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Agency and free will

NINE

CHAPTER 9

'We know what it is to get out of bed on a freezing morning in a room without a fire, and how the very vital principle within us protests against the ordeal,' said William James, describing the agonising, the self-recrimination, and the lure of comfort against the cold. 'Now how do we *ever* get up under such circumstances?' he asked. 'If I may generalize from my own experience, we more often than not get up without any struggle or decision at all. We suddenly find that we *have* got up' (James, 1890, Vol. 2: 524). When the inhibitory thoughts briefly cease, he said, the idea of getting up produces its appropriate motor effects, by 'ideo-motor action', and we are up. What, then, is the role of free will?

The problem of free will is reputed to be the most discussed philosophical problem of all time. Since the Greek philosophers 2000 years ago the main problem has seemed to lie with determinism. If this universe runs by deterministic laws then everything that happens must be inevitable, so the argument goes, and if everything is inevitable there is no room for free will; no point in my 'doing' anything; no sense in which I 'could have done otherwise' - with obvious implications for morality and the law.

Among modern philosophers, non-compatibilists argue that if the universe is deterministic then free will must be an illusion, while compatibilists find many and varied ways in which determinism can be true and yet free will remain.



PRACTICE

AM I DOING THIS?

When you find yourself asking 'Am I conscious now?' observe what you are doing and ask yourself '**Am I doing this?**'. You might be walking, drinking a cup of coffee, or picking up the phone to ring a friend. Whatever it is, ask yourself what caused the action. Did you consciously think about it first? Did your own conscious thoughts cause it to happen? Did it just happen by itself?

You might like to take a short time – say 10 minutes – and try to observe the origins of all your actions during that time. In each case ask '**Did I do that?**'.

There are many arguments here, and little agreement, except perhaps for a widespread rejection of free will as a magical or God-like force that comes out of nowhere. If free will is not illusory, it is certainly not magic. The question is, what other possibilities are there? If we add chance or randomness, as modern physics does, we get back to the Greek philosopher Democritus, who said that 'everything in the universe is the fruit of chance and necessity'. And it is not chance or randomness that we seek, but some way in which our own efforts really make a difference.

This is where the connection with self comes in, for we feel as though 'I' am the one who acts; 'I' am the one who has free will. 'I' decided to spring out of bed this morning, and did so. When the chosen action then happens, it *seems* as though my conscious thought was responsible. Indeed it seems that without the conscious thought I would not have done what I did, and that *I* consciously caused the action by deciding to do it. The question is does consciousness really play a role in decision making and choice? Is this sense of conscious agency real or an illusion?

As ever, William James got to the heart of the matter when he said

... the whole feeling of reality, the whole sting and excitement of our voluntary life, depends on our sense that in it things are *really being decided* from one moment to another, and that it is not the dull rattling off of a chain that was forged innumerable ages ago. This appearance, which makes life and history tingle with such a tragic zest, *may* not be an illusion.

(James, 1890, i: 453)

As we have seen (Chapters 2 and 3), James rejected the idea of a persisting self but still believed in a spiritual force. The sense of effort in both attention and volition is, in his view, not an illusion but the genuinely causal force of conscious, personal will.

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As with all talk of illusions, remember that an illusion is not something that does not exist, but something that is not what it seems. So, once again, it is important to be clear about the way it *seems* for you. Does it *seem* as though you have conscious free will? If so, then ask yourself whether this could be an illusion, and if it is an illusion how you can possibly live with that idea (Chapter 27). If it does *not* seem to you that you have conscious free will then you may read all this with an air of amused detachment.

Note that we are concerned here with *consciousness*. The question is not whether human beings are agents. We may safely assume that they are. Humans are living biological creatures that survive, like all other creatures, by having boundaries between themselves and the outside world, and by taking control over certain aspects of their environment. They respond to events, make plans, and act accordingly, at least when they are not restrained or coerced. We humans are very complicated agents with intricate plans and many available options.

Neither need we doubt that thought, deliberation and emotions play a part in decisions. Weighing up possible actions and comparing their likely outcomes is the sort of thing that intelligent animals are good at, from a cat deciding when to pounce, to a chimpanzee weighing up the likely consequences of challenging a dominant ally. We can look to see which parts of the brain are active in such decision making and, in principle at least, trace how their activation results in motor activity.

The tricky question concerns where consciousness comes into all of this.

THE ANATOMY OF VOLITION

When we carry out any voluntary act many areas of the brain, especially the frontal lobes, are involved (Spence and Frith, 1999). In outline, prefrontal regions are thought to initiate motor acts.

These send connections to premotor regions, which programme the actions, and they in turn project to the primary motor cortices, and hence to motor output. Broca's area produces the motor output for speech and, in most right-handed people, is in the left inferior frontal gyrus. Medially, near the midline, are the supplementary motor area, which is involved in the sequencing and programming of motor acts to fit a 'motor plan', and the anterior cingulate, which is a complex area involved in attention to, and selection of, the information needed for action, as well as emotion and pain.

