

What does it mean for the rest of us when a language disappears? When a plant or insect or animal species dies, it is easy to understand what has been lost. But language is merely a product of the mind, an arrangement among the different parts of different people's nervous systems. What the rest of us lose when a language dies is the possibility of a unique way of perceiving and describing the world.

Speaking a language is a complex accomplishment. Understanding how we do it has produced a vast literature in philosophy, semiotics, and the neuro-sciences. The earliest theories of language were that words and ideas stood for sensations and feelings. It was only in the 20th century that theories of language became more complex and proliferated. Noam Chomsky, the American academic, made a reputation for himself with the claim that we can speak languages only because our brains have an innate capacity to understand the underlying structure of a language.

To learn a language that is extremely remote from English, such as Japanese, is to take on a radically new identity. In Japanese, there are immense opportunities for vagueness and great difficulties in being precise. There are many different ways of saying thank you and sorry, half a dozen different ways of expressing formality or intimacy, humility or arrogance,

without saying anything of substance at all.

Yet one would not, except out of great perversity or scholarly zeal, learn a language that is close to extinction. If the language is only a sort of trophy, used for ceremonies, toasts, or greetings, it has already ceased to exist in a meaningful sense and is already on the road to extinction.

There is an escape clause, however: If the language has been written down (as Catawba was not), there remains at least the theoretical possibility of reviving it. The only truly miraculous example in modern times is what has happened to Hebrew in Israel: Long replaced as the language of the Jews by the tongues dominant wherever they happened to find themselves during the Diaspora, its only remaining purpose was in the synagogue. In Israel, however, it is now the universal language of everyday life, born of the necessity of forging a nation out of disparate ingredients. Language is the only thing that can have that sort of binding function.

English played a similar role in binding together the polyglot, multicultural elements of the empire and making a self-conscious entity of them. But while the engine of colonialism long ago ran out of steam, the momentum of its languages is still formidable and it is against their tyranny that the smaller languages fight to survive.

4 Perception

'It's not what you look at that matters, it's what you see.'

HENRY DAVID THOREAU, 1817-62

'Two thirds of what we see is behind our eyes.'

CHINESE PROVERB

'A fool sees not the same tree that the wise man sees.'

WILLIAM BLAKE, 1757-1827

'The greatest calamity that can befall people is not that they should be born blind, but rather that they should have eyes and yet fail to see.'

HELEN KELLER, 1880-1968

'Whilst part of what we perceive comes through our senses from the object before us, another part (and it may be the larger part) always comes out of our own mind.'

WILLIAM JAMES, 1842-1910

'Things do not seem the same to those who love and those who hate, nor to those who are angry and those who are calm.'

ARISTOTLE, 384-322 BCE

'The greatest thing a human soul ever does is to see something, and to tell what it saw in a plain way... To see clearly is poetry, prophecy and religion - all in one.'

JOHN RUSKIN, 1819-1900

'It is only with the heart that one can see rightly; What is essential is INVISIBLE TO THE EYE.'

ANTOINE DE SAINT-EXUPÉRY, 1900-44

'Every man takes the limits of his own field of vision for the limits of the world.'

ARTHUR SCHOPENHAUER, 1788-1860

'If the doors of perception were cleansed, everything would appear to man as it is - infinite.'

WILLIAM BLAKE, 1757-1827

'You can't depend on your eyes when your imagination is out of focus.'

MARK TWAIN, 1835-1910

Introduction

Perception can be defined as the awareness of things through our five senses – sight, sound, touch, taste and smell. These are ‘the gates and windows’ of the mind – channels of communication between ourselves and the outside world, which effortlessly present us with the rich, and often pleasurable, variety of the world: the beautiful colours of a New England autumn, the sound of waves breaking on a shore, the tickle of a feather, the taste of hot soup on a cold day, the smell of freshly cut grass.

? If for some reason you had to sacrifice one of your senses, which would you be most willing to lose and which would you be least willing to lose? Give reasons.

When people are asked this question, the great majority say that they would be most willing to lose their sense of smell, and least willing to lose their sight. This is not very surprising; indeed we are such visually oriented creatures that vision is sometimes identified with knowledge. For example, we say that seeing is believing rather than smelling is believing; when we understand someone we say ‘I see what you mean’, not ‘I smell what you mean’; and we speak of someone having *insight* not *insmell*.

? Can you give any other examples of figures of speech in English, or any other language, that connect knowledge and the senses?

Smell, by contrast, is the poor relation of the senses, and it is sometimes called the mute sense. For, while we have many different words for colours, our smell vocabulary does not extend much beyond ‘smells good’, ‘smells bad’ and ‘smells like’. Despite its lowly status, we are in fact able to distinguish more than ten thousand different odours. And our sense of smell has a more direct route to our brains than any of our other senses. This may explain why evocative smells can sometimes trigger powerful emotional memories, and why the perfume industry is worth millions of dollars a year.

Allowing that there may be differences in the relative importance we attach to each of our senses, most people would agree that our five senses are important sources of knowledge. Indeed, according to one major school of philosophy, known as **empiricism**, all knowledge is ultimately based on perceptual experience. This may be too extreme, but perception clearly plays a key role in almost all subject areas, ranging from the sciences through history to the arts. Think, for example, of the role played by observation in biology, or eye-witness accounts in history, or the ability to see things with new eyes in the visual arts.

? Do you think that perception is a more important source of knowledge in some subjects rather than others? Are there any areas of knowledge in which it plays no role?

As a preliminary point of reference, let us consider the position known as **common-sense realism**. According to this, perception is a passive and relatively straightforward process which gives us an accurate picture of reality. Colours and sounds and smells exist ‘out there’, and the act of observation does not affect what is observed. This view of the relation between perception and the world is probably adequate for dealing with the practical demands of everyday life; for if our senses were not generally reliable, we would probably not have survived as a species.

Nevertheless, in what follows I shall argue that there is more to perception than meets the eye, and that it is a more active process than common-sense realism allows. Rather than our senses passively reflecting an independent reality, our experience of the world is affected not only by what is ‘out there’, but also by the structure of our sense organs and our minds.

Perceptual illusions

Despite the ease with which we perceive the world, perception is a complex process in which many things are going on ‘under the bonnet’ of conscious awareness. Simplifying somewhat, I think it can usefully be thought of as consisting of two distinct elements:

- *sensation*, which is provided by the world, and
- *interpretation*, which is provided by our minds.

In everyday life, we are not usually aware of our minds interpreting the sensations that flood into our senses, and we simply experience the familiar world of tables and chairs and cats and dogs and family and friends. A good way of becoming explicitly aware of such interpretations is to look at some visual illusions. In what follows we will look at four kinds of visual illusion, all of which arise not from sensations as such, but from the interpretation we put on them.

