

## PICTORIAL REPRESENTATION: A MATTER OF RESEMBLANCE

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DO PICTURES represent objects and scenes by (or partly in virtue of) looking like them? Everyone seems to agree that pictures look like the objects they represent in some respects and to some degree; the question is whether this fact is significant. In the following pages I defend the intuitively appealing but philosophically unpopular answer to this question.<sup>1</sup> I argue that pictorial representation is significantly a matter of resemblance, and suggest that a successful pictorial representation of X provides the viewer with visual information which recognizably matches information the viewer might derive from X itself.

For a variety of reasons it is thought that resemblance accounts of representation are vacuous and trivial or, occasionally, false. I propose to examine these reasons and argue that they fall short of establishing the claim that resemblance accounts are untenable. I will argue that there is a very interesting sense in which pictures resemble the objects they represent. This resemblance is not, perhaps, necessary for pictorial representation. Rather, it holds wherever picturing succeeds as an independent means of communication. A picture succeeds independently if we can see what it pictures without, for example, having to ask what the four-year old artist has drawn, or what unrecognizable object was actually in the camera's line of 'sight'. My central contention is that interpreting pictures is largely a process of taking into account the mode of representation, and, in respects relevant for the mode, recognizing likenesses between pictures and objects.

This claim is principally an epistemological and a psychological one, but it must in practice have a bearing on the semantic relationship (or relationships). If I do not go far astray in the following pages, whatever else the full semantic theory involves, visual likeness must have a central place. If, for instance, the semantic relationship is determined by the artist's intention, my suggestion is that the relevant intention must be to render a recognizable likeness. If, instead, pictorial representation depends upon appropriate causal pathways between object, artist and picture, my suggestion is that the delineation of *appropriateness* must capture those pathways that generally result in recognizable likenesses. I do not attempt any assessment of the role of intentions or causal pathways, as such, in this paper. Rather, my aim is to establish that whatever else has a star role in the full semantic theory, resemblance must also get top billing.

A final word concerning scope: while I sometimes speak simply of representation, my claims concern only pictorial representation. Graphs and diagrams are another bag of tricks altogether, and I do not claim that they involve any visual resemblance to the object or phenomenon they represent. My thesis is intended to cover, in a fairly generous way, standard cases of pictures—realistic and stylized paintings, photographs, illustrations in bird field-guides, and things of this sort. With minor modifications it will also apply to sculptures.

The body of the paper is in seven sections. Each deals with an objection to resemblance accounts, and a reply. The role of resemblance is elucidated (I hope) by stages in the replies.

### 1. PICTURE AND PICTURED ARE NOT ALIKE IN ALL RESPECTS

While a picture does, in some respects, resemble the object it pictures, in many respects it does not. This is the most familiar of the main worries about resemblance accounts.<sup>2</sup> Trivially, everything looks like everything else to some degree and in some respects, and pictures do not seem to resemble the objects they represent especially closely . . . or so the objection goes. There is a red and white chalk sketch by Leonardo da Vinci of a horse's head and shoulders. We see it as a representation of a horse, and may well speak of it as being 'very like' a horse for it is in a realistic style. Yet, when prompted, we will have to admit that no horse looks like a smear of red chalk across a flat paper surface. Horses are not two-dimensional and chalky, nor are they red. It can be argued that the appearance of this sketch has more in common with many other sketches, doodles and even blank sheets of paper than it has with a real, warm-blooded, three-dimensional horse. Of course the problem seems even more serious in the case of highly stylized and unrealistic pictures.

The reply is simple and has been made before.<sup>3</sup> Claims about resemblance are always relative to context. If I told you that Tom looks like his mother (an ordinary claim that there is a family resemblance) it would be perverse to deny this on the grounds that Tom looks younger, and his nose is peeling. These factors are usually irrelevant in the context of claims of family resemblance. Similarly, the claim that Leonardo's sketch only remotely resembles a horse, since horses are not flat, red and chalky, seems to have violated background assumptions concerning which respects of the picture's appearance are relevant.