"All theory is against the freedom of the will; all experience is for it."

Samuel Johnson, 1791

ACTIVITY

Getting out of bed on a cold morning

Try William James's famous meditation (as he called it) and watch what happens when you get out of bed on a cold morning. If you don't live somewhere cold enough, just choose a morning when you really *don't* want to get up. Alternatively try getting out of a bath when the water is going cold and you've been in there too long.

Watch what happens. What thoughts go through your mind as you struggle to get out? What emotions do you feel? Do you speak to yourself or try to persuade yourself? If so, who or what is struggling against whom or what? What happens in the end? You might like to write a short description, as James did (see James, 1890, ii: 524–5). What does this tell you about free will?

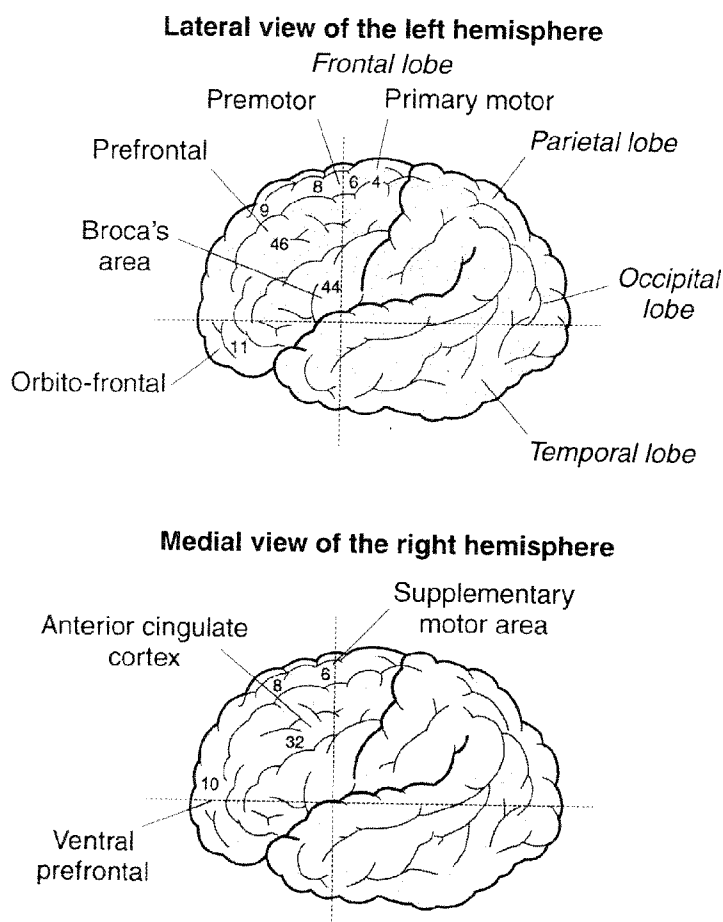


FIGURE 9.1 • Schematic view of the human brain showing the four lobes and the major subdivisions of the frontal cortex. The numbers refer to the regions delineated by Korbinian Brodmann on the basis of a detailed study of neural architecture. Only a subset of these regions are shown. The dorsolateral prefrontal cortex consists of the regions labelled 9 and 46 (after Spence and Frith, 1999).

read by the experimenter at the rate of one every three seconds. In the other condition they heard only one letter and had to say a word of their choice beginning with that letter. Subtracting the activations seen in one condition from those in the other revealed a difference in the left dorsolateral prefrontal cortex (DLPFC) and anterior cingulate. Other similar studies showed an increase in activity in DLPFC when actions were being selected and initiated. From a review of such studies Spence and Frith (1999) conclude that even the simplest motor procedures require complex and distributed neuronal activity, but the DLPFC seems to be uniquely associated with the subjective experience of deciding when and how to act.

Some of this is known from the effects of brain damage. For example, there is the famous case of railroad worker Phineas Gage. In 1848 a tamping iron was blown straight through his frontal cortex, leaving him a changed personality and no longer able to behave responsibly (Damasio, 1994). Damage to dorsolateral prefrontal cortex can lead to a lack of spontaneous activity, and to repetitive, stereotypic actions. Lesions of the prefrontal region and corpus callosum can produce the extraordinary complaint of 'alien hand', in which patients say that their hand is out of their control and has a will of its own. Damage to only the corpus callosum can produce 'anarchic hand' syndrome in which the patient's two hands struggle to produce opposite effects – for example, one trying to undo a button while the other tries to do it up.

Experiments with single cell recording in monkeys also provide information about the neuronal mechanisms of voluntary control of behaviour (Schultz, 1999), and new methods of brain imaging have recently allowed detailed study in humans. For example, Frith *et al.* (1991) used PET (positron emission topography; see Chapter 16) to investigate the functional anatomy of volition. In one condition subjects repeated words

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THE ROLE OF THE WILL IN

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The problem for our purposes here is that it doesn't feel like neurons firing, whether in the DLPFC or anywhere else. It feels as though there is something else – my consciousness – that makes me free to act the way I want. In Chapter 3 we dealt with theories that do, and do not, give a causal role to consciousness. Here we will consider how this relates to the sense of personal conscious agency.

