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# THE NATURE OF PICTORIAL REPRESENTATIONS\*

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## *abstract*

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*A crucial question in the study of picture perception asks about whether, when perceiving an object in a picture, we see only the depicted scene or, rather, we simultaneously see both the depicted scene and the surface. Two different views have fueled the debate since a long time. According to Wollheim, we see both the depicted scene and the picture's surface simultaneously. Call this the 'simultaneous account of picture perception' (SA). SA is in contrast with Gombrich's view that, during picture perception, we do not simultaneously see both the depicted scene and the surface, but we alternate between these two visual states. Call this the 'non-simultaneous account of picture perception' (NA). The debate between these two positions still persists in the contemporary literature on picture perception. In this paper, I first analyze the notion of vision SA and NA are committed to. Then, by discussing empirical evidence from vision science, I offer an argument that supports SA.*

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## *keywords*

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*seeing-in, vision science, Gombrich, Wollheim, twofoldness*

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## 1. Introduction

You are looking at the wonderful ‘*Calling of Saint Matthew*’ by Caravaggio. The painting is very inspiring and you are intensely focusing on the wonderful depicted scene. Here is a question: are you visually representing only the depicted scene or, rather, are you also visually representing the picture’s surface?

This is a crucial question for the study of picture perception (Nanay, 2017) and “much of the philosophical literature on picture perception is about how these two perceptual states are related to each other” (Nanay, 2012, p. 440). Two different views have fueled the debate since a long time. For Wollheim, when a subject perceives an object in a picture (what is called ‘seeing-in’), she/he is in a peculiar visual state of ‘twofoldness’: she/he “is, and remains, visually aware not only of what is represented but also of the surface qualities of the representation” (1980, pp. 214–215; 1998; 1987; see also Lopes, 2005; Nanay, 2011). Call this the ‘simultaneous account of picture perception’ (henceforth: SA). SA is in contrast with the idea proposed by Gombrich (1960) that, during picture perception (or, following the terminology proposed by Wollheim, during seeing-in) we cannot see both the picture’s surface/vehicle and the depicted object at the same time: “is it possible to ‘see’ both the plane surface and the battle horse at the same time? (...) the demand is for the impossible. To understand the battle horse is for a moment to disregard the plane surface. We cannot have it both ways” (Ibid., p. 279). This view suggests that our visual system can only alternate between the picture’s surface and the depicted object. Call this the ‘non-simultaneous account of picture perception’ (henceforth: NA).

Clearly, “Gombrich’s account of our experience of pictures is inconsistent with the idea of twofoldness” (Nanay 2011, p. 462, footnote 2). Indeed, “Gombrich held that seeing-in precludes, while Wollheim held it requires, seeing a picture’s design properties (i.e. those properties of the picture’s surface in virtue of which seeing-in is elicited)” (Cavedon-Taylor, 2011). Note that both philosophical positions hold that seeing-in involves the occurrence of two *visual operations*: the perception of the picture’s surface and the perception of the depicted object. The debate is about whether these two *visual operations* occur simultaneously or, rather, are disjointed visual phenomena.

The dichotomy between these two positions still persists in the contemporary literature on picture perception (Newall, 2011; Lopes, 2005; Kulvicki, 2006; Ferretti, 2017b; Hopkins, 2003; Nanay, 2017; Chasid, 2014; Nanay, 2010, 2011, 2015, 2017 for a review). Indeed, “the nature of seeing-in is a matter of controversy” (Cavedon-Taylor, 2011, p. 1). Thus, we still need a final argument in order to decide between SA and NA. This paper offers an argument in support of SA.

First, I analyze SA and NA and the notion of vision they are committed to (§2). Then, I offer an argument that supports SA. This argument grounds on empirical evidence from vision science (§3).

Before developing my account, I need to discuss the specific ideas at the basis of NA and SA. We can start from SA.

Nanay has suggested (2011, p. 463) that Wollheim's idea about seeing-in that, during picture perception, a subject "is, and remains, visually aware not only of what is represented but also of the surface qualities of the representation" (1980, pp. 214–215) can be interpreted in two different ways:

- SA1) We consciously see, (*or consciously visually attend to*)<sup>1</sup> both the depicted object and some of the properties of the surface.
- SA2) We visually represent (*or see*) both the depicted object and some of the properties of the surface (while we may or may not attend to the surface).

It seems that we should select SA2 (*contra* SA1) for different reasons (Nanay, 2011, 2017).