### 2. THERE ARE NO UNIVERSALLY RELEVANT RESPECTS

The first objection can be strengthened however. The real challenge (to those who favour a resemblance account) is to say along which dimensions the resemblance must hold. This turns out to be far from simple. There seem to be no reliably relevant respects. They shift about, seemingly relevant in one instance, and irrelevant in the next. In many instances there will be a close resemblance of shape, but in many others the original shape of the represented

object will be quite distorted in the picture, and distorted in different directions from one style or genre to the next (compare Cubist paintings with caricatures). Sometimes there will be a matching with respect to colour, but in others (such as the red chalk sketch of the horse) colour seems irrelevant.

I am not persuaded that there are any universally relevant respects of resemblance, and to this extent I agree with this objection. But one suggestion deserves closer attention. It is tempting to think that pictorial representations always involve a correspondence in spatial arrangement—a similar spatial orientation of the parts to the whole in both picture and object or scene depicted. However, even this suggestion for an abstract resemblance cannot be right. First, the notion is strained beyond usefulness if it is supposed to apply to Cubist works. Consider, for example, a Cubist painting of a violin with its parts dislocated and presented from diverse perspectives. Secondly, it is not clear how the idea applies to amorphous substances like clouds, smoke, water and fire. Clouds have no internal part-whole spatial relations of the kind required. None that might not change from moment to moment. Nor will it answer to extend the idea to external spatial relations (between objects depicted) so that, for example, the clouds must be above the land, or against the sky. Clouds can be depicted in complete isolation on an otherwise blank sheet of sketching paper, or they can fill the paper entirely. The depiction of clouds seems to depend on other dimensions of resemblance: such as textural detail, shape, luminosity or shading. It might be argued that these can be subsumed under the idea of spatial arrangement (e.g., texture can be seen as detailed spatial arrangement, outline as spatial arrangement of the surface, shading as spatial arrangement of areas of light intensity) but this buys universality at the cost of vagueness. Furthermore, the objection can then be simply restated in new terms. In what way must the spatial arrangement of the picture resemble the object pictured—in its textural detail? its outline? its areas of light and dark? None of these is universally relevant.

In any case, a resemblance account which fixed upon one dimension of resemblance would be cold comfort to our intuitions. It fails to acknowledge the significance of other aspects of resemblance which intuitively have importance. Textural detail, shape, shading and colour seem relevant sometimes. Colour is irrelevant in Leonardo's red chalk sketch of a horse. It is a red representation of a horse, not a representation of a red horse. None the less, in general, a realistic oil painting of a horse, painted with brown paint, represents a brown horse. It is the correspondence in colour, not spatial arrangement, that gives us this interpretation.

So I grant that the relevant dimensions of resemblance differ from one picture to the next. *However, this is only a problem in so far as it makes the resemblances seem unsystematic, and our recognition of them ad hoc.* The question is this: are there systematic principles of relevance behind this apparent surface disorder? I will now argue that there are.

In an early presentation of this (and the first) objection, Nelson Goodman stresses the fact that pictures can look more like other things, in particular *other pictures*, than they look like the objects they represent. He also points out that pictures do often represent other pictures, so we cannot avoid the problem by ruling out the possibility of representations of pictures. Let us focus on these problem cases. They show that the criteria of relevance vary systematically.

Contextual clues often inform us that there is a picture depicted, but contextual clues are not the only, nor the most interesting way in which we detect that a picture is represented. Pictures can be represented within (or by) pictures because we assume consistency of style and materials within a work. Imagine, if you will, a Photo-realist oil painting of a woman slumped in an armchair, with a child's crayon drawing of a cat on the wall behind her chair. The drawing of a cat is the picture within the picture. Let us suppose, to exclude all contextual clues, that the cat-picture is of the right size, relative to the woman, to be a real cat, and its bottom rests on the base of the wall. Why do we interpret that part of the painting as a representation of *a childish crayon drawing of a cat*, rather than as a representation simply of *a cat*? I suggest that the answer is that after we have taken into account the fact that we are perceiving a Photo-realist painting, in oil, on canvas, we are not left with something that, in other respects, looks like a cat. In this case, we are left with something that looks like a childish crayon drawing of a cat—something that resembles a cat only when we further abstract from the crude simplicity of its lines, its being merely a rough outline with a few suggestive details, its looking like crayon marks, and so on. This suggestion also works with other cases. For example, a glossy photograph of an Impressionist painting—having abstracted from the glossy photographic paper and sharp focus we find we have something that looks like an Impressionist painting.