THE ROLE OF CONSCIOUS WILL IN VOLUNTARY ACTION

Hold out your hand in front of you. Now, whenever you feel like it, consciously, deliberately, and of your own free will, flex your wrist. Keep doing this for some time – until your arm gets too tired. Just flex your wrist whenever you want, and try to observe what goes through your mind as you do so. If you don't want to do it at all that's fine – that is your conscious decision. If you want to do it frequently that is fine too. Now ask yourself what started the movement, or prevented it, each time. What caused your action?

This simple task formed the basis of one of the best-known experiments in the history of consciousness studies: Libet's study of 'Unconscious cerebral initiative and the role of conscious will in voluntary action' (1985). Since the 1960s it had been known that voluntary motor actions are preceded by a 'readiness potential' (RP): a slow negative shift in electrical potential that can be recorded from electrodes on the scalp up to a second or more before the action takes place. This long time interval (on average 800 ms) prompted Libet to wonder 'whether the conscious awareness of the voluntary urge to act likewise appears so far in advance' (ibid.: 529).

He reasoned that if a conscious intention or decision initiates the action then the subjective experience of intending should come first, or at the latest together with the start of the cerebral processes. This was what his experiment investigated. He needed to time three events: the start of the action itself, the start of the RP, and the

ACTIVITY

Libet's voluntary act

Libet's experiment is complex, and the arguments about its interpretation are fierce. It will help you understand it if you have practised the role of one of his subjects. Students who have done this are much more likely to think up, for themselves, all the classic objections to Libet's conclusion.

So, as a class demonstration, ask everyone to hold out their right arm in front of them and then, whenever they feel like it, consciously, deliberately, and of their own free will, flex their fingers or wrist. They should keep doing this for some time – ideally until they have done it 40 times (as in Libet's experiment) – but since people vary in how frequently they do the action (and some may freely choose not to do it at all) about two minutes is usually enough.

Now ask your subjects whether the action really seemed free or not. What was going through their minds when they 'decided to act'. Could they have done otherwise? Is this a good model for a 'spontaneous voluntary act'?

Now you need to time 'W', the time at which they decided to act. Stand in front of the group, hold your arm straight out, and use your own hand to represent the rotating light spot (if you have a large audience hold a bright object in your hand to make it more visible). Make sure your arm rotates clockwise from the viewers' point of view and steadily at roughly one revolution every two seconds (Libet's spot went a little slower but one in two works well; practise first). Now ask the audience to do the same flexing task as before but this time they must, after they have acted, shout out the clock position at the moment when they decided to act. You now have a room full of people shouting out different times all at once. The question is, could they easily do this? Most people find they can.

Libet measured three things: the start of the action itself, the start of brain activity leading to the action, and the decision to act. Ask yourself which you expect to come first, or get everyone to put up their hands.

You are now ready to discuss Libet's experiment and what his results really mean.

Agency and free will

CHAPTER NINE

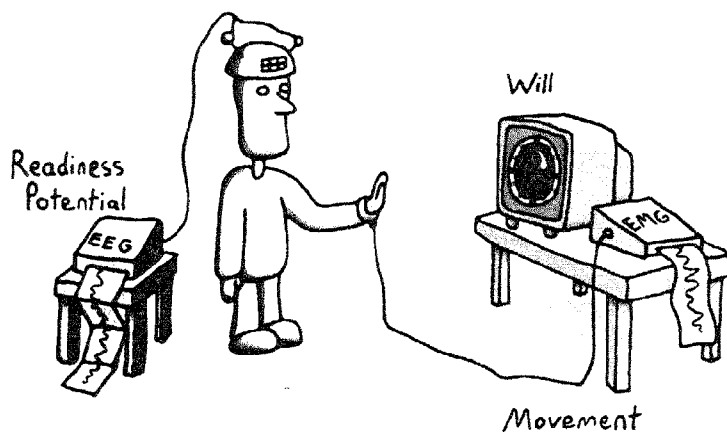


FIGURE 9.2 • In his experiments on voluntary action Libet (1985) timed three things: M, the movement of the hand or wrist; RP, the readiness potential detected from motor cortex using EEG; and W or 'will'. W was timed by asking the subject to watch a revolving spot and say (afterwards) where the spot was when he decided to move.

