

Philosophical Problems of Consciousness

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Of our conscious mental states, some are inherently conscious. That is to say, some of our mental states cannot *fail* to be conscious. For each such mental state, there is a *subjective* perspective that goes along with it. This perspective is conferred upon the subject simply by his or her undergoing the mental state. It is captured in everyday language by talk of “what it’s like.” There is something it’s like subjectively to feel an itch, to smell rotten eggs, to taste a lemon, to feel elated. Furthermore, what it’s like to undergo one inherently conscious mental state can be compared with what it’s like to undergo another. For example, what it’s like to experience bright red is subjectively more similar to what it’s like to experience bright orange than to what it’s like to experience dark green.

Mental states that are inherently conscious are said to be “phenomenally conscious” by philosophers. But just which mental states are these? One not very informative answer is that they are experiences. More helpfully, we can classify the relevant states into at least the following categories:

1 Perceptual experiences, for example, experiences of the sort involved in seeing green, hearing loud trumpets, tasting chocolate, smelling the sea air, running one’s fingers over sandpaper.

2 Bodily sensations, for example, feeling a twinge of pain, feeling an itch, feeling hungry, having a stomach ache, feeling hot, feeling dizzy. Think here also of experiences such as those present during orgasm or while running flat-out.

3 Felt reactions or passions or emotions, for example, feeling anger, lust, fear, love, grief, jealousy, regret.

4 Felt moods, for example, feeling happy, depressed, calm, bored, tense, miserable.

Some philosophers claim that there are also such experiences as, for example, the experience of suddenly remembering something or the experience of understanding a story.

Others insist that insofar as there are experiences in these cases, they are simply various perceptual and/or bodily experiences that accompany memory and understanding.

Phenomenal consciousness attaches to mental states. What it’s like subjectively to undergo a given phenomenally conscious mental state is known as the *phenomenal character* of the state. Phenomenally conscious states vary in what it’s like subjectively to undergo them,

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and in so doing they vary in phenomenal character. Possession of a phenomenal character by a mental state endows it with the property of being phenomenally conscious.

In everyday life, we often attribute consciousness to persons (and other sentient creatures) in addition to mental states. We think of *ourselves* as being conscious of things (for example, a rock, a tree, a car) and also of facts (for example, the fact that there is an apple on the table). This kind of consciousness is standardly called “creature consciousness.” Some philosophers also claim that there is a kind of consciousness that attaches to some mental states simply by virtue of their being available for certain sorts of information processing.

This kind of consciousness is sometimes called “access consciousness.” Exactly how creature consciousness, access consciousness, and phenomenal consciousness are related is a matter on which there is as yet no clear agreement in philosophy (Block 1995). But this does not matter for present purposes, for there is broad agreement that phenomenal consciousness is what makes consciousness so deeply puzzling. The problems presented below (with the exception of the last one) all pertain directly to one or other aspect of phenomenal consciousness.

The Problem of Ownership

This problem is one which must be faced by any philosopher who wants to hold that phenomenally conscious states are physical. The problem is that of explaining how the mental objects of experience and feeling – such as particular pains, after-images, tickles, itches – *could* be physical, given that they are necessarily owned and necessarily private to their owners. Unless these objects are themselves physical, the phenomenal states involving them, states like having a yellow after-image or feeling a tickle, cannot themselves be physical either.

Let us take a concrete example to illustrate the problem. Suppose that you are lying in the sun with your eyes closed. You have not a care in the world. Life is good. Suddenly you feel intense pain in your right leg – a hornet, trapped beneath your leg on the grass, has stung you. There is something it’s like for you at this decidedly unlucky moment.

This is an objective fact about you, not dependent for its existence on anyone else seeing or thinking about your situation. But the pain you are feeling – that particular pain – is private to you. It is yours alone, and necessarily so. No one else could have that particular pain. Of course, conceivably somebody else could have a pain that felt just like your pain, but only you could have that very pain. What is true for this one pain is true for pains generally. Indeed, it is true for all mental objects of experience. None of these items of experience can be shared. I cannot have your visual images or feel your tickles, for example. Your images and tickles necessarily belong to you.

