EXPLAINING DEPICTION

(1) How do pictures represent? Well, no doubt they do so in many ways. If a painting shows a seated woman, if she symbolises Despair, and if the work expresses melancholy, we should not assume that the representational relations here are all the same. Nonetheless, perhaps one form of representation is specially pictorial. Perhaps, in other words, there is a form of representation which is distinctively exhibited by pictures and which it is distinctive of pictures to exhibit. It seems more likely that our painting exhibits this distinctive form in representing a seated woman than in representing Despair. For consider a representation which is not a picture - a written description. This might describe a seated woman who symbolised Despair. It is tempting to say that the picture and the description represent a seated woman in different ways, but Despair in the same way - by representing something which itself symbolises Despair. This is not just a point concerning the *means* by which representation is achieved; it renders plausible the claim that the *form* of representation in the two cases is also the same.

Let's make the working assumption that there is a specially pictorial form of representation, and let's call it "depiction".[1] What is depiction?

Philosophers have provided many different answers to this question. These appeal, *inter alia,* to formal features of the representational system, to natural relations between depiction and depicted, to our experience of pictures, and to the resources we must deploy to understand them.[2] This variety is welcome, but it has not led to healthy debate. Instead discussion has all too often reduced to trading counter-examples. The protagonists have merely exchanged conflicting intuitions as to whether a particular case depicts or not. This may lead us to wonder if there is interesting disagreement here. Perhaps the different views articulate several distinct notions, rather than offer rival accounts of a single idea.

The purpose of this paper is to remedy this situation. Order can be brought to the chaos if we remember that the point of a philosophical theory is to offer explanations. This suggests a certain approach to the topic. We must identify some prominent features of depiction and try to explain why it has them. We provide that explanation by offering an analysis of depiction from which those features follow. The key test of any analysis is whether it succeeds in this role. This approach will not

guarantee an end to controversy, since some may disagree with our chosen explananda. But at least the terms of debate will have changed, and for the better. The proposed explananda must be plausible independently of the account which explains them; nonetheless, once we have that account it will support the explananda as well as being supported by them. The equilibrium thus attained is a more substantial achievement than merely insisting on some intuition about a particular case. Those who wish to offer a serious alternative to our view will have to offer a better explanation for our chosen features, or provide a different, and equally plausible, set of features and an explanation for them.

In the next section I describe some features of depiction sufficiently striking to demand explanation. Section 3 discusses the ability of some prominent current views to meet that demand. Section 4 outlines an alternative account of depiction, and in 5 this is used to provide the needed explanations.

(2) Depiction can, but need not, be of some particular. A portrait depicts a particular person, but many examples of genre painting depict someone of a certain type without there being any particular person of that type whom the painting depicts.[3] If no particular is depicted, depiction is simply of a thing with certain properties. Moreover, depiction of a particular is always depiction of it as enjoying some properties. For example, a portrait cannot depict Winston Churchill without ascribing some features to him. Thus the distinction is really between depicting a set of properties as instantiated by a particular and depicting them as co-instantiated, but not by any particular thing.[4]

Whether or not they depict particulars, pictures always have a fairly rich content. The thought here is important but elusive. It is perhaps part of what people mean when they say that pictures paint a thousand words. Can we tease something more precise from this talk of richness?

We have already articulated part of the idea here with perfect precision, *viz.* that it is not possible to depict a particular without ascribing to it some properties. Why this should be is certainly something to explain. However, there is more, since even the depiction of properties demands a content that is not too thin. For example, a picture cannot depict something as simply triangular, or as simply a table. If it depicts either, it depicts something of more determinate nature - perhaps an isosceles triangle, perhaps a three-legged, square-topped table. Of course, the properties depicted need not be fully

determinate, and indeed could not be. Any picture's content must stop somewhere, and thus no picture depicts, for instance, a table of completely determinate shape.[5] Thus beyond a certain degree indeterminacy is unacceptable, but that degree is not zero. Although it is difficult to say anything more about this degree, it is striking that there is such a limit on depiction. An explanation of why there is one would be welcome, even if it leaves the limit imprecise.

It will be convenient to gather both these points about richness in a single explanandum:

> (x1) Any depicted particular is depicted as having some properties, and any properties depicted are reasonably determinate.

The two explananda which follow provide further, more specific constraints on the content of depictions. Here is the second:

> (x2) Everything depicted is depicted from some point(s) of view.

In other words, depiction is essentially perspectival. Ingres' portrait of Louis François Bertin depicts him from the front. Some of Magritte's self-portraits show him from behind. I cannot depict a chair, say, without depicting some part of it as nearer than another. And in general any depiction of any thing must represent it as spatially related to a certain point, the point from which it is depicted.[6]

One or two clarifications may help here. First, there may be more than one point of view from which a picture depicts. An architectural drawing showing a building's front and side elevations in the same continuous figure depicts different parts of the building from different points of view. Other cases which may seem more problematic, such as early Cubist works, are merely more complex versions of the same phenomenon.[7] Second, the point of view may be somewhat indeterminate. A child's drawing of a house might not depict it from any very determinate point at all. Perhaps one can say no more than that the house is represented from the front, rather than the side or the back.

The perspectival nature of picturing is one of its most striking features, one any account of depiction

must attempt to explain, and one which has frequently been noted.[8] No less important is the insight of the Renaissance theorist Alberti that "the painter is concerned solely with representing what can be seen" (1966 p.43). A gloss makes this a little clearer:

(x3) Whatever can be depicted can be seen.

This also invites clarification. There is a distinction, applying to the depiction of particulars, between those properties the depicted particular actually enjoys and those it is depicted as enjoying. Should we take (x3) as claiming that any particular depicted must *actually* be visible, or that it must be *depicted as* visible? I suggest we should accept both readings. We can do so by allowing "whatever" to cover any particular or property. Then any particular depicted must in fact be visible; so the first reading is secured. Further, any property a picture ascribes must be one the possession of which by an item is in general visually detectable, thus guaranteeing the second reading.[9]

The result is a strong claim - why should we make it? It is hard to deny that the vast majority of pictures depict items which are themselves visible, and depict them as having a visual appearance. True, (x3) goes further, precluding the depiction of any non-visible feature. This may seem to clash with the concern, common in portraiture, with representing character traits. However, what a portrait depicts is precisely aspects of character which are visibly manifested - in the curl of the lips, the furrowing of the brows, and so on. Conversely, what it cannot depict is a completely concealed aspect of character. Thus if (x3) goes too far, it does so by ignoring some rather unusual pictorial possibilities, rather than by misunderstanding the depictive mainstream. There are perhaps two important sources of anxiety here.