Context

The way we see something depends partly on the context in which we see it. Look at the three men in Figure 4.1. While the figure on the right looks a lot bigger than

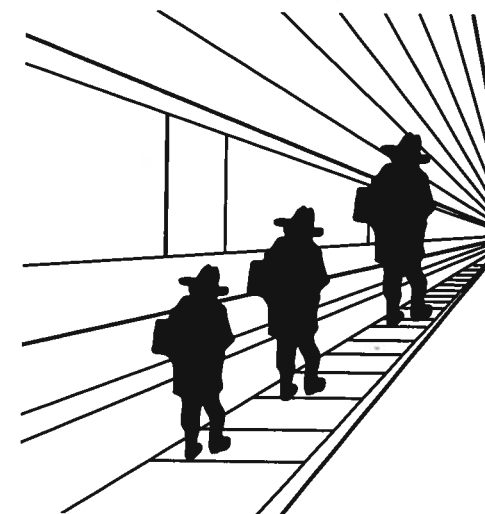


Figure 4.1

the figure on the left, the reality is that they are both the same size. How can we explain this illusion? Well, it has something to do with perspective. Relative to the background, the man on the left is small and the man on the right is big.

In everyday life, we are constantly making such contextual judgements without being consciously aware of it. If you look at Figure 4.2 and focus on the figure on the left and the figure in the middle, they appear to be two normal-sized people, one some distance away and the other in the foreground. However, the two-dimensional 'reality' is that the figure originally on the left is much smaller than the one in the middle – as can be clearly seen when it is moved to the right of the picture.

What both of the above illusions illustrate is that we usually judge the size of an object by looking at the overall context.



Figure 4.2

Figure and ground

When we look at something, we tend to highlight certain aspects of what we see ('figure'), and treat other parts of it as background ('ground'). For example, when you look at a page of writing, the black parts stand out and you pay no attention to the white background. Sometimes we can make different aspects of what we see stand out as the figure. This is best illustrated by the well-known Rubin face/vase illusion. Figure 4.3 can be interpreted either as a beautiful symmetrical vase, or as two identical silhouettes looking at one another.

There are many examples of ambiguous figures which rely on the figure-ground phenomenon. If you try

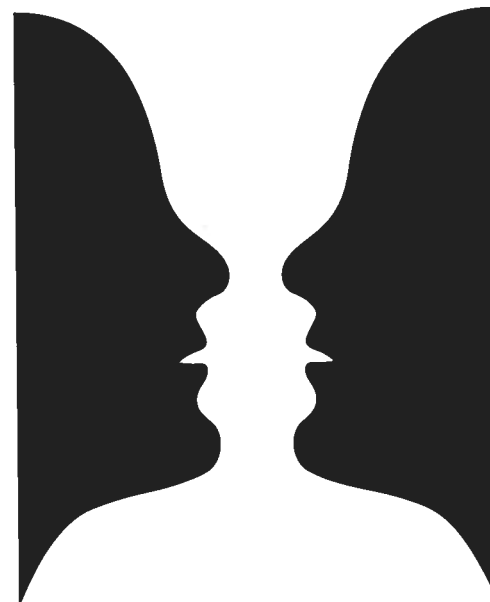


Figure 4.3

slightly blurring your vision, you should be able to find two different interpretations of each of the pictures below.



Figure 4.4 Young man–old man



Figure 4.5 Young woman–old woman

Visual grouping

We have a natural tendency to look for meaning in what we see and to group our perceptual experiences together into shapes and patterns. If you look at Figure 4.6, you have no difficulty in seeing a dog. What is striking is how little information is actually given to us – just a few patches of black. But our minds have no difficulty in filling in the missing parts to create a meaningful picture.

In some cases, however, it can be more difficult to find any meaning in what we see. The first time people see Figure 4.7 they are usually unable to make any sense of it. (If you want to know what this is, look at page 102).



Figure 4.6



Figure 4.7

Expectations

Our expectations can also influence how we see things. For example, in a well-known experiment, people were asked to identify playing cards that were briefly flashed before them. However, irregular cards, such as a red six of Spades or a black nine of Diamonds were included in the pack. When people saw an irregular card, most of them misperceived it in accordance with their expectations. For example, the red six of Spades was seen as either a regular six of Diamonds or a regular six of Spades.

You might think *you* would not make such a mistake, but look at Figure 4.8 and read the message contained in it.

If you have not seen this before, you probably read 'Paris in the spring', but it actually says 'Paris in the *the* spring'. When you look again you may think to yourself 'How could I have missed that second "the"?' The reason, of course, is that, since you did not expect to see two 'the's in a row, your mind simply blanked out one of them. If you think how difficult it is to spot your own typing errors, then you can see that this kind of perceptual error is far from uncommon.



Figure 4.8

While we can experience many other kinds of illusion, the examples of the role played by context, figure-ground, visual grouping and expectations should be enough to convince you that there is an important element of interpretation built into our perception of the world.



We suffer not only from visual illusions, but also from illusions with each of our other senses. Can you give some examples of illusions with hearing, touch, taste and smell?

The role of the unconscious

According to psychologists, many of the interpretations we routinely make about the world happen at an unconscious level. When you look at something what actually appears on your retina are two small inverted two-dimensional images. Yet, without any conscious effort on your part, you see one life-size right-way-up three-dimensional world.

In an interesting psychology experiment, which illustrates the power of unconscious interpretation, subjects were asked to put on spectacles which inverted their image of the world. For the first few days they were completely disoriented and saw everything as being upside down. But, interestingly, their brains soon flipped the images round so that they saw the world the right way up again. When the spectacles were removed at the end of the experiment they again experienced everything as upside down for a while until their vision returned to normal.

In fact, we are constantly making all kinds of unconscious inferences about what we experience. For example, your image in the bathroom mirror is actually about half the size of your head; but when you stumble out of bed in the morning and look at yourself in the mirror, you never have the impression that your head has shrunk in the night. It always *looks* the right size. Similarly, if someone walks towards you from the other end of a corridor, the image on your retina steadily expands, but you do not see them as slowly inflating like a balloon. As far as you are concerned, they remain the same size.

More generally, although vision is simply a matter of light of various wavelengths falling on your retina, you do not experience the world as so many blobs of colour. You never, for example, have to think to yourself 'Ah, those patches of colour over there must be a desk, and these patches must be someone's face.' You just see the world of familiar everyday objects. Sadly, however, some people who have suffered brain damage experience a condition known as **visual agnosia** in which they lose the ability to interpret what they see. To find out more about this condition, read the reading resource on pages 108–110.

Selectivity of perception

Apart from visual illusions, another reason for being cautious about what our senses tell us is that perception is *selective*. A vast amount of data is constantly flooding in to our senses, and our minds would overload if we were consciously aware of everything. So we only notice some things in our perceptual field and overlook others. The selectivity of perception can be seen as a generalisation of the figure-ground phenomenon mentioned above. Certain aspects of a situation engage our attention and 'stand out', and the rest fade away into a more or less

indeterminate background. For example, if we are having a conversation at school, I may notice your facial expression, yet have no conscious awareness of the picture on the wall behind you; or I may hear what you are saying, yet be oblivious to the ticking of the clock, or the quiet hum of the computer. While the light reflected from the picture affects my eyes, and the air vibrations caused by the clock and the computer hit my ears, my conscious mind treats these things as the background against which what I am interested in stands out.

