton (1988).

[9] See, for example, Carrol (996), Currie (1995), and Cohen and Meskin (2004).

I will adopt in this paper. I will first analyze how the particular object of a state of seeing face to face is determined and then apply the result of this discussion to states of seeing objects in photographs in order to show that they have particular contents that represent depicta.

My argument in this paper proceeds as follows. In section 2, I discuss states of seeing objects face to face. I assume that states of seeing objects face to face have particular contents and then argue that they represent the particular object whose surface is responsible for the optical information that the visual system uses to construct the state's attributive representational content.[10] In section 3, I apply this result to states of seeing objects in photographs. I argue that a state of seeing an object in a photograph represents the particular object that was in front of the camera when the photograph was taken, that is, it represents the depictum. In section 4, I will further defend my account by addressing a number of possible worries related to the fact that typical states of seeing objects in photographs are twofold in Wollheim's sense. In the conclusion, I explain why Walton's argumentative strategy failed and then end with a remark about the function of conventional photographs.

Before beginning, I would like make four comments about my argument. First, I assume that states of seeing objects face to face are intentional states with representational contents, that is, they represent the world as being a certain way.[11] The contents of visual states determine accuracy-conditions.[12] Consider again your state of seeing a dog in front of you. According to this assumption, this state represents a dog and attributes various visual properties to it, including shape and color properties. Ordinary visual states can be more or less accurate.[13] If the dog actually

[10] I will explain what I mean by attributive content shortly.
[11] Arguments in favor of the claim that visual states have contents have been provided, for example, by Burge (1995, 2010), Byrne (2001), Siegel (2010), Schellenberg (2011b), and Pautz (2016).
[12] Some philosophers use the term 'veridical' instead of 'accurate.' In this paper, I will use the latter term.
[13] The contents of states of seeing objects face to face can also be more or less rich. For example, a state of seeing a dog in the dark may not represent color properties.

instantiates all of these visual properties, the content of your state is completely accurate. But it may also misrepresent some of these properties. In this case, your state of seeing the dog is not completely accurate.

Second, I will often speak of the 'attributive content' of a visual state. I use this phrase to refer to the property attributions made by a visual state. We can characterize the attributive content in terms of existentially quantified propositions. For example, a state of seeing a blue cube face to face and a phenomenally indiscriminable hallucination will both attribute a certain blue color and a cube-shape to some object.

Third, my argument is restricted to states of seeing objects in conventional photographs. Conventional photographs, as I use the phrase here, include traditional photographs made with traditional cameras that are developed in the traditional way and photographs taken with standard electronic cameras. The key feature of a conventional photograph is that it is produced by an automatic mechanical process that is designed in such a way that a certain component of the attributive content of a state of seeing an object in it matches the attributive content of a state of seeing the depictum face to face from roughly the point of view of the camera and under the conditions of illumination that were present when the photograph was taken. I will say more about this notion of matching in section 3. My argument does not apply, for example, to images drawn with a light beam on a photosensitive surface in the darkroom and certain kinds of computer-generated images.

Fourth, I assume that when you see the dog in the photograph, you are visually aware of a dog. As is well-known, Wollheim has argued that states of seeing objects in pictures, including photographs, are necessarily twofold, that is, they involve the viewer's simultaneous visual

awareness of both the object seen in the picture and certain aspects of the picture surface.[14] I think that typical states of seeing objects in photographs are twofold in this sense. When presenting my argument in favor of the particularity of photographic experience, I will first focus exclusively on the viewer's awareness of the object seen in the photograph and set to the side the significance of the picture surface. But I will lift this restriction in section 4 where I discuss a number of possible worries about my account that are raised by twofoldness.

2. The particularity of states of seeing objects face to face

For the purpose of this paper, I assume that states of seeing objects face to face have particular contents.[15] Given this assumption, I argue in this section that a state of seeing an object face to face is about the particular object whose surface is responsible for the optical information that the visual system uses to construct the state's attributive representational content. I will first explain perceptual particularity in more detail and then present my argument.

An initial motivation for perceptual particularity comes from the following consideration. Suppose you see a cup in front of you. Suppose further that while you blink the cup is replaced with a numerically different but identical looking cup without you noticing. Even though you will not be able to tell the difference, proponents of perceptual particularity hold that you are in two different token states of seeing, depending on which cup is in front of you. Before the blink, you are perceptually related to the first cup, and after the blink, you are perceptually related to the

[14] See Wollheim (1980, 1987, 1998, 2003). Other proponents of twofoldness include Lopes (1996, 2005), Kulvicki (2009), Nanay (2011), Cavedon-Taylor (2011), Ferretti (2016, 2017), Jagnow (2021). Lopes, for example, has argued that the two contents belong to two separate experiences (Lopes 2005). For more on this, see Hopkins (2010).