The real problem is how to measure the moment when the subject becomes conscious of the urge, or will, to move – Libet called this moment 'W' for 'will'. If you ask subjects to say 'Now' when they feel like moving, the action of speaking may not only interfere with the wrist movement, but may also involve its own RP and another delay. So Libet used the following method. A spot of light revolved once every 2.56 seconds, in a clock circle on a screen. Subjects were asked to watch the spot carefully and then, after they had flexed their wrist, to report where the spot was at the moment they felt the urge to move. So on each trial they would flex their wrist and then say '15' or '35', meaning that this was the position of the spot at the moment they decided to act. A control series, in which subjects reported the time of a skin stimulus by using the clock method, showed that their estimates were generally accurate and slightly in advance of the actual stimulus. In another control, subjects were asked to time their awareness of actually moving (M). They had no trouble following these instructions nor in discriminating M from W; W being, on average, 120 ms before M. Using these controls, Libet was convinced that the timing of W was sufficiently accurate. He could now answer his question: which comes first, the readiness potential or the conscious decision to act?

The answer was clear. The RP came first. On average the RP started 550 ms (± 150 ms) before the action and W only 200 ms before. On some trials the subjects said they had been thinking about the action some time in advance, or preplanning it. On these trials the RP began over a second before the action, but for series in which all 40 acts were reported as fully spontaneous and unplanned, the RP began 535 ms before the action, and W just 190 ms before the action. Further analysis showed that this held for different ways of measuring both RP and W. In conclusion, the conscious decision to act occurred approximately 350 ms *after* the RP.

moment of the conscious decision to act.

Timing the action itself was easily done with electrodes on the appropriate muscle. Timing the RP was also relatively straightforward. The change in potential that marks the beginning of the RP can only be clearly seen when averaged over many repetitions, so Libet had his subjects carry out the flexion 40 times in each series of trials. Using the time of the action as a reference, these 40 trials could then be mathematically averaged even though the subject freely chose when to move (Libet *et al.*, 1983). The source of this RP was thought to be the supplementary motor area.

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What should we make of this finding? With Libet we may wonder 'If the brain can initiate a voluntary act before the appearance of conscious intention . . . is there any role for the conscious function?' (Libet, 1985: 536). That is the crux. These results seem to show (as did Libet's previous work; see Chapter 3) that consciousness comes too late to be the cause of the action.

For those who accept the validity of the method, there are two main ways of responding to Libet's results. The first is to say 'Well, that's obvious! If consciousness came first it would be magic.' Presumably this ought to be the standard reaction of anyone who denies dualism. Indeed, the result should have been completely unsurprising. Instead, even though most psychologists and philosophers deny believing in magic, these results caused a great stir. Not only was there a wide-ranging debate in *Behavioral and Brain Sciences*, but the experiment was still frequently cited, and hotly argued over, nearly 20 years after it was carried out (Libet, 1999).

The second response is to seek some remaining causal role for consciousness in voluntary action. Libet took this route and argued as follows. It is possible to believe, he said, that conscious intervention does not exist and the subjective experience of conscious control is an illusion, but such a belief is 'less attractive than a theory that accepts or accommodates the phenomenal fact' (Libet, 1999: 56) and is not required even by monist materialists. For example, Sperry's emergent consciousness (see Chapter 7) is a monist theory in which consciousness has real effects. Alternatively the results are compatible with dualist interactionism (Popper and Eccles, 1977). Libet therefore proposed 'that conscious control can be exerted before the final motor outflow to select or control volitional outcome. The volitional process, initiated unconsciously, can either be consciously permitted to proceed to consummation in the motor act or be consciously "vetoed"' (Libet, 1985: 536-7).

The idea, then, is that unconscious brain events start the process of a voluntary act but then, just before it is actually carried out, consciousness may say either 'Yes' or 'No'; the action either goes ahead or not. This would happen in the last 150 to 200 ms before the action. Libet provides two kinds of evidence for this conscious veto. First, subjects sometimes reported that they had had an urge to act but then it seemed to be aborted or suppressed before the action happened. Unfortunately the neural correlates of aborted self-timed actions cannot be measured because averaging over many trials is required. Second, in additional experiments, subjects were asked to move at pre-arranged times and then abort some of the actions, allowing the averaging to be done. These showed ramplike pre-event potentials that then flattened or reversed about

Self-initiated act: sequence

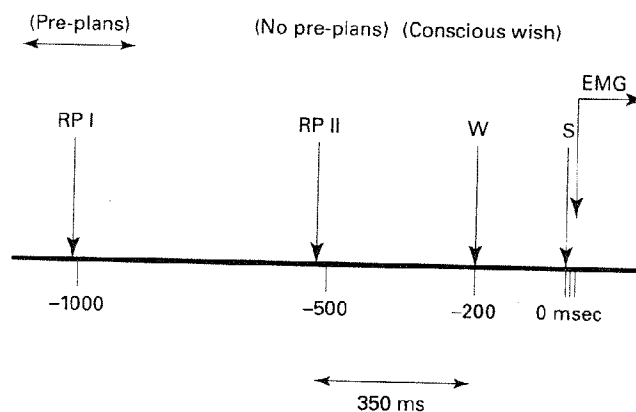


FIGURE 9.3 • According to Libet the sequence of events in a self-initiated voluntary act is as shown. Preplanning (RP I) occurs as much as a second before the movement. For spontaneous actions without preplanning, activity (RP II) begins about half a second before the movement. Subjective awareness of the will to move appears about 200 msec before the movement. Subjective timings of a randomly delivered skin stimulus (S) averaged about -50 msec from actual time (after Libet, 1999).