If we ask what kind of stimuli we usually notice, intensity and contrast are two important factors. The ticking clock may sometimes go unheard, but you would hear if a bomb exploded in the building next door. Drop a small object on a patterned carpet and it can sometimes be hard to find again; but a tiny drop of blood on a white carpet will be immediately apparent. For good evolutionary reasons, we are also sensitive to moving objects. If you work at a desk by a window, your attention may suddenly be caught by something which makes you look up without quite knowing why – only to realise a second later that there is a distant bird passing over the trees. Since it may be moving towards you, such an object represents a potential threat and you therefore notice it.

What you see also depends on various subjective factors such as interest and mood. Your interests can be thought of as filters which determine what shows up as you scan the world around you. If three friends go for a walk in the countryside, one may focus mainly on nature and the variety of the wildlife; a second may attend to what his friends are wearing and talking about; and a third may notice very little because her mind is on something else. The following question, which I owe to an anonymous colleague, shows how our perspective on something affects the way we see it.

- ?** Take one of the following phenomena and describe how it might be seen through the eyes of the following people:
- a A child dying in poverty as seen by a doctor, an economist, a social worker, the child's father.
 - b A sunset as seen by a religious figure, a physicist, a painter, a farmer.
 - c A tree as seen by a biologist, a logger, an environmentalist, a native American.

As the pattern of our interests changes, so does what we perceive. It is striking that if your family buys a new car you will probably start seeing cars of the same model and colour everywhere. Similarly, if a woman becomes pregnant, she begins noticing pregnant women wherever she goes.

Our feelings and emotions also shape and colour our perceptions, and when you are in a good mood you see the world in quite a different way to when you are in a bad mood. While an optimist sees a glass as half-full, a pessimist sees the same glass as half-empty. An emotion such as love can have a particularly strong effect on our perception. When you fall in love with someone you may unconsciously project your dreams and fantasies onto them so that they seem to possess every imaginable

perfection. If you later fall out of love, you may look at your 'ex' and wonder what you ever saw in them. Perhaps not surprisingly, it has been said that at the beginning of a relationship you tend to notice the things you have in common with someone, and at the end of a relationship you tend to notice the things that make you different. Our perception can also be distorted by fear. If you are alone on a dark and stormy night you may be frightened by sounds that you wouldn't normally notice. As a Persian proverb has it, 'He who has been bitten by a snake fears a piece of string.'

- ?**
- 1 Take one of the following and explain how education and training can affect what we perceive:
 - a A biologist looking down a microscope
 - b A dentist looking at an X-ray
 - c A professional wine taster
 - d A lifeguard
 - e An artist
 - 2 To what extent do you think that the culture you come from affects the way in which you see the world?
 - 3 In what emotional state do you think we see the world with the greatest clarity and objectivity?

Seeing and believing

At the start of this chapter, I quoted the saying that 'seeing is believing' but, since our beliefs and expectations can affect the way we see things, it might sometimes be more accurate to say that 'believing is seeing'. Here are three examples from different subject areas of the way in which our beliefs can affect our perception.

- *Science.* In the nineteenth century some scientists speculated that an undiscovered planet – which they christened Vulcan – existed between Mercury and the sun. With this belief in mind, some astronomers claimed to have seen Vulcan through their telescopes. But it turned out that no such planet exists.
- *History.* 'Bloody Sunday' is an infamous day in the history of Northern Ireland. On 30 January 1972 there was a violent confrontation between British troops and Catholic demonstrators which left thirteen Catholics dead. According to the British soldiers, they came under attack from terrorist elements and returned fire. But Catholic witnesses said the army opened fire on a peaceful demonstration without provocation. Perhaps one of the two sides was lying; but it is equally possible that, as a result of the 'fog of battle', each side genuinely believed its own version of events.
- *Art.* In the visual arts, people have a tendency to draw and paint, not what they see, but what they think is there. For example, in antiquity some artists portrayed horses with eyelashes on the upper and lower lids of their eyes even though horses in fact have eyelashes only on their upper lids.



We are all very good at seeing only what we want to see. Can you give some examples of the way in which our beliefs affect the way we see things?

Eye-witness testimony

The fallibility of perception not only is of theoretical interest but also has important implications in the real world. In criminal trials, juries tend to put a great deal of faith in eye-witness testimony, and such evidence can determine whether or not a person is found guilty. However, according to psychologists the uncorroborated evidence of a single witness should be treated with great caution. In recent years, a number of cases have come to light of people convicted of crimes on the basis of eye-witness accounts that subsequent DNA testing showed they could not have committed. To see just how unreliable eye-witnesses can be, read the article called 'Blind to change' in the reading resources at the end of this chapter.

What emerges from recent research is that the eye is not a camera and visual memories are not photographs that can be universally relied on to give an accurate record of what we have seen. In fact, it might be more accurate to say that every time we remember something, we *reconstruct* it.

Furthermore, it is easy to confuse the *source* of your memories. For example, if you think back to your childhood, you may be unsure whether some of your memories are really memories of the events in question, or whether your parents have told you some stories so many times that you *think* you remember them. Similar confusions can undermine the reliability of eye-witness evidence. Studies have shown that witnesses who have previously been shown mugshots of possible suspects are more likely to pick one of these people out in an identity parade than witnesses who have been shown nothing beforehand.



Imagine you witness a violent crime and get a brief but clear glimpse of the assailant. What confidence would you have that you could correctly identify one of the following three men?

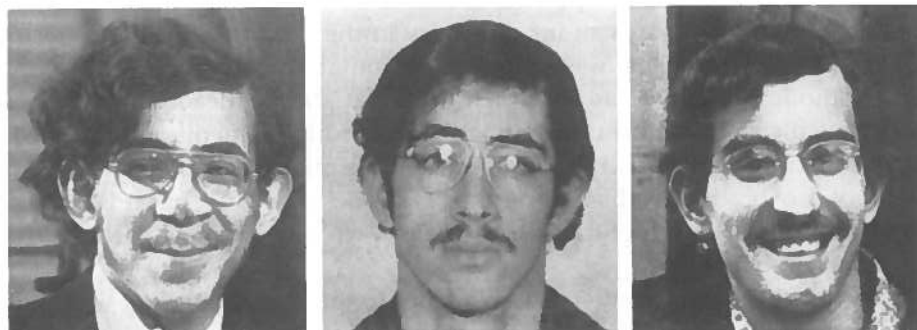


Figure 4.9 Suspects

Distinguishing appearance from reality

Although perception is an important source of knowledge, our discussion has shown that there are at least three reasons for treating it with caution:

- 1 we may misinterpret what we see
- 2 we may fail to notice something
- 3 we may misremember what we have seen.

However, we must not get carried away with sceptical doubts and conclude that we can *never* trust our senses. After all, we take some things to be illusions only relative to other things that we assume to be true. For example, I can say that the three men in Figure 4.1 are *really* the same height only because I trust my senses when I measure them. If I were uniformly suspicious, I could not even trust the evidence which tells me that some of my perceptions are illusions.

How, then, do we distinguish between appearance and reality in everyday life?

Confirmation by another sense

One way to distinguish appearance from reality is to use a second sense to confirm the evidence of a first. If something looks like an apple and tastes like an apple, then it seems reasonable to conclude that it *really is* an apple. If, on the other hand, there is a conflict between two of our senses, then we may suspect that we are experiencing an illusion. For example, if a pencil is half-immersed in a beaker of water it appears bent to the eye, but if you run your hand along it you can feel that it is straight. So you are likely to conclude that the pencil is not *really* bent but merely *looks* bent.