It seems that a cat-picture can represent a cat if it is a childish drawing, yet represent a childish drawing (of a cat) if part of a Photo-realist work. Yet it provides the same visual information in both cases—same outline, same amount of detail, same orientation of parts to whole. The point is that *our criteria have altered along with our judgement of what kind of picture it is*. The visual match required varies with the mode of representation. And here lies the solution to the puzzle posed by the objection. It is not to be expected that the respects of resemblance will be universally generalizable. Since the mode of representation varies from one picture to another, so too will the relevant respects of resemblance.

### 3. A PROBLEM OF CHRONIC VAGUENESS?

Even within one style of painting the relevant respects will not be universal, because styles are not simply a matter of common and peculiar properties, and there will also be variety in the materials used. Perception of style in pictures seems to involve recognition of family resemblances.<sup>4</sup> Paintings, consisting of

lines and areas of colour across a surface, vary in style (in part) according to the range of qualities we can expect in these. Areas of colour can be flat areas contained within a clear dark outline, or subtly shaped by shading. Lines can vary with respect to boldness, clarity, crispness, softness, vagueness and expressiveness. The knowledge, techniques and schemata available and used by the artist are also aspects of style. Individual pictures vary along these dimensions and in respect of these factors to varying degrees, in overlapping and often idiosyncratic ways. Styles are amorphous groupings, not clear-cut categories. In view of this it might be argued that resemblance accounts have been salvaged at the cost of chronic vagueness.

It must be conceded that this process of 'taking into account' the mode of representation requires careful elaboration, and that there are unlikely to be any easy generalities. However, the general idea can be developed with precision and detail in application to particular cases. Obviously, the details will be a matter for psychologists, or will at least require their help. I will say something more of the difficulties, and then I will outline some of the progress that has already been made.

Part of the difficulty is that there is a complex interaction between our perception of the mode of representation and representational features. While I have said that we 'abstract from' features of style, I do not mean to suggest that, having identified a painting's style, we then ignore its stylistic features for the purpose of interpreting what it represents. For example, line quality within a work has representational significance, but it is also an indication of style, and its representational significance varies with our judgement of style. A vague line in an Impressionist painting would not represent so vague a line as would an equally vague line in a Classical painting. (The represented line is a change in intensity gradient or in density of wavelengths reflected from a scene.) Furthermore, perception of style also involves taking note of what is represented. For the range of line quality in a work will vary, not just with respect to style, but also with respect to what is represented. A picture of a furry cat in soft, warm fire-light, will tend to be softer and less crisp in the scope of its lines than a picture of a mechanical harvester in bold sunlight.

At its simplest, abstraction from style and materials does involve our simply discounting some feature of a picture's appearance. This occurs sometimes (but not always) when a style, or the range of materials used, are invariant in that respect. Where line thickness is completely invariant, as in the drawings of some small children (where the whiskers on the cat are as thick as its tail) we ignore line thickness for representational purposes. Similarly, colour is not usually representational in monotone sketches (as in the red chalk sketch of the horse).

Kendall Walton has suggested that the interpretation of all aesthetic properties, including representational properties, involves focusing on those features which are non-standard or standardly variable within the category of art to which the work belongs.<sup>5</sup> Although Walton rejects resemblance accounts

of representation, his idea is somewhat similar to my own. He would agree, for instance, that because line thickness is invariant in some children's drawings, line thickness is not in these cases representational. As a standard feature of that kind of drawing, he would argue, it fades into the background of our awareness when we examine the drawing to see what it is a drawing of. As I would put it, in the context of a resemblance theory of representation, we look to see what the picture resembles in respect of its peculiar pictorial features—those of its features which are non-standard or standardly variable for that kind of drawing. There seems to be a great deal to this insight. Leonardo's sketch of a horse is flat, red and chalky, but Renaissance sketches in red chalk are standardly flat, red and chalky. They do not standardly closely correspond in outlined shape and shading to a horse's head and shoulders. Only those of them that are pictures of horses do this.