"We don't have free will, but we do have free won't."

Gregory, 1990

CHAPTER NINE

Agency and free will

CONCEPT

VOLITION AND TIMING

Why don't you laugh when you tickle yourself? In experiments using a robot tickling arm, fMRI showed activity in secondary somatosensory cortex, anterior cingulate and cerebellum that was reduced when subjects tickled themselves instead of being tickled. Timing proved critical to the experience. When the sensations were made less predictable by introducing a delay in the robot arm, a delay of more than 200 msec made the sensation ticklish again (Blakemore, Wolpert & Frith 2000)

Does the time at which an event seems to happen depend on its cause? Although this may seem peculiar, there is evidence to suggest that "when we perceive our actions to cause an event, it seems to occur earlier than if we did not cause it." (Eagleman & Holcombe 2002).

In experiments on voluntary action and conscious awareness, Patrick Haggard and his colleagues at University College, London, asked subjects to watch a clock face and judge the timing of onset of four single events; a volun-

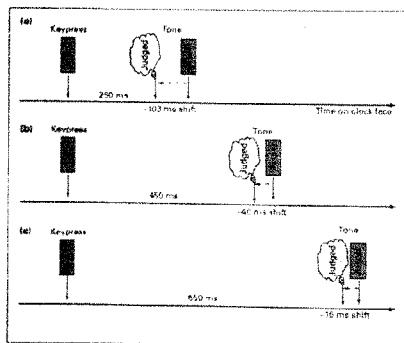


FIGURE 9.4 • Haggard *et al.* report that the judged time of a tone changes as a function of the delay between the tone and a previously executed voluntary act. As the delay is lengthened (a–c), the time mis-estimation is reduced. Mean judged time is represented by thought bubbles. In the experiment, time judgments are always retrospective, which is why they can appear to precede the actual times of occurrence on the timelines.

tary key press, a muscle twitch produced by stimulating their motor cortex with TMS, a click made by sham TMS, and a tone. Next the events were connected so that in a

150–250 ms before the preset time. This suggested to Libet that the conscious veto interfered with the final development of the RP.

In this way Libet was able to retain a causal role for consciousness in voluntary action. He concluded that his results are not antagonistic to free will but rather they illuminate how free will operates. When it comes to morality and matters of conscience we can still be expected to behave well. Although we cannot consciously control having an impulse to carry out an unacceptable action (say, rape or murder or stealing sweets in the supermarket), we can be held responsible for consciously allowing its consummation – or not. As Richard Gregory characteristically put it, 'We don't have free will, but we do have free won't' (1990).

THE LIBET DEBATE

The debate following publication of these results raised both philosophical and methodological problems (*references in this section without dates refer to commentaries following Libet, 1985*). While Eccles used the data to support his dualist-interactionist theory, others criticised Libet for his unstated dualist assumptions (Wood), and even for 'double dualism' (Nelson) and 'meta-physical hysteria' (Danto). These criticisms revolve around the way that Libet compares physical with mental events, and tries to defend what seems to be a magical 'conscious control function' in his proposed veto.

The main methodological criticisms concerned the nature of the task, and the method of timing W. Although Libet's subjects reported being aware of intending to move on each trial, several commentators argued that the task was not a good model of volition in general. This was partly because the action was so trivial, and partly because the subjects were only free to choose the timing of their action, not the act itself, so any conscious willing would have happened before their decision about *when* to act. The results should not, therefore, be generalised to other, more complex willed actions, let alone to questions of moral responsibility (Breitmeyer, Bridgeman, Danto, Näätänen, Ringo).

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Latto raises the question of backwards referral (see Chapter 3). If perception of the position of the spot, and W, are both subjectively referred backwards in time, then the two will be in synchrony, but if W is not referred back then the timing procedure is invalidated. In response Libet points out that backwards referral is not expected for the spot because the time at which the subject became aware of the spot was not the issue, only the position of the spot when he felt the urge to act. If this still seems obscure, we might imagine that the subject had the experience of deciding to move exactly as the spot reached 30. It would not matter how long this perception of simultaneity took to become conscious because he could report this spot position at his leisure.

The whole method of timing W was also criticised, as was the adequacy of using a skin stimulus as a control to test the accuracy of the timing, and the failure to allow for delays involved in each, or in switching attention between the spot and W (Breitmeyer, Rollman, Underwood, Niemi). Some of these criticisms are undermined by subsequent replications. For example, Haggard and his colleagues not only replicated the basic findings, but showed that awareness of one's own actions is associated with a premotor event after the initial intention and preparation, but before the motor command is sent out (Haggard, Newman and Magno, 1999). Comparing trials with early and late awareness, they found that the time of awareness co-varied with the lateralised RP, concluding that 'the processes underlying the LRP may cause our awareness of movement initiation' (Haggard and Eimer, 1999: 128).