First, empirical evidence shows that we can see "objects in pictures even if we are not conscious of either the surface or the depicted object" (Nanay 2011, footnote 1). Thus, the idea that we need to be conscious of both the picture's surface and the depicted object during picture perception goes against the evidence above reported, i.e. about the possibility of the unconscious perception of objects in a picture in those cases in which we unconsciously perceive either the surface or the depicted object. Second, following Levinson (1998), Nanay (2011, p. 463; see also Lopes, 1996) suggests that, most of the time, during picture perception, our visual consciousness ignores the picture's surface. Accordingly, following Lopes (2005, p. 28), it is true that we see the surface when we see something visually encoded in it, but this does not entail that we consciously see the design as a design (see Nanay 2011, p. 464). Thus, the scenario described by SA1 is not necessary in order to enter pictorial experience (Id.; Lopes, 2005). Those who endorse SA2 also specify that, in picture perception, we consciously see the depicted object while unconsciously seeing the surface (for a review see Nanay, 2010, 2011, 2017). That said, while someone suggested that SA1 is a condition not needed to enter pictorial experience, but can be realized in special cases (Ibid.), someone else suggested that the scenario described by SA1 is not possible. Here is the reason. If both the surface and the depicted object were simultaneously part of our visual phenomenological experience, pictorial experience would lead us to a very odd perceptual situation (Hopkins, 2012; Nanay, 2017): since the pictorial space and the real space have a different nature, we would enter a disjointed visual experience concerning the different spatial qualities of the surface and of the depicted object. For these reasons, "if we are simultaneously attending to both the depicted scene and the picture's surface, then there seems to be something contradictory or disjoint about our simultaneous experience of both of these. But, crucially, this objection does not apply if pictorial twofoldness<sup>2</sup> is understood not as simultaneous attention, but as simultaneous (conscious or unconscious) representations" (Nanay, 2015, 192). I want to bypass here the debate about whether, in normal picture perception, we do not consciously *need*

## 2. The Nature of Seeing-In

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1 I use the notions of 'conscious vision' and 'conscious visual attention' interchangeably. I do not take part on the debate on their relation (Wu, 2014; Prinz, 2012) when talking about picture perception. This move is not controversial (see Nanay, 2011, 2017).

2 In his (2015) Nanay uses the notions of 'seeing-in' and 'twofoldness' interchangeably, while in his (2011) he distinguishes between them. Here I use them interchangeably. However, while 'seeing-in' might usually denote SA2, 'twofoldness' might usually denote SA1.

to visually represent both the surface and the depiction simultaneously or, rather, we *can't consciously* visually represent both of them simultaneously. I simply follow SA2 in saying that, in ordinary picture perception, we consciously see the depicted object while unconsciously seeing the surface.<sup>3</sup>

All I am saying seems to suggest that SA2 is the best candidate for the notion of seeing-in: during seeing-in, we visually represent both the depicted object and the picture's surface. The *simultaneity* defended by SA2 is about the presence of two (conscious or unconscious) visual states respectively attuned to the picture's surface and to the depicted object. Thus, endorsing this notion of simultaneity does not entail endorsing the idea that we consciously see both of them, as suggested by SA1: we *need to simultaneously* see both of them (SA2), but we do *not need to simultaneously consciously* see (or visually attend to) both of them (as suggested by SA1). This notion perfectly explains how endorsing SA2 rules out the *necessity* of reaching the perceptual scenario described by SA1 in order to enter picture perception – though we can remain open about whether SA1 is possible or not. In this respect, as explained, the idea maintained here is that we simultaneously consciously see the depicted object, while unconsciously seeing the surface (Nanay, 2011, 2017; Ferretti, 2017b).

Summing up, here SA is interpreted by following the notion of seeing-in offered by SA2. This notion is, as we saw, nowise related to the notion of seeing-in *à la* SA1.

We can now focus on NA. Differently from SA, NA suggests that we cannot 'see' (visually represent) both the picture's surface and the depicted object at the same time (i.e. simultaneously). Crucially, the reader may note that, as for SA, even for NA there are two possible interpretations (though the literature mainly analyzed SA and its possible interpretations, see Nanay, 2017; Lopes, 2005; Chasid, 2014):

- NA1) We do not simultaneously 'consciously see' (or consciously visually attend to) both the depicted object and (to) some of the properties of the surface.
- NA2) We do not simultaneously 'see'<sup>4</sup> (or visually represent) both the depicted object and some of the properties of the surface.