But unfortunately this idea turns out to be too simple. While standard features may fade into the background of our conscious awareness, some play an active role in our interpretation of representational features. The wholesale shift towards vaguer lines in Impressionist paintings is an example of this. As we have already noted, we cannot simply ignore this standard feature of them. Similarly, caricatures standardly exaggerate the idiosyncratic features of the person depicted. This shared property of the genre must actively guide us when we seek a match, say, between the huge bulbous nose in the drawing and the slightly large and slightly bulbous noses of likely victims. Pictorial interpretation also requires that we actively take into account the flatness of the picture, and flatness is one of the least variable of pictorial features. While the picture's flatness may fade into the background of our conscious awareness we cannot afford to ignore it at the level of unconscious interpretation. There is considerable psychological evidence for this, and I will say more about this in the remainder of this section.

Studies on flatness perception tie in with recent attempts to explain the fact that some people have difficulty reading pictures. This fact was often cited as empirical grounds for rejecting resemblance accounts, so a quick summary of recent psychological findings and speculations on this topic can serve a double purpose.

Apparently some African tribespeople, unfamiliar with the practice of picturing, have difficulty in interpreting pictures (even clear photographs) of objects with which they are familiar from their surroundings.<sup>6</sup> It is reported that pictures are perceived by them as flat expanses of lines and areas of grey or colour. These findings made it seem that perceiving pictures must be remote from ordinary visual recognition.<sup>7</sup>

But there is conflicting, or rather, complicating evidence. Apes and small children apparently suffer from the inverse problem. They tend to react to two-dimensional depictions as though they are the three-dimensional objects themselves. Apes have been observed responding to ape-pictures as they

normally would to apes, for example.<sup>8</sup> In one study, a nineteen-month old child, who had no training in the interpretation of two-dimensional representations, was found to be as accurate in identifying objects from pictures (simple line drawings and photographs) as from the objects themselves.<sup>9</sup> But although small children accurately interpret depicted scenes when they view them from the correct position (that is, the position corresponding to that of the artist or camera lens) they fail to compensate for changes in viewing position which distort the perceived shapes of the representation: A face portrayed front-on does not turn into a profile when the perceiver walks to the side of the canvas, and small children do not compensate, in their interpretation, for this failure of the two-dimensional representation to behave like a three-dimensional object. They seem to fail to perceive the flatness of the picture, or (more weakly, it isn't clear which) they fail to take its flatness fully into account, and make systematic errors in interpretation as a result.<sup>10</sup> So children can, under certain favourable circumstances, recognize *what* a picture is *of* before they can tell (or can fully understand) *that* it is a picture.<sup>11</sup>

The psychologist, Ralph Norman Haber, argues that the apparently conflicting empirical data can be understood as the result of differing stages of development in various processes involved in depth perception.<sup>12</sup> A number of different processes are involved in depth perception, and pictures have a 'dual reality' in the sense that these processes provide conflicting information when we look at pictures. Some inform us that the picture is flat, as do stereopsis (the comparison of the different images from the two eyes), and primary motion parallax (which derives information about objects in the round from motion of the eyes, and head). Others, such as perception of perspectival changes (the smaller house shape must be behind the larger person shape, etc.) suggest a depth interpretation. Haber suggests that the differing performances of unacculturated adults, children and non-human primates are due to differing levels of development between these processes. Adults who are unfamiliar with picturing rule out any depth interpretation, because for them the picture is clearly perceived as flat. Children, less able to perceive that the picture is a flat object in its own right (perhaps because of the immaturity of stereopsis) perceive the picture as though it is a window opening into space. If Haber is correct, learning to perceive pictures involves the normal maturation of depth processing, plus the quickly acquired knack of assimilating apparently conflicting perceptual information into the understanding that what is seen is a flat surface which represents a three-dimensional scene.