But what is 'time of awareness'? The most radical critique is given by Dennett, who asks us to join him in the following 'all-too-natural vision' of Libet's task (1991: 165).

Unconscious intentions start out somewhere deep in the brain and then, gradually becoming more definite and powerful, make their way up to where 'I' am. At this point they 'enter consciousness' and 'I' have the experience of deciding to act. Meanwhile spot-representations have been streaming up from the retina, gradually becoming more definite in brightness and location, until they too reach consciousness and 'I' can watch them parading past. So at the very moment when the intention appears in consciousness, 'I' can say where the spot was.

As Dennett points out, this is so easy to visualise. Isn't that how it has to be when two things happen together in consciousness? No it is not. Indeed it

voluntary condition subjects had to press a key which caused a tone to sound 250 msec later. In the TMS condition their finger was made to twitch involuntarily and the tone followed, and in a control condition sham TMS was used. In each case subjects reported the time of the first event and when they heard the tone.

In these second conditions, large perceptual shifts were found as compared with the single event case. When the key was pressed voluntarily, the time of the press and the time of the tone were reported as being closer together. When involuntary twitches were caused by TMS the shifts were in the opposite direction and the two events seemed further apart. There was no effect for sham TMS. In further experiments the time interval between the key press and tone was varied, showing that the effect is greatest with shorter time intervals.

What does this imply for consciousness? The experimenters themselves claimed that "the perceived time of intentional actions and of their sensory consequences ... were attracted together in conscious awareness, so that subjects perceived voluntary movements as occurring later and their sensory consequences as occurring earlier than they actually did." (Haggard *et al* 2002 p 382)

Note that this interpretation is a form of Cartesian materialism; it implies that events are perceived when they "enter consciousness", and can be attracted together "in conscious awareness". A more sceptical interpretation is that the brain's judgements about the timing and causation of events are linked, perhaps in the important process of discriminating between self-caused and external events. These judgements are revealed in behaviour but there is no sense in which any of them are either "in" or "out" of consciousness.

CONCEPT
CONTINUED

Agency and free will
CHAPTER NINE

cannot be. There is no place or system in the brain where all the things currently 'in consciousness' meet together, there is no time at which things 'enter consciousness', and there is no self watching the display in that non-existent place. To try to escape this impossible vision some theories hold that consciousness is not a matter of arriving at a place, but of exceeding a threshold of activation in a distributed system or network. So things can 'enter consciousness' while staying put. This changes the imagery, but not the basic mistake, says Dennett. In this version, there has to be some moment at which physical activity achieves the special state, and some way in which it acquires the special quality of *subjectivity*, so becoming 'my conscious decision'. This moment is what is timed in Libet's experiment.

These two visions sound rather different but they both entail a Cartesian theatre; a 'central headquarters' – whether located or distributed – in which different things 'come together' in consciousness, and from which consciousness does its controlling. Only with such a vision can you imagine, as Libet does, that 'the conscious function' can trigger some actions and veto others. In this way, says Dennett, both Libet and most of his critics, remain trapped in the Cartesian theatre.

One way out is to abandon the notion that there is an answer to the question 'What is in my consciousness now?'. You can retain the idea that the brain makes judgements of simultaneity – and often very accurate ones – but only because there are brain mechanisms that time events and produce behaviours or statements based on those timings. There is no additional 'you' with a privileged view of the contents of your consciousness and the conscious power to act.

So does Dennett believe that free will is an illusion? He does not, but his reasons may cause some confusion because his view neatly fits the definition of 'illusion' used here. He explains that if you believe that free will springs from an immaterial soul shooting arrows of decision into your brain then there is no free will at all, but if you believe that free will might be morally important without being supernatural, then 'free will is indeed real, but just not quite what you probably thought it was' (Dennett, 2003: 223). Human freedom is not magic but an evolved capacity for weighing up options and dealing with multiple choices.

Where does this leave us? If personal conscious will is a real force acting on the brain, as James, Libet, Eccles and others would have it, then there is no mystery about why we *feel* as though we have conscious free will. We do. On the other hand, if free will is an illusion then we have a new mystery. Why do we *feel* as though our conscious decisions cause our actions when they do not? To find out we must ask about the origins of the experience of will.

THE EXPERIENCE OF WILL

In 1853 the new craze of spiritualism was spreading rapidly from the United States to Europe (see Chapter 20). Mediums claimed that spirits of the dead, acting through them, could convey messages and move tables. Appreciating

"Those of us with common sense are amazed at the resistance put up by psychologists, physiologists, and philosophers to the obvious reality of free will."

Hobson, 1999: 245

FIGURE 9.5 •

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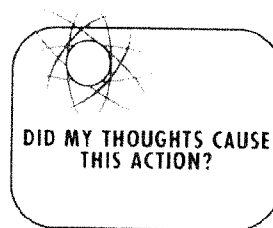
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FIGURE 9.5 • A spiritualist seance from 1853. In table turning, or table tipping, the sitters believed that spirits moved the table and that their own hands just followed. Faraday proved that the movements were due to unconscious muscular action.

the challenge to science, and infuriated by the public hysteria, the famous physicist and chemist Michael Faraday investigated what was going on (Faraday, 1853).