The problem, in part, is that ordinary physical things do not seem to be owned in this way. For example, my house is something you could own. Likewise, my tie or my car. But

the problem runs deeper. For any pain or itch or image is always *some creature's* pain or itch or image. Each mental object of experience necessarily has *an* owner. So, pains in this respect are not like dogs or tables or even legs. Legs can exist amputated, and dogs and tables can belong to no one at all. Pains, however, *must* have owners.

The challenge for the philosopher, who wants to hold that experiences and feelings are wholly physical, is to explain how it is that pains and other mental objects of experience can have the above features, if they really are just ordinary physical things. This is the problem of ownership.

24 MICHAEL TYE

The Problem of Perspectival Subjectivity

Consider the experience of pain again. It seems highly plausible to suppose that *fully* comprehending this experience requires knowing what it's like to undergo it. And knowing

what it's like to undergo an experience requires a certain experiential point of view or perspective.

This is why a child born without the capacity to feel pain and kept alive in a very carefully controlled environment could never come to know what it's like to experience pain. Such a child could never herself adopt the relevant perspective. And lacking that perspective, she could never comprehend fully what that type of feeling was, no matter how much information was supplied about the firing patterns in your brain, the biochemical processes, and the chemical changes.

Phenomenally conscious states are perspectival in that fully comprehending them requires adopting a certain experiential point of view. But physical states are not perspectival in this way. Understanding fully what lightning is, or gold, does not require any particular experiential point of view. For example, there is no requirement that one undergo the experiences normal human beings undergo as they watch the sky in a storm or examine a gold ring. A man who is blind and deaf cannot experience lightning by sight or hearing at all, but he can understand fully just what it is, namely a certain sort of electrical discharge between clouds. Similarly, if gold presents a very different appearance to Martians, say, this does not automatically preclude them from fully grasping what gold is, namely the element with atomic number 79. Physical items, then, are not perspectival (Nagel 1979). They are, in the relevant way, objective.

These points allow us to appreciate why some philosophers claim that an android who is incapable of any feeling or experience lacks the resources to grasp the concept of phenomenal consciousness. Lacking any phenomenal consciousness herself, she would not know what it's like to be phenomenally conscious. And not knowing that, she could not occupy *any* experiential perspective. So, she could not fully understand the nature of phenomenal consciousness; nor could she properly grasp the meaning of the term "phenomenal consciousness."

The problem of perspectival subjectivity can be illustrated in other ways. Consider a brilliant

scientist of the future, Mary, who has lived in a black and white room since birth and who acquires information about the world via banks of computers and black and white television screens depicting the outside world (Jackson 1982; Alter, chapter 31). Suppose that Mary has at her disposal in the room all the objective, physical information there is about what goes on when humans see roses, trees, sunsets, rainbows, and other phenomena. She knows everything there is to know about the surfaces of the objects, the ways in which they reflect light, the changes on the retina and in the optic nerve, the firing patterns in the visual cortex, and so on. Still, there is something she does not know. She does not know what it's like to see red or green or the other colors. This is shown by the fact that when she finally steps outside her room and looks at a rose, say, she will certainly learn something. Only then will she appreciate what it's like to see red. So, physicalism is incomplete.

Alternatively, suppose that we make contact with some extraterrestrials, and that scientists from Earth eventually come to have exhaustive knowledge of their physical states.

It turns out that their physiology is very different from that of any Earth creatures. Surely our scientists can wonder what it feels like to be an extraterrestrial; whether their feelings and experiences are the same as ours. But if they can wonder this, then they are not yet in a

PHILOSOPHICAL PROBLEMS OF CONSCIOUSNESS 25

position to know everything by means of their objective, scientific investigations. For there is something they do not yet know, namely, what it's like for the extraterrestrials. This is something subjective, something not contained in the information about the objective facts already available to them.

The problem, then, can be put this way: What accounts for the fact that fully comprehending the nature of pain, the feeling of depression, or the visual experience of red requires having the appropriate experiential perspective?

The Problem of Mechanism

Somehow, physical changes in the soggy gray and white matter composing our brains produce feeling, experience, “technicolor phenomenology” (McGinn 1991). How is this possible? What is it about the brain that is responsible for the production of states with phenomenal character? These questions ask for a specification of the *mechanism* which underlies the generation of phenomenally conscious states by physical states, and which closes the explanatory gap we feel intuitively between the two (Levine 1983; Levine, chapter 29). This explanatory gap was the one puzzling T. H. Huxley when he commented in 1866, “How it is that anything so remarkable as a state of consciousness comes about as a result of irritating nervous tissue, is just as unaccountable as the appearance of Djin when Aladdin rubbed his lamp.”

Here is a thought experiment which brings out the explanatory gap very clearly. Suppose that scientists develop a device that can be attached to the head and that permits the recipient

to view physical changes in his own brain. This device, which is sometimes called “an autocerebroscope,” can be thought of as being something like the virtual reality headgear that is beginning to be marketed today except that what the recipient sees in this case, via probes which pass painlessly through the skull, is the inside of his own brain. Suppose that you put the device on your head, and lo and behold, firing patterns appear projected on to a screen before your eyes! As you move a hand control, further firing patterns from other regions of the cortex appear before you. Imagine now that whenever you are tickled with a feather, you see that a certain fixed set of neurons in the somato-sensory cortex is firing. At other times, when you are not being tickled, these neurons are dormant. Is it not going to seem amazing to you that *that* electrical activity generates the subjective tickle feeling? *How*, on earth, does that particular neural activity produce a *feeling* at all? And why does it feel like *that* rather than some other way?

The need for a mechanism can also be appreciated once when we reflect upon some real life examples from science. Consider the production of brittleness in a thin glass sheet or liquidity in water or digestion in a human being. In each of these cases there is a mechanism which explains how the higher-level property or process is generated from the lower level one.

In the case of liquidity, for example, once we appreciate that liquidity is a disposition, namely the disposition to pour easily, and we are told that in liquid water the H₂O molecules are free to slide past one another instead of being trapped in fixed locations (as they are in ice), we have no difficulty in seeing how liquidity is generated from the underlying molecular properties. There is no explanatory gap.

A similar account is available in the case of brittleness. Like liquidity, brittleness is a disposition. Brittle objects are disposed to shatter easily. This disposition is produced in a thin

26 MICHAEL TYE

glass sheet via the irregular alignment of crystals. Such an alignment results in there being weak forces between crystals holding them together. So, when a force is applied, the glass shatters. The generation of brittleness is now explained.

Digestion is a matter of undergoing a process whose function is to change food into energy. So digestion is a functionally characterized process. It follows that digestion takes place in a given organism via any set of internal changes which performs the relevant function for that organism. In this way, digestion is realized in the organism. In human beings, for example, digestion is realized chiefly by the action of certain enzymes secreted into the alimentary canal. These enzymes cause the food to become absorbable and hence available as energy by dissolving it and breaking it down into simpler chemical compounds. Once one grasps these facts, there is no deep mystery about how digestion is generated.

What the above examples strongly suggest is that, in the natural world, the generation of higher-level states or processes or properties by what is going on at lower neurophysiological or chemical or microphysical levels is grounded in mechanisms which *explain* the generation of the higher-level items. So, if phenomenal consciousness is a natural phenomenon, a part of the physical world, there should be a mechanism which provides an explanatory link between the subjective and the objective. Given that there is such a mechanism, the place of phenomenally conscious states in the natural, physical domain is not threatened. But what could this mechanism be? We currently have no idea. Nor is it easy to see what scientific discoveries in biology, neurophysiology, chemistry, or physics could help us. For these sciences are sciences of the objective. And no fully objective mechanism could close the explanatory gap between the objective and the subjective. No matter how deeply we probe into the physical structure of neurons and the chemical transactions which occur when they fire, no matter how much objective information we acquire, we still seem to be left with something that cries out for a further explanation, namely, why and how *this* collection of neural and/or chemical changes produces *that* subjective feeling, or any subjective feeling at all.

The problem of mechanism, then, can be put as follows: How do objective, physical changes in the brain generate subjective feelings and experiences? What is the mechanism which is responsible for the production of the “what it’s like” aspects of our mental lives?

The Problem of Duplicates

Hollywood zombies are not difficult to spot. They inhabit the world of films, wandering around in a trance-like state, typically unable to control their behavior in a voluntary manner. They are usually very pale, preferring the night to the day for their carnivorous activities, and their clothes are normally disheveled and old. Hollywood zombies, then, are significantly different from the rest of us at a functional level. Moreover, they need not be wholly without phenomenal consciousness. Philosophical zombies are a very different kettle of fish.

A philosophical zombie is a molecule-by-molecule duplicate of a sentient creature, a normal human being, for example, but who differs from that creature in lacking *any* phenomenal consciousness. For me, as I lie on the beach, happily drinking some wine and watching the waves, I undergo a variety of visual, olfactory, and gustatory experiences. But my zombie twin experiences nothing at all. He has no phenomenal consciousness. Since

PHILOSOPHICAL PROBLEMS OF CONSCIOUSNESS 27

my twin is an exact physical duplicate of me, his inner psychological states will be *functionally* isomorphic with my own (assuming he is located in an identical environment).

Whatever physical stimulus is applied, he will process the stimulus in the same way as I do, and produce *exactly* the same behavioral responses. Indeed, on the assumption that nonphenomenal

psychological states are functional states (that is, states definable in terms of their role or function in mediating between stimuli and behavior), my zombie twin has just the same beliefs, thoughts, and desires as I do. He differs from me only with respect to experience. For him, there is nothing it's like to stare at the waves or to sip wine.

The hypothesis that there can be philosophical zombies is not normally the hypothesis that such zombies are *nominally* possible, that their existence is consistent with the actual laws of nature. Rather the suggestion is that the hypothesis is coherent, that zombie replicas of this sort are at least *imaginable* and hence logically or metaphysically possible.

Philosophical zombies pose a serious threat to any sort of physicalist view of phenomenal consciousness. To begin with, if zombie replicas are possible, then phenomenal states are not identical with internal, objective, physical states, as the following simple argument shows. Suppose objective, physical state *P* can occur without phenomenal state *S* in some appropriate zombie replica (in the logical sense of "can" noted above). But, intuitively, *S* cannot occur without *S*. Pain, for example, cannot be felt without pain. So, *P* has a modal property *S* lacks, namely the property of *possibly* occurring without *S*. So, by Leibniz' Law (the law that for anything *x* and for anything *y*, if *x* is identical with *y* then *x* and *y* share *all* the same properties), *S* is not identical with *P*.

Second, if a person microphysically identical with me, located in an identical environment, can lack *any* phenomenal experiences, then facts pertaining to experience and feeling, facts about what it's like, are not necessarily fixed or determined by the objective microphysical facts. And this the physicalist cannot allow, even if she concedes that phenomenally conscious states are not strictly identical with internal, objective, physical states. For the physicalist, whatever her stripe, must at least believe that the microphysical facts determine all the facts; that any world that was exactly like ours in *all* microphysical respects (down to the smallest detail) would have to be like our world in all respects (having identical mountains, lakes, glaciers, trees, rocks, sentient creatures, cities, and so on).

So, the physicalist again has a serious problem. Phenomenal states, it seems, are not identical with internal, objective physical states, nor are they determined by physical states.

This is the problem of microphysical duplicates.

Philosophical zombies are microphysical duplicates that lack phenomenal consciousness.

Other duplicates lacking consciousness have also concerned philosophers.