By studying the systematic errors which result from failing to take into account the flatness of the picture psychologists are beginning to understand what is involved in doing the thing properly. To what extent this process will be the same in other cases of 'taking into account' in the perception of pictures, and perception generally, remains to be seen. But however diverse the actual cognitive processes and strategies are, they seem susceptible to psychological

investigation. Thus a philosophical theory of pictorial representation which relies upon a pre-theoretical notion of 'taking into account' is not chronically vague.

#### 4. THE LIKENESS IS RENDERED, NOT COPIED

Ernst Gombrich's seminal work *Art and Illusion* is a rich source of examples of how we must take into account the mode of representation when interpreting and creating pictures. He argues that the artist cannot simply copy nature, and his insights have often been taken to show that representation is not a matter of resemblance.<sup>13</sup> But this is a misunderstanding of their significance. Granted, a *copy* theory of representation does oversimplify the nature of picturing; acquired schemas, techniques, knowledge and conventions all have a role. However, we should not fail to notice that throughout the book, Gombrich is explaining what it is to 'render a *likeness*' within a style and medium.

Let us look more closely at one of the examples offered by Gombrich. How an artist might represent a stream of light falling across a white tablecloth is a case in point.<sup>14</sup> The local colour of the tablecloth, being white, is of the highest intensity of lightness available to the artist from the range of paints available (oil paints, let's say). So the problem is to discover a way to represent the even greater intensity of the light falling upon it. Gombrich argues that what matters is not a direct correspondence of local colour, but maintaining the same pattern of similarities and dissimilarities. The white tablecloth, where it is not bathed in direct sunlight, is painted an appropriately darker shade. My point is that there is nothing in any of this to suggest that resemblances between picture and pictured are unimportant. On the contrary, the pattern of similarities and dissimilarities must be carefully contrived to achieve a matching of qualities along their respective scales. It is merely that the resemblance here consists in similar patterns of tonal qualities, rather than in a direct one to one matching of particular components. Showing that the artist has to render a likeness does not detract from the fact that it is a likeness that must be rendered.

A further important point should be noted. Natural processes of visual recognition involve just such a capacity for recognition of continuing patterns of similarity and dissimilarity.<sup>15</sup> We manage to recognize our garden when it is bathed in the pink and gold lights of sunrise, or when its colours are diluted into shades of grey, and its forms blurred, at dusk. The softening or increased clarity of lines rarely confuses us when they are altered with the sky becoming overcast or the sun brighter. There is no direct equivalence of sense-data from matching components of the scene in this case either. (In fact, it has recently been argued by the psychologist Donald Laming that this 'differential coupling' is the only form of information which is perceptually available.<sup>16</sup>) We recognize the expanse of colour in our visual field as our friend because we recognize significant similarities between this expanse of colour and others we have experienced before, but visual recognition is always based on likenesses which

fall short of exact sameness. We are extremely adept at taking into account a wide variety of factors which alter received sense data. The light rays reflected from our friend will vary with every alteration in our viewing direction and distance, with changes in natural and artificial lighting and shading, and with every variation in our friend's expression. When we recognize a *picture* of our friend the process is much the same, except that there are additional factors to be taken into account. We take into consideration the fact that we are looking at a picture; we compensate for the medium, and the style.

##### 5. THE LIMITS OF RECOGNITION

Leaning heavily on Gombrich's insights, Goodman concludes that almost any picture may represent almost anything—even Constable's *Haywain* could represent a pink elephant. He argues in support of this that 'given picture and object there is usually a system of representation, a plan of correlation, under which the picture represents the object'.<sup>17</sup> However, all that is required to divert this much feared slide from Gombrich's insights to Goodman's outrageous conclusion is that visual recognition has its limits.

A two-dimensional representation ceases to be a successful picture when it ceases to offer a recognizable likeness; where, in other words, we are unable to *see* the object's likeness in the picture. Not all two-dimensional patterns with accompanying code enable us to do this. If we overlaid a picture of Ronald Reagan with a fine grid of lines, dividing it into numbered squares, an accompanying code could specify a relocation for each square. With the help of the code, and another sheet of paper, we could laboriously transform the Reagan picture into, say, a picture of Bambi. But we couldn't *see* Bambi's likeness in the Reagan-picture, no matter how much we practised with the code.

