Do You Have Constant Tactile Experience of Your Feet in Your Shoes?  
Or Is Experience Limited to What’s in Attention?

Eric Schwitzgebel  
Department of Philosophy  
University of California at Riverside  
Riverside, CA  92521-0201  
951 827 4288  
eschwitz@ucr.edu

December 12, 2005
Do You Have Constant Tactile Experience of Your Feet in Your Shoes? 
Or Is Experience Limited to What’s in Attention?

According to rich views of consciousness (e.g., James, Searle), we have a constant, complex flow of experience (or “phenomenology”) in multiple modalities simultaneously. According to thin views (e.g., Dennett, Mack and Rock), conscious experience is limited to one or a few topics, regions, objects, or modalities at a time.

Existing introspective and empirical arguments (including arguments from “inattentional blindness”) uniformly beg the question. Participants in the present experiment wore beepers during everyday activity. When a beep sounded, they were to take note of the conscious experience they were having at the last undisturbed moment immediately prior to the beep. Some participants were asked to report any experience they could remember. Others were asked simply to report whether there was visual experience or not (and if so, what it was). Still others were asked about experience in the far right visual field, or tactile experience, or tactile experience in the left foot. A majority of participants in the full experience and the visual conditions reported visual experience in every single sample. Tactile and peripheral visual experience were reported less often. However, the proper interpretation of these results is uncertain.

Keywords: Consciousness, attention, inattentional blindness, change blindness, introspection
Do You Have Constant Tactile Experience of Your Feet in Your Shoes?  
Or Is Experience Limited to What’s in Attention?

1. “Rich” and “thin” views of experience.

Do you have constant tactile experience (or “consciousness” or “phenomenology”) of your feet in your shoes? Constant auditory experience of the hum of traffic in the background? Constant visual experience of the frame of your eyeglasses? Or, when you aren’t attending to such matters, do they drop out of consciousness, so that they’re in no way part of your stream of experience, no part of “what it’s like to be you”? We might think of consciousness as like a soup. Is it a rich soup, full of experience in a wide variety of modalities simultaneously – visual, auditory, tactile, olfactory, imagistic, proprioceptive, emotional – or is it a thin soup, limited to one or a few things at a time?

Suppose you’ve driven the same route to work a thousand times. Today, you’re deeply absorbed in thinking about an unpleasant interaction with your department head. Traffic is light; no dangerous situation occurs; you drive habitually. You arrive at the parking lot and seem to “wake up” – ah, I’m at work already! – with virtually no explicit memory of having driven there. Now consider this: Did you have visual experience, visual consciousness, while you were driving, or not? Clearly, you responded to events on the road: You stopped at the red light, you stayed in your lane. Visual input obviously had some regulatory influence on your behavior. But maybe visual input can influence behavior without the involvement of consciousness. Many psychologists believe that a very brief visual display, quickly masked and not consciously experienced, can shape one’s later responses, for example in deciphering or choosing words that accord with the masked display (e.g., Marcel 1980; Merikle, Smilek, and Eastwood 2001). In popular imagination – if not perhaps in actuality (see Trappey 1996)? – a single frame of the word
“Coke” inserted into a film may have no impact on your visual experience yet propel you to the soda machine at intermission. Although absent-minded driving isn’t exactly like either of these cases, might you still have had no conscious experience of the road as you drove, or only very intermittent conscious experience? The mere fact of behavioral responsiveness doesn’t settle the question, at least not without further argument.

Ordinary people’s intuitions differ. Researchers disagree. James (1890/1981) and Searle (1992) endorse the rich view, according to which the stream of experience involves both a center of attention and a broad periphery of consciously experienced but unattended objects and background feelings. Jaynes (1976), Dennett (1991), and Mack and Rock (1998) endorse the thin view: Consciousness is limited to only one or a few objects, modalities, topics, or fields at a time. The unattended hum of the traffic in the background is no part, not even a peripheral part, of your experience when you’re sufficiently absorbed in other things.

Who’s right? I hope you’ll agree that this is a substantive question, and one very near the heart of consciousness studies. Although “consciousness” is a treacherous word with no clear analytic or functional definition – no such definition, at least, that doesn’t beg crucial questions – I don’t think we need see the issue at hand as a mere vocabulary dispute. It seems to me at least, and I hope it seems to you, reader, that there’s a real difference between thinking that conscious experience broadly outruns attention and thinking it doesn’t. And the truth of the matter is not so patently obvious on its face that disagreement and uncertainty are impossible.

2. “Consciousness”.

Schwitzgebel       12/12/05       Experience Without Attention?, p. 4
Still, the words “consciousness” and “experience”, used improperly, can muddy the debate, so let me make as plain as I can what I mean by them. Unfortunately, the two most respectable avenues for definition are closed. No analytic definition is possible because “consciousness” or “experience” (I use the words interchangeably) is a foundationally simple concept indivisible into component parts. It’s not like “bachelor” (a marriageable but unmarried man) or “quadrilateral” (a four-sided planar figure). Nor can we, at this stage of our knowledge, characterize consciousness functionally, by appeal to the role it plays in a system (a “heart” is an organ that pumps blood, “currency” is whatever physical tokens serve as the medium of exchange), since the functional role of consciousness is still very much in dispute. One characterization some people find helpful is this: Your conscious experience is whatever it is by virtue of which there’s “something it’s like to be you”, while there’s nothing it’s like (presumably!) to be a rock or a toy robot. But this characterization has all the disadvantages of definition by synonymy. Unless you’re already comfortable with “what it’s like” talk (Nagel 1974), it won’t help much. We can invoke other synonyms as well: “phenomenology”, “subjective experience”, Block’s (1995) “phenomenal consciousness”, Chalmers’s (1996) “qualia”.

We can define by example and clarify by contrast: By “furniture” I mean tables, chairs, dressers, beds, that sort of thing, and not plates, doors, or toys; by “square” I mean these sorts of things and not these others. With enough positive and negative instances, hopefully one gets the idea. Relatively uncontentious examples of conscious experience include sensations of objects to which one is playing close attention, words uttered silently to oneself, dreams, deliberately formed visual images, thrills of emotion.
Uncontentiously nonconscious are immune system response, dendritic growth, early visual processing, unreportable subliminal stimulation. What’s at stake in the rich-vs-thin debate is whether our processing of the unattended hum of the refrigerator is like attentive perception, dreaming, conscious imagery, inner speech, and felt emotion – whether it has that property, “consciousness”, that I’m trying to point to with these examples – or whether it’s rather more like subliminal perception or immune system response.

I’d like to ward against two ways of thinking about consciousness that risk hiding the substantive concern behind matters of definition. First, we mustn’t equate consciousness with “awareness” if by “awareness” we mean sensitivity to outside stimuli. In absent-minded driving, I’m clearly “aware” of the road in the sense of being responsive to stoplights and turns. In some sense, I’m also “aware” of subliminal stimuli if they influence my behavior in the right kind of way. To equate consciousness with this purely response-dependent sense of “awareness” misses the central issue. In fact, I think it best to avoid the word “awareness” entirely, since it tends to equivocate between an epistemic or response-dependent sense and a phenomenal, experiential sense.

We should also avoid using the term “conscious” to mean acutely self-conscious or focally attentive. It may be true, if the thin view is correct, that conscious experience is limited to a few things in focal attention or about which we are especially self-attuned, but if so, that’s a substantive truth, not a matter to be settled analytically a priori by our definition of consciousness. The sense of “consciousness” or “experience” or “phenomenality” or “what-it’s-like-ness” I’m using in this essay – the sense standard in most recent philosophical and psychological research on consciousness – is at least
conceptually, if not empirically or introspectively, consistent with an unattended feeling of your feet in your shoes being a part of your consciousness, and also with its not being so.

3. The inadequacy of intuitive appeals on this question.

Advocates of the rich view, such as James and Searle, provide little positive argument. They simply state the position and expect the reader to agree. For example, James writes:

The next thing to be noticed is this, that every one of the bodily changes, whatsoever it be, is felt, acutely or obscurely, the moment it occurs…. Our whole cubic capacity is sensibly alive; and each morsel of it contributes its pulsations of feeling, dim or sharp, pleasant, painful, or dubious, to that sense of personality that every one of us unfailingly carries with him” (1890/1981, p. 1066-1067).

James invokes no further considerations in defense of the view than its intuitive appeal – here or (as far as I’m aware) anywhere else in his work. Siewert (1998), arguing for the richness of visual experience specifically, prepares the ground somewhat more carefully, clarifying what’s at issue and what the rich view is not committed to. He emphasizes that every detail needn’t be appreciated sharply or separately. But when it comes time for defense of the rich view, so clarified and qualified, Siewert leaves us empty-handed. It’s as though he implicitly assumes that the only potential source of disagreement is misunderstanding, which once cleared up leaves the rich view simply evident to reflection.
The problem with this, of course, is that not everyone agrees with the rich view, even clearly stated. We don’t all share James’s and Searle’s intuitions on the matter. Some people believe that the shirt on one’s back or the shoes on one’s feet aren’t experienced – not even vaguely, inarticulately, peripherally – at every moment of the day; they believe one’s visual consciousness may lapse entirely from time to time. This is not an obviously preposterous opinion. Others find themselves torn or uncertain, or inclined to a rich view in one modality and a thin view in another. And even if there were broad intuitive consensus favoring the rich view, that consensus might be mistaken. Surely, then, it would be good to defend the rich view by something more than its natural charm.

Some advocates of the thin view likewise rely principally on folk intuition. