There is no stream of consciousness

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This paper is published in the *Journal of Consciousness Studies*, Volume 9, number 5-6, which is devoted to the Grand Illusion. See http://www.imprint.co.uk/jcs/, it is reprinted here with permission.

This special issue of JCS is also published as a book "Is the Visual World a Grand Illusion?", Ed. Alva Noë, Imprint Academic, 2002.

This paper is based on a conference presentation at 'Towards a Science of Consciousness 2001, in Skövde, Sweden, 7-11 August 2001. The oral style of the original has largely been retained.

Introduction

What is all this? What is all this stuff around me; this stream of experiences that I seem to be having all the time?

Throughout history there have been people who say it is all illusion. I think they may be right. But if they are right what could this mean? If you just say "It's all an illusion" this gets you nowhere - except that a whole lot of other questions appear. Why should we all be victims of an illusion, instead of seeing things the way they really are? What sort of illusion is it anyway? Why is it like that and not some other way? Is it possible to see through the illusion? And if so what happens next.

These are difficult questions, but if the stream of consciousness is an illusion we should be trying to answer them, rather than more conventional questions about consciousness. I shall explore these questions, though I cannot claim that I will answer them. In doing so I shall rely on two methods. First there are the methods of science; based on theorising and hypothesis testing - on doing experiments to find out how the world works. Second there is disciplined observation - watching experience as it happens to find out how it really seems. This sounds odd. You might say that your own experience is infallible - that if you say it is like this for you then no one can prove you wrong. I only suggest you look a bit more carefully. Perhaps then it won't seem quite the way you thought it did before. I suggest that both these methods are helpful for penetrating the illusion - if illusion it is.

We must be clear what is meant by the word 'illusion'. An illusion is not something that does not exist, like a phantom or phlogiston. Rather, it is something that it is not what it appears to be, like a visual illusion or a mirage. When I say that consciousness is an illusion I do not mean that consciousness does not exist. I mean that consciousness is not what it appears to be. If it seems to be a continuous stream of rich and detailed experiences, happening one after the other to a conscious person, this is the illusion.

What's the problem?

For a drastic solution like 'it's all an illusion' even to be worth considering, there has to be a serious problem. There is. Essentially it is the ancient mind-body problem, which recurs in different guises in different times. Victorian thinkers referred to the gulf between mind and brain as the 'great chasm' or the 'fathomless abyss'. Advances in neuroscience and artificial intelligence have changed the focus of the problem to what Chalmers (1995) calls the 'hard problem' - that is, to explain how subjective experience arises from the objective activity of brain cells.

Many people say that the hard problem does not exist, or that it is a pseudo-problem. I think they fall into two categories - those few who have seen the depths of the problem and come up with some insight into it, and those who just skate over the abyss. The latter group might heed Nagel's advice when he says "Certain forms of perplexity—for example, about freedom, knowledge, and the meaning of life—seem to me to embody more insight than any of the supposed solutions to those problems." (Nagel 1986 p 4).

This perplexity can easily be found. For example, pick up any object - a cup of tea or a pen will do - and just look, smell, and feel its texture. Do you believe there is a real *objective* cup there, with actual tea in it,

made of atoms and molecules? Aren't you also having a private *subjective* experience of the cup and the taste of the tea - the 'what it is like' for you? What is this experience made of? It seems to be something completely different from actual tea and molecules. When the objective world out there and our subjective experiences of it seem to be such different kinds of thing, how can one be caused by, or arise from, or even depend upon, the other?

The intractability and longevity of these problems suggests to me that we are making a fundamental mistake in the way we think about consciousness - perhaps right at the very beginning. So where is the beginning? For William James - whose 1890 Principles of Psychology is deservedly a classic - the beginning is our undeniable experience of the 'stream of consciousness'; that unbroken, ever-changing flow of ideas, perceptions, feelings, and emotions that make up our lives.

In a famous passage he says "Consciousness … does not appear to itself chopped up in bits. … it flows. A 'river' or a 'stream' are the metaphors by which it is most naturally described. In talking of it hereafter, let us call it the stream of thought, of consciousness, or of subjective life." (James, 1890, i, 239). He referred to the stream of consciousness as "... the ultimate fact for psychology." (James 1890, i, p 360).