In a typical table-turning seance, several sitters sat around a table with their hands resting on the top. Although the sitters claimed only ever to press down, and not sideways, the table would move about and spell out answers to questions. The sitters all genuinely believed that the table moved their hands and not that their hands moved the table. Faraday set about showing that they were wrong. In an ingenious experiment he stuck pieces of card between the sitters' hands and the table top, using a specially prepared cement that would allow the cards to move a little. Afterwards he could see whether the card had lagged behind the table – showing that the table had moved first as the sitters claimed – or whether it had moved ahead of the table. The answer was clear. The card moved ahead. So the force came from the sitters' hands. In further experiments Faraday fixed up a pointer that revealed any movements of the hands. When the sitters watched the pointer 'all effects of table-turning cease, even though the parties persevere, earnestly desiring motion, till they become weary and worn out' (ibid.: 802). He concluded that unconscious muscular action was the only force involved.



This is similar to James's theory of deliberate actions, proposed over a century earlier. First various reinforcing or inhibiting ideas compete with each other to prompt a physical action – or not. Once one or the other finally wins, we say we have decided. 'The reinforcing and inhibiting ideas meanwhile are termed the *reasons* or *motives* by which the decision is brought about' (James, 1890, ii: 528). Note that both these theories explain how the powerful *feeling* that we willed an action might come about, whether or not we have free will. Interestingly James and Wegner come to opposite opinions on this central question.

Wegner suggests that there are three requirements for the experience of willing to come about: the thought must occur before the action, must be consistent with it, and must not be accompanied by other causes. To test these proposals, Wegner and Wheatley (1999) carried out an experiment inspired by the traditional ouija board which, like Faraday's turning tables, depends on unconscious muscular action. The ouija board (the name comes from the French and German for 'yes') is used to try to contact spirits. Several people place their fingers on an upturned glass in the middle of a ring of letters and the glass then moves, spelling out words. The participants are usually convinced that they did not push the glass. In Wegner's version the glass was replaced by a 20 cm square board mounted on a computer mouse. Movements

"Our sense of being a conscious agent who does things comes at a cost of being technically wrong all the time."

Wegner, 2002: 342

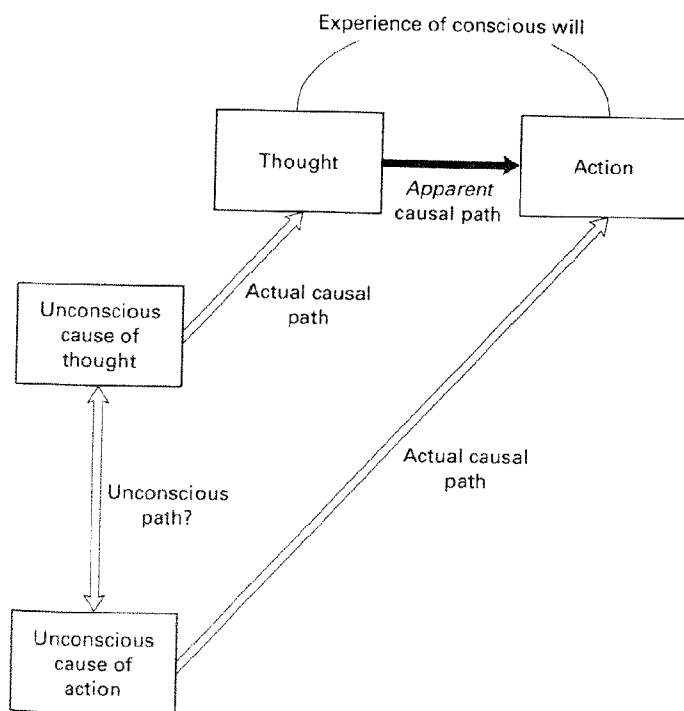


FIGURE 9.6 • According to Wegner, the experience of conscious will arises when a person infers a causal path from thought to action. Both thought and action are caused by unconscious mental events, which also may be linked to each other. The path from thought to action is apparent, not real (after Wegner, 2002).

of the mouse moved a cursor over a screen showing a picture of about 50 small objects. The experiment involved two participants: a subject and a confederate. To make the explanation easier we can call them Dan and Jane.

Dan and Jane arrived at about the same time and were seated facing each other across a small table. Dan, of course, had no idea that Jane was a confederate. They were asked to place their fingers on the little board and to circle the cursor over the objects. They were asked to stop every 30 seconds or so, and then rate how strongly they had intended to make that particular stop. Each trial consisted of 30 seconds of movement, during which they might hear words through headphones, and 10 seconds of music, during which they were to make a stop. Dan was led to believe that Jane was receiving different words from his, but actually she heard instructions to make particular movements.

On four trials she was told to stop on a particular object (e.g. swan), in the middle of Dan's music. Meanwhile Dan heard the word 'swan' 30 seconds before, 5 seconds before, 1 second before or 1 second after Jane stopped on the swan. In all other trials the stops were not forced and Dan heard various words 2 seconds into the music; 51 undergraduates were tested.

The results confirmed what Wegner calls the 'priority principle': that effects are experienced as willed when the relevant thoughts occur just before them.

On forced trials, subjects gave the highest rating for 'I intended to make the stop' when the word came 1 or 5 seconds before the stop, and the lowest when it occurred 30 seconds before or 1 second after. Wegner and Wheatley conclude that 'Believing that our conscious thoughts cause our actions is an error based on the illusory experience of will – much like believing that a rabbit has indeed popped out of an empty hat' (Wegner and Wheatley, 1999: 490). The illusion of will really is like magic and arises for the same reason. Yet once again we must remember that to say something is an illusion is not to say that it does not exist. Illusions can have powerful effects. Wegner concludes

The fact is, it seems to each of us that we have conscious will. It seems we have selves. It seems we have minds. It seems we are agents. It seems we cause what we do. Although it is sobering and ultimately accurate to call all this an illusion, it is a mistake to conclude that the illusory is trivial. (Wegner, 2002: 342)

A similar conclusion is reached by British psychologist Guy Claxton, though from the perspective of spiritual practice (Chapters 26 and 27). He

argues that trouble in by the fall he exploits bizarre way to defend decisions

I mean but I just decided but sorry in Picasso four and a half Then it can even failure change say, ten withdraw identification "mind" "made ourselves higher control "choose mind.

But there is control, say sense to see thought an attempt at control.

So, is free will is or not willusion. Though we convincing evidence

SELF-ASSESSMENT QUESTIONS

- What is the problem of free will?
- Describe Libet's experiment in your own words. What three things did he measure and how?
- List three methodological criticisms of Libet's experiment.
- What was Libet's own interpretation of his results? Give one other interpretation.
- Explain Dennett's objection to the experiment.
- Describe the ouija board experiment in your own words.
- According to Wegner, what causes the experience of will?

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argues that much of the trouble in our lives is caused by the false idea of self, and he explores some of the bizarre ways in which we try to defend the theory that our decisions cause our actions:

I meant to keep my cool but I just couldn't. . . . I'd decided on an early night but somehow here we are in Piccadilly Circus at four a.m. with silly hats and a bottle of wine.' Then if all else fails we can even re-interpret our failure as a success: "I changed my mind," we say, temporarily withdrawing our identification from the "mind" that has been "made up," and aligning ourselves instead with some higher decision-maker and controller who can "choose" to override this mind.

(Claxton, 1986a: 59-60).

But there is no self who really has this control, says Claxton. It makes better sense to see the relationship between thought and action as a hit-and-miss attempt at *prediction* rather than control.

So, is free will an illusion? Whether it is or not we may draw one firm conclusion. The fact that we *feel* as though we have free will is not convincing evidence either way.

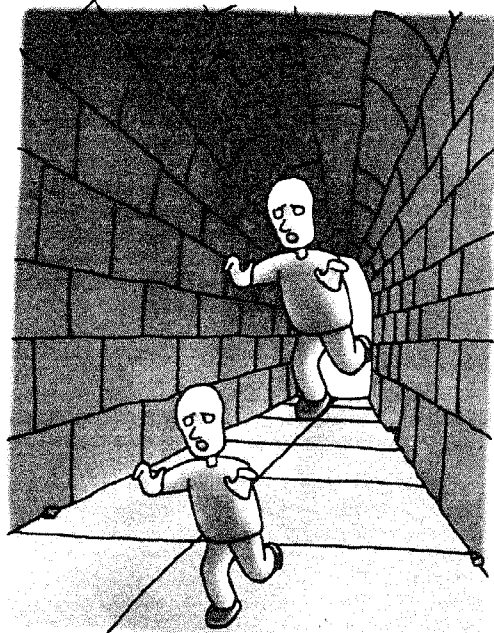


FIGURE 9.7 • Remember that an illusion is not something that does not exist but something that is not what it seems. In this visual illusion the upper person seems far bigger and more frightening than the lower one. In fact they are identical. Is consciousness what it seems to be? Is free will?

READING

Libet, B. (1985) Unconscious cerebral initiative and the role of conscious will in voluntary action. *The Behavioral and Brain Sciences* 8, 529-39.

Commentaries following Libet's article. *The Behavioral and Brain Sciences* 8, 539-66, and *The Behavioral and Brain Sciences* 10, 318-21. If each student reads one or two commentaries a good discussion can follow. Otherwise try the commentaries by Breitmeyer, Latta and Nelson.

Wegner, D.M. and Wheatley, T. (1999) Apparent mental causation: sources of the experience of will. *American Psychologist* 54, 480-92.

Agency and free will

CHAPTER NINE