SA1 is in evident contrast with NA1, while SA2 is in evident contrast with NA2. The disagreement between NA2 and SA2 is about the notion of simultaneous visual representation of both the depicted object and the picture's surface. The disagreement between NA1 and SA1 is about the notion of simultaneous conscious vision (and conscious attention) (see Nanay, 2011, 2017 for this relation). In other words, for SA2 at the same time *t*, we can see both the picture's surface and the depicted object. For NA2, either at time *t*<sub>1</sub> we see the picture's surface and at time *t*<sub>2</sub> we see the depicted object, or *viceversa*, but we never see both of them simultaneously, i.e. within the same time interval. Conversely, for SA1 at the same time *t* we can *consciously* see both the picture's surface and the depicted object. For NA1, either at time *t*<sub>1</sub> we *consciously* see the picture's surface and at time *t*<sub>2</sub> we *consciously* see the depicted object, or *viceversa*, but we never *consciously* see both of them simultaneously, i.e. within the same time interval. Note that NA2 suggests that neither SA1 nor SA2 are the case (see the passage by Gombrich in (§ 1)): neither can we consciously see, simultaneously, both the surface and the depiction, nor can we see, simultaneously, (consciously or unconsciously) both of them. SA2 and NA1 are perfectly compatible: NA1 follows the idea, also endorsed by some of those

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<sup>3</sup> Note that even Nanay, who initially suggested the possibility of consciously perceiving both the surface and the depiction (2010, 2011), has recently followed the argument by Hopkins (2012) against the possibility of reaching this perceptual scenario in usual picture perception. However, this possibility is maintained by Nanay (2017) in relation to the aesthetic appreciation of pictures. I do not focus on this aspect of picture perception here.

<sup>4</sup> Here 'seeing' might be conscious or unconscious, in line with SA2.

who defend SA2, that SA1 is not possible: we can't simultaneously consciously see both the surface and the depiction. Thus, for SA1, we can only alternate our visual consciousness between them.

It has been suggested that this paper follows SA2. Thus, it rejects the idea that SA1 is necessary for seeing-in – remember that here I bypass the debate about whether SA1 can be realized. Note also that NA2 is the notion usually mentioned when talking about NA – cfr. with the quote by Gombrich reported at the beginning of the paper in order to mainly characterize NA.<sup>5</sup> As Nanay (2017) suggests, there are two main views in picture perception: one according to which “we see both the picture's surface and the depicted object but we alternate between seeing the surface and seeing the depicted object” (Sect. 1) and another one according to which “we see both the picture's surface and the depicted object and we see them simultaneously” (Ibid.). The first option “is normally attributed (rightly or wrongly) to Ernst Gombrich.<sup>6</sup> His account of picture perception is that we ‘see’ both the surface and the depicted object, but we never ‘see’ the two at the same time. We oscillate between seeing the canvas and seeing the depicted scene” (Ibid.). This is the notion described by NA2. The second option is “the most widely discussed way of thinking about picture perception” (Ibid.) and is often attributed to Wollheim. According to this second option “when we see something in a picture we have a twofold perceptual state: we see the surface and the depicted object simultaneously” (Ibid.). This is the notion described by SA2.

So, when focusing on the dichotomy between SA and NA, this paper refers to the specific dichotomy between NA2 and SA2. The next section reports the argument, based on empirical evidence from vision science, in favor of SA2 and against NA2. In order to defend SA2, I need to show that we always ‘see’ (visually represent, consciously or unconsciously) both the picture's surface and the depicted object.

This paper defends SA2, namely, the view that, during picture perception, we *do* ‘see’ – or visually represent – *simultaneously* both the picture's surface and the depicted object: our visual brain simultaneously builds a visual representation of the picture's surface and a visual representation of the depicted object. Furthermore, the former representation is usually unconscious, whereas the latter is usually conscious (§ 2). In order to defend SA2, it is sufficient to effectively show that we (the different activities of our visual system) do indeed build these two visual representations during picture perception or, in other words, that we *see* both the picture's surface and the depicted object – though the representation of the picture's surface does not need to be conscious.

It has been clearly shown, by vision science, that when we do not visually represent both the depicted object and the surface, but only the depicted object, without (the possibility of) visually representing the picture's surface, the depicted object is able to foster in us the *visual feeling of presence* (Vishwanath, 2014; see also Ferretti, 2016b, 2017b); that is, it looks like a real, present object we can interact with, as in the case of the famous *trompe l'oeil* pictures; see below. Conversely, when we do not represent the depicted object as present, we are visually representing the surface. In this respect, we also know that normal pictures do not, in *normal conditions*, foster in us the visual feeling of presence: what we see is a depicted object, not a normal, present object (Ferretti, 2016b). Therefore, if when we do not see the picture's surface the depicted object looks real and present, if, when the depicted object does not look real and present, that means that we see the surface, and if in *normal conditions*, the depicted object is

### 3. Vision and SA

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<sup>5</sup> For a more complex analysis of Gombrich's position see (Hopkins, 2012; Briscoe, forthcoming).

