

Human and Animal Consciousness

Matthew Elton

CSRP 287, June 1993

Cognitive Science Research Paper

Serial No. 287

The University of Sussex
School of Cognitive and Computing Sciences
University of Sussex, Falmer
Brighton, BN1 9QH

Human and Animal Consciousness

Matthew Elton

CSRP 287, June 1993

School of Cognitive and Computing Sciences

University of Sussex, Falmer

Brighton, BN1 9QH

email: matthewe@cogs.susx.ac.uk

Abstract

Do animals have sensations just as humans do? In addressing this question I explore some necessary, though not sufficient, conditions for conscious experience. Phenomenal sensations, I argue, are not biologically basic, and hence appeals to shared physiology are not sufficient to make the case for animal sensation. I suggest that consciousness can be divided into two notions: a short term phenomenal consciousness and a longer term, fully fledged, personal consciousness. I argue that it is having the latter that really matters with respect to having the sorts of pleasures and pains about which we ought to care.

Human and Animal Consciousness

1. Introduction

I want to start my paper with a quote from Colin McGinn. Roughly speaking McGinn's theory of consciousness is that we can't have one. He does believe that a science of consciousness - a scientific theory which relates experience - tastes, sounds, sights and so forth - to physical states of nervous systems - is possible. But he argues that such a science would require concepts which, on account of the limitations of our cognitive make up, we humans are simply unable to grasp. Given this scepticism, which I shall not deal with here except to say that what is beyond McGinn may well be graspable by other parts of the philosophical community, you might think that he would be cautious on the issue of animal consciousness. After all if he does not have a theory of what consciousness is, and, indeed, just could not have such a theory, how does he check that animals are conscious? The first manoeuvre in many discussions of consciousness - though not one which fails to be contested - is to argue that merely looking at something's behaviour is not enough. McGinn would agree with this move. So he cannot just look at behaviour- but if he cannot, then to check out the consciousness of animals he would need to apply the criteria of a theory of consciousness to, say, their nervous system or whatever internal structure they may possess - and he can't do this either. So what does McGinn in fact say about animals and consciousness? Is he cautious - does he take pains to point out the difficulties he has answering the question given his view? He writes: "Consciousness arises early in evolutionary history and is found right across the animal kingdom" (1991: 19).

Hardly cautious. But we can sympathize, for although we may be aware of the danger of anthropomorphization, if an animal has been injured, and shows it, it seems no less than spiteful to suggest that it might not be in pain. All but the worst excesses of behaviourism managed to avoid this. On the whole, despite bad press, the thrust of behaviourism was not to deny inner mental lives, but to exclude them from a scientific psychology.

McGinn's confidence in animal consciousness is widespread - and people often like to express this view unequivocally: "[There] are no good reasons, scientific or philosophical, for denying that animals feel pain" (Singer, 1976: 16). Thomas Nagel is just a little more cautious:

Conscious experience is a widespread phenomenon. It occurs at many levels of animal life, though we cannot be sure of its presence in the simpler organisms, and it is very difficult to say in general what provides evidence of it. (Nagel, 1974)

In this paper I want to face the issues square on, putting all sentiment aside. In this I follow Peter Carruthers (1992) who has recently written on the issue of animal rights and animal consciousness (see also Regan, 1983). With Carruthers I share the conviction that there is a fact of the matter as to whether animals have consciousness - whether they feel their pains, itches and pleasures - and I agree that were we to discover that they did not we should have to think long and hard about the ethical consequences. Carruthers tries to develop a sketch theory of consciousness and then to show that animals don't have it. Here I too will try to develop a sketch theory of consciousness, or at least an account of some necessary conditions for it, but you will have to wait and see whether I think animals meet its criteria.

I shall begin by saying a little bit about animals and how we should interpret their behaviour. The enormous wealth of ethological data, and ever advancing physiological studies, tell us more about animals than we have ever known before. But so far this data has left many important controversies intact (Walker, 1983; Oakley, 1985). Then I shall make some points about the differences between discrimination and awareness. I shall go on to try and show that there are conceptual arguments which can be developed to say what sort of structure is necessary (if not sufficient) for awareness to take place. Crucial at this stage will be an argument about time and experience - I shall suggest that unless a creature can experience in time, it cannot experience at all.

Before moving on to human consciousness a bridging section, "Subjects and Sensations", will try and pull together the points already made. Here I shall be stressing the importance of a subject of experience, and suggesting that much work in this area fails to take the importance of the subject sufficiently seriously. I shall suggest that the notion of a subject and the notion of a story-teller are closely linked. The fourth section, "People" will address human consciousness. Here I shall try to show that some of the classic sensation states, such as pain, are not biologically basic. Odd as this may sound - after all when we are in pain we often feel closest to our animal origins - I shall present some scientific evidence which support, and make plausible, this philosophical view. With some kind of sketch theory of consciousness in place the final section will look at the behavioural and internal structural demands the theory would make of conscious creatures. I shall try to assess whether any non-human animals can meet the theory's demands. Or, more cautiously, I shall try to show how one might set about deciding whether any given animal might meet a necessary (if not sufficient) set of criteria for consciousness.¹

¹ The account of consciousness I sketch here is heavily influenced by Dennett (1991). The stress of temporality and the importance of narrative are echoed in Humphrey (1992) and Flanagan (1992) respectively.

2. Animal Consciousness

Discrimination versus Awareness

Let me begin with a brief run through some bad arguments in favour of animals having conscious experiential states. The next few points are nicely rehearsed by Harrison (1991), but are also recognizable, in a non-animal context, from the “Other Minds” literature.