[15] For arguments in favor of the claim that the contents of states of seeing are particular in the way described here, see for example, Burge (1995, 2010), Soteriou (2000), Tye (2009), and Schellenberg (2011a, 2016, 2018). Critics of perceptual particularity hold that the contents of perceptual states are general. Authors who have defended the generality of perception include Jackson (1977), Lewis (1980), Harman (1990), Millar (1991), Davies (1992), Siewert (1998), Byrne (2001), and Hill (2009). These authors have argued that the contents of perceptual states involve only general elements.

second cup. In order to account for this difference, proponents of perceptual particularity suggest that the object itself enters into the content of your state of seeing. For example, when you see the first cup, the cup itself enters into the representational content of your visual state. In other words, your state of seeing the cup face to face represents this particular cup because the cup is a component of the content of your visual state. More generally, we can say that a particular representational content is a content that is constituted in part by a particular object.[16]

Soteriou has further argued that particular contents allow us to account for misrepresentation of egocentric locations (Soteriou 2000). Suppose you look at a dog that is sitting at some distance straight ahead of you. Suppose then that you are fitted with a pair of glasses that shift your visual field to the left by an angle of 20°. In this case, you clearly see the dog, but your experience misrepresents its location relative to your point of view. The dog is straight ahead of you, but you now see it as being located to your left. Let us also say that there is a second identical looking dog at exactly the location where you seem to see the first dog. In this case, you still see the first dog in that location and not the second. According to the proponents of perceptual particularity, the reason for this is that the first dog enters into the content of your visual state and not the second.

Particular contents also allow us to resolve possible ambiguities that arise in cases of multiple counterfactual dependence.[17] Suppose you use a 3D printer to produce an accurate model of the dog from my previous example.[18] The process starts with a scanner that receives optical

[16] Relationalists also argue that states of seeing objects face to face are constituted by particulars. But pure relationalists deny that states of seeing objects face to face have representational contents. Pure relationalism has been defended, for example, by Campbell (2002), Travis (2004), Brewer (2006), and Fish (2009). Since my argument presupposes that states of seeing objects face to face have representational content, I will not discuss these views in this paper.

[17] I assume here that counterfactual dependence of states of seeing on the seen objects is at least a necessary condition for seeing.

[18] This example has been developed in Briscoe (2018). Briscoe targets Lopes' argument for transparency. Lopes writes: 'Pictures are transparent because they are caused by, counterfactually dependent upon, and second-order isomorphic with properties of their subjects that are constitutive of the visual sense modality' (Lopes 1996, 192). But

information about the dog's precise shape. These data are then fed into a computer that guides the 3D printing process. The result of this process is a faithful 3D copy of the dog. We can add that the printer also gets the dog's colors exactly right. When you look at the copy, the content of your visual state is counterfactually dependent on the original: had the original dog been different with respect to certain visual properties, the copy would also have been different with regard to the corresponding properties. Yet, it is counterintuitive to say that you see the original dog, even if we admit that this is a kind of indirect perception.[19] According to the proponents of perceptual particularity, the copy and not the original enters into the content of your visual state.

Although the proponents of perceptual particularity all agree that the contents of states of seeing are best construed as object-involving, they hold different views about the semantic element that determines which object a state is about. Burge, for example, suggests that the contents of visual states include a perceptual demonstrative (Burge 1991, 2010). When you hallucinate the dog from my example, the perceptual demonstrative fails to refer. But when you see the dog face to face, the demonstrative successfully picks out the dog in front of you. Tye and Schellenberg, in contrast, introduce a gap into the contents of visual states. When you hallucinate the dog from my example, you entertain a content that contains a gap where the object would go. If you see the dog face to face, the dog fills the gap (Tye 2010; Schellenberg 2011, 2018).[20] But it is clear that

Briscoe's example applies to any account of perception that accepts that counterfactual dependence is at least a necessary condition for seeing.

[19] A similar scenario was put forward by Currie in his criticism of Walton's argument for the transparency of states of seeing objects in photographs. Suppose you look at a clock (call it A) that is linked mechanically to a second clock (call it B), so that their hands always move in tandem (Currie 1995, 65). And suppose that the counterfactual dependence is not only a necessary, but also a sufficient condition on seeing. It would then follow that even though you actually look at A, you see B. This claim is highly counterintuitive. Walton rejects this particular example by pointing out that the counterfactual dependence here is minimal because it concerns only the position of the hands. However, he adds that if the counterfactual dependence were sufficiently rich, you would see B by seeing A. As he puts it, you would see B through A. Proponents of perceptual particularity have a different response.

[20] Note, however, that Tye construes the contents of visual experiences as Russellian propositions and Schellenberg construes them as Fregean propositions.

considerations about the semantic structure of perceptual contents alone do not determine which particular object a token state is about. In the case of Burge, we need an account that tells us which object in the viewer's environment the demonstrative element refers to, and in the case of Tye and Schellenberg, we need an account that tells us which object fills the gap.[21] I think we can give such an account if we appeal to vision science. Let me explain.