First, can I not depict something as *in*visible? Suppose I depict a wispy, near transparent lion, moving amongst villagers who look straight through it. Does this provide a counter example to (x3)?

Certainly I have depicted the villagers failing to see the lion, and, given that they are looking in the right direction, depicted it as invisible to them. But if I am to depict the lion at all, I must give the viewer of the picture some indication of its presence - hence the wispy, near transparent shape in the

depicted scene. But then I have depicted something wispy and near transparent - and hence something (just) visible. To whom is this thing visible? Not to anyone depicted in the scene, for sure, but to anyone viewing the scene from the point from which it is represented. If you were looking at the scene (not the picture of it), you would see the wispy lion, and the villagers failing to see it.

Thus the lion seems to be depicted both as visible and as invisible. There is no problem reconciling these two claims, for one thing because there is no one person to whom the represented lion is both visible and invisible, for another because there is anyway no difficulty with depicting inconsistent states of affairs (for examples, see some of MC Escher's drawings, or Hogarth's *False Perspective*). But if the lion is depicted as both visible and invisible, it is certainly depicted as visible, and hence (x3) stands. The picture ascribes to the lion properties (wispiness and near transparency) which can, in general, be seen, and the fact that it also ascribes to it the property of being invisible to certain depicted people does not change matters.

We might try to tighten up the example, for instance by representing the presence of the lion by its footprints alone. But if one were looking (face-to-face) at the scene now, one would be able to see *that* a lion was present, but not to see the lion itself. Similarly, it seems right to say that the picture now depicts a scene in which a lion is present, but does not depict the lion. True, none of these claims is so obviously correct that there is no possibility of denying it. However, the questions which arise here, the pressures shaping the answers to them, and the resources available to accommodate those pressures, are strikingly similar for seeing and depicting. Thus far from weakening the hold (x3) has on us, this refined example bolsters it.

Second, there is class of representations which seem to fly full in the face of both the claims (x3) captures. Consider, for instance, an illustration showing the layout of a magnetic field. It is not obviously wrong to describe this as depicting the field; yet the field has no visual appearance, and the illustration does not ascribe one to it.

It is hard to know what to say here. Plainly the illustration represents the field, but does it depict it? There is some inclination to say so, but that is hardly enough to dictate a reasoned philosophical

response. There are other possibilities to consider, and no reason to think that intuition is a sufficiently discriminating tool to guide us among them.

Consider two such possibilities. Pictures may represent in many different ways, and, a separate point, many different forms of representation may be more or less akin to depiction. Perhaps, then, there is no depiction here, only a form of representation continuous with it, as is probably the case for maps. Alternatively, perhaps the illustration depicts something (for instance, how iron filings on a sheet of paper would look when positioned in the field), without depicting the field itself. On this view, if the diagram represents the field at all, it does so non-pictorially - somewhat as our painting of a seated woman non-pictorially represented Despair.

These alternative analyses bring us to the edge of a quagmire of the sort that has often blocked philosophical discussion of depiction, and which I want to avoid. It is easy to insist that one of the possible views is the right one, but not of much value without a framework to provide that insistence with some justification and point. Faced with this situation, it seems best to step back and see if the obstacle can be circumvented. Thus I shall put this counter-example to (x3) aside, and give no more than provisional acceptance to the explanandum itself. I hope that the rest of the discussion will allow us to return to this issue with clearer heads.

The fourth explanandum also exploits the distinction between how a depicted item really is and how it is depicted as being:

(x4) Pictorial misrepresentation is possible, but has its limits.

Pictures may ascribe to items properties they do not actually enjoy, and when they do we have pictorial misrepresentation - as in a picture which depicts the Eiffel Tower as blue, or as standing on the banks of the Ganges. But although misrepresentation is possible, and its being so is a central feature of depiction, there are limitations on what pictorial misrepresentation is possible. We may misrepresent the Eiffel Tower in infinitely many ways, but it does not follow that we can depict it as having just any properties at all. Suppose, for example, we tried to depict it as having only properties

in fact enjoyed by Big Ben. The result might represent the Tower in some way, and it would certainly depict something - a building of a certain shape, colour and the like. However, the picture would not depict the Tower.[10]

I will consider the most serious objection to this only after introducing the last two explananda, since the objection applies to them as well. These last two concern the epistemic resources deployed in understanding depiction. Several writers have noted the fact of "transfer", that is that once one knows how to understand some pictures, the only thing one needs to understand others is knowledge of the appearance of the things they depict. Thus, if I can see that a photograph depicts you, and I know what your next door neighbour looks like, I can tell that a photograph depicts her. Transfer concerns the resources sufficient for understanding, but there is an equally plausible claim about those necessary for it. For if I do not know what your neighbour looks like, I cannot see the photo as depicting her. This is not to say that I cannot understand it at all - I may be able to tell that it depicts a woman, with blond hair, a nose of a certain shape, and so forth. But insofar as I can tell that it depicts this or that, I must know what such a thing looks like. And if I learn that the picture depicts that particular woman (perhaps it is on a Wanted poster), I *ipso facto* acquire knowledge of what she looks like.[11]

The co-variance of knowledge of appearance with ability to understand depiction can be captured in the following two claims:

> (x5) General competence with depiction and knowledge of the appearance of O (be it a particular **a** or merely some F-thing) suffice for the ability to understand depiction of O.
>
> (x6) General competence with depiction and knowledge of the appearance of O are necessary for the ability to understand depiction of O.

We can now consider the most prominent objection to the claim about misrepresentation, (x4). Consider the representation of historically distant personages, such as the Saints. Often such pictures

contain clues as to which Saint they represent, but this is not always so. A typical Leonardo drawing of St Anne, for example, may merely show a woman from the front. This picture ascribes various properties to Anne, but there is no reason to believe that she really enjoyed any of these; quite possibly she looked completely different. So if this picture depicts St Anne, (x4) must be wrong.

It is a notable feature of this example that we are, as Leonardo was, ignorant of Anne's appearance. Since this is so, it is clear that the example threatens (x5) and (x6) as well. *Contra* (x6), understanding the picture as representing Anne cannot require knowledge of her appearance, on pain of denying that Leonardo himself can tell what his work depicts. *Contra* (x5), knowledge of her appearance would not, along with the ability to understand other pictures, suffice for understanding the picture. One must also be able to read the picture's title, or have some other access to the identity of the person portrayed.

Should we accept that the drawing depicts St Anne, and abandon the three explananda? The alternative is to preserve the explananda by claiming that the picture depicts a woman with certain properties, and represents Anne in some non-pictorial manner. My preference is for this second course, for the following reasons.