Animals certainly behave as though they are in pain. If your pet armadillo injures her foot, she will show clearly recognizable signs of distress. But a behavioural criterion really is too weak and unless we say that exhibiting pain behaviour just is the same thing as having a pain it just will not do. The familiar objections based around feigning the presence of pain (the super-actor), or the lack of it (the super-Spartan) are not only due to Putnam (1980). It is well known that some bird species will pretend to be injured in order to distract a predator from finding their young. It can be argued, however, that a behavioural criteria can be boosted by an appeal to a shared physiology. I think there is something in this, but saying that humans and animals have similar nervous systems is not enough on its own. For all the similarities animals do not have language, and how are we to know that, as with language, pain is not our exclusive preserve? If we are to make the physiological boost effective, we will need to have some account of what the physiology is doing - some account as to the relationship between the physiology and the pain states. And, as I argue below, it is surprising the extent to which physiological and experiential states can be pulled apart in human beings.

A third and final prop for a behavioural criteria would be to argue that pain offers a survival advantage, and so will be selected by evolution. This is, of course, no good at all. As Harrison neatly puts it: “[It] is not the pain (real or imputed) which is the adaptation, but the behaviour which is elicited when the damaging stimulus is applied.” (1991: 32) That is to say what matters in survival is that you draw your hand away from the fire, not that it hurts before you do it.

These points generalize out to all the discriminative activity with which a creature might involve itself. So, that a creature can tell red plants from blue ones, or that it can tell the scent of its child from that of an interloper, or that it can tell the call of a predator from that of a friend is no evidence that it perceives colours, smells odours, or hears different sounds. There is a

difference between detection (or discrimination) and perception, and the difference is simply that perception involves consciousness, whereas detection does not.²

Methodology

Now the difficulty one faces when trying to take a naturalistic - or broadly scientific - approach to consciousness is this. You take on board the difference between discrimination and awareness of stimuli and, bearing it mind, go on to look at the mechanisms which make up creatures. But when you do, all you can find are sets of discriminative systems, and nowhere a perceptual system. This is something Leibniz noted some time ago in the following well known passage:

Moreover, it must be avowed that perception and what depends upon it cannot possibly be explained by mechanical reasons, that is, by figure and movement. Suppose that there be a machine, the structure of which produces thinking, feeling and perceiving; imagine this machine enlarged but preserving the same proportions, so that you could enter it as if it were a mill. This being supposed, you might visit its inside; but what would you observe there? Nothing but parts which and push and move each other, and never anything that could explain perception. (Monadology 17).

My basic response to Leibniz's point is to argue that there is something like a category mistake occurring here (Ryle, 1949). Even the staunchest artificial intelligence theorist, or most devout neuroscientist ought not to expect to find a perceptual system For it is not a brain, or a computer, or any kind of cognitive mechanism which does the perceiving - all the hardware does is discriminate. It is agents that perceive. The agents we are most familiar with - persons - are not the same as their brains, and their abilities and capacities are not the same as the abilities and capacities of their brains. But, whilst this diagnosis is of some help, there is clearly a great deal of difficulty relating the role of cognitive mechanisms (with all their much studied, and much studiable, inner parts) and the nature of (conscious) agency. I think that most of what I say here can stand independently of a debate about how mechanisms relate to agents, but I shall return briefly to this issue in the final section.

² I am appropriating terms here: I trust the reader will allow my distinction even if she objects to my terminology.

Molluscs: Concepts for Awareness

Let me introduce two technical terms from the philosophy of mind. Philosophers of mind like to talk about mental states: these are such things as beliefs, desires, hopes, fears, pains, tastes, noticings, itches and so forth. Mental states are characterized by their phenomenal properties - what it is like to have them - and by their “content”. The term “content” is widely used, and often in different ways, but, roughly, the mental content of a state is what that state is about. So the content of a pain state would include all the judgements which you make about that pain, i.e. where it is, how it compares with other pains, whether it is throbbing etc. The content of your belief that your pet armadillo is missing, is the proposition that your pet armadillo is missing. Contents can always be specified by propositions - or statements of how the world might be - whereas, of course, the way mental states feel can never be so expressed. Basically anything which you can fit into a proposition is part of the content, and anything you cannot is a phenomenal property. When a mental state is neatly divided into its content component and its phenomenal component, the phenomenal component is called a “quale”, or raw feel. Raw feels are known collectively as “qualia”.

It is quite a popular view that solving the problem of content is a lot easier than solving the problem of qualia. Cognitive scientists, as well as mental philosophers, feel that work on content is progressing, and that there are no monolithic blocks to future progress.³ But very often the consciousness aspect of mental experiences is taken to be completely independent of the content aspect. I want to argue that this is not so, that you need have pretty sophisticated mental contents if any of your mental states are to be conscious. If my argument succeeds the upshot will be that creatures with a simple behavioural repertoire, creatures to which we could not make sophisticated attributions of content, just could not be conscious. And that, in part, shows that the phenomenal character of mental states does not come for free on account of the type of nervous system you have. No special privileges should be granted to creatures with, say, a biological nervous system as opposed to one of the artificial silicon kind, if they do not even meet the minimal standards of sophistication. I suggest that phenomenal character has to be earned through the functions that your nervous system provides.

³ This comment will rightly outrage many for, certainly, there is little agreement in the field. For an explicit expression of the sentiment see Humphrey (1992). For some contrasting views amongst those who are concerned with the project of naturalizing content see Dennett (1987), Dretske (1988), Fodor (1987), Millikan (1984), McGinn (1989) and Churchland (1989).

So what is the minimal content ascription that is required in order to say that a creature has, say, a painful mental state? I start with what I hope is not too contentious a claim. That is to say that to have any sensation or feeling at all it is necessary that you can have a contrasting sensation or feeling. Recently the flavour of this point was put to me very forcefully, and delightfully, by a passage from Melville. Ishmael tells us:

We felt very nice and snug, the more so since it was so chilly out of doors; indeed out of bedclothes too, seeing that there was no fire in the room. The more so, I say, because truly to enjoy bodily warmth, some small part of you must be cold, for there is no quality in this world that is not what it is merely by contrast. Nothing exists in itself. If you flatter yourself that you are all over comfortable, and have been so a long time, then you cannot be said to be comfortable any more. But if ... the tip of your nose or the crown of your head be slightly chilled, why then, indeed, in general consciousness you feel most delightfully and unmistakably warm. (Herman Melville, *Moby Dick*, 1851: 51)

So to be able to have a pain, I claim, you must also be able to have an absence of pain, or at least a difference in degree of pain. Now certain rather unsophisticated cognizers, say molluscs, may fulfil the basic requirement for having a range of discriminative states. They may have a range of different states, some of which strongly activate avoidance behaviour, and others which weakly activate it. But does the mollusc experience pain?