If you want to be awkward, you might ask why in this example we have privileged our sense of touch over that of sight. Why not say instead that when I half-immerses a pencil in water, it bends, but I suffer a peculiar tactile illusion that makes me think it is still straight? The answer is that, as a matter of brute fact, touch takes priority in determining the reality of something. If you are unsure whether the wall in front of you is real or an illusion, try banging your head against it. If you think that you may be hallucinating the fire in the hearth, try putting your hand in it. For common sense at least, pain is proof enough of the reality of an object. In short, if it hurts then it is real.

Coherence

A second way of distinguishing appearance from reality is in terms of coherence. If you see something that does not 'fit in' with your overall experience of the world, then the chances are that you are mistaken. If a drunk sees a pig flying over the rooftops one evening, he is unlikely to believe what he saw when he is sober again. Since pigs lack the aerodynamic wherewithal to fly, it makes more sense to dismiss a flying pig as an alcohol-induced hallucination.

Coherence also explains why in the pencil example it makes more sense to say that we suffer a visual rather than a tactile illusion. The point is that, while the hypothesis that objects bend every time you half-immerses them in water contradicts the known laws of physics, we can explain why they appear to bend in terms of physical theories about the refraction of light.

Independent testimony

A final criterion for distinguishing appearance from reality is the testimony of other people. We saw above that the evidence of a single eye-witness cannot always be taken at face value; but the credibility of such evidence is greatly increased if it is confirmed by other people. If dozens of independent witnesses claim to have seen a plane crash into a building, then, unless you are in the grip of a conspiracy theory, there is a high – ‘beyond reasonable doubt’ – probability that such testimony is true.

To summarise our discussion, we can say that, while our senses are liable to error, we are in many cases able to correct our mistakes by appealing to such things as a second sense, coherence and the testimony of other people. Of course, we can never be certain that we are right but, as we saw in Chapter 2, knowledge requires something less than certainty. Perception may be fallible, but in many cases it is a reliable enough foundation on which to base our knowledge claims.

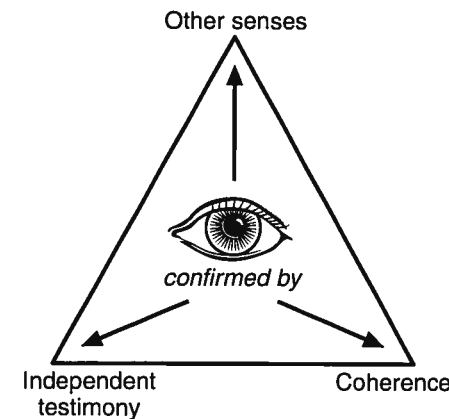


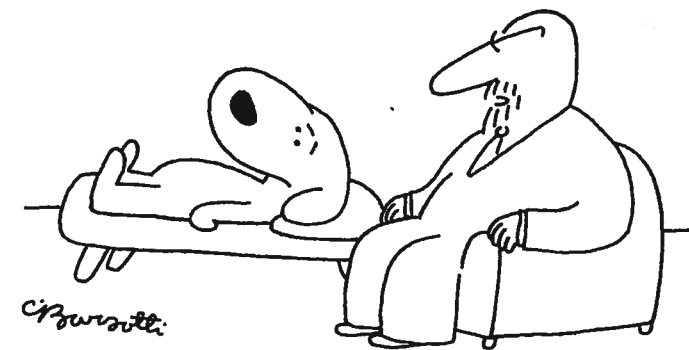
Figure 4.10 Checking evidence

Ultimate reality

The final topic we need to look at in this chapter is a philosophical one concerning the extent to which perception gives us knowledge of ultimate reality. Since this is quite an abstract topic, let us begin by saying something more about the psychology of perception.

Psychology of perception

While our five senses give us valuable information about the world, they each have a limited range of sensitivity, and capture only certain kinds of data in their net. For example, our eyes are sensitive only to light of a certain wavelength, and we are unable to see such things as ultraviolet and infrared which lie beyond the visible spectrum. Similarly, our ears can detect only certain kinds of sound and our noses only certain kinds of smell; and dogs can hear and smell things that we are completely unaware of. Some animals even have senses that are completely different from our own. For example, bats navigate by a system of echo-location, which gives them what might be called ‘acoustic vision’. They emit high-frequency sounds and are then able to determine the shape, size and distance of surrounding objects by the echo that is reflected back to their ears.



“And only you can hear this whistle?”

Figure 4.11

With the above points in mind, imagine if we had evolved so that our eyes were sensitive to light in a different range of wavelengths, or that we used echo-location rather than vision. Our experience of the world would presumably be very different from what it is now. This may lead us to wonder what reality is like once we strip away the interpretation that our sense-organs impose on it.

What is really out there?

To explore the question of what is really ‘out there’, let us consider the following three examples.

1 Pain, taste and colour

If by accident you burn your hand in a fire, you think of the resulting pain as being in your hand rather than in the fire. You do not think that the pain is somehow in the fire independent of your experience of it. The pain that you feel is surely nothing more than the subjective experience that results from the interaction between your hand and the fire.

Take another example: if you drink a can of cola it tastes sweet. Does the sweetness exist in the cola, or does it exist only in your mouth? Well, again, you would probably agree that the sweetness is simply a subjective experience that results from the interaction between your taste buds and the cola.



Galileo (1564–1642) once said ‘The tickle is not in the feather.’ Explain what you think he meant by this. What relevance does it have to our discussion?

While you may be happy with the idea that pain and taste are merely subjective experiences, you probably feel less comfortable with this way of thinking when it comes to such things as colours. Surely the sky is blue and snow is white and grass is green? Well, for *us* all of these things are of course true. But if we apply the same

reasoning that we used in the cola example, we seem forced to admit that the green is no more in the grass than the sweetness is in the cola or the pain is in the fire. The green that you see when you look at the grass is, once again, simply the result of the interaction between your eyes and the underlying structure of the grass. And if our eyes had evolved differently and were sensitive to light of a different wavelength we would not see grass as green at all. We seem to be pushed towards the unsettling conclusion that the world in itself has no colour at all – reality is colourless.

2 The tree in the forest

Consider the well-known question ‘If a tree falls in a forest and there is no one there to hear it, does it make a sound?’ The common-sense answer is to say that of course it makes a sound. Falling trees are noisy things. You may conjure up in your mind a picture of a huge tree falling and the tremendous crash it makes as it falls to the ground. But if you think that sound is nothing more than the effect of air vibrations on our ears, then it would seem to follow that if there are no ears in the neighbourhood, then the tree does not make a sound.

One way of trying to resolve the above puzzle is to make a distinction between two senses of the word ‘sound’. Sound₁, we might say, is *physical* sound – i.e. the vibrations in the air that are caused by things like falling trees. Sound₂, by contrast, is *experienced* sound – the actual crash, bang, wallop that we hear when trees hit the ground. We can now say that if a tree falls in a forest and there is no one there to hear it, there is sound₁ but no sound₂.