First, although there is certainly some appeal in the idea that Anne is depicted, this can hardly constitute a knock down argument against the claims above. For the intuition the objection relies upon is no firmer than others we have had reason to doubt. Against it must be set the attractions of the three explananda. Each of these general claims has a certain plausibility, I think, and since the view that Anne is depicted contradicts all three, its appeal must outweigh that of the trio as a whole.

Second, there is something unstable in the position we would occupy if we accepted the intuition. To see this, first consider (x5) and (x6) alone. The St Anne case in no way casts doubt on the idea that some depiction is understood using just the resources they mention. Everything I said about the photograph of your next door neighbour stands; it is merely the generalisation of these claims to all depiction which the Leonardo is intended to block. So if we accept the counter example we are left claiming that understanding some depiction requires nothing more than general competence and

knowledge of appearance, while understanding other depiction requires rather different resources.

What is odd about this is that one might expect the sort of content a representation involves to be closely related to the resources needed to understand that content. For example, what one needs to know to understand a spoken sentence of a natural language is dictated by what establishes the content for that sentence in that language. Crudely, since the content is fixed in key part by various conventions governing the component terms and ways of combining them, understanding the sentence requires (implicit) knowledge of those conventions. Since accepting the St Anne counter example would leave different pictorial contents requiring very different resources for understanding them, we would be under pressure to see the contents themselves as forming two distinct kinds.

This pressure increases considerably if we now widen our view to include the other explananda. Taken as a group, the six seem to lock together so as to trace the boundaries of a unified field of inquiry. They describe a form of representation which is deeply visual. It is representation which must have a minimum content, a content that represents something as having a visual appearance, and represents it from a point of view (x1 to x3). It is a form which is restricted to representing items in, and features of, the world which can themselves be seen (x3). Moreover, these two visual appearances, that of the represented item and that it is represented as having, are linked. The representations need not show things as they are - misrepresentation is possible. But they are only able to represent aspects of the world by maintaining some connection between how they represent it as being and how it really is (x4). In short, as it is tempting to put all this, this sort of content represents things *via* representing their appearances. And, in consequence, understanding that content essentially requires a knowledge of how things look; and, given a general competence with the form of representation, little else (x5 and x6).

We can sharpen our sense of the explananda's unity by contrasting representation in language. That does not exhibit any of the six features listed above. A description of something may be from a point of view, but it certainly need not be. No more need it describe the visible, or describe it as visible. Thanks to various referential devices, such as the proper name, misdescription is able to run rampant without ceasing to be description of the particular in question. Even when words do refer to items with

visual appearances, understanding them is not always dependent on knowing what those appearances are, and always requires something more. In short, the contrasts here are unrelenting. They should provoke us into a stronger awareness of the unity the explananda exhibit.[12]

Thus there is good reason to see the explananda as describing a distinctive sort of content. Why, however, should we identify that content with depiction? Why not instead take depiction to fragment into two sorts of content, that which the explananda cover, and that, such as the representation of St Anne, which they do not?

If the thought here is that there are two completely distinct sorts of content, both named "depiction", that thought is harmless. For we would then have to offer separate accounts of those distinct forms of representation, and the rest of this paper could be seen as providing one of those two accounts. So the idea must rather be that the content covered by the explananda and that to which they do not apply are interestingly related, so that a satisfactory account of either should bring out what it has in common with the other. What reason, however, is there to accept this? We have seen that the explananda describe a coherent and distinctive form of representation. If anyone wishes to say that that form is closely related to some other, to which the explananda do not apply, the onus is now on her to make good that claim. Since it is hard to see how that could be done simply by making claims about what individual pictures do or do not depict, this brings us back to the challenge, made at the start of the paper, for those who disagree with my explananda and explanation to provide something better themselves.

There is a less defensive point to make too. The content which the explananda do not cover would seem to be very limited. It is merely one aspect of what pictures such as the St Anne drawing represent, *viz.* the particular in question. Furthermore, these examples are rather special, since they seem to trade off the fact that the represented particular is one of whose appearance we are ignorant. Thus the range of putative depiction which the explananda do not cover is very small indeed. This surely makes it tempting simply to abandon the idea that such contents are depicted. We have succeeded in extracting, from our complex and extensive linguistic practices involving the term "depiction", a core usage which the explananda both delineate and reveal to have a powerful

coherence. For the few aspects of our usage which are not so accommodated, it does not seem arbitrary to consider them misapplications, albeit understandable ones,[13] of a term which reflects, in its other uses, a distinct and interesting concept.

Thus the six explananda combine so that their plausibility as a group outstrips that they enjoy as individuals. And this is as well, for views unable to explain why depiction has these features will be tempted to deny that it does have them. I have suggested that one penalty that denial would incur would be the loss of a coherent set of claims, a set embodying a distinctive view of pictorial representation, and inviting us to show that the explananda's striking unity has a deep source.

(3) It will be useful to demonstrate that the explananda do not identify trivial features of depiction, that providing explanations for them is not a task every theory can perform. To this end, I shall briefly consider two accounts which seem to me to embody the most influential and interesting approaches to depiction. The six explananda provide an incisive and informative way to assess them.

(a) Goodman

One influential approach attempts to understand depiction as essentially conventional, just as linguistic representation and many other forms are. Its most successful exponent is Nelson Goodman.

Goodman tackles depiction in the context of a general account of the variety of symbol systems. What is special about symbol systems which are pictorial? Goodman identifies three features which are important, features he terms syntactic and semantic density, and relative repleteness. We need not worry about the details of this here. Roughly stated, the upshot is that for Goodman pictorial systems are ones in which, for a wide range of properties of the mark on the surface, the tiniest differences in that property matter to what is represented. He does not claim that this provides a condition sufficient for a system's being pictorial, but it is necessary, and it serves to distinguish pictorial systems from linguistic ones.[14]

Although Goodman does not claim to have defined depiction, it is still reasonable to ask whether he has said enough about it to explain its central features. The following example suggests otherwise.[15]

We might use a graph to track the temperature of a quantity of colourless gas over time. With time elapsed along the x-axis, various features of the plotted line might feed, in a weighted manner, into the temperature represented. These features might include the line's height against the y-axis, its thickness, its hue, its saturation, its brightness, and so on. The graph would be a symbol in a system which is both syntactically and semantically dense, and relatively replete. Yet, as has been noted by those who offer such examples, it would not depict anything. This observation is by itself of little use, since Goodman does not claim that his conditions are sufficient for depiction. But in the context of the explananda, we can articulate the force of the example. The inchoate thought is that the system described is hopelessly distant from depiction. That thought can be given precision by noting that of the six features above only (x1) is exhibited by the graph.[16] It represents something which, as perfectly transparent, has no visual appearance and which is not represented as having one (x3). There is thus no appearance knowledge of which might guide understanding of the symbol (x5,x6). Further, the graph does not represent the gas from any point of view (x2), and there seems no reason why it should not continue to represent it even though attributing quite erroneous temperatures to it (x4). Since the graph meets Goodman's condition, but fails to exhibit these features, Goodman's account cannot explain why depiction must exhibit them. It is this, rather than its exposure to counter-examples, which constitutes its real failure.