James took introspection as his starting method, and the stream of consciousness as its object. "Introspective Observation is what we have to rely on first and foremost and always. The word introspection need hardly be defined(it means, of course, the looking into our own minds and reporting what we there discover. Every one agrees that we there discover states of consciousness. ... I regard this belief as the most fundamental of all the postulates of Psychology, and shall discard all curious inquiries about its certainty as too metaphysical for the scope of this book." (1890, i, p 185).

He quotes at length from Mr. Shadworth Hodgson, who says "What I find when I look at my consciousness at all is that what I cannot divest myself of, or not have in consciousness, if I have any consciousness at all, is a sequence of different feelings. I may shut my eyes and keep perfectly still, and try not to contribute anything of my own will; but whether I think or do not think, whether I perceive external things or not, I always have a succession of different feelings. ... Not to have the succession of different feelings is not to be conscious at all." (quoted in James 1890, i, p 230)

James adds "Such a description as this can awaken no possible protest from any one." I am going to protest. I shall challenge two aspects of the traditional stream; first that it has rich and detailed contents, and second that there is one continuous sequence of contents.

But before we go any further it is worth considering how it seems to you. I say this because sometimes people propose novel solutions to difficult problems only to find that everyone else says - 'Oh I knew that all along'. So it is helpful to decide what you do think first. Many people say that it feels something like this. *I feel as though I am somewhere inside my head looking out. I can see and hear and feel and think. The impressions come along in an endless stream; pictures, sounds, feelings, mental images and thoughts appear in my consciousness and then disappear again. This is my 'stream of consciousness' and I am the continuous conscious self who experiences it.*

If this is how it seems to you then you probably also believe that at any given time there have to be contents of your conscious stream - some things that are 'in' your consciousness and others that are not. So, if you ask the question 'what am I conscious of now?' or 'what was I conscious of at time t?' then there has to be an answer. You might like to consider at this point whether you think there does have to be an answer.

For many years now I have been getting my students to ask themselves, as many times as possible every day “Am I conscious now?”. Typically they find the task unexpectedly hard to do; and hard to remember to do. But when they do it, it has some very odd effects. First they often report that they always seem to be conscious when they ask the question but become less and less sure about whether they were conscious a moment before. With more practice they say that asking the question itself makes them more conscious, and that they can extend this consciousness from a few seconds to perhaps a minute or two. What does this say about consciousness the rest of the time?

Just this starting exercise (we go on to various elaborations of it as the course progresses) begins to change many students’ assumptions about their own experience. In particular they become less sure that

there are always contents in their stream of consciousness. How does it seem to you? It is worth deciding at the outset because this is what I am going to deny. I suggest that there is no stream of consciousness. And there is no definite answer to the question 'What am I conscious of now?'. Being conscious is just not like that.

I shall try to explain why, using examples from two senses; vision and hearing.

The Stream of Vision

When we open our eyes and look around it seems as though we are experiencing a rich and ever-changing picture of the world; what I shall call our 'stream of vision'. Probably many of us go further and develop some sort of theory about what is going on - something like this perhaps.

"When we look around the world, unconscious processes in the brain build up a more and more detailed representation of what is out there. Each glance provides a bit more information to add to the picture. This rich mental representation is what we see at any time. As long as we are looking around there is a continuous stream of such pictures. This is our visual experience."

There are at least two threads of theory here. The first is the idea that there is a unified stream of conscious visual impressions to be explained, what Damasio (1999) calls 'the movie-in-the-brain'. The second is the idea that seeing means having internal mental pictures - that the world is represented in our heads. People have thought this way at least for several centuries, perhaps since Leonardo da Vinci first described the eye as a camera obscura and Kepler explained the optics of the eye (Lindberg 1976). Descartes' famous sketches showed how images of the outside world appear in the non-material mind and James, like his Victorian contemporaries, simply assumed that seeing involves creating mental representations. Similarly, conventional cognitive psychology has treated vision as a process of constructing representations.

Perhaps these assumptions seem unremarkable, but they land us in difficulty as soon as we appreciate that much of vision is unconscious. We seem forced to distinguish between conscious and unconscious processing; between representations that are 'in' the stream of consciousness and those that are 'outside' it. Processes seem to start out unconscious and then 'enter consciousness' or 'become conscious'. But if all of them are representations built by the activity of neurons, what is the difference? What makes some into conscious representations and others not.

Almost every theory of consciousness we have confronts this problem and most try to solve it. For example, global workspace (GW) theories (e.g. Baars 1988) explicitly have a functional space, the workspace, which is a serial working memory in which the conscious processing occurs. According to Baars, information in the GW is made available (or displayed, or broadcast) to an unconscious audience in the rest of the brain. The 'difference' is that processing in the GW is conscious and that outside of it is not.

There are many varieties of GWT. In Dennett's (2001) 'fame in the brain' metaphor, as in his previous multiple drafts theory (Dennett 1991 and see below), becoming conscious means contributing to some output or result (fame is the aftermath, not something additional to it). But in many versions of GWT being conscious is equated with being available, or on display, to the rest of the system (e.g. Baars 1988, Dehaene and Naccache 2001). The question remains; the experiences in the stream of consciousness are those that are available to the rest of the system. Why does this availability turn previously unconscious physical processes into subjective experiences?

As several authors have pointed out there seems to be a consensus emerging in favour of GWTs. I believe the consensus is wrong. GWTs are doomed because they try to explain something that does not exist - a stream of conscious experiences emerging from the unconscious processes in the brain.

The same problem pervades the whole enterprise of searching for the neural correlates of consciousness. For example Kanwisher (2001) suggests that the neural correlates of the contents of visual awareness are represented in the ventral pathway - assuming, as do many others, that visual awareness has contents and that those contents are representations. Crick asks “What is the “neural correlate” of visual awareness? Where are these “awareness neurons”—are they in a few places or all over the brain—and do they behave in any special way?” One might think that these are rhetorical questions but he goes on " ...

this knowledge may help us to locate the awareness neurons we are looking for." (Crick 1994, 204). Clearly he, like others, is searching for the neural correlates of that stream of conscious visual experiences. He admits that "... so far we can locate no single region in which the neural activity corresponds exactly to the vivid picture of the world we see in front of our eyes." (Crick 1994, 159). Nevertheless he obviously assumes that there is such a "vivid picture". What if there is not? In this case he, and others, are hunting for something that can never be found.

I suggest that there is no stream of vivid pictures that appear in consciousness. There is no movie-in-the-brain. There is no stream of vision. And if we think there is we are victims of the grand illusion.

Change blindness is the most obvious evidence against the stream of vision. In 1991 Dennett reported unpublished experiments by Grimes who used a laser tracker to detect people's eye movements and then change the picture they were looking at just when they moved their eyes. The changes were so large and obvious that under normal circumstances they could hardly be missed, but when they were made during saccades, the changes went unnoticed. It subsequently turned out that expensive eye trackers are not necessary. I suggested moving the whole picture instead, and this produced the same effects (Blackmore, Brelstaff, Nelson & Troscianko 1995) . Other, even simpler, methods have since been developed, and change blindness has been observed with brief blank flashes between pictures, with image flicker, during cuts in movies or during blinks (Simons 2000).

That the findings are genuinely surprising is confirmed in experiments in which people were asked to predict whether they or others would notice the changes. A large metacognitive error was found - that is, people grossly overestimated their own and others' ability to detect change (Levin, Momen & Drivdahl 2000). James long ago noted something similar; that we fail to notice that we overlook things. “It is true that we may sometimes be tempted to exclaim, when once a lot of hitherto unnoticed details of the object lie before us, “How could we ever have been ignorant of these things and yet have felt the object, or drawn the conclusion, as if it were a *continuum*, a *plenum*? There would have been *gaps*—but we felt no gaps” (p 488).