The sophisticated mollusc, who can remember five minutes ago and last week, is able to recall previous occasions when she, Freda Mollusc, was in pain, and occasions when she was not. But the more ordinary mollusc, call him Joe, may not be up to this sort of thing. Joe Mollusc does not know who he is, let alone what he was doing five minutes ago. He cannot represent such things to himself. So, if someone claims that Joe is in pain, what is being ascribed to him is clearly very different from what would be ascribed to Freda in similar (outward) circumstances - and of course different again to what would be ascribed to a person. (Freda does not just run away from painful stimuli, she thinks, "Oh no, not again!") If Joe Mollusc lives in a continuous present⁴ - as we are told goldfish do - can he undergo mental events with a content sufficiently close to our notion, or even Freda's notion, for us to call it pain?

What I am suggesting then, and what I take to be contentious, is that a concept of pain, or any concept of sensation, requires some temporal understanding. If you cannot conceive of an

⁴ I'm fudging a bit here. Actually I don't think Joe lives "in" a present at all. If Joe's putative inner life is atemporal, then his inner life is no kind of inner life at all.

absence of some stimuli as you are undergoing that stimuli then in what sense can you be said to be aware of that stimuli? And it is no answer to say that you are “aware” of it in that its presence causes a change in your behaviour - that is merely a reflection of the fact that the state is a discriminative one, and in no way indicative of it being a conscious state. Without some kind of “temporal understanding” to conceptualize it you do not have the capacity to discriminate the potential sensation (the discriminative state) “as” a sensation. Without that conceptual capacity it is just a driving state, part of your internal mechanism, and not part of your state of mind.⁵

This is the shape of the argument, but a more evenly paced working should help shows its impact. But first another relevant quote, this time from William James:

[Even] into our awareness of the thunder the awareness of the previous silence creeps and continues; for what we hear when the thunder crashes is not thunder pure, but thunder-breaking-upon-silence and contrasting with it... The thunder itself we believe to abolish and exclude the silence; but the feeling of the thunder is also the feeling of the silence as just gone; and it would be difficult to find in the actual concrete occurrence of a man a feeling so limited to the present as not have an inkling of anything that went before. (1892: 174)

Let me re-iterate the point about the importance of discriminatory capacity as far as content ascription is concerned. It is a simple point about caution. When we see some creature behaving in a sensible way, apparently responding to the particular features of its environment in an intelligent manner, we are often inclined to think it knows rather more about the world than in fact it does. Take the following example, adapted for my purposes from Dennett (1992), of a creature who sees something cross the sky. A person might be able to judge, as well as remark, that a bird, or a whole flock, has passed by. But a more limited cognizer can at best judge that the sky has gone all “birdish” for a while. Both the human and the myope have thoughts about the same event, viz. the sky crossing. Their mental states both refer to the same state of affairs in the world. But in the case of consciousness we are not talking about reference

⁵ Lots of issues are lurking here. See for example Evans (1982) section 6.3 and Hornsby’s (1992) comments on those passages. Also of interest is the idea of multiple consumers of representations put forward by Millikan (1989). (If you can only do one thing with your discriminative state (e.g. act) then you cannot be aware of it.)

(what your thoughts are about), but sense (the way in which your thoughts present themselves to you).⁶

That the contents of a stream of consciousness are limited by a creature's discriminatory ability is fairly obvious. If a mollusc were conscious it would have a very impoverished conscious life - nothing like the rich panorama of sights, tastes and sounds which make up our world view. And even creatures with better sensory equipment may not have the cognitive sophistication to break the world up into objects and spaces and so, if they see anything at all, it is not merely a black and white version of human experience, but a great deal thinner still.⁷

But this kind of argument is not enough of itself to show that the mollusc cannot be a conscious creature of however meagre an outlook. After all people who are short sighted can only judge, without inference, that the sky has gone "all birdish". But that they are conscious is not affected by whether or not they are wearing their glasses. However, if we run the same kind of argument again, only this time looking at the temporal aspects of experiences and discrimination, then I may be able to establish my conclusion. I want to maintain that consciousness requires making discriminations across time. To have conscious experiences at all you must be able to distinguish between what is happening to you now from what has happened to you in the past (and what might happen in the future.) And I think this is so because unless you can discriminate between your state now and your state at some other point in time then you cannot be said to have experiences "in time". It may be suggested that it is not necessary to have experiences "in time" to have conscious experiences. But would not such a manoeuvre water down the notion of consciousness beyond good sense?

To attribute the content "I am in pain" to an agent we must be prepared to attribute the content "I am aware that I am in pain" too. And the second attribution entails more conceptual sophistication than the surface form of the first might imply. To make sense of the "I am aware that I am in pain" attribution it seems to me that you must attribute some temporal conception to

⁶ This point needs some immediate qualification if it is not to be confused. Of course we can see the jaggedness of a mountain range, even if we cannot describe it all that well in words. But our consciousness does not outstrip our conceptual powers (or, at worst, our non-conceptual powers). We can trace the jaggedness of the range out with our finger. (See Peacocke, 1992.) So I hold (something like) the following: there is nothing in consciousness that can't be put to work in behaviour.

⁷ See Akins (1993a, 1993b) for some interesting suggestions about the nature of bat experiences. In general I suspect that creatures which don't objectify reality will not have any conscious experiences.

the cognizer. So the attribution can be expanded: “I am aware that I am in pain now, as opposed to some time in the past or some time in the future.” (For the moment I want to leave the analysis of the “I” in these attributions. Just assume a very thin notion of “I” for now, though I shall say a lot more about this later.)