<sup>6</sup> See footnote 5.

seen as such, and not as a normal, present object we can interact with, then, in normal/usual picture perception, we *always see* also the surface.

Now, saying that, in *normal conditions*, the depicted object is seen as such, and not as a normal, present object is an uncontroversial visual phenomenological evidence concerning ordinary picture perception (Nanay, 2017; Lopes, 2005; Matthen, 2005; Voltolini, 2013; Ferretti, 2016a, 2016b, 2017a, 2017b; someone suggested that the depicted object is *present as absent*, Noë, 2012). If so, in order to defend SA2, I just need to show that when we do not see the picture's surface, the depicted object looks real and present and that, thus, when the depicted object does not look present, we are seeing the surface.

Experimental results seem to support this point. When a depicted scene is viewed with one eye (i.e., monocularly) through an oval aperture that occludes the rectangular boundary/frame of the image, the depicted object is indeed visually perceived as a present object we can interact with (Vishwanath and Hibbard, 2013, p. 1674; Vishwanath, 2014, p. 153). This evidence is also supported from both the *psychophysical* and the *phenomenological* point of view (Vishwanath, 2014, pp. 174, 224, 225; Vishwanath and Hibbard, 2010, 2013; Ferretti, 2016b, 2.4; forthcoming). Therefore, when the surface is not visible, even depicted objects can look present to the observer (Vishwanath, 2014; Ferretti, 2016c, 2017b):

When a picture is viewed normally with both eyes, the picture's surface is visible because of cues such as binocular disparity and the visible frame of the picture (...). Distance cues such as binocular convergence, vertical disparity, and the accommodative state of the lens specify the distance of this visible picture surface (...) rather than the pictorial contents (...). There are no known optical cues that specify the distance of pictorial objects from the observer. Therefore, under binocular viewing of pictures, although 3-D object shapes can be clearly perceived, their scale and absolute depth should remain optically unspecified. Monocular aperture viewing removes the main cues that specify the presence of the picture surface (binocular disparity and the visible frame), as well as binocular cues specifying its distance (convergence and vertical disparity). However, subsidiary distance cues, such as the accommodation state of the lens, are still present. In the absence of visible picture surfaces, it is plausible that the brain attributes the accommodation response to the pictorial objects, and assigns any associated distance information to them, allowing absolute depth values<sup>7</sup> to be derived (...) (Vishwanath and Hibbard, 2013, pp. 1682-1683).

This evidence suggests that we do not visually represent, during picture perception, the depicted object as present, because the visibility of the surface avoids the possibility of reaching this feeling: our visual representation of the picture's vehicle/surface as present hinders (the possibility of visually representing) the visual feeling of presence of the depicted object (Vishwanath, 2014, p. 164; Ferretti, 2016c, 2.2, 2017b, forthcoming). Conversely, when there is no visual representation of the surface, the depicted object looks present. Thus, this evidence also suggests that, when we visually represent the surface, the depicted object cannot be perceived as present and, thus, that when it is perceived as present, we are not visually representing the surface.

Therefore, since in everyday life, during picture perception, we can always visually represent the picture's surface, we do not visually represent the depicted object as present. All this

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<sup>7</sup> Egocentric absolute depth concerns the fact that the "observer has knowledge of the depth relations scaled in some meaningful way to her/his actions" (Vishwanath 2011: 222, 206).

suggests that the temporal relation between the perception of the surface/vehicle and the perception of the depicted object is crucial for ordinary (that is, non-illusory) picture perception (see below). These two perceptual states must occur simultaneously.

However, there are situations in which we deal with a picture, but we are fooled that the depicted object is a real, present one. Following the evidence above reported, it seems that, in these situations, we cannot visually represent the picture's surface. An example is *trompe l'oeil seeing-in*, in which the painting is skillfully realized in such a way that (even in binocular conditions and without oval apertures to see through) the visual system of the observer cannot properly detect (or 'find') the picture's surface and is, thus, fooled by the illusory presence of very enhanced visual depth cues related to the depicted object. In this case, even if for a moment, we cannot rely on any visual representation of the surface. Thus, the depicted object perfectly looks as a present one we can interact with (Ferretti 2016b, 2017b, forthcoming; Nanay, 2015).