In particular, there has been considerable debate about possible functional duplicates that are not philosophical zombies. So, for example, one writer (Block 1980) asks us to imagine that a billion Chinese people are each given a two-way radio with which to communicate with one another and with an artificial (brainless) body. The movements of the body are controlled by the radio signals, and the signals themselves are made in accordance with instructions that the Chinese people receive from a vast display in the sky,

which is visible to all of them. The instructions are such that the participating Chinese people function like individual neurons, and the radio links like synapses, so that together the Chinese people duplicate the causal organization of a human brain down to a very fine-grained level. Block claims that intuitively, this system does not undergo any experiences or feelings. Since the system is possible and it is functionally equivalent to a normal human being, it supposedly presents an illustration of the absent qualia

28 MICHAEL TYE

hypothesis. Block concludes that functional organization is not what determines or fixes phenomenal consciousness.

It is important to understand what is being claimed about the China-Body system to appreciate the full force of the example. The claim is not that the individual Chinese people do not undergo experiences and feelings as they participate in the game. That obviously is false. The claim is rather that we have a strong intuition that the system *as a whole*, of which the individual Chinese people are parts, does not feel or experience anything – that it is the wrong sort of thing to undergo experiences and feelings.

The problem of duplicates, then, amounts to the following questions: Are zombie replicas possible? Are total functional duplicates without any phenomenal consciousness possible? If so, what does this tell us about phenomenal consciousness?

The Problem of the Inverted Spectrum

The classic inverted spectrum argument goes as follows. Suppose that Tom has a very peculiar visual system. His color experiences are systematically inverted with respect to those of his fellows. When Tom looks at red objects, for example, what it's like for him is the same as what it's like for other people when they look at green objects and vice versa. This peculiarity is one of which neither he nor others are aware. Tom has learned the meanings of color words in the usual way and he applies these words correctly. Moreover, his non-linguistic behavior is standard in every way.

Now when Tom views a ripe tomato, say, in good light, his experience is phenomenally, subjectively, different from the experiences you and I undergo. But his experience is *functionally* just like ours. For his experience is of the sort that is usually produced in him by viewing red objects (in the same sort of way that our experiences of red are produced) and that usually leads him (again in parallel fashion) to believe that a red object is present. In short, his experience functions in just the same way as ours. So the phenomenal quality of Tom's experience is not a matter of its functional role. This conclusion cannot be accepted by any philosopher who wants to analyze, or understand, phenomenal consciousness functionally. But what, if anything, is wrong with the above reasoning? This is the problem of the inverted spectrum (Lycan 1973; Shoemaker 1982).

One way to fix the puzzle clearly in your mind is to imagine that you are operated upon

by microsurgeons who alter some of the connections between neurons in your visual system. These alterations have the effect of making neurons that used to fire as a result of retinal cell activity produced by viewing red objects now fire in response to such cell activity produced by seeing green objects and vice versa. Upon awakening from the operation, you find the world very weird indeed. Your lawn now looks red to you, the trees are varying shades of red and purple, the flamingo statues that decorated your garden look light green instead of pink. These changes in your experiences will be reflected in your behavior, for example, in your verbal reports. So, there will be straightforward evidence that an inversion has occurred. Now suppose that the microsurgeons operated upon you at birth, so that you learn to apply color vocabulary to things with anomalous looks. For you, these looks are not anomalous, of course. So, you use color terms in precisely the same circumstances as everyone else. Is this not imaginable? If we agree it is, however difficult it might be in practice to produce such an inversion, then functionally identical inverted experiences are metaphysically possible. So functionalism cannot be the truth about phenomenal consciousness.

PHILOSOPHICAL PROBLEMS OF CONSCIOUSNESS 29

The problem of the inverted spectrum is sometimes presented with respect to a single individual who, after the operation described two paragraphs ago, adapts to it through time and eventually forgets that things ever looked any different to him. In this case, it is suggested (Putnam 1981; Block 1990), the later person is subject to visual experiences which are functionally isomorphic to the earlier ones but which are subjectively different.

So, the problem of the inverted spectrum amounts to the following questions: Can two people who are functionally identical undergo experiences that are phenomenally inverted? Can one person, at different times, undergo experiences that are phenomenally inverted but functionally identical? Can there be phenomenal inversion in the case of microphysical duplication? What should we conclude about phenomenal consciousness from reflection upon inverted experiences?