So a seemingly innocent, and simple, attribution of a mental state, “pain”, turns out to require a good deal more conceptual sophistication than at first sight. Note, however, that this sophistication is required because we are trying to attribute a conscious mental state. It would not be called upon if we merely wanted to say of some creature that it was detecting potential tissue damage on its right flank.

One final note in this section. I do not want to suggest that my condition is that a creature be able to utter something to itself along the lines “I am aware that I am in pain and ...” But I do want to attribute to the creature a belief with that content. For technically minded what I think I want to say is something like this: the referential content of the occurrent mental event (which is to be identified with the pain) must have this content. The form of the mode of presentation might be rather simpler.

3. Subjects and Sensations

“Well! I’ve often seen a cat without a grin,” thought Alice, “but a grin without a cat! It’s the most curious thing I ever saw in all my life!” (Lewis Carroll, *Alice’s Adventures in Wonderland*, 1865)

Sensational Luminescence

In this bridging section I want to corral some of the points already made in order to diagnose an all too common mistake in the consciousness literature. Authors such as Churchland (1989) argue that conscious states (states with “qualia”) are identical to sub-states of the brain.⁸ If only you probe someone’s neurophysiology carefully enough, he argues, you will reveal the neural patterns which fire when the person is exposed to different colours. You will be able to build up a picture of a mapping between neural patterns and colours. And when you do find a part of a neural structure the changing signal properties of which match your colour space (the range of colours you can discriminate) then you have found your qualia.

⁸ This approach is endorsed by Flanagan, 1992 and argued for in psychophysical, but sadly not philosophical, detail by Clark, 1993.

But something has gone seriously wrong here. In fact I feel as though a Cheshire cat trick has been pulled.

“Well! I’ve often come across a subject without a sensation,” thought Matthew, “but a sensation without a subject! It’s the most curious notion I ever came across in all my life.” (Matthew Elton, *Human and Animal Consciousness*, 1993)

Churchland’s position concentrates on the state (the wretched qualia) at the expense of the subject. But the idea that a brain state can phenomenally luminesce, thus giving rise to consciousness, more or less independently of the complexity of the agent which the nervous system realizes, is severely under motivated. Churchland has made the mistake of failing to distinguish discriminative states - which the neural states he hopes to discover undoubtedly are - and states of awareness.

Many qualia fans support Churchland because he takes a very realist stance. And those same fans eschew Dennett (1988, 1991) for his apparent denial of qualia. But what Dennett is concerned to deny is that a discriminative state of a brain be identified with a conscious state of a person. To illustrate the point here is an argument taken from Dennett’s landmark article, “Quining Qualia”.

Imagine a pair of coffee tasters: Mr. Chase and Mr. Sanborn. Both coffee tasters find themselves dissatisfied with the taste of the coffee which they used to enjoy, but offer different reasons. Chase maintains that the coffee tastes the same to him as it always did, but he now responds to that same taste in a different way. His qualia have remained constant while his judgements have changed. Sanborn, on the other hand, maintains that he still likes the taste the coffee used to have for him, but his taste buds have changed such that now the coffee tastes different to him. His qualia have changed but his judgements have remained the same.

But nothing in introspection can be used to tell these two hypotheses apart. The coherence of the two stories rests on making a scientific distinction between the sensation state (qualia) and the response (the apprehension of the qualia). And it is the drawing of this line to which Dennett quite rightly objects. For what could there be at the dividing line - what could it be that lay on the judging side of the line? Could it be anything other than a conscious agent, a Cartesian Self? If that is the conclusion then we have yet to even begin to explain consciousness - we have just shifted the problem back one stage, and probably made it rather harder for ourselves.

Note that the point here is very much philosophical. Dennett is prepared to concede that neurophysiology might turn up some interesting features which superficially correspond to discrimination states. But such states would not be qualia.

[Physiologists] may have their reasons for preferring [Chase's interpretation over Sanborn's] or vice versa, for they may have appropriated the term "qualia" to their own theoretical ends, to denote some family of detectable properties that strike them as playing an important role in their neurophysiological theory of perceptual recognition and memory. (Dennett, 1988: 531-532)

Dennett is fascinated at the prospect of such neurophysiological discovery, but is quite sure it will not tell you what qualia are, because qualia are not that kind of thing. It is no good relying on some inner observer to mystically animate mere discriminative states. What we need to do is to concentrate on the whole notion of a subject and try and work out what that is. Stressing states of experience over the subjects of experience leads us down a blind alley.

The Story Telling Subject

By now you might have some idea what I think is required for a subject. A subject must have beliefs (of some sort or another) about the past as well as the present, and general beliefs linking them. (See Bennett, 1976, chapter four, for more on this.) So to experience pain there must be some sense in which it is true that a creature believes this is something it has had before (if not identical in detail) and something which will not always be present. And these beliefs must be present to a creature at a time. The idea in play is something like William James' "specious present".

[The content of the specious present] is in constant flux, events dawning into its forward end as fast as they fade out of its rearward one, and each of them changing its time-coefficient from "not yet," or "not quite yet," to "just gone," or "gone," as it passes by. Meanwhile the specious present, the intuited duration, stands permanent, like the rainbow on the waterfall, with its own quality unchanged by the events that stream through it... (James, 1892: 291-292 - italics dropped)

The "specious present" is the result of the operation of a basic "narrative spinner". And, I shall be trying to claim, it is the results of various kinds of "narrative spinners" which make up consciousness. We are used to using the idea of narrative in relation to stories told by humans to humans. But the notion is broader than that. Here the idea of narrative that I want to employ is a narrative forged by successive belief states. Though it is arguable (Davidson, 1982), I will for present purposes claim that it does make sense to attribute beliefs to creatures without

language, and so a creature without language could be possessed of a specious present. Having a specious present is most definitely a necessary condition for consciousness, but other additional necessary conditions may be discoverable. This is what I shall go on to explore in the next section.