Here is an important point suggesting that we do not represent (consciously or unconsciously) the surface when perceiving *trompe l'oeil*. In the literature it is claimed that, during picture perception, we simultaneously unconsciously see the surface while consciously seeing the depicted object. Empirical evidence from vision science suggests that if we do not represent the surface, we enter into the illusion that what is a pictorial object looks like a real and present object we can interact with and that, thus, when we do not enter such an illusion, we are seeing the surface. But it also suggests that when we see the surface, we are not visually fooled that the depicted object is present and, thus, that when we are fooled that the depicted object is present, we do not see the surface. If so, while the representation of the surface is unconscious during normal picture perception, in the perception of *trompe l'oeil* we cannot rely on any visual representation of the surface. If also in *trompe l'oeil* perception we were having an unconscious representation of the surface, we could not distinguish between normal and *trompe l'oeil* picture perception: both, indeed, would involve an unconscious representation of the surface and a conscious representation of the depiction. Also, this would go against the literature on vision science that suggests that representing the surface allows avoiding the impression of presence of the depiction. This evidence suggests that if we are representing the surface (even if unconsciously), we can't have a feeling of presence of the depicted object. Only when we cannot rely on such a visual representation we can enter such a feeling (for a complete analysis of this argument concerning the perception of *trompe l'oeil* see Ferretti 2016b, 2017c, forthcoming).

Here is another important point. Though I bypass the debate about the possibility of reaching the scenario described by SA1, here I endorse that we can consciously perceive the surface once we do not consciously perceive the depicted object anymore (at this point, we might perceive the depicted object, of course, unconsciously) – this indeed does not constitute a problem for my point. In this respect, note that with *trompe l'oeil* pictures we cannot even shift our conscious vision (or, one may say, our conscious visual attention) to the surface because we have no visual representation (either conscious or unconscious) of it. Having this visual representation, even unconscious, of the surface is what allows us, with normal pictures, to remain consciously visually interested and focused on the depicted object, without experiencing any visual feeling of presence of it, *but* with the possibility of shifting our conscious vision (or, one may say, our conscious visual attention) even to the surface – and, as explained, at this point the depicted object is not consciously perceived anymore. All this further suggests that the visual representation of the surface needed in order not to be fooled that the depicted object is present is of an unconscious nature.

Summing up, first, according to the literature, we consciously see only the depicted object and we visually ignore, from the point of view of conscious visual experience and attention,

the surface, as suggested by those who defend SA2 – this holds independently of whether SA1 can be realized or not (§1). Second, we need to build a visual representation of the surface, or we fall into the visual feeling of presence of the depicted object. These two perceptual facts are explained only by suggesting that, in picture perception, we have a conscious visual representation of the depicted object and an unconscious visual representation of the picture's surface and that the possibility of relying on this unconscious representation concerning the presence of the surface allows us to be consciously focused on the depicted object, without having any illusory impression of presence of the depicted object. However, as anticipated a few lines above, there is the additional possibility of shifting our conscious attention to the picture's surface, which is, then, consciously seen (visually represented) – while, at this point, the depicted object is not consciously seen anymore. This representational shift is perfectly compatible with SA2, independently of whether we claim that SA1 can be realized or not (§1). Indeed, following SA2 and *contra* NA2, we visually represent (*or see*) both the depicted object and the picture's surface – and, in particular, we consciously see the depicted object while unconsciously seeing the surface. But we can also alternate between our conscious visual (attentive) states related, respectively, to the surface and to the depicted object. This is neither in contrast with SA2, nor with NA1. NA1 endorses that we alternate our conscious vision, which is endorsed also by SA2.<sup>8</sup> To this extent, remember that SA2 and NA1 are perfectly compatible: NA1 follows the idea, also endorsed by some of those who defend SA2, that SA1 is not possible (§2): we can't simultaneously consciously see both the surface and the depiction. Thus, for SA1, we can only alternate our visual consciousness between them (§2). To conclude, we saw that when appropriate experimental settings make the picture's surface invisible, the depicted object looks present. This can also happen with *trompe l'oeil* perception. Therefore, if in usual pictorial experience the depicted object does not look present when we consciously see it, then, we are also seeing (or visually representing) the surface (as present) unconsciously (Ferretti 2016b, 2017b, forthcoming). This is in line with the notion of simultaneity defended in the literature (§2). This is clearly sufficient in order to defend SA2. Thus, *contra* NA2, the best philosophical theory of seeing-in is SA2: during everyday (non *trompe l'oeil*) picture perception, we consciously visually represent the depicted object and we cannot avoid visually unconsciously representing the presence of a surface. This is the crucial *visual* condition in order to correctly enter ordinary (i.e. non-*trompe l'oeil*) picture perception.

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<sup>8</sup> The present paper investigates the status of *usual pictorial* perception. I mention experimental scenarios that are far from everyday picture perception, as well as the cases of illusory pictorial perception, only because they tell us something crucial about our *everyday experience of pictures*.



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