According to vision science, states of seeing are the result of computational processes taking place in the visual system. Information processing in the visual system starts with information contained in the retinal images and proceeds through several computational stages to the visual experience, that is, to the so-called percept. This has the consequence that the attributive representational content of the percept is determined by the relevant optical information contained in the retinal images. Moreover, since the relevant optical information originates at the visible surface of a particular object, the percept is about that very object. We can therefore say that a state of seeing an object face to face is about the particular object whose surface is responsible for the optical information that the visual system uses to construct the percept's attributive representational content.[22] This account is compatible with the different ways in which the proponents of perceptual particularity construe the contents of visual states. Burge can say that the demonstrative element refers to the object that is responsible for the optical information. And Tye and Schellenberg can say that the object that is responsible for the optical information enters into the contents of the visual state.

Before defending this proposal, two clarifications are in order. First, I do not presuppose any specific notion of information. My argument will work for whatever type of information is

[21] Burge's own account is causal. He requires that the experience be caused in the right way (Burge 1991, 202). The suggestion to be presented in this paper can be understood as a way of specifying what the right way is.
[22] For this idea, see Evans (1982, ch.5).

used by the visual system to construct the visual state's attributive content. It is the task of vision science to determine the relevant type of information. The adjective 'optical' specifies the medium that carries the information. Optical information is information carried by electromagnetic radiation that falls within the visible spectrum. The same information can be carried by other suitable physical mediums, for example, in chemical form, as in the case of photographs. I will say more about this in the next section.

Second, suppose you look at a tree trunk with a well camouflaged beetle on it. You are visually aware of the structure of the trunk's surface, but not of the beetle as a distinct object. In this case, the beetle's surface is responsible for the visual representation of the part of the trunk that is covered by it. But I do not think that it is plausible to say that you see the beetle. What is required in addition is that the visual representation of the beetle is a discriminating representation, that is, a representation that attributes the respective visual properties to a visually discriminable object.[23]

Let me now consider a number of possible worries about my proposal. It is well-known that the visual system uses optical information in a holistic way. For example, which color an object is perceived to have depends on the perceived conditions of illumination and on the perceived colors of adjacent surfaces.[24] One might worry that it does not make sense in this case to say that one single object is responsible for the optical information that your visual system uses to construct the attributive representational content. Let us assume that your visual system uses information from the entire optical array to construct the representation of the dog from our

[23] This is a very rough gloss that needs to be refined. Just to give one example. It is possible that one sees a distinct object not as distinct, but rather as a discriminable part of another object. In this case, one misrepresents the distinct object as a part of another. But since it is a discriminable part, it makes sense to say that the visual state successfully refers to that object, even though it represents it inaccurately as a part of another object.

[24] For this view, see, for example, Foster, D.H., Nascimento, S.M.C., Craven, B.J., Linnell, K.J., Cornelissen, F.W., & Brenner, E. (1997).

example. Even if we accept this form of extreme holism, it is still true that, other things being equal, the optical array contains information that allows your visual system to represent the dog only because of the reflective properties of the dog's surface. When you see the dog face to face, it is the dog's surface that structures the optical array in such a way that it carries the information that is used by your visual system to construct the representation of the dog.

Another worry comes from the fact that we can see backlit objects or silhouettes, that is, we can see objects that do not emit or reflect light. In these cases, one might worry that no particular object is responsible for the optical information that the visual system uses to construct the percept's attributive content. Sørensen has argued that, in these cases, we see the backside of the object since it is this side that blocks the light (Sørensen 2007). For the purpose of my argument, we do not need to accept Sørensen's proposal. It is sufficient to acknowledge that it is the object's back side that blocks the light and, in this way, is responsible for the optical information that allows the visual system to construct the representation.

A further worry is closely related to this. Consider a situation in which the dog from my example is far away and the lighting dim. Under these circumstances, you might just see a black dot somewhere in the distance. The dog does not have the shape of the dot. Let us also assume that the dog is actually grey and that some atmospheric disturbance makes the dog seem off to the left. In this situation, your visual state misrepresents all of the dog's visual properties, but, arguably, you still see the dog. Yet, one might worry, does it really make sense to say that the information that your visual system uses to construct the representation of the black dot originates at the dog? I think that it does make sense for at least two reasons. First, were you to look at the very same scene without the dog under the very same conditions, your visual system would not represent something that looks like a black dot. Second, if certain properties of the dog change, the

representational content of your visual state will also change. For example, if the dog walks back and forth, your visual state will track the changes in the dog's location.

One might also worry that my proposal is not a satisfactory response to the problem of multiple counterfactual dependence described above. In the example above, you are looking at a copy of a dog that looks exactly like the original. The copy was produced on the basis of optical information that originated at the surface of the original. The optical information is transformed into other forms of information, electrical and mechanical, and then back into optical information when you look at the copy. It seems to follow that your visual state represents the original and not the copy. But this is not correct. The optical information that your visual system uses to construct the percept's attributive content does not originate at the original but at the copy. The reason for this is that the optical information that enters your eyes will change when the conditions of observation for the copy change, but not when the conditions of observation for the original change. For example, the spatial information will change when you change your position relative to the copy and not relative to the original. The color information will change when the light that illuminates the copy is changed appropriately, but it will not change when we change the light that illuminates the original.

Finally, on might worry that my proposal excludes standard cases of prosthetic vision. Many philosophers argue that we can literally see objects through ordinary telescopes, microscopes, mirrors, closed loop cameras, and night vision goggles. But it is not clear that all of these types of seeing satisfy the optical information condition. In the case of closed loop cameras and night vision goggles, one might argue that the optical information actually originates at the screen or at the goggles. I will consider the case of closed loop cameras and night vision goggles in the next section because of the similarity with the photographic process. At this point, I want to

suggest that the visual states caused by ordinary telescopes, microscopes, and mirrors are states of seeing face to face because the optical information is not transformed into other mediums. In the case of traditional telescopes and microscopes, the light containing the optical information just passes through the transparent surfaces of the lenses, and, in the case of mirrors, or systems of multiple mirrors, the light carrying this information is simply reflected.

3. The particularity of states of seeing objects in photographs

In this section, I argue that a state of seeing an object in a photograph represents the particular object that was in front of the camera when the photograph was taken, that is, the photograph's depictum. As I stated in the introduction, in this section, I will focus exclusively on the viewer's awareness of the object seen in the photograph and set to the side the significance of the picture surface. Given the argument in the previous section, I therefore need to show that the surface of the depictum, and not the surface of the photograph, is responsible for the optical information that the visual system uses to make the property attributions to the object that is seen in the photograph.

Note first that we cannot argue for the claim that the surface of the depictum is responsible for the optical information that the visual system uses to construct the representation of the object that is seen in the photograph by appeal to merely causal considerations. This is due to a well-known problem for the causal theory of perception.[25] If we say that a viewer sees an object just in case that that object causes her visual state, we have no criteria for deciding which of the many causes of the state that object is. It could be the photons hitting the retina, some neural process in the brain, or some object in front of the viewer. The photographic process just adds more possible candidates here, including the picture surface.

[25] For an excellent review and discussion of this problem, see Arstila and Pihlainen (2009).

Note also that we cannot argue in favor of this claim by appeal to merely information theoretic considerations. Conventional photography involves a number of processes of information transformation. The optical information gathered when the photograph is taken is first transformed into chemical information stored on the surface of the negative. This information is then transformed back into optical information when the positive is exposed, and then into chemical information when the positive is being developed. Finally, the chemical information is again transformed into optical information when the viewer looks at the positive. But these information theoretic considerations alone do not allow us to identify one single stage in this process as the one that is responsible for the information that is used by the visual system to construct the state's attributive representational content. The photograph's surface will do just as well as the negative or the depictum.

I believe that the way forward here is to point to the fact that conventional photography is governed by a norm. The photographic process is designed in such a way that the attributive representational content that represents the object that is seen in a photograph ought to match that of a state of seeing the depictum face to face from roughly the point of view of the camera at the time and under the lighting conditions when the photograph was taken.[26] I will qualify and defend the notion of matching shortly. But let me first say how this solves the problem. The matching norm governs all information transformation processes that are part of the overall photographic process. In the case of conventional photography, this begins at the point when the photograph is taken, includes the processing of the negative and the positive, and ends when the viewer looks at

[26] Hopkins (2012) contains an extended argument for the fact that the different stages of the conventional photographic process are norm governed. But, in contrast to the claim in this paper, he believes that the norm is an accuracy norm. This claim is the backbone of his argument in favor of the factive character of photographic experience, that is, of his argument in favor of the claim that photographic experiences are necessarily accurate. As I will explain shortly, I reject the accuracy norm in favor of a matching norm. But my argument would also work if we accept Hopkins' accuracy norm.

the photograph. Since the taking of the photograph is the beginning of the overall photographic process relative to the matching norm, it is the depictum, rather than the photograph's surface, that is ultimately responsible for the optical information that the visual system uses to construct the representation of the object. A state of seeing an object in a photograph thus represents the depictum.