Perhaps, it might be objected, I am claiming more than I can know. For how can I know what could be achieved in this way with sufficient practice? However if the objection now reduces to the claim that we might be capable of acts of visual recognition way beyond our present capacities, it is neither a strong nor a plausible objection. In ordinary perception we can recognize objects from different angles which distort their perceived shape, and we can recognize faces throughout the distortions produced by laughter, grimacing, frowning, and other expressions. We can also accommodate ourselves to the transformation of inverting lenses. But there do seem to be limits to our capacity to do this kind of thing. Even our recognition of faces from skilfully drawn caricatures is detectably worse than from photographs which respect the real measurements of a person's features, and this is a pictorial convention with which we are very familiar.<sup>18</sup>

##### 6. THE LIMITS OF CULTURAL PLASTICITY IN VISION

One more argument for the triviality of resemblance accounts will be considered (followed by one for its being false in the next section). It is argued

that because there is no meaningful sight without interpretation, there can be no objective sense in which a picture resembles the object it pictures.<sup>19</sup> It is a puzzling objection since it would seem to apply equally well to ordinary objects resembling each other, and even to their looking like themselves. However, I will not take up space trying to make the objection seem more plausible (it probably needs to be seen in the context of Goodman's Nominalism).

Those who stress that 'there is no naked eye' sometimes fail to note that the eye is clothed with more than culture. Much of the processing and interpretation of the raw data of vision (the play of light on the receptors of our eyes) is a product of innate or evolved capacities. All sorts of animals with little or no culture are exceptionally good at seeing, often very shortly after birth. There is much experimental and phenomenological data supporting the claim that meaningful sight involves interpretation, but it is compatible with the further highly plausible claim that innate visual processing provides information about the surfaces of objects which constrains possible interpretations. The information may be ambiguous, while still severely constraining.

Visual interpretation seems to involve making sense (and hence, for us, making sense within our culture) of biologically given data. Those working on computer vision have provided us with useful insights into how vision may occur in humans. I say this not because I suppose that we are essentially like computers, but because these people begin with what is known about human vision, and ask themselves what problems the brain must solve when we see.<sup>20</sup> A surprisingly large amount of information about the surfaces and distances of objects turns out to be computable *without* the use of higher level knowledge about what the objects are, or what the objects are likely to be. These computations involve complex algorithms based on facts and theories about the surfaces of objects and the behaviour of light. Of course these algorithms are acquired knowledge for the cognitive scientist, but the idea is that they (or, rather, functionally similar processes) are embodied in us as innate, unconsciously applied principles of visual processing. We program the computer, evolution programs us.

A brief description of two of the processes used in computer programs will illustrate the kind of innate processing which might be involved. (i) The first involves comparing light intensity readings across the visual array. Receptors at each point of the visual array register a given level of light intensity and complex algorithms average those in local areas of varying size, and compare neighbouring areas. Information about light intensity at each point is transformed into information about lines of intensity change and areas of differing intensity. Since shapes and surface discontinuities correspond (although not neatly) to such changes in intensity, this information can be used to seek a match with stored schemas of the look of objects. (ii) The second process I will describe is stereopsis. Here the two images from the two computer 'eyes' are compared. As you can see if you wink each of your eyes in turn, the

image varies between the two, and there is also a greater variation in the angle of vision for objects closer to you than for those further away. This fact is exploited in stereopsis which compares the relative location of corresponding parts in the two images. The more they differ, the closer the surface to the viewer. This can be done without higher level interpretation of the parts of the scene, as suggested by our ability to see depth in randomly sprayed dots on a page when appropriately set up and viewed through a stereoscope. (Two squares of random dots are viewed, one through each eye. The two squares are identical on the periphery, but differ in the centre. One has had a central area shifted slightly to one side, and the gap randomly filled. The internal area appears to lie in front of, or hover above, the outside background dots.)

There is a substantial sense in which a picture can resemble the object it pictures. It can provide us with some of the same information as the object itself. For example, the process described in (i), combined with a matching process, can determine that both picture and pictured have a similar pattern of lines and areas of light intensities. (Stereopsis will give a very different report on picture and object, on the other hand.) Is this an objective similarity? It is objective enough. Of course, the resemblance is relative to our kind of perceptual system: a particular drawing and the object it represents may not look alike to creatures capable only of detecting changes in texture, for example. However, we are not here concerned with understanding how these creatures might interpret our pictures, we are trying to understand how we interpret them. A resemblance account can quite properly restrict its scope to the way in which our pictures have meaning for us.

The Nominalist question can be put aside also. As evolved perceivers we are naturally sensitive to certain kinds of similarity and difference. Culture, convention and habit can refine or blunt this natural detection system, but they must work with it. Whether or not these kinds of similarity and difference have any further special ontological status is a separate question.

## 7. NON-EXISTENT OBJECTS

The final objection is intended to establish that resemblance accounts are false, rather than trivial or vacuous. It concerns non-existent objects (unicorns, bunyips, Martians and Escheresque staircases). Resemblance accounts seem to entail an inconsistent triad. (i) A represents B implies that A resembles B.<sup>21</sup> (ii) A resembles B implies that B exists. (iii) One may represent non-existent objects. The standard reply here is to deny that (ii) follows from (i) and appeal to counterfactuals. It is claimed that resemblance accounts entail only that the object would look like its picture were it to exist. However this has two problems. Firstly, while unicorns have a fairly fixed fictional appearance, other non-existent objects, such as Martians do not. Martians do not have to be green with little antennas coming out of their foreheads. As long as they hail from Mars they are Martians, and were a Martian to exist, it may or may not look like

its picture. Secondly, impossible objects, like Escher's staircases, have no consistent way of looking and cannot possibly exist.

I suggest that we should deny (ii) but focus on internal representations of the imagined objects. Imaginary objects only have an appearance in so far one is imagined for them. So a resemblance account only implies a resemblance, in respect of imaginary objects, between the internal image and the picture. The internal representations may begin in the mind of the artist, and be communicated by successful pictures to the minds of the perceivers. Or where the imaginary object already has an established fictional appearance the perceiver may already have an image of it, and recognize its appearance in the picture.

This idea must remain sketchy in the absence of a developed theory of imagery, about which much has been said but little settled. It is strengthened, however, by evidence suggesting that some of the same brain-ware used in perception is also used in imagery. Perceiving and imagining in the same modality at the same time is much harder than perceiving and imagining simultaneously in different modalities. Furthermore, stroke victims suffering from visual impairments also suffer from exactly analogous impairments in their ability to form and use visual images. It seems very likely, then, that when we understand how we recognize pictures of objects we have perceived, we will also understand how we recognize pictures of objects we have merely imagined. Presumably, a matching of internal representations, or visual schemas, is involved in both cases. Even where we have a picture of a real object, we do not directly compare picture and object. Even if both picture and object are directly before us (as they are) we must still remember one while we turn our eyes on the other. Besides, it is our processed perceptual information that is available for comparison, inside our brains, not the objects themselves. Ordinary visual recognition also involves this matching of internal schemas, for here we have to match information stored or remembered from previous sightings with that derived from the present sighting. The same basic processes seem to be involved in matching pictures with pictured real objects and in matching pictures with pictured imaginary objects. There are differences in the sources of the information, but these differences occur whether the objects are real or not. Our epistemological position is the same whether we are looking at a picture of a unicorn, or a picture of a mammoth or of our great-great-grandmother. We have never seen any of these 'in the flesh'. We can learn about the look of objects, real or imaginary, from pictures of them (hence the usefulness of photographs of missing persons and police identi-kits of suspects).

#### SUMMARY

Picture and pictured are not alike in all respects, and nor are there fixed respects in which the resemblance always holds. Rather, we look to see what a picture resembles once we have allowed for its particular mode of representa-

tion. We take into account its flatness, the materials used, and its style. While there are no easy generalities about how this is done, the pre-theoretical notion of 'taking into account' is not chronically vague. It is empirically tractable, and there has already been some considerable progress made by psychologists in developing it with precision and detail. At a more speculative level, Gombrich's *Art and Illusion* develops the same idea, and his insights support, rather than detract, from a sophisticated resemblance account. Normal visual recognition also involves the 'taking into account' of many factors which alter visual input; but although we are adept at doing this, our capacity for transforming visual information has natural limits. Our evolved perceptual processes constrain our interpretations, and we cannot see just anything as any other thing. In normal visual recognition, and pictorial interpretation of real and imaginary objects, there is a matching of internal representations of visual information.