(b) Wollheim

Goodman's difficulties, it may appear, lay in ignoring the deeply visual nature of depiction. One way to attempt to remedy this is to appeal to the idea that it is our (visual) *experience* of depiction which is essential to that form of representation. The problem thus posed is to characterise that experience, seeing-in, in an illuminating way. This approach to depiction has become dominant in recent years, and many differing characterisations of seeing-in have been offered.[17] The most influential proponent of the experiential view is Richard Wollheim.

Wollheim takes seeing-in to be a single experience with a "two-fold" nature.[18] It involves two "distinguishable but also inseparable" aspects or "folds" (1987 p.46). One aspect, the configurational, is analogous to the experience of seeing the picture without seeing anything in it. The other,

recognitional, aspect is analogous to seeing the picture's object face-to-face. But it is a mistake to ask in what way either fold is analogous to the corresponding experience:

> "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....The particular complexity that one kind of experience has and the other lacks makes their phenomenology incommensurate" (1987 pp.46-7).

Wollheim's account does have some chance of explaining the six features. By connecting our experience of a picture to face-to-face visual experience of the picture's object, it manages to introduce the links to, and involvement of, visual appearances on which so many of the explananda turn. This should enable him to make a start with every one of the six. Consider, for example, (x2) - the claim that all depiction is perspectival. If a picture depicts something it must be possible to see that thing in the picture, and to do that is to have an experience analogous, in one fold, to seeing that thing face-to-face. But all seeing face-to-face is from a point of view. This point of view features in the fold of seeing-in analogous to face-to-face seeing, thereby entering into what is seen in the picture, and thus into what it depicts.

However all this concedes is that Wollheim can begin to explain (x2). Until we know more about the crucial analogy between seeing-in in its recognitional aspect and face-to-face seeing, it is wholly unclear how to complete the explanation. For why should the perspectival nature of ordinary vision be preserved in the recognitional fold of pictorial experience? Why isn't it "filtered out" as, for instance, is any impression of stereopsis? While the formula for relating ordinary seeing to seeing-in remains the blank "in some way analogous", it is impossible to answer these questions.

In the face of this difficulty what Wollheim *should* do is to develop his characterisation of seeing-in further. He should attempt to elucidate the crucial analogy, taking the need to explain (x1) to (x6) as constraining whatever account he finally settles upon. What he actually does is to resign, falling back on the conviction that nothing more illuminating about seeing-in can be said. We can now see that this

course is wholly unacceptable.

(4) How are we to do better with the six explananda? What we need is an account of depiction that builds upon the limited successes above. Approaching depiction through our experience of it enabled Wollheim to make some progress, and we should continue to work within the framework he established. What we want is an account of that experience which enables more explanatory work to be done.

One way to obtain such an account is to appeal to the old idea that pictures *resemble* or *look like* what they depict. This at least promises to make central the appearance of what is depicted, something central to the explananda, as our discussion of their unity revealed.[19] The notion of resemblance can yield a characterisation of our experience of depiction if we suppose that a depiction of something is *seen as resembling* it.

The central problem this immediately poses is to say in what respect we see pictures as resembling what they depict. It is not true, for instance, that we see a depiction of something as resembling it in the complex overall way in which identical twins are alike. If picture and object look alike they must do so is some more particular respect. Yet for any respect on which we fasten difference is more apparent than likeness. We do not see all pictures as sharing the colours of what they depict, nor their textures, and certainly not their shapes. How, then, do picture and object look alike?

To find the answer, let us consider a particular case. Suppose I am looking at one of the Pyramids through a misty window, and that on the glass I trace the monument's contours with my finger. The result is a picture, of sorts. How does it resemble the pyramid? Since the tracing is colourless and without interesting texture, only some form of shape property is likely to be relevant here. But if shape is the key, it is clearly not 3-D shape - the tracing is a tediously flat collection of 2-D shapes, the pyramid distinctively extended in three dimensions. What we need is some shape property which the two nonetheless share.

To discover what this property might be, we need to do a little geometry. Consider the base and the

apex of one face of the pyramid. At the point from which the tracing is drawn, both base and apex subtend an angle - the base a large one, the apex one close to zero degrees (figure 1). As we move up the face of the pyramid between base and apex, the angle subtended by the face gradually reduces from the large to the small. In fact, the pyramid's face subtends a distinctive solid angle at the point. This solid angle is simply the combination, in three dimensions, of all the individual angles subtended by the face in particular planes. Now, as figure 1 demonstrates, exactly the same individual angles will be subtended by the corresponding parts of the tracing. The line tracing the base subtends the same large angle as the base itself, the point representing the apex subtends the same very small one, and so on. Thus taken together the marks on the glass will subtend the same solid angle as the face of the pyramid they trace.

If the pyramid is oriented as in figure 1, another of its faces will also subtend a solid angle at the point, although an angle different from that subtended by the first face. The pyramid as a whole will subtend the solid angle formed from those its two faces subtend. Again, this feature of the pyramid will be matched by the tracing. It will subtend the same solid angle as the whole pyramid, and within that angle it will subtend two smaller solid angles, which match those subtended by the two faces.

Let us call the solid angle an object subtends at a point its *outline shape* at that point. Two items will resemble in outline shape to the extent that, at some point, one subtends a solid angle similar to that subtended, at some point, by the other. Note that the two points here need not be the same. The tracing and pyramid subtend matching solid angles at the same point, but that is an accidental feature of the case. The tracing would share the property of the pyramid which interests us even if we took it out of Egypt altogether. Note also that, as the discussion of the two faces of the pyramid showed, the outline shape of the whole can include the nested outline shapes of its parts. What I propose is that outline shape provides the respect in which pictures look like what they depict.

One concern might suggest itself immediately. Surely experienced resemblance in a given respect requires the resembling property to be experienced in the first place. If, for instance, we did not perceive colour, we would hardly see things as resembling in colour. Yet it is not at all obvious that we experience something as esoteric as outline shape. Do we really see objects as subtending solid

angles at points?