This solves the problem, but it may leave you with a somewhat eerie feeling. For it means that, if the phone goes after everyone has left my apartment in the morning, there may be vibrations in the air, but there is no distinctive ‘ring-ring’ sound. The most we can say is that if I were in my apartment then I would hear the phone ring. More dramatically, this way of thinking means that, millions of years ago before the emergence of life on Earth, our planet was a silent place. Breaking waves and storms and volcanoes set up vibrations in the air, but there were no crashes or bangs or wallops. And if right now we were to surgically remove the ears from all sentient beings, the world would again revert to silence.

Now consider another question: if a rose flowers and dies in an uninhabited garden and there is no one there to see it, does it have a colour? We might again distinguish between physical and experienced colour, and say that in the former sense it has a colour, and in the latter sense it does not. This seems to lead us to the conclusion that, before there were any eyes in the world, the sky was not blue, and the roses were not red, and the grass was not green – at least not in the experiential sense of these words.

The examples we have considered above suggest that we cannot say that colours, sounds and tastes exist out there independent of our experience of them. So we may begin to wonder whether *anything* can be said to exist independent of our experience of it.

3 The tables in the classroom

As a final example, consider the tables in your classroom at school. After you leave the room at the end of the day, how do you know the tables are still there? If you had nothing better to do, you could sneak back to school in the evening and take a look. I am confident that you would find the tables quietly sitting there just as you left them. But how do you know the tables are still there when no one is looking at them? (This is similar to the child’s question: ‘How do you know the light goes out when you close the fridge door?’)

This may sound like a stupid question, and common sense will of course say that unobserved tables look much the same as observed tables. But how do you *know*? Perhaps tables only behave like decent, law-abiding tables when we are there to keep an eye on them; and perhaps when no one is around they dance around the room and turn somersaults.

You might think that there is a conclusive way to put an end to such surreal speculations. All you have to do is set up a video camera in the classroom, switch it on before you go home for the evening, and leave it running overnight. You will produce the most boring movie ever made: *Tables! The Motion Picture* – a movie in which absolutely nothing happens. This surely proves that unobserved tables behave in the same way as tables that are observed. But in fact your use of the video has not solved the problem, but merely relocated it. For the question now arises: ‘How do you know that the images stay on the film when you are not watching it?’

This discussion may confirm your suspicion that philosophers spend their time asking useless questions that have no practical value. Surely life is too short to worry about what tables do when there is no one around to see them? Who really cares? Although we may be unable to *prove* that tables behave in standard table-like ways when we are not around, perhaps all that really matters is that they behave like tables when we are around. Perhaps we should conclude that what tables do in their spare time is no concern of ours.

Theories of reality

There are three different theories about the relationship between perception and reality: (1) common-sense realism; (2) scientific realism; (3) phenomenism.

1 Common-sense realism

This is the common-sense idea, mentioned at the beginning of this chapter, that the way we perceive the world mirrors the way the world is. However, since what we perceive is determined in part by the nature of our sense-organs, we have seen that there are good reasons for rejecting common-sense realism.



In your own words, outline the main arguments against common-sense realism.

2 Scientific realism

According to scientific realism, the world exists as an independent reality, but it is very different from the way we perceive it. The physicist Sir Arthur Eddington (1882–1944) once compared the common-sense description of a table with the scientific description of it. According to common sense, a table has extension and colour, and is comparatively permanent and substantial. But the scientific table is quite different:

It does not belong to the world previously mentioned – that world which spontaneously appears around me when I open my eyes... My scientific table is mostly emptiness. Sparsely scattered in that emptiness are numerous electric charges rushing about with great speed; but their combined bulk amounts to less than a billionth of the bulk of the table itself.

Notwithstanding its strange construction it turns out to be an entirely efficient table. It supports my writing paper as satisfactorily as [an ordinary table] for when I lay the paper on it the little electric particles with their headlong speed keep on hitting the underside, so that the paper is maintained in shuttlecock fashion at a nearly steady level. If I lean upon this table I shall not go through; or, to be strictly accurate, the chance of my scientific elbow going through my scientific table is so excessively small that it can be neglected in practical life.

[*The Nature of the Physical World*, London: Dent, 1935]

This brief description draws attention to the strangeness of the scientific picture of reality. The familiar, comfortable, sensuous world of our everyday experience vanishes and is replaced by a colourless, soundless, odourless realm of atoms whizzing around in empty space.

3 Phenomenalism

At the beginning of this chapter, I mentioned a philosophical position known as empiricism according to which all knowledge must ultimately be based on experience. If we take this idea seriously, then we seem to arrive at a more radical position known as phenomenalism. According to this view, *matter is simply 'the permanent possibility of sensation'*, and it makes no sense to say that the world exists independent of our experience of it. A phenomenalist would take the statement 'There are tables in the classroom at school' to mean not that the tables are in some deep sense there but simply that if you go to the classroom you will have various table-experiences. The Irish philosopher George Berkeley (1685–1753) summed up the phenomenalist position with the famous slogan 'To be is to be perceived.'

Despite its counter-intuitive nature, phenomenalism seems to follow logically from the idea that all knowledge must ultimately be based on experience. For, if this is true, then we obviously cannot know what the world is like independent of our experience of it. This does not mean that the world does *not* exist independent of our experience of it – for that, too, is to make a claim that goes beyond the limits of experience. The point is rather that, beyond our experience of reality, there is simply nothing to be said. Understood in this way, phenomenalism could be seen as a call to humility; for it insists that we can only know the world from our distinctively human perspective and have no right to pontificate about the nature of ultimate reality.



- 1 If you believed in phenomenalism, what difference, if any, would it make to practical life?
- 2 Does it bother you to think that we cannot know anything about what the universe is like independent of our experience of it?

What should we believe?

The three theories of reality we have discussed can be summarised in the following three slogans.

Common-sense realism	'What you see is what is there'
Scientific realism	'Atoms in the void'
Phenomenalism	'To be is to be perceived'

One interesting thing that comes out of our somewhat surreal discussion about the nature of ultimate reality is that if you push empiricism to its limits you end up with counter-intuitive conclusions. At this point you have a choice. You can either stick with empiricism and insist that we can know nothing about ultimate reality, or reject strict empiricism and insist that there is a world out there independent of our experience of it.

I suspect that deep down most people are realists about the existence of the world. Despite the doubts we have raised about realism, there are perhaps two ways of trying to rescue it:

- 1 Although you cannot prove the existence of an independently existing reality, you might argue that it is the most reasonable hypothesis to account for the regularity of our experience. If, for example, you light a fire and return some hours later to find only a pile of ashes, the simplest way to explain what happened is to say that the fire was burning continuously in your absence.
- 2 The vast majority of people have a strong intuition that the world exists independent of our perception of it. As our discussion of scientific realism has shown, it may be very different from our everyday picture of it, but most scientists are intuitive realists and believe that they are making discoveries about an independently existing reality.

Conclusion

We began this chapter by stressing that perception is an important way of knowing which plays a key role in most areas of knowledge. However, as our discussion has progressed we have seen that there is more to perception than meets the eye, and that we cannot simply take the evidence of our senses for granted. For not only do they sometimes deceive us, but they are also selective and can be distorted by our beliefs and prejudices. In everyday life, there are ways of distinguishing between appearance and reality, and moving towards a more accurate picture of the world.