4. People

Pain and Biology

I have offered a flavour of the line I want to take on conscious experience and I now want to shift the emphasis away from animals and towards people. As has been remarked it is natural to think of human and animal pain as being fundamentally the same. Sometimes we are inclined to say that being in acute pain is a most forceful reminder that, at root, we are animals along with the rest of nature's brood. But, whilst we may share much in the way of behavioural responses with other creatures, I want to claim that pain - that is what we feel when we stub our toes and worse - is not biologically basic at all (although our usual behavioural response may be basic). I want to say that you can only feel pain (or sense colours, or taste flavours) if, almost paradoxically, you can get some intellectual distance between yourself and the states of your body. If you can have fairly sophisticated beliefs about states of your body, the world, the past and the future.

Although, like a creature lacking consciousness, conscious creatures are most of the time driven fairly directly by their discrimination states, i.e. they do withdraw their hands from the heat of the fire, they are not restricted to this. Conscious creatures can, to adopt a phrase of Campbell's (1993), "go beyond their immediate engagement with the world" - they are more than creatures of the now and the particular. And it is on account of this that they come to have phenomenal experience. That is on account of telling themselves some kind of story of how it is with them now and around about the time now.

The important aim of this kind of account, and the aim which has motivated much of what has led us here, is to drive a wedge between what one might call "raw physiology" and "conscious sensations". A very natural position for the friend of qualia, and consciousness in general, to occupy is, roughly speaking, to identify qualia with (discriminatory) sub-states of the brain. We have already seen Churchland take up something like this, and he is by no means alone. I think this sort of view is at the root of Searle's (1992) position on consciousness. The natural position supposes the feel of conscious experience to be the result of something such as a natural physiological kind - certain chemical or quantum mechanical transitions in nervous systems are thought to somehow animate the merely functional states realized by its formal

properties. But such an account opens the way for creatures with little in the way of cognitive sophistication acquiring consciousness. With the mollusc argument I have tried to question the coherence of such a position.

I now want to drive the wedge from the opposite direction, by considering some interesting phenomena of consciousness in human beings. If conscious sensation were identical with some kind of physical phenomena, such as the firing of the much mythologized C-fibres, then certain consequences would tend to follow for the unity of mind, and conscious experience. If the narrative account were closer to the mark, then the consequences would be rather different. For example it would follow that it would not be impossible for a conscious creature to hallucinate pain, i.e. to report (or express) pain (however this is normally achieved) without being in any of the (primitive) neurophysiological states which are usually correlated with pain. Moreover it would not be impossible for it not to feel pain, to fail to take note of its pain, even if the (primitive) neurophysiological correlates were present, even if major tissue damage were being inflicted. And more generally if the story were true then it would be logically possible, though not necessarily so, that more than one experiential narrative could be spun by any given brain at a time.

So the story would make many things not impossible. But of course disunity phenomena are not merely not impossible they are actual and widespread. In the next sub-section I shall provide a whistle-stop tour of some of the more interesting disunity phenomena revealed by psychologists.

Unity and Disunity

Hypnotic analgesia has probably been known about, in one form or another, for many centuries, but it is only in the last 150 years that this, and other hypnotic phenomena, have been scientifically studied with any rigour. (See Bowers (1976) and Hilgard (1986) for detailed reviews.) Scepticism still abounds, but the phenomena is real and has been studied extensively in laboratory conditions. For any sceptics a quote from James Esdaile provides a spirited antidote. Esdaile was an English surgeon who practised surgery in India between 1845 and 1851 using hypnotic techniques to anaesthetize his patients. He gained considerable “word of mouth” success and wondered how to account for it:

[Either my patients] say to their friends similarly afflicted, “Wah! brother, what a soft man the doctor Sahib is! He cut me to pieces for twenty minutes, and I made him believe that I did not feel it. Isn’t it a capital joke? Do go and play him the same trick; you only have to laugh in your elbow and you will not feel the pain.” Or they say to their brother

sufferers, - “look at me; I have got rid of my burthen (of 20, 30, 40, 50, 60 or 80 lbs., as it may be), am restored to the use of my body, and can again work for my bread: this, I assure you, the doctor Sahib did when I was asleep, and I knew nothing about it; - you will be equally lucky, I dare say; and I advise you to go try...” (Esdaile, 1850)

I find it startling that through merely psychological means pain can be so effectively suppressed. Hypnosis can also induce phenomenal deafness and blindness; the effects of which subjects may find alarming.

But hypnosis research begun in the 1970s by Hilgard (1986) and his colleagues paints an even stranger picture. In a class demonstration of hypnotic deafness Hilgard asked the subject if there was some part of his mind that could in fact hear. The subject, who failed to respond to a whole host of sounds around him, including those loud and sudden, was asked to waggle his finger if there was some part of him that could hear - and waggle his finger he did. This discovery led to a great deal of research into what Hilgard dubbed the “hidden observer” phenomenon. It appears that as well as the stream of consciousness the hypnotised subject experiences, another agent, or some aspect of the same agent, may be questioned and probed about another stream of consciousness.

Hilgard was already familiar with the phenomena of automatic writing. This is where a person can write a coherent text without any awareness of their so doing so.⁹ It was with this ability in mind that Hilgard devised a series of experiments along the following lines. Subjects were hypnotized and told they would not feel pain. Standard pain tests (which involve holding the arm in ice cold water) were then applied with the usual results that the subjects could cheerfully withstand stimuli that in normal conditions would be unbearable. But what the person reported verbally, was quite different from reports made by automatic writing. The unbidden hand reported approximately normal levels of pain. The experiment seems to suggest that the subject was both in pain and not in pain at the same time.

If pain is a brute physiological sub-state of brains then we have to start on a trail of tortuous interpretations of such data. But if you think consciousness is the result of some narrative spinning, and if you think that more than one narrative can - in exceptional circumstances - be

⁹ This phenomenon is the source of much that was exciting in Victorian spiritualism, and a variation on the phenomenon accounts for the bizarre events which take place with the use of a Ouija board. When participating subjects deny they have consciously tried to influence their writing hand, or the Ouija glass, they may be quite sincere.

spun at a time, then interpretation becomes much more straightforward. Is there any more evidence that might support the story? I think there is. From abnormal psychology we have the startling phenomenon of multiple personality disorder (Wilkes, 1988; Hilgard, 1986; Humphrey and Dennett, 1989). This is a condition where several distinct personalities appear to share occupancy of a single body. Of all the dissociative phenomena reported in the literature multiple personality disorder is the most extreme and the most fascinating. And as with the analgesia case multiple personality disorder questions the idea of identifying conscious sensations with states of the body. A feature of multiple personality is that some personalities have apparent access to the experience and memories of others, but this relationship need not be reciprocal. So personality A may be suffering, and personality B may be aware of it, though not find it bothersome, while personality C is not aware of it at all.¹⁰

However we do not need to turn to as extreme a phenomenon as multiple personality disorder to find disunity puzzles. Consider the much discussed phenomena of apparently non-conscious driving. Many people have experienced the phenomenon of arriving at their destination and suddenly realizing that they have no recollection of the journey. Carruthers (1992, 1989 and elsewhere) interprets this as evidence that some experiences are non-conscious, and roundly rejects the notion that one might simply have forgotten the genuinely conscious experiences which took place during the drive. But his claim is surely under motivated. If your driving performance is identical whether or not you can remember it afterwards, is there a good reason to think that the processes involved were different from occasions where later recall is possible? I think not, and especially given the features of Carruthers' favoured example, in which the driver intelligently steers around unexpected obstacles on the road. My interpretation is that, during such driving incidents, much the same sort of mental processes take place as when recalled (and hence unambiguously experienced) driving occurs. The difference between the cases is that in one the driving activity becomes integrated into the stream of consciousness - it is bound into the autobiographical narrative - and in the other this binding does not occur. Just as in the case of analgesic pain bodily events which would normally bound into the autobiographical narrative do not register - though they may be captured by a secondary narrative. Such additional narrative streams are likely to be temporary - they can be called into existence by hypnosis - but occasionally, as with multiple personality disorder, more than one narrative thread gains a long term autobiographical character.

¹⁰ Tony Marcel (in conversation) describes some locally anaesthetized gynaecological patients who speak of pains which do not bother them. Sometimes, in such cases, a patient uses a phrase such as "it hurts her" rather than "it hurts me".

Dennett, in his recent work (1991, Dennett and Kinsbourne, 1992), has done much to reject the view that the criteria for conscious experience can be conceptually separated from the criteria for the recollection of conscious experience. And the view here follows that line. Conscious experiences arise from narratives which may, but need not be, closely co-temporaneous with the experiences of which they tell. The real test of whether or not you experience something depends on whether that event forms part of your internal autobiography. If you do not tell yourself that you experienced it, then, so Dennett argues, you did not - there is no further question to be asked. Though at times I find this position difficult to accept, on the whole I find the argument persuasive and what I have said here broadly endorses this aspect of Dennett's position.

So, I have tried to show in rough outline what I think really matters for consciousness. I have said of human consciousness that the having of the experience is very much a matter of whether the experience forms part of a sustaining narrative. Most of our pains, tickles, itches, seeings and hearings do form part of just such a narrative. We are usually very much aware of our environment, the world and the states of our body. Our pains hurt because we tell ourselves that this is so. And if we can avoid telling ourselves this, as when under hypnotic suggestion of analgesia, then our pains do not hurt.

Anaesthesia

There is a controversy in anaesthesia about the use of certain agents (Kulli and Koch, 1991). Modern anaesthetics consists of a cocktail of different chemical components. Included are muscle relaxants, analgesic and amnesia inducing drugs. Anaesthetists always try and administer the minimum possible dose and in some cases this can mean that too little analgesic and too little amnesic is given. The nightmare result is that a patient is fully conscious, though totally unable to move, during the operation. We find out about these cases readily enough. But more alarming are experiments in which post-operative hypnosis has been used to probe the patient's past more thoroughly. What if the amnesic component of the cocktail is effective, but the analgesic fails? Here we might want to say that the subject has experienced the pain but forgotten it. Now I am saying that sometimes this means that the subject just has not experienced the pain - for the subject is not the same as her body, nor is her autobiography the history of discriminative responses her brain has made. From the point of view of consciousness the subject is whom she thinks she is - she is how she takes her autobiography to be. But, as hypnosis and the art of psychoanalysis have shown, non-integrated experiences can become re-integrated into a person's self-avowed narrative thread. And, more significantly, half way integrated experiences can cause a great deal of trouble.

But now my view begins to look too liberal. Surely there is some temporally local fact about my states of consciousness. If I forget my drive later in the day and just cannot recall it however hard I try, does that somehow cast my conscious experience into doubt. Dennett's persuasive arguments concerning the indeterminacy of consciousness all seem to involve a short time frame, more usually fractions of a second, rather than minutes or hours. Although I have rejected the Churchland-Searle realist type approach to what makes experiences conscious, the account now offered looks too unreal - relying on relations across time which seem inappropriate.

5. Bringing It All Together

Kinds of Consciousness

How can I resolve the tension between my attraction to the indeterminacy espoused by Dennett and the determinedly realist intuitions which I find hard to shake off? My tentative solution here is to make a distinction between phenomenal consciousness of the "specious present" - what I call "conscious occurrences" - and a wider notion, involving personal identity, which I call "agent consciousness". (See Elton, 1993). A conscious occurrence is simply an occurrent mental event with phenomenal character. I suggest that a necessary (if not a sufficient) condition for this is the local scale narrative spinning I assigned to Freda mollusc. I want to claim, though I present little in the way of argument for this claim here, that such local scale narrative spinning, or the informational properties thereof, are the functional processes which give rise to phenomenal experience. (Or, if you prefer, the physical processes which realize those functional processes give rise to the phenomenal experience.) But merely to have conscious occurrences going on is insufficient for us to talk of pain, at least in the usual sense. For we cannot talk of pain without a subject of a pain, and the local scale narrative only gives us a local scale subject. Freda is equipped with a local scale narrative spinner which is enough for some phenomenology. But who feels the pain? We might want to say Freda does, but all we are entitled to say is that a particular body is the locus of a succession of pain states. Freda's body houses a succession of short lived subjects, none of whom are bound to one another through memory (looking back) or intention (looking forward). What Freda lacks is "agent consciousness" - a narrative spinning process on a larger scale. To be agent conscious you need a well developed sense of self, you need some awareness of your own history and a capacity to form intentions concerning your future. This, of course, is the kind of consciousness that is characteristic of humans.