Change blindness is not confined to artificial laboratory conditions. Simons and Levin (1998) produced a comparable effect in the real world with some clever choreography. In one study an experimenter approached a pedestrian on the campus of Cornell University to ask for directions. While they talked, two men rudely carried a door between them. The first experimenter grabbed the back of the door and the person who had been carrying it let go and took over the conversation. Only half of the pedestrians noticed the substitution. Again, when people are asked whether they think they would detect such a change they are convinced that they would - but they are wrong.

Change blindness could also have serious consequences in ordinary life. For example, O'Regan, Rensink and Clark (1999) showed that dangerous mistakes can be made by drivers or pilots when change blindness is induced by mudsplashes on the windscreen.

Further experiments have shown that attention is required to notice a change. For example there is the related phenomenon of 'inattentional blindness' (Mack & Rock 1998) in which people attending to one item of a display fail to detect the appearance of unexpected new items, even when these are clearly visible or in the centre of the visual field. However, though attention is necessary to detect change, it is not sufficient. Levin and Simons (1997) created short movies in which various objects were changed, some in arbitrary locations and others in the centre of attention. In one case the sole actor in the movie went to answer the phone. There was a cut in which the camera angle changed and a different person picked up the phone. Only a third of the observers detected the change.

What do these results mean? They certainly suggest that from one saccade to the next we do not store nearly as much information as was previously thought. If the information were stored we would surely notice the change. So the 'stream of vision' theory I described at the start has to be false. The richness of our visual world is an illusion (Blackmore *et al* 1995).Yet obviously something is retained otherwise there could be no sense of continuity and we would not even notice if the entire scene changed. Theorists vary in how much, and what sort of, information they claim is retained.

Perhaps the simplest interpretation is given by Simons and Levin (1997). During each visual fixation we experience a rich and detailed visual world. This picture is only detailed in the centre, but it is nevertheless

a rich visual experience. From that we extract the meaning or gist of the scene. Then when we move our eyes the detailed picture is thrown away and a new one substituted, but if the gist remains the same our perceptual system assumes the details are the same and so we do not notice changes. This, they argue, makes sense in the rapidly changing and complex world we live in. We get a phenomenal experience of continuity without too much confusion.

Slightly more radical is Rensink's (2000) view. He suggests that observers never form a complete representation of the world around them - not even during fixations. Rather, perception involves 'virtual representation'; representations of objects are formed one at a time as needed, and they do not accumulate. The impression of more is given because a new object can always be made 'just in time'. In this way an illusion of richness and continuity is created.

Finally, O'Regan (1992) goes even further in demolishing the ordinary view of seeing. He suggests that there is no need for internal representations at all because the world can be used as an external memory, or as its own best model - we can always look again. This interpretation fits with moves towards embodied cognition (e.g. Varela, Thomson and Rosch, 1991) and towards animate vision in artificial intelligence (Clark 1999) in which mind, body and world work together, and sensing is intertwined with acting. It is also related to the sensorimotor theory of perception proposed by O'Regan and Noë (in press). On this view seeing is a way of acting; of exploring the environment. Conscious visual experiences are generated not by building representations but by mastering sensorimotor contingencies. What remains between saccades is not a picture of the world, but the information needed for further exploration. A study by Karn and Hayhoe (2000) confirms that spatial information required to control eye movements is retained across saccades. This kind of theory is dramatically different from existing theories of perception. It entails no representation of the world at all.

It is not yet clear which of these interpretations, if any, is correct but there is no doubt about the basic phenomenon and its main implication. Theories that try to explain the contents of the stream of vision are misguided. There is no stable, rich visual representation in our minds that could be the contents of the stream of consciousness.

Yet it seems there is doesn't it? Well does it? We return here to the problem of the supposed infallibility of our own private experiences. Each of us can glibly say 'Well I know what my experience is like and it is a stream of visual pictures of the world, and nothing you say can take away my experience'. What then do we make of the experiments that suggest that anyone who says this is simply wrong?

I suggest that we all need to look again - and look very hard, with persistence and practice. Experimental scientists tend to eschew personal practice of this kind. Yet I suggest we should encourage it for two reasons. First, we cannot avoid bringing implicit theories to bear on how we view our own experiences and what we say about them. So perhaps we should do this explicitly. As we study theories of consciousness, we can try out the proposals against the way it seems to us. As we do so our own experience changes - I would say deepens. As an example, take theories about change blindness. Many people find the evidence surprising because they are sure that they have rich visual pictures in their mind whenever they are looking at something. If you ask “What am I conscious of now?” again and again, this certainty begins to fall apart, and the change blindness evidence seems less surprising. This must surely help us to become better critics. At the very least it will help us to avoid dismissing theories of consciousness because of false assumptions we make about our own experiences.

The second reason is that this kind of practice can give rise to completely new hypotheses about consciousness. And this in turn can lead to testable predictions and new experiments. If these are derived from a deeper understanding of one's own awareness then they are more likely to be productive than those based on the mistake of believing in the stream of conscious.

Note that what I am proposing here is first person practice - first person discipline - first person methods of inquiry. But the results of all this practice will be words and actions; saying things to oneself and others. This endeavour only becomes science when it is put to use in this way and it is then, of course, third person science.

How does one do it? There have been many methods developed for taking 'the view from within' (Varela and Shear 1999) but I am suggesting something quite simple here. Having learned about the results of the change blindness research we should look hard and persistently at our own visual experiences. Right now

is there a rich picture here in my experience? If there seems to be, something must be wrong, so what is wrong? Look again, and again. After many years of doing this kind of practice, every day, it no longer seems to me that there is a stream of vision, as I described at the start. The research has changed not only my intellectual understanding of vision but the very experience of seeing itself.

The stream of sounds

Listening to what is going on it might seem as though there is a stream of sounds to match the stream of pictures. Suppose we are listening to a conversation, then turn our attention to the music in the background, and then to the conversation again. We may say that at first the conversation was in the conscious stream while the music remained unconscious, then they reversed and so on. If asked 'what sounds were in your stream of consciousness at a particular time?' you might be sure that there definitely was an answer, even if you can't exactly remember what it was. This follows from the idea that there is a stream of consciousness, and sounds must either be in it or not.

Some simple everyday experiences cast doubt on this natural view. To take a much used favourite, imagine you are reading and just as you turn the page you become aware that the clock is striking. You hadn't noticed it before but now you feel as though you were aware of it all along. You can even remember that it has struck four times already and you can now go on counting. What has happened here? Were the first three 'dongs' really outside the stream (unconscious) and have now been pulled out of memory and put in the stream? If so what was happening when the first one struck, while you were still reading? Was the sound out of the stream at the time, but after you turned the page it just felt as though it had been in there all along - with the contents of the previous page - even though it wasn't really? Or have you gone back in time and changed the contents of the stream retrospectively? Or what? You might think up some other elaborations to make sense of it but I don't think any will be very simple or convincing (in the same spirit Dennett (1991) contrasts Orwellian with Stalinesque revisions). The trouble all comes about because of the idea that there is a stream of consciousness and things are either in or out of it.

There are many other examples one could use to show the same thing. For example, in a noisy room full of people talking you may suddenly switch your attention because someone has said "Guess who I saw with Anya the other day - it was Bernard". You prick up your ears - surely not - you think. At this point you seem to have been aware of the whole sentence as it was spoken. But were you really? The fact is that you would never have noticed it at all if she had concluded the sentence with a name that meant nothing to you.

Even simpler than this is the problem with all speech. You need to accumulate a lot of serial information before the meaning of a sentence becomes unambiguous. What was in the stream of consciousness while all this was happening? Was it just meaningless words? Gobbledegook? Did it switch from gobbledegook to words half way through? It doesn't feel like that. It feels as though you listened and heard a meaningful sentence as it went along, but this is impossible.

Or take just one word, or listen to a blackbird trill its song. Only once the trill is complete, the word finished, can you know what it was that you heard. What was in the stream of consciousness before this point? Would it help to go even smaller? to try to break the stream down into its constituent bits? Perhaps there is a stream of raw feels, or indivisible bits of conscious stuff out of which the larger chunks are made. The introspectionists assumed this must be the case and tried - in vain - to find the units. James did a thorough job of disposing of such ideas in 1890, concluding "No one ever had a simple sensation by itself" (James 1890, i, 224) and there have been many objections since. There is no easy way to answer these questions about what really was in the stream of consciousness at a given time. Perhaps the idea of a stream of consciousness is itself the problem.

Of course we should have known all this. Dennett (1991) pointed out much the same using the colour phi phenomenon and the cutaneous rabbit. To produce colour phi a red light is flashed in one place and then a green light flashed a short distance away. Even on the first trial, observers do not see two distinct lights flashing, but one moving light that changes from red to green somewhere in the middle. But how could they have known what colour the light was going to turn into? If we think in terms of the stream of consciousness we are forced to wonder what was in the stream when the light seemed to be in the middle - before the second light came on.

There's something backwards about all this. As though consciousness is somehow trailing along behind or

making things up after the fact. Libet's well-known experiments showed that about half a second of continuous cortical activity is required for consciousness, so consciousness cannot be instant. But we should not conclude that there is a stream of consciousness that runs along half a second behind the real world; this still wouldn't solve the chiming clock problem. Instead I suggest that the problem lies with the whole idea of the stream.

Dennett (1991) formulated this in terms of the Cartesian Theatre - that non-existent place where consciousness happens - where everything comes together and I watch the private show (my stream of experiences) in my own theatre of the mind. He referred to those who believe in the existence of the Cartesian Theatre as Cartesian materialists. Most contemporary consciousness researchers deny being Cartesian materialists. Typically they say that they do not believe that 'everything comes together' at a point in the brain, or even a particular area in the brain. For example, in most GWTs the activity of the GW is widely distributed in the brain. In Edelman and Tononi's (2000) theory the activity of groups of neurons in a widely distributed dynamic core underlies conscious experience.

However, many of these same theorists use phrases that imply a show in the non-existent theatre; such phrases as 'the information in consciousness', 'items enter consciousness', 'representations become conscious', or 'the contents of consciousness'. But consciousness is not a container - whether distributed or not. And, if there is no answer to the question "what is in my consciousness now?" such phrases imply that people are assuming something that does not exist. Of course it is difficult to write clearly about consciousness and people may write this way when they do not really mean to imply a show in a Cartesian Theatre. Nevertheless, we should beware these phrases. If there is an answer to the question 'what is in my consciousness now?' then it makes sense to speak of things 'entering consciousness' and so on. If there is no answer it does not.

How can there not be an answer? How can there not be a stream of consciousness or a show in the theatre of the mind? Baars claims that "all of our unified models of mental functioning today are theater metaphors; it is essentially all we have." (1997, 7) but it is not. It is possible to think about consciousness in other ways - I would say not just possible but necessary.

Dennett's own suggestion is the theory of multiple drafts. Put simply it is this. At any time there are multiple constructions of various sorts going on in the brain - multiple parallel descriptions of what's going on. None of these is 'in' consciousness while others are 'out' of it. Rather, whenever a probe is put in - for example a question asked or a behaviour precipitated - a narrative is created. The rest of the time there are lots of contenders in various stages of revision in different parts of the brain, and no final version. As he puts it "there are no fixed facts about the stream of consciousness independent of particular probes". "Just what we are conscious of within any particular time duration is not defined independently of the probes we use to precipitate a narrative about that period. Since these narratives are under continual revision, there is no single narrative that counts as the canonical version, ... the events that happened in the stream of consciousness of the subject." (Dennett 1991 p 136)

I would put it slightly differently. I want to replace our familiar idea of a stream of consciousness with that of illusory backwards streams. At any time in the brain a whole lot of different things are going on. None of these is either 'in' or 'out' of consciousness, so we don't need to explain the 'difference' between conscious and unconscious processing. Every so often something happens to create what seems to have been a stream. For example, we ask "Am I conscious now?". At this point a retrospective story is concocted about what was in the stream of consciousness a moment before, together with a self who was apparently experiencing it. Of course there was neither a conscious self nor a stream, but it now seems as though there was. This process goes on all the time with new stories being concocted whenever required. At any time that we bother to look, or ask ourselves about it, it seems as though there is a stream of consciousness going on. When we don't bother to ask, or to look, it doesn't, but then we don't notice so it doesn't matter. This way the grand illusion is concocted.