The explanation in the previous paragraph requires that all information transformation processes that are part of the overall photographic process are governed by the matching norm. I would like to illustrate this with two examples concerning conventional photography.[27] But I believe that similar observations can be made for photographic processes involved in typical electronic cameras. The conventional photographic process begins when the negative is taken. In order to do this correctly, the photographer has to make sure that illumination, lens settings, filters, and exposure time are all correct. Faulty illumination, filters, and exposure time will lead to distortions in colors (in the case of color photography) and, in extreme cases, will make it impossible to see anything at all in the photograph. Faulty lens settings will distort shape properties and, again in extreme cases, will make it impossible to see anything in the photograph.[28] Ignoring the various stages in between, the process ends when the viewer looks at the photograph. This is also governed by the matching norm. The viewer will see an object in the photograph properly only if the conditions of observation are right. Bad illumination may distort the colors or make it impossible to see anything in the photograph. Looking at the photograph from the wrong point of

[27] For these and further examples, see Hopkins (2012, 714-721).
[28] I think it is fairly obvious that similar considerations apply to the chemical processing of the negative and also to the exposure and chemical processing of the positive.

view may distort spatial properties, or again, may make it impossible to see anything in the photograph.[29]

Let me now return to the matching norm. This norm demands that the attributive representational content that represents the object seen in a photograph match the content of a state of seeing the depictum face to face from roughly the point of view of the camera at the time and under the lighting conditions when the photograph was taken. In other words, the matching norm requires that the properties attributed to the object that is seen in a photograph match those properties that a suitable state of seeing face to face would attribute to the depictum. I think that it is plausible to say that conventional photography aims for a maximal match. Ideally, a red round object should look red and round in a photograph. The fact that no actual photographic process will achieve a perfect match does not threaten this matching norm. Color photographs often distort the colors of objects, photographs taken with lenses with different focal lengths often compress or stretch distances between objects contained in the photographed scene, straight edges at the periphery may look curved, and so on. But we can assess these deviations from the matching norm only because the overall photographic process is designed to conform to this norm.[30]

I will now consider a number of possible objections. One might argue that the conventional photographic process actually aims at accuracy, rather than matching.[31] What we actually want, so one might argue, is that states of seeing objects in photographs accurately represent the visual

[29] My examples here show that the matching norm governs the proper execution of various stages of the photographic process. But the matching norm also governs the development of the photographic equipment. One example here is the development of lens designs. One of the main tasks of lens design is to minimize optical aberrations.

[30] I want to emphasize that the range of possible matching properties is also limited by the photographic technology. For example, a state of seeing an object in a black and white photograph cannot represent the colors that are represented by a state of seeing the object face to face. Moreover, based on research by Vishwanath and Hibbard, Ferretti has argued convincingly that the perception of the picture surface has the consequence that objects seen in photographs do not appear perceptually present to the viewer. See Ferretti (2016, 2017). In other words, a state of seeing an object in a photograph cannot represent that object as being present.

[31] See, for example, Hopkins (2012).

properties of their depicta. One might try to support this claim by pointing to cases in which photographs cause visual states in their viewers that are in certain ways more accurate than the corresponding states of seeing objects face to face. This may happen, for example, when a photographer uses a telephoto lens when the object is far away or long exposure times at night. But this does not seem right. Even though the application of these techniques often leads to the better representation of certain properties, it also typically leads to more distortions. Telephoto lenses usually compress distances, and long exposure times lead to a misrepresentation of the illumination properties of the scene. In my view, the goal of conventional photography is more accurately characterized as aiming at matching. Ideally, states of seeing objects in photographs will represent certain properties accurately, namely those that are represented accurately by the corresponding states of seeing the depictum face to face, and they will represent certain properties inaccurately, namely those that are represented inaccurately by the corresponding states of seeing the depictum face to face. To use the example from above. If you take a photograph of a scene that contains a grey dog that is far away, you will see a black dot when you see the dog in the photograph. In my view, this is how things should be with a conventional photograph.

Alternatively, one might criticize the matching norm from the opposite direction. Instead of using the photographic process in a way that leads to more accurate states of seeing-in, photographers often aim at the opposite effect. Examples are plenty and include out of focus photography, tilt-shift photography, uses of filters, uses of lenses with non-standard focal lengths, fishbowl lenses, and much more. Consider an out of focus photograph in which a person looks more like a darkish blob. Photographs like this can be very interesting and expressive. But, so one might argue, these effects aim to create visual states that fail to match states of seeing the depicta face to face.

One possible response to this would be to simply say that these types of photographs are non-conventional. But I think that this is implausible. Even though the person in the previous example looks like a formless darkish blob, it is still plausible to say that the photograph is of this person. Moreover, it is also still plausible to say that when viewers look at this photograph, and everything goes well, they see a person in it. Now the viewers may not be able to recognize the person in the photograph. But still, pointing at the blob, they might wonder what 'this' is. And the right answer would be 'a person.' As long as the viewers' visual states include a discriminating representation, that is, a representation that represents a distinct object, they plausibly see a person in the photograph. This would not be the case if the photograph were so out of focus that it just showed a brownish fog more or less evenly distributed over the surface. In this case the viewers would not see a person in it because the photograph would not cause a discriminating visual representation. However, as long as this is not the case, we should say that the photographer intentionally subverts some of the matching norms that govern the information transformation processes of conventional photography. But this does not present a problem for my argument as long as the photographic process includes all stages of conventional photography and, especially, as long as it starts with optical information from the depictum.

In the previous section, I argued that those types of prosthetic vision that do not involve processes of information transformation like seeing objects through traditional microscopes or telescopes, and seeing objects in mirrors have particular contents. But, at that point, I did not address types of prosthetic vision that involve information transformation processes like seeing objects through night vision goggles or closed loop cameras. We can now see why these types of prosthetic vision have particular contents. Just like the conventional photographic process, closed loop cameras and night vision goggles are designed to satisfy a matching norm. Closed loop

cameras are designed to cause visual states whose contents match those of states of seeing face to face from the point of view of the camera, and night vision goggles are designed to cause visual states whose contents match those of states of seeing face to face from the viewer's point of view under more optimal lighting conditions.

4. Twofoldness and the particularity of photographic experience

As I stated in the introduction, I believe that typical experiences of photographs are twofold in Wollheim's sense, that is, they involve the viewer's simultaneous visual awareness of certain aspects of the picture surface and the object seen in it (Wollheim 1980, 1987, 1998, 2003). Now it is conceivable that the surface-oriented content and the object-oriented content belong to two distinct states, namely a state of seeing face to face that represents the surface and a state of seeing-in that represents only the depictum. This would not present any problems for my argument in favor of the particularity of states of seeing objects in photographs. I could maintain that the state of seeing-in represents the particular object that was in front of the camera when the photograph was taken. However, since I believe that typical states of seeing objects in photographs are twofold in Wollheim's sense, I will now address a number of possible worries raised by this.

Before doing so, it will helpful to first state Wollheim's view a bit more explicitly. Wollheim argued that a state of seeing-in is a single visual state that involves two distinguishable, but simultaneous aspects, or folds, of visual awareness. He writes: "When seeing-in occurs, two things happen: I am visually aware of the surface I look at, and I discern something standing out in front of, or (in certain cases) receding behind, something else" (Wollheim 1987, 46). According to this quote, the surface-oriented aspect (Wollheim called this the *configurational aspect*) presents what today is typically called the picture's *design*, that is, those visible features of the picture

surface that sustain the viewer's awareness of the object that is seen in it. In contrast, the object-oriented aspect (Wollheim called it the *recognitional aspect*) presents the three-dimensional object seen in the picture. Wollheim further argued that the two aspects of visual awareness are intimately fused with each other. In his mature view of pictorial experience, he tried to account for this unity by saying that the configurational and the recognitional aspect belong to one single state of seeing-in, but abstained from saying anything more specific about the ways in which the two aspects are unified (Wollheim 1987, 46; 1998, 221).

A first worry for my argument is that the fact the two aspects of visual awareness are intimately fused together makes it impossible for the object-oriented fold to match a state of seeing the depictum face to face. Consider the following situation. As you enter a gallery, you seem to see a window on the opposite wall through which you see an elephant.[32] However, the window is actually a photograph. As you approach the wall, you become aware of some of the features of the photograph's surface, such as its flatness. When this happens, so Wollheim, the two aspects of visual awareness fuse with the consequence that the phenomenology of viewer's visual awareness of the elephant seen in the photograph is "incommensurate" with the phenomenology of a state of seeing the elephant face to face (Wollheim 1987, 47).[33]

In response, I concede that the phenomenology of a state of seeing an object in a photograph and the phenomenology of a state of seeing that object face to face may be incommensurate. But this would present a problem for the matching norm only if, as a consequence, the content of the object-oriented fold could not match that of a corresponding state

[32] One could say that this is a kind of *trompe l'oeil* experience, namely a perfect illusion of seeing the depictum face to face.

[33] Using the example of seeing a boy in a stain on a wall, Wollheim writes: "We get lost once we start comparing the phenomenology of our perception of the boy when we see him in the wall, or the phenomenology of our perception of the wall when we see the boy in it, with that of our perception of boy or wall seen face-to-face. Such a comparison seems easy enough to take on, but it proves impossible to carry out. The particular complexity that one kind of experience has and the other lacks makes their phenomenology incommensurate" (Walton 1987, 46).

of seeing the depictum face to face. However, in the case of conventional photography, this is obviously not the case. In the example from the previous paragraph, the object-oriented aspect will attribute shape and color properties to the elephant seen in the photograph that match the shape and color properties that a suitable state of seeing the elephant face to face would attribute to it.[34] We can therefore admit that there is a significant phenomenal difference between seeing the elephant in the photograph and seeing the elephant face to face. But this is consistent with the matching norm.