[In] our waking hours, though each pulse of consciousness dies away and is replaced by another, yet that other, among the things it knows, knows its predecessor, and [says to

it]: “Thou art mine, and part of the same self with me.” Each later thought, knowing and including thus the thoughts that went before, is the final receptacle ... of all that they contain and own...

It is impossible to discover any ... features in personal identity which this sketch does not contain, impossible to imagine how any [other scheme could give] any other result ... than just this production of a stream of consciousness each successive part of which should know, and knowing, hug to itself and adopt, all those that went before, - thus standing as the representative of an entire past stream with which it is in no wise to be identified. (William James, 1892: 215-216 - my italics)

If some creature has agent consciousness - a conscious history partly made up of conscious occurrences - then there is no doubt she feels her pains and savours her food. And there is no doubt that her pain must be taken into account when considering ethical questions, such as whether she suffers. But what if a creature had no agent consciousness, but only conscious occurrences? We might think this was true of the famous patient H.M. (Ellis and Young, 1988) whose ability to lay down new memories was tragically destroyed as a result of a vital brain operation. H.M. cannot remember what you said to him a few minutes ago, nor even recognize you. So if he suffered yesterday he will not know it now. Does that mean we should not take regard of his suffering? Present to H.M.’s mind, in his specious present, is the whole of his life up to the point of his operation. Thus when he suffers pain it is against the backdrop of a whole life, and hence, I think we should treat his pain as we treat the pain of ordinary human beings. (When injured H.M. thinks, “Oh no! Not more pain, hasn’t my life been wretched enough already.”) H.M. is locked into a continuous present, but he does have a past. But if H.M. had neither past nor present, if he just had a short span of specious consciousness, should we then consider him as suffering when he has a painful conscious occurrence?

And what now of animals? Many animals share much of our neurophysiology, especially the higher primates. And these animals are capable of very many sensory discriminations. But are they also narrative spinners, and hence, on my view, possessed of consciousness? That is to say do they, by means of telling themselves their own story, have awareness of their sensory discriminations? Dennett (1991), though he fudges somewhat in his book, seems to have argued himself into a position where he has to say no. For him the narrative spinning is all done by means of language and language is acquired through complex cultural learning. Animals do not have the kind of language with which Dennett, and much of philosophy, finds himself concerned.

While I buy into the narrative style account it does not seem at all clear that my self-avowal of the painfulness of my experiences, of their colourful nature, comes down to a linguistic judgement. It is a judgement all right - it has propositional content. But judgements with propositional content do not need to be linguistic in form. So, just as I experience colours, tastes, sights, sounds and pains, I see no good reason why higher order mammals should not.

Where I do find Dennett's stress on language convincing, however, is in the area of agent consciousness. So what I would like to suggest is that many animals do have the capacity to have "conscious occurrences" but to cast doubt on their having the capacity for "agent consciousness". It seems much more plausible to say you couldn't have that kind of consciousness without language. So, in effect, I wonder if many animals have a sense of personal identity. A well developed notion of self, a self with a history and a future, and thus a narrative told with tensed language, requires considerable narrative sophistication. Wittgenstein cheerfully ascribes to a dog the belief that his master is at the door, but doubts that the dog could believe that his master will come the day after tomorrow (1953, p. 174). There is a lot of interesting empirical work in this area - such as Gallup's (1982) experiments with mirrors and primates. That some primates can recognize themselves in mirrors, is taken as positive evidence for a fairly well developed self-concept. But, of course, accurately assessing the beliefs of non-language users is very difficult.

Promises Fulfilled

Before I close I want to fulfil a promise I made earlier. This account of consciousness is built on an account of content. It holds that a necessary, if not sufficient, condition of consciousness is the having of mental states with a certain degree of sophistication in terms of their content. And so, if we can determine the content of animal mental states, we can go some way to determining if they meet some of the necessary conditions for consciousness. And so my argument circumnavigates the seemingly impossible problem of checking for consciousness directly, something we cannot do with people or animals. Of course determining the content of the mental states of animals is not a straightforward task. Indeed rowing over how to do this for people is a popular philosophical sport. But it is a task which looks as though it might be tractable.¹¹

¹¹ In the animals case Jonathan Bennett (1976, 1964) has a very good go, and Dennett (1983) makes an interesting contribution. See also Davidson (1982) for a bit of scepticism about animal belief. If Davidson is right about animals and beliefs then, on my account, no animal has agent consciousness.

Note now how the structure of my account to some degree addresses the problem I raised with the Leibniz quote back at the start of the talk. My necessary criteria for consciousness are not determined by looking at the insides or by checking internal structures. Or at least they are determined by such only in as much as those considerations bear on how we attribute content. I like to think there is a good story to be told relating internal working to content, but if you disagree then my argument should still go through.

Conclusions

Most of my paper has been concerned with an analysis of the some necessary conditions for consciousness. But I now return to the guiding theme of animal suffering. Let us suppose we were rather better than we are today at attributing content to animals. Perhaps we might have grown more confident with our theory of content. Perhaps ethological evidence might have grown much richer, and might even have been supplemented in some philosophically and theoretically acceptable way by evidence concerning the make up of the nervous system. And suppose that the result of all this was that some animals have neither conscious occurrences nor agent consciousness; some animals have conscious occurrences alone, and some, like humans, have both.

Clearly I think molluscs will fall into the first category. They have no sense of time, and they know not who they are. When they run from damaging stimuli they feel no pain and they do not suffer. Animals who have both, and perhaps some of the primates do, and perhaps also horses, dogs and cats, clearly suffer on the same grounds that people suffer. But what of animals who have conscious occurrences, but not agent consciousness? This might be the majority of non-human animals, and I think would quite likely include your pet armadillo. Do such creatures suffer? I would say not, because I would say there is no sustained subject of suffering - just isolated moments of meaningless consciousness. I can't be sure - though I do not see that there is an insurmountable block to my finding out - exactly which creatures fall into which categories. But I am quite sure that far fewer animals have agent consciousness than raw intuition suggests . And hence, I think far fewer animals than we might casually assume, have the kind of consciousness about which we really ought to care.

Acknowledgements

A version of this paper was read to the Sussex University Philosophy Society. Thanks to my audience on that occasion for their probing questions. Thanks also to Andy Clark and Christoph Hoerl for helpful comments on earlier versions of this paper and for discussion of many of the issues herein.

References

- Akins, K. A. (1993a) A Bat Without Qualities in: M. Davies and G. W. Humphreys (Eds) Consciousness: A Mind and Language Reader (Oxford, Blackwell)
- Akins, K. A. (1993b) What's it like to be boring and myopic in: (forthcoming) Dennett and his Critics (Oxford, Blackwell)
- Bennett, Jonathan (1964) Rationality (Indianapolis, Hackett)
- Bennett, Jonathan (1976) Linguistic Behaviour (Cambridge, Cambridge University Press)
- Bowers, K. S. (1976) Hypnosis for the Seriously Curious (California, Wadsworth)
- Campbell, J. (1993) Spatial Representation talk at British Academy Symposium on the Philosophy of Mind, March 13th, 1993
- Carruthers, P. (1989) Brute Experiences, Journal of Philosophy, 86, pp. 258-269
- Carruthers, Peter (1992) The Animals Issue: Moral Theory in Practice (Cambridge, Cambridge University Press)
- Churchland, Paul (1989) A Neurocomputational Perspective (Cambridge MA, MIT Press)
- Clark, Austen (1993) Sensory Qualities (Oxford, Clarendon)
- Davidson, Donald (1982) Rational Animals, Dialectica , 36, pp. 318-327
- Dennett, D. C. & Kinsbourne, M. (1992) Time and The Observer, Behavioural and Brain Sciences, 15, pp. 183-247
- Dennett, D. C. (1983), Intentional Systems in Cognitive Ethology: The "Panglossian Paradigm" Defended, Behavioural and Brain Sciences, 6, pp. 343-390; reprinted Dennett (1987)
- Dennett, D. C. (1987) The Intentional Stance (Cambridge MA, MIT Press)
- Dennett, D. C. (1988) Quining Qualia in: A. Marcel and E. Bisiach (Eds) Consciousness and Contemporary Science (Oxford, Oxford University Press)
- Dennett, D. C. (1991) Consciousness Explained (Boston: Little, Brown and Company)
- Dretske, F. (1988) Explaining Behaviour: Reasons in a World of Causes (Cambridge MA, MIT Press)
- Ellis, A. W. and Young A. W. (1988) Human Cognitive Neuropsychology (Hove, Laurence Erlbaum)
- Elton, M. (1993) Conscious Realism, manuscript, School of Cognitive and Computing Sciences, University of Sussex
- Esdaile, James (1850) Mesmerism in India, republished 1957 as Hypnosis in medicine and surgery (New York, Julian Press)
- Evans, G. (1982) The Varieties of Reference (Oxford, Clarendon)

- Flanagan, O. (1992) Consciousness Reconsidered (Cambridge MA, MIT Press)
- Fodor, J. A. (1987) Psychosemantics (Cambridge MA, MIT Press)
- Gallup, G. G. (1982) Self-Awareness and the Emergence of Mind in Primates, American Journal of Primatology, 2, pp. 237-248
- Harrison, Peter (1991), Do Animals Feel Pain?, Philosophy, 66, pp 25-
- Hilgard, E. R. (1986) Divided Consciousness, expanded edition (London, John Wiley & Sons)
- Hornsby, J. (1992) Blindsight talk to an Interdisciplinary Symposium on Blindsight, New College, Oxford, 5th November 1992
- Humphrey, N. (1992) A History of the Mind, (London, Chatto and Windus)
- Humphrey, N. and Dennett, D. C. (1989) Speaking for Ourselves: An Assessment of Multiple Personality Disorder, Raritan: A Quarterly Review, IX, 68-98
- Kulli, J. and Koch, C. (1991) Does anaesthesia cause loss of consciousness?, Trends in Neuroscience, 14.1
- Leibniz, G. (1714), The Monadology
- McGinn, C. (1989) Mental Content (Oxford, Blackwell)
- McGinn, C. (1991) The Problem of Consciousness, (Oxford, Oxford University Press)
- Melville, Herman (1851) Moby Dick; or The White Whale (London, Everyman's Library, Dent)
- Millikan, R. G. (1984) Language, Thought and Other Biological Categories (Cambridge MA, MIT Press)
- Millikan, R. G. (1989) Biosemantics, Journal of Philosophy LXXXVI.6, pp. 281-297
- Oakley, D. (1985) Brain and Mind (London, Methuen)
- Peacocke, C. (1992) A Study of Concepts (Cambridge MA, MIT Press)
- Putnam, Hilary (1980), Brains and Behaviour in: N. Block (Ed), Readings in the Philosophy of Psychology, pp. 24-36, (London, Methuen)
- Regan, T. (1983) The Case for Animal Rights (London, Routledge and Kegan Paul)
- Ryle, Gilbert (1949) The Concept of Mind (Harmondsworth, Penguin).
- Searle, John (1992) The Rediscovery of the Mind, (Cambridge MA, MIT Press)
- Singer, Peter (1976) Animal Liberation (London, Cape)
- Walker, Stephen (1983) Animal Thought (London, Routledge and Kegan Paul)
- Wilkes, K. V. (1988) Real People (Oxford, Oxford University Press)
- Wittgenstein, L. (1953) Philosophical Investigations (Oxford, Blackwell)