Fortunately, there are familiar phenomena which suggest that we do. As various thinkers from Euclid onwards have noted, a round wagon wheel seen obliquely looks elliptical, and parallel lines receding towards the horizon seem to converge.[20] Our experience does not misrepresent the 3-D shape of these things - we are not for a moment tempted to believe that the wheel has deformed, or that a straight road tapers as it recedes. Nor need we take the phenomena to show that our experiences have non-representational properties.[21] We can avoid both these ways of misdescribing the phenomena if we suppose that what we are seeing is outline shapes of the objects in question. For example, when the wheel looks elliptical to us we are seeing its outline shape at the point from which we are looking, an outline shape which differs from that it has when not seen obliquely. We do not, of course, think of the elliptical appearance of the wheel in these terms; but then we do not usually conceptualise this aspect of our experience at all - any more than we do many other properties we experience, such as the precise 3-D shape we see a lump of rock as having.

So the thought is that to see something O in some part P of a surface S is to see P as resembling O in outline shape. Now, a little more is needed for a complete account of seeing-in. For depiction often exploits colour as well as shape, and when it does the experience of seeing something in the picture also involves colour - as when I see a red-breasted robin in a picture. This is not always so: some pictures are simply neutral with respect to the colour of the objects they depict - charcoal drawings, for example. We see things in these pictures, but not coloured things. We can accommodate both sorts of case if we say that seeing-in must involve seen resemblance in outline shape, and may involve seen resemblance in colour.[22]

This, like any other characterisation of seeing-in, can provide the basis for a theory of depiction. However, before we can offer that theory, we must acknowledge that there is more to depiction than seeing-in. Two lacunae in particular confront us.

First, as Wollheim has stressed,[23] it is not sufficient for a surface to depict an item that we see the item in it. For we sometimes see things in naturally formed surfaces such as frosted window panes,

and these surfaces do not depict at all. They no more depict than naturally formed marks in the shape of words would *describe* anything. Moreover, even when a surface does depict something a viewer may see something else in it - as when I see John McEnroe in a photograph of my brother.

To fill this gap we need to appeal to the history of the surface. Often the relevant aspect of its history will be the intentions of those who are responsible for its being as it is. Thus when an oil painting depicts a horse it does so both because we see a horse in it, and because the artist intended that a horse be seen there. No such intentions apply to frosted window panes, and that is why they do not depict.

However, intention cannot alone fill the gap. For mechanical means of making pictures, such as photography, allow for depiction which is to a high degree independent of anyone's intentions. Consider a photograph taken by a spy satellite floating over a hostile country. Back at base we see a new form of weapon in the photograph, and that is what the photo depicts. However, we may up to then have had no conception of such a weapon, and our enemies presumably hoped to hide it from the satellite's prying eye. So while this picture is a product of a system intended to do certain things, no one intended that we see in it quite what we do. The surface depicts the weapon not because anyone intended it to, but because the weapon is causally responsible for its being as it is - in particular for its being so marked that we see the weapon in it.

Now, it is clear that the causal relation which is important here is a special one. If the new weapon is turned on our satellite before a photograph is taken, the blast may damage the photographic film, miraculously producing a surface in which the weapon itself can be seen. This surface does not depict the weapon, even though the weapon is partially responsible for the marks, for the causal relation here is not appropriate. The right causal relation is rather whatever relation it is which is centrally involved in all photography. This is not the place to investigate that relation. Whatever it turns out to be, we will need to appeal to it in a full account of depiction, for instance to explain why the photograph of my brother does not depict McEnroe. The answer is that McEnroe is not causally responsible in this special way for my seeing him in the surface.[24]

Thus depiction requires both seeing-in and some intentional or causal link to what is seen in the surface. But what exactly is the first requirement here? What does the demand that the object be seen in the surface amount to? This is the second lacuna in our account, and it is not obvious how to fill it. For on the one hand it is too much to ask that someone really does see the relevant object in the surface. Even if a Polaroid photograph is permanently lost before anyone has set eyes on it, it may depict what the camera was pointed at when the shutter opened. On the other hand, it is too little to demand merely that someone would in *some* circumstances see the object in the surface. For surely anyone could see just about anything in a surface, given sufficient changes to their constitution and the conditions under which they see that surface.

To respond to this challenge we need to show that it is at least possible to steer between the two extremes just presented. We need to restrict those possible situations in which we require that the object is seen in the surface, without limiting them to situations which are actual. One such restriction would be to consider only situations in which we are constituted (physically and psychologically) as we really are. Another would be to concentrate on situations in which we see the surface under its *intended* viewing conditions. For paintings and other non-mechanically produced pictures these are simply the conditions under which the artist intended that whatever she wanted to be seen in the surface be seen there. For mechanically produced surfaces the intended viewing conditions are those in which whoever established the mechanism intended that its output be seen.[25] Using both these restrictions, we might claim that for a surface to depict there must actually be someone so constituted that, were she to see the surface in its intended viewing conditions, she would see in it what is intended to be seen there.

This way to refine the requirement that the depicted item be seen in the surface retains some unclarities. More importantly, I have not argued that it is the right refinement for us to adopt. However, I think it has sufficient appeal to suggest that some way to fill the second lacuna will be acceptable. Moreover, I think that that is all we need to demonstrate here. For the two lacunae face any seeing-in based account of depiction, and that means most of the prominent candidates. Further, our main interest here is in explaining (x1) to (x6), and it is the analysis of seeing-in, not the way we fill the lacunae, which will enable us to do that. Provided that some such filling is available, we may go on to

attempt those explanations.

Putting all this together, and allowing that some unclarities remain, I suggest that for our purposes here we assume that the following conditions are necessary and jointly sufficient for a surface S to depict something O: (1) there is some part of S, P, and some viewer V, such that, were V to see S under its intended viewing conditions, V would see O in P; (2) Either (1) is true because someone intended that it be true, or it is true because S is causally related (in some special way) to O. When joined to our characterisation of seeing-in, these conditions provide a little theory of depiction. This theory leaves many issues untouched, and many questions unanswered. There is, however, enough here to provide the basic materials for the explanations we seek. If those materials need supplementing, we can do that as we proceed.

(5) The easiest explanandum to begin with is (x2). Why is it not possible to represent something pictorially without representing it from some point of view? According to the little theory above, if a surface depicts something it must be possible to see that thing in it. Thus we will have the answer to our question if we can understand why the only things seen in surfaces are items oriented to a certain point.

To see an object in a surface is to see the surface as resembling that object in outline shape. This experience must involve two outline shapes - that of the surface and that of the object. It is the latter outline shape which concerns us here. Outline shape is relative to a point, it is a matter of the solid angle subtended by the object at some point. By involving the object's outline shape, our experience must involve the corresponding point. This is the point we see the object in the surface as oriented to, and this the point from which it is depicted.