The Problem of Transparency

Suppose that you are standing before a tapestry in an art gallery. As you take in the rich and varied colors of the cloth, you are told to pay close attention to your visual experience and its phenomenology. What do you do? Many philosophers claim that you attend closely to the *tapestry* and the details in it. You are aware of something outside you – the tapestry – and of various qualities that you experience as being qualities of parts of the tapestry, and by being aware of these things, you are aware of what it's like for you subjectively or phenomenally. But your awareness of what it's like, of the phenomenology of your experience, is not awareness *of* the experience or its qualities. It is awareness *that* you have an experience with a certain phenomenal character or “feel.”

Here is another example to illustrate these preliminary points. Suppose that you have

just entered a friend's country house for the first time and you are standing in the living room, looking out at a courtyard filled with flowers. It seems to you that the room is open, that you can walk straight out into the courtyard. You try to do so and, alas, you bang hard into a sheet of glass, which extends from ceiling to floor and separates the courtyard from the room. You bang into the glass because you do not see it. You are not aware of it, nor are you aware of any of its qualities. No matter how hard you peer, you cannot discern the glass. It is transparent to you. You see right through it to the flowers beyond. You are aware of the flowers, not by being aware of the glass, but by being aware of the facing surfaces of the flowers. And in being aware of these surfaces, you are also aware of a myriad of qualities that seem to you to belong to these surfaces. You may not be able to name or describe these qualities but they look to you to qualify the surfaces. You experience them as being qualities of the surfaces. None of the qualities of which you are directly aware in seeing the various surfaces look to you to be qualities of your experience. You do not experience any of these qualities as qualities of your experience. For example, if redness is one of the qualities and roundness another, you do not experience your experience as red or round.

If your friend tells you that there are several ceiling- to- floor sheets of glass in the house and that they all produce a subtle change in the light passing through them so that things seen from the other side appear more vividly colored than is usually the case, as you walk gingerly into the next room, you may become aware that there is another partitioning sheet of glass before you by being aware of the qualities that appear to belong to non- glass surfaces before your eyes. You are not aware of the second sheet of glass any more than you

30 MICHAEL TYE

were aware of the first; but you are now aware that there is a sheet of glass in the room by being aware of qualities apparently possessed by non- glass surfaces before you.

Visual experiences, according to many philosophers, are like such sheets of glass. Peer as hard as you like via introspection, focus your attention in any way you please, and you will only come across surfaces, volumes, films, and their apparent qualities. Visual experiences thus are transparent to their subjects (Moore 1922). We are not introspectively aware of our visual experiences any more than we are perceptually aware of transparent sheets of glass. If we try to focus on our experiences, we see right through them to the world outside. By being aware of the qualities apparently possessed by surfaces, volumes, etc., we become aware that we are undergoing visual experiences. But we are not aware of the experiences themselves. This is true, even if we are hallucinating. It is just that in this case the qualities apparently possessed by surfaces, volumes, etc. before our eyes are not so possessed. The surfaces, volumes, etc. do not exist.

Introspection, on the view just presented, is importantly like displaced perception or

secondary seeing- that. When I see that the gas tank is nearly empty by seeing the gas gauge or when I see that the door has been forced by seeing the marks on the door, I do not see the gas tank or the forcing of the door. My seeing- that is secondary or displaced. I am not aware – I am not conscious – of either the gas tank or the forcing of the door. I am aware of something else – the gas gauge or the marks on the door – and by being aware of this other thing, I am aware that so- and- so is the case.

Similarly, in the case of introspection of a visual experience, I am not aware or conscious of the experience itself. I am aware that I am having a certain sort of experience by being aware of something other than the experience of the surfaces apparently outside and their apparent qualities (Tye 2000).