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"Don't you understand? This is life, this is what is happening. We can't switch to another channel."

Figure 4.12

We can, for example, use a second sense to check up on a first, or appeal to the testimony of other people.

At a practical level, you would be mad to simply ignore the evidence of your senses. If you want to survive when you cross the road, it pays to go with the hypothesis that if something looks and sounds like a 20 tonne truck speeding towards you then it really is a 20 tonne truck. As a general rule of thumb, it probably makes sense to doubt our senses only if there are good reasons for doing so. Admittedly, perception cannot give us certainty but, as we saw in Chapter 2, knowledge requires something less than certainty. If the perceptual evidence is consistent with other ways of knowing, such as reason and intuition, then it is probably a good enough foundation for reliable knowledge.

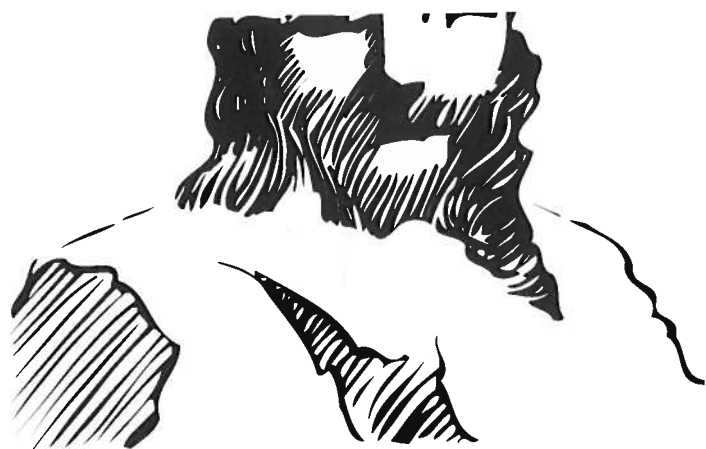


Figure 4.13 Face: the image of Figure 4.7, clarified

Key points

- Our five senses are an important source of knowledge about the world; but rather than passively reflect reality, they actively structure it.
- Perception consists of two elements, sensation and interpretation, but we are often not consciously aware of the latter element.
- Looking at visual illusions can help make us aware of the role that interpretation plays in perception.
- Perception is selective and what we notice in a given environment is influenced by factors such as intensity, contrast, interest, mood and expectations.
- The fallibility of perception is relevant to issues in the real world such as eye-witness testimony in criminal trials.
- We usually distinguish between appearance and reality by using a second sense to confirm the evidence of the first, or by appealing to coherence or the testimony of other people.
- The way we experience the world is partly determined by the structure of our sense-organs.
- If we accept that pain and taste are subjective, we might conclude that colour and sound are also subjective.
- There are three main theories about the relationship between perception and reality: common-sense realism, scientific realism and phenomenism.
- Despite sceptical doubts, the existence of the external world is the most reasonable hypothesis to account for the regularity of our experience.
- Although perception cannot give us certainty, if the evidence of our senses is consistent with what reason and intuition tell us, it can still provide a good foundation for reliable knowledge.

Terms to remember

common-sense realism
empiricism
figure and ground
phenomenalism

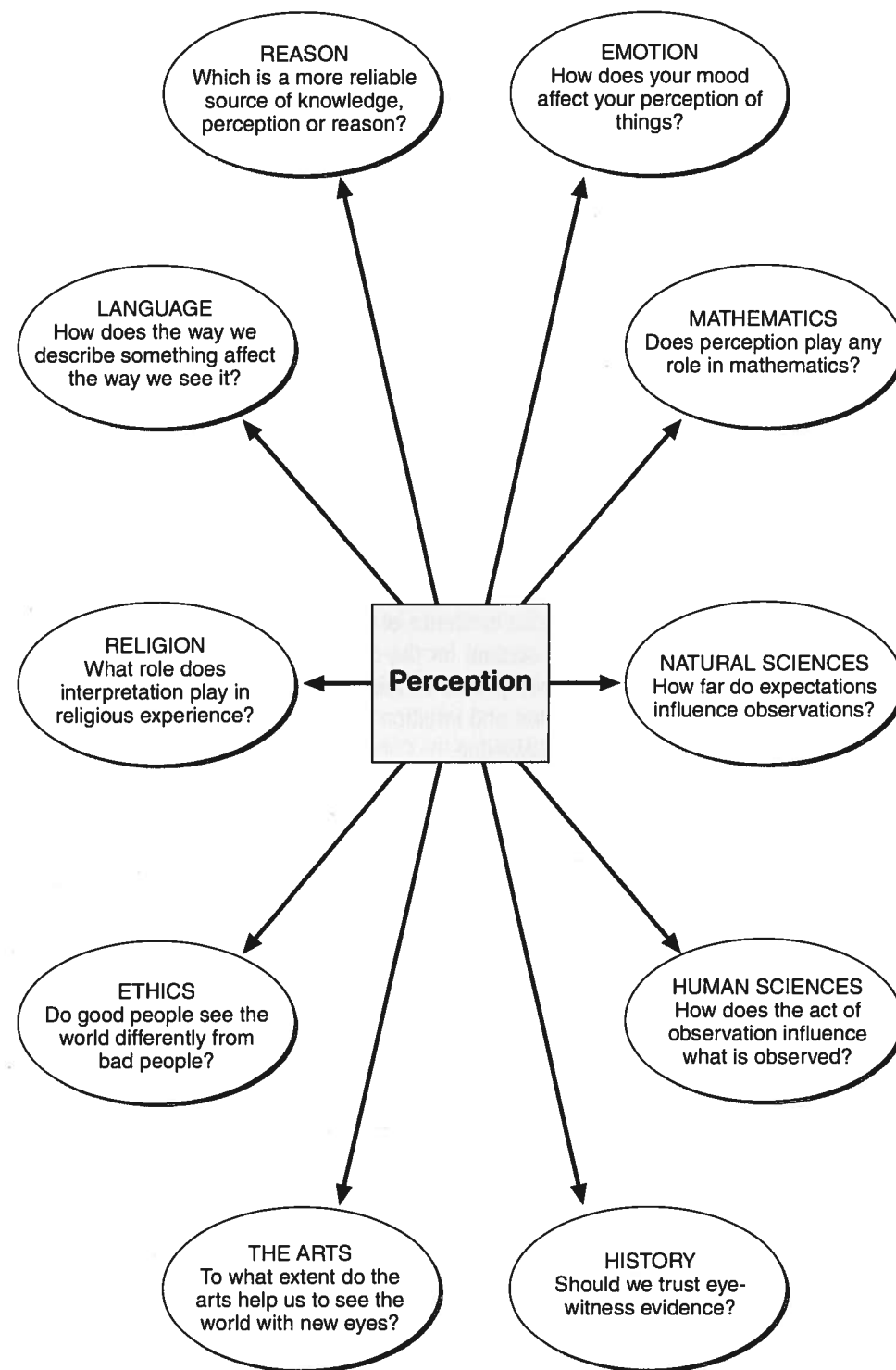
scientific realism
sensation
visual agnosia
visual grouping

Further reading

Diane Ackerman, *A Natural History of the Senses* (Vintage, 1995). In this book, Diane Ackerman takes us on a rich journey through each of the five senses. She skilfully weaves insights from the sciences, arts and personal experience into a fascinating synthesis.