If this explanation is to work, it is important to be clear on two matters. First, the object the surface is seen as resembling need not be some particular. Experiences of resemblance, like many other forms of experience (visualising, hallucinating, ordinary seeing), can have as part of their content merely some thing with certain properties. Thus the above talk of the object's outline shape is not to be taken as implying that there is an object with an outline shape; rather, it is shorthand for the claim that the

experience must have as part of its content both the object and an outline shape for that object. Were this not the case, the explanation would only apply to the depiction of particulars - and hence only to some of the cases (x2) covers.

Second, we must understand seen resemblance in outline shape correctly. The explanation exploits the fact that outline shape is relative to a point, and this relativity might seem enough by itself to ensure that our theory can explain (x2). Unfortunately, the fact that our theory ties the notion of outline shape to that of experienced resemblance complicates matters here. For suppose that there is an object with an outline shape, that the picture has a similar one, and that as a result the viewer of the picture is put in mind of the object. In such a case, the object has an outline shape, but there is no need for the viewer's experience to involve that shape, and thus the above explanation cannot get started. So it is important that this is not a case of experienced resemblance in outline shape. Instead there is here at most an experience of resemblance, which experience is in fact sustained by similarity in outline shape. What seeing-in requires is rather stronger - an experience of *resemblance in outline shape*.[26] The viewer must see an item before her, be aware of its outline shape, and see that thing as similar in that respect to something with another, similar, outline shape. Thus two outline shapes enter the content of the experience - the second embedded in the content: *similar to*.... And thus the explanation goes through.[27]

What of (x1)? Why is it not possible to depict a particular without ascribing some properties to it, and why must depicted properties be reasonably determinate?

Let us consider particulars first. We have just seen, in discussing (x2), that seeing-in requires an experience of resemblance with a special content. That content must include an item which the surface is seen as resembling, but it must also include an outline shape for that item. This will be so even when the item is a particular. Thus if a particular is seen in a picture what is seen therein must be a particular with at least one property - a certain outline shape.

How determinate must this outline shape be? This question brings us to the second part of (x1), the degree of determinacy required in the depiction of properties.

Consider first experiences of resemblance in general. It is in general quite possible to experience one item as resembling another of a relatively indeterminate nature. For example, when I see a rock as resembling a face in *three dimensional* shape there need not be some fully determinate shape of face I see it as resembling. However, it is also true that in general only a certain level of indeterminacy is tolerable. I cannot, for instance, see resemblance in 3-D shape to an irregular polyhedron *tout court*; the thing must be some more determinate shape than that if I am to experience resemblance to it. These general points apply also to experienced resemblance in outline shape: the outline shape resembled need not be fully determinate, but must be reasonably so. This explains why depicted properties must be determinate, at least for one depicted property: outline shape. The explanation leaves the requisite degree of determinacy imprecise, but at least we can now see why there should should be *some* such limit, and why it lies roughly where it does.

However, insofar as it only speaks of outline shape, this explanation is unacceptably incomplete. Many other properties can be depicted - why must they be reasonably determinate? The depiction of other properties is possible because they are correlated with outline shape.[28] The outline shape at a point of a horse, for example, alters with the position of its limbs, the length of its mane, the donning of its saddle, and so forth. Since this is so, if I see a picture as resembling something of a certain horsy outline shape, I may well see it as resembling something with other properties too - a standing, saddled, tall mare, for example. Now, the determinacy of the other properties seen in the picture will be determined by that of the outline shape. So for the reason that outline shape must be reasonably determinate, so must those other properties be. For example, suppose I see the picture as resembling in outline shape something cuboid. This experience requires the outline shape of the resembled cuboid to be determinate to a certain degree. It is impossible that this outline shape be so indeterminate as to be that of something cuboid, but not of any more determinate 3-D shape. And thus it is not possible to depict something as cuboid without depicting it as some more determinate shape.

(x3) claims that depicted particulars must really be visible, and that only visible properties can be depicted. Again, consider particulars first. For a surface to depict a particular, we must see some part

of that surface as resembling the particular in outline shape, and so the particular must really have an outline shape. The explanation we need here would now come easily, were having an outline shape sufficient for something to be visible. Unfortunately this is not the case. For outline shape, as I have defined it, is a geometrical notion, not a visual or optical one. It is not *defined* as something we see, nor in terms of the passage of light. So things which cannot be seen can have outline shapes, and our explanation has stalled.

To solve this difficulty, we must first turn our attention to (x5) and (x6). Once we see how to explain them, it will be clear what we should say about (x3).

(x5) and (x6) concern what one needs to know to understand depiction. Any view making seeing-in central to depiction naturally yields an account of our understanding of pictures: we understand them by seeing in them what they depict. Thus the resources understanding exploits are whatever resources seeing-in requires. What are those resources, if seeing-in is seen resemblance in outline shape? To take a concrete example, what is needed for someone to see a horse in a picture?

One thing which will certainly be required is the general ability to see resemblances in outline shape. Were our subject blind to the outline shapes of things, blind to resemblances of any form, or specifically blind to resemblances in outline shape, she clearly could not see the picture as resembling a horse in that respect. This general sensitivity to resemblances in outline shape is what the resemblance view takes the general competence of (x5) and (x6) to be.[29]

However, that general competence will clearly not suffice. Our subject must also be able to see the picture as resembling *a horse*. This seems to require her to bring to bear something specifically related to horses. Compare a related case. Someone may be quite capable of experiencing resemblances in colour. Nonetheless she will be unable to see a resemblance to a striking shade of blue unless she has some awareness or conception of that shade. Analogously, the ability to see resemblances in outline shape requires an awareness or conception of the things to which resemblance is experienced.

This clearly provides the other ingredient (x5) and (x6) require. For this awareness or conception can correspond to the knowledge of something's appearance of which they speak. The last paragraph argued that such awareness is necessary for seeing resemblance in outline shape. It will also, together with the general ability to see those resemblances, be sufficient. For what more could be required for the subject to see the picture as resembling a horse in outline shape? Thus both conditions on understanding depiction have been explained.

However, this explanation only works if it is indeed fair to identify the knowledge of appearance of which (x5) and (x6) speak with the awareness or conception which the experience of resemblance must exploit. Is this identification acceptable?

Some concessions may calm those who are sceptical here. First, I do not deny that to identify the two is to interpret (x5) and (x6) as one explains them. My retort is that the interpretation is not implausible. It is, after all, unclear in just what sense "knowledge of appearance" should be taken for the purposes of (x5) and (x6). Certainly it would be a mistake to take it as requiring the ability to describe, recall or imagine the item in question. For a picture may bring to light knowledge which a subject is unable to manifest in any of these ways. I may see the murderer in a photograph, even though the trauma of witnessing the crime has prevented me from recalling, describing or even imagining what he looked like. Second, I accept that the nature of the awareness/conception remains rather obscure. But its obscurities reflect those in the notion of knowledge of appearance as it features in the explananda. Given this, it seems best to make the identification and offer the explanations above, leaving for another day the task of clarifying both notions.

There is, however, a more serious obstacle to this identification. Rather than focusing on my right to talk of knowledge, the sceptic might question how I am able to speak of appearance. For, as we noted above, outline shape is not a visual notion. Thus an awareness or conception of a certain outline shape, whatever else it turns out to be, need not be an awareness/conception of a visible property of the item in question. But if not, how can that awareness constitute knowledge of the appearance of things? One could have that awareness of the outline shape of something which had no appearance whatsoever.

To answer this worry, we must after all explore the nature of this awareness or conception a little further. Its role, you remember, is to enable our subject to see the picture as resembling in outline shape a horse. As the discussion of (x2) showed, the awareness or conception must then concern, not merely a horse, but also the outline shape in question. That is, it must be an awareness or conception the content of which is: a horse of such and such an outline shape. Moreover, as was noted in discussing (x1), the outline shape in question can only be so indeterminate.

If this is the nature of the awareness, I think it is clear that we can only have such an awareness of the outline shapes of things of which we have *visual experience*. For it is only in seeing that we come to associate reasonably determinate outline shapes with things. No other senses give us access to the outline shapes of the things around us; and no non-sensory means are available for forming a reasonably determinate conception of their outline shapes.[30] Thus the only items we may have a suitable awareness of are visible, and the objection has failed.

I should, however, note a complication. Some blind people have benefited from systems which gave them information about the visible world by exploiting their sense of touch. A TV camera feeds into a pad on the surface of the skin, producing the tactile equivalent of the image the camera generates. With some practice, the person responds in a fairly immediate way to the information the pad delivers. Now, a related system might link the pad not to a camera but to a sonar device. It is at least conceivable that someone wired up to such a system develop the ability to perceive the outline shapes of invisible things. Further, there seems no conceptual obstacle to her forming an awareness of outline shapes appropriate to inform experiences of resemblance. Such people might develop a form of representation which exploited experienced resemblance in outline shape, but which was not limited to representing the visible. Would this be depiction? There is, I suspect, no non-arbitrary way to answer this question. There is a continuum of possible ways to represent here, and no principled way to divide it up. We have located our practice of depiction on that continuum, and on that basis we have explained the features it has. This should satisfy us.

Now we are at last able to tackle (x3). It is true that non-visible things may have outline shapes. But

the experience of resemblance in outline shape requires more than that something have an outline shape, it also demands that we be able to form an awareness of that outline shape. Given our perceptual endowment, this is something we can only do for particulars and properties we can see. But then the only particulars or properties able to feature in our experiences of resemblance in outline shape will be visible ones. So, at least for depiction as we practise it, only visible things can be depicted.

This is a good point to return to the magnetic field diagram of section 2. Does it depict? In the light of our little theory of depiction, we can now see what to say. The diagram cannot represent via the *experience* of resemblance in outline shape, for the magnetic field cannot be seen. Since depiction essentially involves that experience, the diagram does not represent pictorially. However, it remains possible that the diagram represents by exploiting *resemblance* in outline shape. If it does so, it clearly represents in a way closely related to depiction. This position seems neatly to reconcile the conflicting intuitions we have on this issue.[31]

My discussion of the resemblance view has not been complete. There has not been space to tackle all the problems which confront that view, or to apply it to every explanandum - (x4) is the one left out. Elsewhere I have taken on what seems to me the most daunting of the other problems, and argued that the view can explain at least the possibility of misrepresentation, which is half of (x4) (Hopkins 1994). What I have tried to show here is that, (x4) aside, the resemblance view promises to discharge the primary obligation an account of depiction incurs. It explains the most prominent features of that form of representation, and so succeeds where its rivals in section 3 failed. This provides good reason for thinking that it captures at least the core of the truth about depiction.[32]

Robert Hopkins
University of Birmingham

References

Alberti, Leon Battista 1966 (1435) *On Painting* trans. JR Spencer, New Haven, Yale University Press

Budd M 1993 "How Pictures Look" in Knowles & Skorupski 1993

Davidson D & Hintikka J 1969: *Words & Objections*. Dordrecht: Reidel.

Dennett D 1969 *Content and Consciousness* London: Routledge

Epstein W ed. 1977 *Stability and Constancy in Visual Perception*, New York, Wiley

Euclid 1945 *Optics*, trans. H.E.Burton, *Journal of the Optical Society of America* vol.35 no. 5

Gombrich E 1977: *Art and Illusion* 5th edition. Oxford: Phaidon.

Gibson JJ 1950 *The Perception of the Visual World*, Cambridge Mass., Riverside Press

Goodman N 1976 *Languages of Art* 2nd edition. Oxford: OUP

Goodman & Elgin C 1988: *Reconceptions in Philosophy*. London: Routledge

Hopkins R 1994 "Resemblance and Misrepresentation" *Mind* vol.103, no.412

Hyman J 1989 *The Imitation of Nature*, Oxford: Blackwell

Kaplan D 1969: "Quantifying In" in Davidson & Hintikka 1969

Knowles D & Skorupski J 1993: *Virtue and Taste*. Oxford: Blackwell

Peacocke C 1983 *Sense and Content*. Oxford: Clarendon Press.

1987 "Depiction", *The Philosophical Review* 96

Rock I 1977 "In Defense of Unconscious Inference" in Epstein 1977

1984 *Perception*. New York: Scientific American

Schier F 1986 *Deeper Into Pictures*. Cambridge: CUP

Walton K 1973"Pictures and Make-Believe", *The Philosophical Review* 82

1990 *Mimesis as Make-Believe*. Harvard: Harvard University Press.

Wollheim R 1980: *Art and its Objects* 2nd edition. Cambridge: CUP.

1987: *Painting as an Art*. London: Thames & Hudson.

1. I shall not put much weight on the term itself, since in ordinary speech it applies rather more widely than here. It is, for instance, quite natural to speak of music or literature as depicting things. I use it anyway because there is no better alternative, and its use is increasingly standard in philosophical discussion of this topic.

2. The best examples of these four approaches are: (i) Goodman 1976; (ii) Peacocke 1987, Budd 1993 - both of which also embody the third approach; (iii) Gombrich 1977, Wollheim 1987, Walton 1990; (iv) Schier 1986.

3. A more complex case is where depiction is of some fictional particular, for example a picture purporting to portray Don Quixote. I believe the correct analysis of the depiction of fictions will be parasitic on what I say in this paper, but there is no space to offer that analysis here, so I limit my claims to non-fictional depiction.

4. Other treatments of these issues can be found in Goodman 1976 ch.1, secs 5-6; Kaplan 1969 pp.225-6; Wollheim 1987 ch.2, note 16.

5. This is denied by Dennett (1969 p.135), who thinks that such indeterminacy will occur only when the picture ascribes to the table some property which obscures its precise shape. Goodman's (1976) account of depiction seems to commit him too to denying that pictorial content can be indeterminate in this way. For his attempt to deal with obvious examples of the above, see his 1988 ch.VIII, sec.3.

6. There need be no independent way of specifying this point. A depiction of a cube may depict it from a point opposite one of its faces, even though the only way to specify the face is as the one nearest the point. However, the circularity here is benign, for how else are we to describe this case?

7. Could a sufficiently fragmentary Cubist work not as a whole depict its object from no point of view at all? Even if so, the picture would achieve this precisely by having parts which depict parts of the object from particular, but different, points of view. Since the spirit of (x2) is not threatened here, there seems little point legislating on the putative counter-example.

8. See for example Budd 1993 p.170.

9. Note that this covers both cases where there is a particular represented as possessing the property in question, and cases where there is not.

10. The example here concerns the misrepresentation of a particular, but analogous points could have been made concerning a picture's ability to misrepresent eg a Blackbird, where no particular Blackbird is depicted. For further defence of my claims here see Hopkins 1994.

11. For transfer, see Wollheim 1987 p.77, Budd 1993 p.170. The definitive discussion of these issues is Schier 1986, where they are used to provide an account of depiction itself. Schier, however, focuses on recognitional ability, not knowledge of appearance.

12. I have not here spoken explicitly of (x1). Although I do think that linguistic representation contrasts with pictorial in this respect, making that contrast clear would require more detailed discussion of language than is possible here.

13. How might we understand these misapplications? I am suggesting that the term "depiction" names a form of content which is distinctive and unified, and that only some representations, i.e. pictures, have that sort of content. The mistake the misapplications involve is a simple one: extending the term to other contents those representations have.

14. See: syntactic density - 1976 IV,2; semantic density - 1976 IV,5; relative repleteness - 1976 VI,1; the denial of sufficiency - 1988 VIII,5.

15. I have adapted the example from Peacocke 1987 p.405.

16. Is even (x1) problematic here? Is the content of the graph rich in the way that of a picture must be? The graph certainly fits the more precise account of richness offered above. It ascribes a property to the particular it represents, and that property will be highly determinate, provided the system really is a dense one. If this is not enough, we have not yet captured everything in the intuitive notion of richness. However, I do not see how to capture anything else that notion contains.

17. Examples include Walton 1973 & 1990; Schier 1986 ch.10; Peacocke 1987; Budd 1993.

18. Wollheim's precise position has shifted significantly between, for instance, his 1980 and his 1987. I restrict myself to the later view here, although related criticisms apply to the earlier account.

19. In describing the unity I discussed the connection between the appearance of the depicted item and the appearance it is depicted as having. Resemblance involves a very different connection: that between the appearance of the *picture* and that of what is depicted. However, the one connection can explain the other, as I argue in section 5.

20. See Euclid 1945, especially his sixth and forty second propositions (pp.358,367). A typical example of modern psychological discussion of these issues can be found in Rock 1977 pp.339-342, 1984 pp.16ff. For a discussion which clears away many potential confusions, see Hyman 1989 ch.s 1-3. For scepticism about the significance of the phenomena here adduced, see Gibson 1950 ch.3.

21. This is the conclusion drawn in Peacocke 1983 ch.1. It leads him to develop an account of depiction related to, but significantly different from, mine (Peacocke 1987). For some other differences between us see Hopkins 1994, notes 8 & 15. For another related but distinct account, see Budd 1993.

22. Hereafter I largely ignore resemblance in colour, since outline shape suffices for the explanations I need, and the interested reader should be able to extend the argument to colour. However, only the need to focus on explaining the six features justifies this exclusion, and I do not wish to underplay the importance of colour in the overall defence of the account. To give just one example, it may well be that we sometimes see resemblance in outline shape in part because we see resemblance in colour - as when the colour of a crude sketch of a robin helps me to understand it despite the fact that its outline shape is rather different from that of a (suitably positioned) robin.

23. Wollheim 1980 p.205, 1987 pp.42-51.

24. If photography is not the only mechanical means for producing depictions, the photographic relation may not be the only one to which we must appeal.

25. Of course, for many pictures their creators will only have the vaguest intentions concerning their viewing conditions - perhaps just that there be enough light to see by, that the surface be seen roughly from the front, and that it not be very distant or hopelessly close.

26. That is, there is a respect, the one I have characterised with my notion of outline shape, such that the subject must experience resemblance in that respect. There is, of course, no need for the subject to conceive of the respect in the terms I use.

27. We have here explained why all depiction is from a point of view by claiming that what is seen in a surface is always something from a certain point of view. One may wonder whether this is true. If I merely glimpse a picture why can't I see in it simply a horse, just as when I merely glimpse a horse I may perceive only a horse, without taking in its shape, orientation, colour, etc? The answer is that this proposal ignores the difference between the phenomenology of seeing-in and that of seeing face-to-face. Nothing in the phenomenology of the putative case of seeing-in would distinguish it from (really) glimpsing a horse. In both cases the content of the experience would be very thin - simply *a horse*. Seeing-in must involve more than this - it is necessarily awareness as of a patterned surface before one. (For this reason we would not see things in truly successful *trompe l'oeil* paintings.) If seeing-in is to involve this further element, I do not see that it can involve perceptual contact with the surface as skimpy as the above case requires.

28. What of properties not so correlated, such as the burnedness of a piece of toast? Such properties correlate with colour, and thus this is one point at which seen resemblance in colour is important.

29. Note that this ability is not a trivial one; acquiring it may be a genuine achievement. Outline shape is a property of things which they have independently of our perception of it. Coming to see it may require training, and coming to see resemblance in it may demand further training still.

30.Mathematical reasoning provides a way to conceive of outline shapes, but not one we could exploit in appreciating depiction. For the mathematics required to describe the determinate, irregular outline shapes we find in our world would be too complex and unwieldy to provide a conception able to inform our visual experience of surfaces.

31. Parallel points hold for other putative counter examples to (x3), including time lapse, high speed and

microscopic photography.

32. Thanks are due to Malcolm Budd, Barrie Falk, Christel Fricke, Oswald Hanfling, Chris Hookway, Paul Noordhof, David Owens, Tom Pink, Michael Tanner, three anonymous referees, and all who commented on earlier versions of this paper given at the Universities of Essex and Sheffield. Much of the research was undertaken with the financial support provided by a Research Fellowship from Churchill College Cambridge.