What is true for vision is true for the other senses. Attending to the phenomenology of a perceptual experience, to its felt character, is a matter of attending to the ways things look, smell, taste, sound, or feel by touch. In the case of bodily sensations, the object of your attention is the way a certain part of your body feels. With emotions and moods, the attentional focus is often on things outside – things perceived as dangerous, foul, or pleasing – but there is also attention to the ways in which one's body is changing (pounding heart, shaky legs, higher blood pressure). More generally, attention to phenomenal character is a matter of attention to the ways things other than the experience seem, that is, to qualities that are not qualities of experiences.

Not all philosophers accept that experiences are transparent in the way described above. But if the transparency thesis is correct, an explanation is needed for how experiences can be transparent and yet also have phenomenal character. What is it about phenomenal consciousness that is responsible for its diaphanous character?

The Problem of Unity

There is no one problem of unity for experiences, and there is no one kind of unity either. One important focus of recent investigation in cognitive psychology and neurophysiology has been how the visual system brings together information about shape and color. If I view a green, circular object, the greenness and roundness I experience are represented in different parts of my visual system. In my experience, however, the color and shape are unified. I experience a *single* green, circular object. I notice and report on only one such object. How

PHILOSOPHICAL PROBLEMS OF CONSCIOUSNESS 31

can this be? How are the color and shape unified as belonging to a single object in my consciousness? This is often called “the binding problem” and the kind of unity it concerns is *object unity*.

One putative solution to the binding problem at the neurological level is that there is a common neuronal oscillation (40 Hz) that binds together the relevant neural events. This is known as the 40 Hz hypothesis (Crick & Koch 1990). The main philosophical problem

of unity for experiences does not concern object unity, however. It concerns phenomenal unity (see Dainton, chapter 16). One version of it may be brought out in the following way. Suppose that at midday a wine taster is tasting a Cabernet Sauvignon. He sees the red wine in the wine glass beneath his nose, as he brings the wine to his lips. He smells the rich bouquet of the wine, as he tastes its fruity flavor in his mouth; and in tasting it, he experiences the liquid touching his tongue and the back of his mouth. Perhaps, as he does this, he flicks a finger against the glass, thereby producing a high-pitched sound. One way to describe the wine taster's phenomenal state is to say that he has an experience of a certain colored shape, *and* further, he has an experience of a certain smell, *and*, in addition, he has an experience of a taste *and* . . . etc. But intuitively, this is unsatisfactory. It misses something out: the unity of these experiences. There is something it's like for the wine taster *overall* at midday, as he brings the wine to his lips and smells and tastes it. There is a unified phenomenology. How can this be? After all, it is natural to suppose that the wine taster here is subject to five separate experiences, each one produced by the operation of a single sense. If this is the case – if the wine taster is undergoing five different simultaneous perceptual experiences – how can it be, phenomenologically, as if he were undergoing one? How is it that the five experiences are phenomenologically unified? Of course, for each of these experiences, there is something it's like to undergo the experience. But there is also something it's like to have these experiences together. And that remains to be accounted for.

Here is another example. Holding a ripe apple in my hand, I experience a red surface and I experience a cold surface. These experiences are not experienced in isolation, however. They are experienced together. This is part of the phenomenology of my experience overall. There is a unity in my experience. Of what does this unity consist, given that I am subject to two different particular experiences, one visual and one tactual?

The above version of the philosophical problem of unity for experiences pertains to unity at a time. But there is also a problem of unity through time too. As I rub my forefinger with my thumb and I feel the smoothness of the skin, my experience of smoothness is not merely a succession of independent momentary experiences of smoothness. It is a continuous sensation. The continuing of the sensation is not just an objective fact about it. It is something I experience, or so it is standardly supposed. The streamlike quality of the sensation is itself a phenomenal feature. This is true for experiences generally. My experience of a dull pain that lasts several minutes has a continuous character to it that is itself experienced. Change is experienced too. If my pain suddenly changes from being dull and constant to throbbing, I experience this change in it. Thinking through something, I undergo a sequence of successive thoughts. It is sometimes held that the

continuity in my thoughts, their succession one after another, is something I experience. What accounts for the phenomenal unity of our experiences through time? As William James (1952) put it:

32 MICHAEL TYE

A succession of feelings, in and of itself, is not a feeling of succession. And since, to our successive feelings, a feeling of their own succession is added, that must be treated as an additional fact requiring its own special elucidation . . .