A second worry for my argument is that twofoldness has the consequence that the optical information that the visual system uses to construct the object-oriented attributive content originates at the surface of the photograph and not at the depictum. This would imply that a twofold state of seeing-in represents a particular photograph, but not the particular object that was in front of the camera when it was taken. The following hypothetical scenario illustrates this.[35] Suppose you take a photograph of a Doric column. When you develop the photograph, you realize that the illumination was suboptimal so that the column's surface looks smooth. But then something curious happens: Mach bands form on its surface that cover the column just in the right way so that its surface now looks the way it would have looked to a viewer from the point of view of the camera at the time and under the lighting conditions when the photograph was taken (see fig. 1). This purely accidental change of the surface has the effect that your state of seeing the column in

[34] An issue in the vicinity is the question of inflection. Going back to Podro, a number of authors have explored whether the features attributed by the surface-oriented aspect of a state of seeing-in can inflect the properties attributed by the object-oriented aspect (Podro 1998). If this is possible, the viewer's awareness of the picture surface could possibly modify her awareness of the depictum in a way that precludes matching with regard to the inflected properties. This is a difficult and thorny issue, and a number of authors deny the possibility of inflection. But even if we admit that inflection plays an important role in painting, it can only play a very limited role, or no role at all, in conventional photography. The reason for this is that the design features, that is, the colors and shapes that sustain the viewer's awareness of the object seen in a conventional photograph, are mostly self-effacing.

[35] I adapted this scenario from Newall 2011. He uses a similar scenario in his criticism of the resemblance theory of depiction.

it now seems to satisfy the matching norm better than before. Yet, in this case, part of the optical information that your visual system uses to construct the state's content clearly originates at the surface of the photograph. How can, one might now ask, this content represent the particular column that was in front of the camera when the photograph was taken?

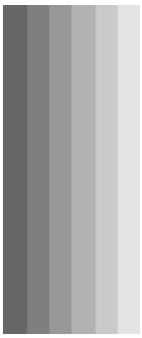

Fig. 1: Mach Bands

In response, let me first concede that if this were true of all the properties that are represented by the state of seeing-in, the photograph would not depict any particular object. If a dog appeared on a photographic surface through a merely accidental process, you may be able to see a dog in the photograph, but your state would not represent any particular dog. However, the example described in the previous paragraph is much less radical. The optical information that allows your visual system to construct the representation of the column clearly originates at the column. If the column had not been in front of the camera, you would simply see Mach bands on the surface of the photograph. It is essential here that the optical information that originates at the column enables your visual system to interpret the Mach bands as structural features of a three-dimensional object. Thus, your state of seeing-in represents the particular column that was in front of the camera when the photograph was taken. However, it does not represent its surface structure.

One might insist that there are stronger reasons for holding that the optical information originates at the surface of the photograph and not at the depictum. If the photographic process is properly executed, the photograph is counterfactually dependent on the depictum. Had the

depictum been different in certain ways, the photograph would also have been different. Similarly for the state of seeing-in. Had the depictum been different in certain ways, the state's content would also have been different. However, once the photograph has been developed, the content of the state of seeing-in changes when the photograph changes. For example, when the photograph ages, the colors of the object that you see in it may look more brownish. One might therefore argue that the content of the state of seeing-in is counterfactually dependent on the surface and not on the depictum. But if the content of a state of seeing-in is counterfactually dependent on the surface and not on the depictum, it seems to follow that the surface is the source of optical information that the visual system uses to construct it.

In order to respond to this worry, it will be helpful to first consider a specific example. For the sake of simplicity, suppose that you look at a photograph of a blue cube, like the one in fig. 2. When you see the cube in the photograph, all visible faces look to have the same blue color. But you also see that some of the visible faces receive less light and others more. In other words, you see stable surface colors under the conditions of illumination that were present when the photograph was taken. If you now focus on those areas of the photograph's surface that correspond to the visible faces, say, for example, if you look at these areas with the aid of a reduction screen, you will notice that their colors are different, some are lighter shades of blue and some are darker shades of blue. Due to their specific shape and spatial arrangement, the visual system interprets these differently colored areas on the surface of the photograph as uniformly colored faces of a three-dimensional cube that receive different amounts of light. This observation has the consequence that the relevant counterfactual dependence is not between the color that the state of seeing-in attributes to the depictum and the color on the photograph's surface, but rather between the color that the state of seeing-in attributes to the depictum and the color of the depictum seen

under the conditions of illumination that were present when the photograph was taken. Let me explain.

I argued above that the conventional photographic process has been designed in such a way that it is able to satisfy the matching norm. The example of the photograph of the blue cube shows that the matching norm requires not simply that the object-oriented attributive content of the state of seeing-in match the color of the depictum, but rather that it match the color of the depictum seen under the respective conditions of illumination. This requires that the photograph encode both information about the color of the depictum and information about the conditions of illumination. But this information originates at the depictum and not at the surface of the photograph. The example of the aging photograph shows that it is possible for the surface to change in such a way that the color of the depictum looks different. But, relative to the matching norm, this is purely accidental. The optical information that makes the counterfactual dependence non-accidental originates at the surface of the depictum. The photograph encodes this information, but this information does not originate at the photograph. Color is only one example. We could construe a parallel case for shape properties.