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## REFERENCES

- <sup>1</sup> See David Novitz, *Pictures and their use in Communication: a philosophical essay* (Martinus Nijhoff, The Hague, 1977) for another defence of a resemblance account.
- <sup>2</sup> For two variations of this and the following objection see Nelson Goodman, *Languages of Art* (Hackett, Cambridge, 1976), pp. 4-5; Richard Wollheim, *Art and Its Objects* (Penguin, Middlesex, 1968), p. 34. The argument has been generally accepted in the literature as establishing its conclusion: see for example, James D. Carney, 'Wittgenstein's Theory of Picture Representation' in the *Journal of Aesthetics and Art Criticism*, 40 (1981), pp. 179-85, p. 179.
- <sup>3</sup> See for example Novitz, op. cit. pp. 13-15.
- <sup>4</sup> See Rudolf Arnheim's 'Style as a Gestalt Problem' in the *Journal of Aesthetics and Art Criticism* 39, (1981), pp. 281-95.
- <sup>5</sup> Kendall Walton, 'Categories of Art' in *Philosophical Review* 79 (1970), pp. 334-67.
- <sup>6</sup> For a critical contemporary survey see M. A. Hagen and R. K. Jones, 'Cultural Effects on Pictorial Perception: How Many Words Is One Picture Really Worth?' in *Perception and Experience* (ed.) by R. Walk and H. Pick (Plenum, New York, 1978), pp. 171-212.
- <sup>7</sup> See, for example, Wollheim, op. cit., p. 34.
- <sup>8</sup> Wolfgang Kohler, *The Mentality of Apes* (Routledge, London, 1925).
- <sup>9</sup> J. E. Hochberg and V. Brooks, 'Pictorial recognition as an unlearned ability: A study of one child's performance', in the *American Journal of Psychology*, 75 (1962), pp. 624-8.
- <sup>10</sup> See Margaret A. Hagen, 'Problems with Picture Perception: A Reply to Rosinski' in *Psychological Bulletin*, 83 (1976), pp. 1176-8; C. W. Benson and A. Yonas, 'Development of sensitivity to static pictorial depth information' in *Perception and Psychophysics*, 13 (1973), pp. 361-6.
- <sup>11</sup> Novitz, op. cit., p. 27.
- <sup>12</sup> Ralph Norman Haber, 'Perceiving Space from Pictures: A Theoretical Analysis' in *The Perception of Pictures: Vol. 1* (ed.) by Margaret A. Hagen (Academic Press, New York, 1980), pp. 3-31.
- <sup>13</sup> See Kendall Walton's 'Pictures and Make-Believe' in *Philosophical Review* 82 (1973), pp. 283-319, esp., p. 284, and Goodman, op. cit., Chapter 1.
- <sup>14</sup> Ernst Gombrich, *Art and Illusion* (Phaidon Press, New York, 1960), p. 90.
- <sup>15</sup> See Gombrich, *ibid.*, pp. 50-2.
- <sup>16</sup> Donald Laming, 'Principles of Sensory Analysis', in *Psychological Review*, 92 (1985),

pp. 462–85; and see also W. Epstein's 'The process of "taking into account" in visual perception' in *Perception*, 2 (1973), pp. 267–85.

<sup>17</sup> Goodman, *op. cit.*, p. 38.

<sup>18</sup> See D. N. Perkins and Margaret A. Hagen, 'Convention, Context and Caricature' in *The Perception of Pictures*, *op. cit.*, pp. 257–85; especially pp. 271–5.

<sup>19</sup> Goodman, *op. cit.*, chapter 1.

<sup>20</sup> See David Marr, *Vision* (Freeman, San Francisco, 1982), for both the general approach and the specific processes described here.

<sup>21</sup> This is stronger than my claim, which is that A represents B entails that A resembles B in successful cases. But the problem remains.

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