V. S. Ramachandran, *Phantoms in the Brain* (Quill, 1999), Chapter 4: 'The Zombie in the Brain'. V. S. Ramachandran is a neuroscientist who has studied brain-damaged patients. In this chapter he focuses on a strange condition known as 'blindsight' to analyse and speculate about the nature of perception.

Linking Questions



Reading Resources

BLIND TO CHANGE

New Scientist, 18 November 2000

We all suffer from selective attention and sometimes fail to notice things that are in front of us. The article below suggests that such selective attention may be more common and more far-reaching than you might think.

How much of the world around you do you really see? You only take in a tiny piece of information at a time and that can have unnerving consequences, says Laura Spinney.

Picture the following, and prepare to be amazed. You're walking across a college campus when a stranger asks you for directions. While you're talking to him, two men pass between you carrying a wooden door. You feel a moment's irritation, but they move on and you carry on describing the route. When you've finished, the stranger informs you that you've just taken part in a psychology experiment. 'Did you notice anything change after the two men passed with the door?' he asks. 'No,' you reply uneasily. He then explains that the man who initially approached you walked off behind the door, leaving him in his place. The first man now comes up to join you. Looking at them standing side by side, you notice that the two are of different height and build, are dressed differently, have different haircuts and different voices.

It sounds impossible, but when Daniel Simons, a psychologist at Harvard University, and his colleague Daniel Levin of Kent State University in Ohio actually did this experiment, they found that fully 50 per cent of those who took part failed to notice the substitution. The subjects had

succumbed to what is called change blindness. Taken with a glut of recent experimental results, this phenomenon suggests we see far less than we think we do.

Rather than logging every detail of the visual scene, says Simons, we are actually highly selective about what we take in. Our impression of seeing everything is just that – an impression. In fact we extract a few details and rely on memory, or perhaps even our imagination, for the rest. Others have a more radical interpretation: they say that we see nothing at all, and our belief that we have only to open our eyes to take in the entire visible world is mistaken – an illusion.

Until the last decade, vision researchers thought that seeing really meant making pictures in the brain. By building detailed internal representations of the world, and comparing them over time, we would be able to pick out anything that changed. Then in 1991, in his book *Consciousness Explained*, the philosopher Daniel Dennett made the then controversial claim that our brains hold only a few salient details about the world – and that this is the reason we are able to function at all.

We don't store elaborate pictures in short-term memory, Dennett said, because it isn't necessary and would take up valuable computing power. Rather, we log what has changed and assume the rest has stayed the same.

Of course, this is bound to mean that we miss a few details.

Experimenters had already shown that we may ignore items in the visual field if they appear not to be significant – a repeated word or line on a page of text, for instance. But nobody, not even Dennett, realised quite how little we really do 'see'.

Just a year later, at a conference on perception in Vancouver, British Columbia, John Grimes of the University of Illinois caused a stir when he described how people shown computer-generated pictures of natural scenes were blind to changes that were made during an eye movement. Dennett was delighted. 'I wish in retrospect that I'd been more daring, since the effects are stronger than I claimed,' he says.

Since then, more and more examples have been found that show just how illusory our visual world is. It turns out that your eyes don't need to be moving to be fooled. In a typical lab demonstration, you might be shown a picture on a computer screen of, say, a couple dining on a terrace. The picture would disappear, to be replaced for a fraction of a second by a blank screen, before reappearing significantly altered – by the raising of a railing behind the couple, perhaps. The picture flickers back and forth, and many people search the screen for up to a minute before they see the change. A few never spot it.

It's an unnerving experience. But to some extent 'change blindness' is artificial because the change is masked in some way. In real life, there tends to be a visible movement that signals the change. But not always. As Simons points out, 'We have all had the experience of not noticing a traffic signal change because we had briefly looked away.'

And there's a related phenomenon called inattention blindness, that doesn't need any visual trick at all: if you are not paying attention to some feature of a scene, you won't see it.

Last year, with Christopher Chabris, also at Harvard, Simons showed people a videotape of a basketball game and asked them to count the passes made by one or other team. After about 45 seconds, a man dressed in a gorilla suit walked slowly across the scene, passing between the players. Although he was visible for five seconds, 40 per cent of the viewers failed to notice him. When the tape was played again, and they were asked simply to watch it, they saw him easily. Not surprisingly, some found it hard to believe it was the same tape.

Now imagine that the task absorbing their attention had been driving a car, and the gorilla-man had been a pedestrian crossing their path. According to some estimates, nearly half of all fatal motor-vehicle accidents in the US can be attributed to driver error, including lapses in attention. It is more than just academic interest that has made both forms of cognitive error hot research topics.

Such errors raise important questions about vision. For instance, how can we reconcile these gross lapses with our subjective experience of having continuous access to a rich visual scene? Last year, Stephen Kosslyn of Harvard University showed that imagining a scene activates parts of the visual cortex in the same way as seeing it. He says that this supports the idea that we take in just what information we consider important at the time, and fill in the gaps where the details are less important. 'The illusion that we see "everything" is partly a result of

filling in the gaps using memory,' he says. 'Such memories can be created based on beliefs and expectations.'...

In the Simons-Levin experiment... even the object to which the person is attending – the stranger asking for directions – can be swapped without them noticing. Despite the fact that they were looking at him for around a minute, half the subjects encoded none of the details of his physical appearance that were later to change. It was not relevant that the stranger had a certain haircut or that his trousers were a certain colour. What was relevant was that he was a person in a certain location addressing them with a certain query. 'Paying attention to an object does not give you all of that object's properties for free,' says Simons. He points out that those who did notice the switch were students of about the same age as the 'strangers'. Being in the same social group, he and Levin speculated, they would be more inclined to take in individual details, whereas older subjects might categorise the stranger as 'student' and leave it at that.

The relationships between attention, awareness and vision have yet to be clarified. But there is one thing on which most researchers agree: because we have a less than

complete picture of the world at any one time, there is the potential for distortion and error. And that has all sorts of implications, not least for eyewitnesses. If it is possible to stand less than a metre from a person and talk to them for a minute without taking in more than a few basic facts, how reliable is the testimony of a person who witnesses a scene from a distance, when they were oblivious to its significance and only later came to recall it?

'In my view, imagery plays a key role in many sorts of false memories,' says Kosslyn. 'One is "filling in" the gaps and later remembering not only what was attended to, but also what was filled in.' In retrospect, he says, we don't make any distinction between the two types of information.

For all our experience of a rich visual world, it seems that we take in no more than a handful of facts about the world, throw in a few stored images and beliefs, and produce a convincing whole in which it is impossible to tell what was real and what imagined. As Blackmore puts it: 'There is a world and a brain in it, which together are building a construction, a story, a great confabulation.'

A WORLD WITHOUT PATTERNS, FACES WITHOUT MEANING

This article by Hilary Lawson explores a disturbing state known as visual agnosia, which sheds light on the nature of perception.

It is a condition which has already been publicised in the book 'The Man who Mistook his Wife for a Hat'. The name for it is visual agnosia – an inability to recognise anything or distinguish perfectly ordinary objects. But what does that mean for the sufferers, and what can it tell us about 'normal' perceptions of the world?

John can't recognise himself in the mirror: 'I can see my face quite happily, I can see my ears and earlobes, I can see my lips moving as I speak to you... obviously I can see my glasses and my eyes behind them, but if you were to ask me who it is, I still wouldn't know.' He does not recognise his wife either, or his children or grandchildren. He is hopelessly lost a few yards from his own home. Yet he is highly intelligent and can see detail as well as the rest of us.

There is a name for John's condition: visual agnosia. But the name tells us little – like many medical categories, it merely describes what we already knew, in this case that John is unable to make sense of what he sees. The obvious question is, why? An answer would not only explain John's condition but would also throw light on the nature of perception, and possibly even the origin of consciousness.

During the war John was in the RAF, and until six years ago he and his wife, Iris, had a successful, typical middle-class lifestyle. John was the European manager of a thriving American company. But following a routine appendix operation all this changed. When John came round from the anaesthetic, he awoke to

find himself in a strange and unknown place: an *Alice in Wonderland* world of alternatives, of myriad patterns each with a multitude of possible meanings. He could not distinguish between shadow and object, a person and a picture. He was unable to recognise anything around him. Not only did he not recognise Iris when she came to visit, but he failed to recognise her from one minute to the next. He could not even find his bed again once he had got out of it.

At first it was thought that he would improve and that these were temporary reactions. Doctors assured Iris that when she took him home, all would click into place. But when he did go home he did not recognise the street he lived in, his own house or even his own sitting-room. Standing outside the house he had lived in for twenty years, he could see the line of the roof against the sky, the frame of what he assumed to be the windows, the shape of the handle on the front door. But he had no idea whether this was his home or not. He had slipped into a world in which any single thing might turn out to be something else. Without certainty, John was left with fearful expectation:

'At that time, I didn't know, perhaps she had ideas of taking me to a loony-bin. As far as I was concerned we were going into completely unknown territory. Nothing made any sense. I was wildly suspicious of where she was taking me and what skulduggery she was up to to get rid of me for life.'

Gradually he was able to work out what objects were, so long as they were not in an unusual place and so

long as they had some particular, distinguishing characteristic. He would do this not by seeing them as something, but by deducing what they were likely to be. John would know, for example, that he was in the sitting-room by what everyone was doing: it would be obvious from what they were saying. As a result, he would guess correctly that the large, flat object in front of him was likely to be the coffee-table. Similarly, in the dining-room, if the table were laid, he would be able to find the knives and forks. He would know that the fork had three or four prongs and would look for a shape that had a number of elongated points attached to a longer rod.

When you meet him, he appears quite normal and is entertaining in conversation, but unless he recognises your voice or you tell him who you are, he will probably never recognise you again. He will remember meeting you and what you discussed, but after the meeting he would have no hope of finding his way home on his own. John is as lost in his world as we might be in the depths of a rain forest.

How are we to explain John's difficulties? He is clearly not blind – he occasionally brings Iris tiny bits of fluff or dirt that he has found on the carpet, thinking that these might be something important. He does, however, have one problem with his sight: he has lost his colour vision. This, though, is no explanation of his condition, for we can all recognise black-and-white photographs perfectly well. Another obvious explanation would be that he has lost his memory – but he can remember his past perfectly well. He can describe what his house looks like: he simply can't recognise it when he is there. You might imagine

that he had a problem with language, that he had forgotten what to call things, but he can easily give accurate dictionary definitions of objects that he fails to recognise.

John lives in a world of detail, of lines and shapes, but these lines and shapes are without order, without structure. John cannot make sense of what he sees because he is unable to impose order on his visual world – an order which we all need to impose to enable us to have experience at all. Although we think we see the world as it really is, we live in a world of our own making.

To see things, we have first to structure our sensations and give them brightness and orientation so that we can form lines and shapes. John's psychologists, Glynn Humphries and Jane Riddoch, believe that John's problem stems from damage at a fairly early state in the structuring and interpreting process. They argue that John can see detail but he is unable to put this detail together to form a global outline. As a result, he is then unable to attach meaning to this outline, so he is unable to have visual experience of things. At present there are competing theories about the workings of the brain, some of which suggest that the stages of processing are consecutive and others that they work in parallel. In either case, experience appears to require the active imposition of structure and interpretation on elementary sensation. To this extent, every animal inhabits a different world, and the human world is a world that owes its construction to the physical make-up of the brain and the categories we choose to impose.

It was the 18th-century philosopher Immanuel Kant who first argued that experience was not

merely the product of sensation but the result of combining sensation and interpretation. Cases of visual agnosia seem to imply that he was right. Like John, we must all give the world form and order – only, for most of us, this is done so immediately and so easily that we are not even aware it has taken place. Whether scientist or poet, journalist or politician, artist or priest, we all seek to impose an order, a pattern that will enable us to make sense of the world.

The basic patterns we impose, the distinctions between objects,

between light and dark, hot and cold, good and bad, are the patterns that help us survive. Without them we would not only be helpless, we would have no world to be helpless in. John has to struggle to make that world, to impose categories that we take for granted. Similarly, John's psychologists provide structures and theories to make sense of his condition. So do we all try to give order to our lives.

We may have the illusion that these categories and theories are more than just human inventions, but it seems that's all they are.

5

Reason

'You are not thinking. You are merely being logical.'
NIELS BOHR, 1885–1962 TO ALBERT EINSTEIN

'Logic is the beginning of wisdom, Valeris, not the end.'
SPOCK, STAR TREK

'The head is always fooled by the heart.'
LA ROCHEFOUCAULD, 1613–80

'Two extravagances: to exclude reason, to admit only reason.'
BLAISE PASCAL, 1623–62

'We are never more true to ourselves than when we are inconsistent.'
OSCAR WILDE, 1854–1900

'All generalizations are false – including this one.'
HENRY DAVID THOREAU, 1817–62

'Critical reason is the only alternative to violence so far discovered.'
KARL POPPER, 1902–94

'You do not reason a man out of something he was not reasoned into.'
JONATHAN SWIFT, 1667–1745

'Reason is itself a matter of faith. It is an act of faith to assert that our thoughts have any relation to reality at all.'
G. K. CHESTERTON, 1874–1936

'Man has such a predilection for systems and abstract deductions that he is ready to distort the truth intentionally, he is ready to deny the evidence of his senses only to justify his logic.'
FYODOR DOSTOEVSKY, 1821–81

'He that will not reason is a bigot; he that cannot reason is a fool; and he that dares not reason is a slave.'
WILLIAM DRUMMOND, 1585–1649

'My aim is not to be consistent with my previous statements on a given question but to be consistent with the truth as it may present itself to me at a given moment.'
MAHATMA GANDHI, 1869–1948

'The madman is not the man who has lost his reason. The madman is the man who has lost everything but his reason.'
G. K. CHESTERTON, 1874–1936

'Logic n. The art of thinking and reasoning in strict accordance with the limitations and incapacities of the human misunderstanding.'
AMBROSE BIERCE, 1842–1914