Fig 2: Blue Cube

I want to conclude this section with a final clarification. A number of authors have argued that when you see an object in a photograph, you see the photograph face to face.[36] I believe that this is correct. But I do not think that this is incompatible with my account. Suppose once more that you look at the original photograph of the dog and see the dog in it. In this case, you see the particular photograph that is in front of you face to face and your visual state represents many of its properties accurately, such as its location, its size, the flatness of its surface, and the way it reflects the surrounding light. But the content of your state of seeing the photograph face to face is also partly illusory. You seem to see a dog, or, stated more accurately, certain features of the surface look to you like a dog. Since the surface is not a dog, this component of the content of your state of seeing the photograph face to face misrepresents these features. Now, as I have argued, the fact that the photographic process conforms to the matching norm has the consequence that the information that your visual system uses to construct the representation of the dog – the illusory component of its content – originates at the surface of the dog that was in front of the camera when the photograph was taken. Thus, when you see the photograph face to face and misrepresent some of its features, you also see the particular dog in it that was in front of the camera when the photograph was taken. We can express the relation between these two states by saying that the

[36] For recent defenses of this view, see, for example, Newall (2009, 2011) and Voltolini (2012, 2015). Following Gombrich's illusion theory of depiction, Newall develops this kind of view as follows. He writes, for example, 'I define the experience of seeing X as veridical if and only if X is present before the subject's eyes, and the experience is counterfactually dependent on the presence of X before the subject's eyes. The relation of counterfactual dependence means that seeing X is dependent on X's presence before the subject's eyes *and*, if X was *not* so present (if, for example, X was to be obscured or removed from the subject's field of vision), then seeing X would not occur. It follows that seeing X is non-veridical just in case X is not present before the subject's eyes, or, if X is present, when this relation of counterfactual dependence does not hold' (Newall 2009, 131). In the case of pictures, the picture surface is present before the subject and the experience is counterfactually dependent on the visual properties instantiated in it. According to this proposal, when we see an object in a picture, we mistake the picture surface for the depicted object, that is, we are subject to an illusion.

state of seeing the photograph face to face is a necessary component of the state of seeing the dog in the photograph.

5. Conclusion

In this paper, I assumed that states of seeing objects face to face are representational states with particular contents. I then argued first that a state of seeing face to face represents the particular object whose surface is responsible for the optical information that the visual system uses to construct the state's attributive representational content. I then applied these considerations about the particularity of states of seeing objects face to face to states of seeing objects in photographs. If my argument is cogent, it follows that the surface of the depictum, and not the surface of the photograph, is responsible for the optical information that the visual system uses to construct the state's object-oriented attributive representational content. In other words, states of seeing objects in photographs represent their depicta.

I would like to conclude by drawing two consequences from my argument. As I indicated at the beginning of the paper, Walton argued that states of seeing objects in photographs have particular contents because photographs put us in perceptual contact with their depicta. He aimed to support this claim by showing that states of seeing objects in photographs belong to the same natural kind as states of seeing objects face to face. If my argument is successful, it shows that states of seeing objects in photographs put us in perceptual contact with their depicta even if they do not belong to the same natural kind as states of seeing objects face to face. Particularity is secured through a specific kind of information link. A suitable link starts with optical information that originates at the surface of an object in the viewer's environment and ends with optical information entering the viewer's eyes. But this information can be transformed into different

mediums in between, does not have to preserve egocentric spatial information, and does not have to be continuous.

My argument actually implies that Walton approach is mistaken. If what I have said above is correct, the conventional photographic process conforms to the matching norm. When you see an object in a photograph, your visual state's object-oriented attributive representational content is supposed to match that of a state of seeing the very same object face to face from the point of view of the camera. Since this is an artificial norm that is set by the designers of the conventional photographic process, states of seeing objects in conventional photographs belong to an artificial kind.[37] So, if my argument is cogent, it will not be possible to show that photographs allow us to make perceptual contact with the depictum by showing that states of seeing objects in photographs belong to the same natural kind as states of seeing objects face to face.

Further, my argument throws light on the function of conventional photographs. When we see an object in a photograph, we see the photograph. We are visually aware of a flat sheet of paper in front of us and at least some of the visual properties of its surface. But we are also retrieving optical information about the object that was in front of the camera when the photograph was taken. This information is stored in chemical form on the surface of the photograph. In other words, in the context of a photographic practice that is governed by the matching norm, a photograph functions as a storage device for optical information. The situation is equivalent for printed photographs that have been taken with electronic cameras.

When we look at photographs on computer screens, the situation is different in an interesting way. Computer screens do not store information, but rather play a role in the process of transforming the information that is stored electronically in the computer back into optical

[37] As I suggested at the end of the previous section, a state of seeing an object in a photograph necessarily involves a state of seeing the photograph face to face, but does not reduce to such a state.

information. The same is true of still or moving images projected onto a screen in a movie theater. Such images do not function like a photograph, but are part of the process that transforms information that is stored either electronically or on film back into optical information. We can conclude that photographs, computer screens, and screens in movie theaters are all parts of processes that, given the right conditions, cause states of seeing with particular contents. But they play different roles in these processes.[38]

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