This is the philosophical problem of unity *through* time.

The Problem of Divided Consciousness

The human brain is divided into two more or less symmetrical hemispheres. The surgical removal of one of these hemispheres does not eliminate consciousness and neither does cutting the many connections of the corpus callosum between hemispheres. The latter operation, originally performed by Roger Sperry in the 1960s on some epileptic patients, with the aim of controlling epileptic seizures, has a remarkable consequence. In addition to reducing greatly the number and intensity of the seizures themselves, it also produces a kind of mental bifurcation in the epileptic patients (Sperry 1968).

Here is an illustration. A subject, *S*, is told to stare fixedly at the center of a translucent screen which fills his visual field. Two words are flashed onto the screen by means of a projector located behind, one to the left of the fixation point and one to the right. Let us suppose the words used are “pen” and “knife.” The words are flashed very quickly (for just 1/10 of a second) so that eye movements from one word to the other are not possible. This arrangement is one that ensures that the word on the left (i.e., “pen”) provides input only to the right hemisphere of the brain and the word on the right (i.e., “knife”) provides input only to the left.

S is then asked what he saw. *S* shows no awareness, in his verbal responses, of “pen.” However, if *S* is asked to retrieve the object corresponding to the word he saw from a group of objects concealed from sight, using his left hand alone, he will pick out a pen while rejecting knives. Alternatively, if *S* is asked to point with his left hand to the object corresponding to the word he saw, he will point to a pen. Moreover, if *S* is asked to sort through the group of objects using both hands, he will pick out a pen with his left and a knife with his right. In this case, the two hands work independently with the left rejecting the knives in the group and the right rejecting the pens. (For further detail, see Colvin and Gazzaniga, chapter 14.)

What are we to make of this phenomenon? Evidently, there is a kind of disunity in the mental life of split-brain subjects. But just where psychologically is the unity best located? Is it at the level of phenomenal consciousness? And what, if anything, does the behavior of split-brain subjects tell us about the nature of persons and the relationship of personal identity to a unified consciousness? This is the problem of divided consciousness.

Philosophers who have discussed split-brain subjects have variously suggested that:

- 1 split-brain subjects are really two persons having two separate minds (Pucetti 1972);
- 2 that the responses produced by the right hemisphere are those of an unconscious automaton (Parfit 1987);
- 3 that it is indeterminate how many persons split-brain subjects are and that the concept of a person is thrown into jeopardy by the experimental results (Nagel 1971);
- 4 that split-brain subjects have a unified phenomenal consciousness but a disunified access consciousness (Bayne & Chalmers 2003);
- 5 that split-brain subjects are single persons who undergo two separate streams of consciousness that remain two from the time of the commissurotomy (Parfit 1987);

PHILOSOPHICAL PROBLEMS OF CONSCIOUSNESS 33

6 that split-brain subjects are single persons whose phenomenal consciousness is briefly split into two under certain special experimental conditions, but whose consciousness at other times is unified (Marks 1980).

On some of these proposals, there is really no division in the consciousness of a single person; on others, there is such a division but only at the level of access; on others, there is a genuine split in the phenomenal consciousness of the subject.

These are not the only philosophical problems of consciousness, but they are some of the most puzzling ones (see also Chalmers, chapter 17). Together they form perhaps the hardest nut to crack in all of philosophy – so hard that some philosophers of mind, not generally opposed to substantive philosophical theorizing, see little or no hope of coming to a satisfactory understanding of phenomenal consciousness.

See also 14 Split-brain cases; 15 Philosophical psychopathology and self-consciousness; 16 Coming together: the unity of conscious experience; 17 The hard problem of consciousness; 29 Antimaterialist arguments and influential replies; 30 Functionalism and qualia; 31 The knowledge argument; 35 Sensory and perceptual consciousness.

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34 MICHAEL TYE

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