There are some odd implications of this view. First, as far as neuroscience is concerned we should not expect always to find one global workspace, or other unified correlate of the contents of consciousness. With particular sorts of probes there may, for a time, be such a global unification but at other times there may be several integrated patterns going on simultaneously, any of which might end up being retrospectively counted as contents of a stream of consciousness. Second, the backwards streams may overlap with impunity. Information from one ongoing process may end up in one stream, while information from another parallel process ends up in a different stream precipitated a bit later but referring to things

that were going on simultaneously. There is no requirement for there really to be only one conscious stream at a time - even though it ends up seeming that way.

This is particularly helpful for thinking about the stream of sounds because sounds only make sense when information is integrated over appreciable lengths of time. As an example, imagine you are sitting in the garden and can hear a passing car, a bird singing, and some children shouting in the distance, and that you switch attention rapidly between them. If there were one stream of consciousness then each time attention switched you would have to wait while enough information came into the stream to identify the sound - to hear it as a passing car. In fact attention can switch much faster than this. A new backwards stream can be created very quickly and the information it uses may overlap with that used in another stream a moment later, and another, and so on. So at time t was the bird song really in your stream of consciousness or was it the children's shouting? There is no answer.

Is it really this way? Do you want to protest that it doesn't seem this way? As with vision it is possible to look harder into one's own experience of sound and the results can be quite strange. Thinking about the chiming clocks, and listening as sounds come and go, the once-obvious linear stream begins to disappear.

Looking harder

I have suggested that we need to look hard into our own experience, but what does this mean? How can we look? If the models sketched above are correct then looking means putting in a probe and this precipitates a backwards stream. So we cannot catch ourselves not seeming to be having a stream of consciousness. As William James so aptly put it "The attempt at introspective analysis in these cases is in fact like seizing a spinning top to catch its motion, or trying to turn up the gas quickly enough to see how the darkness looks." (James, 1890, i, 244).

The modern equivalent is the metaphor of the fridge door. Is the light always on inside the fridge? You may keep opening the door, as quickly as you can, but you can never catch it out - every time you open it, the light is on.

Things, however, are not quite that bad for the stream of consciousness. We do, after all, have those obvious examples such as the chiming clock and the meaningless half a word to go on. And we can build on this. But it takes practice.

What kind of practice? A good start is calming the mind. There are many meditation traditions whose aim is to see the mind for what it really is, and all of these begin with calming the mind. You might say that at first it is more like a raging torrent or even a stormy ocean than a stream. To see whether there even is a stream we need to slow everything down. This is not easy. Indeed it can take many years of diligent practice, though some people seem to be able to do it much more easily than others. Nevertheless, with a calm mind it is easier to concentrate, and to concentrate for longer.

Now we can ask “What am I hearing now?”. At first there seems always to be an answer. “I am hearing the traffic” or “I am hearing myself ask the question in my head”. But with practice the answer becomes less obvious. It is possible to pick up the threads of various sounds (the clock ticking, the traffic, ones own breathing, the people shouting across the road) and notice in each case that you seem to have been hearing it for some time. When you get good at this it seems obvious that you can give more than one answer to the question “what was I hearing at time t”. When you can do this there no longer seems to be a single stream of sounds.

My purpose here is not to say that this new way of hearing is right, or even better than the previous way. After all, I might be inventing some idiosyncratic delusion of my own. My intention is to show that there are other ways of experiencing the world, and finding them can help us throw off the false assumptions that are holding back our study of consciousness. If we can find a personal way out of always believing we are experiencing a stream of consciousness, then we are less likely to keep getting stuck in the Cartesian Theatre.

I asked at the outset 'What is all this? What is all this stuff - all this experience that I seem to be having, all the time?'. I have now arrived at the answer that all this stuff is a grand illusion. This has not solved the problems of consciousness, but at least it tells us that there is no point trying to explain the difference

between things that are in consciousness and those that are not because there is no such difference. And it is a waste of time trying to explain the contents of the stream of consciousness because the stream of consciousness does not exist.

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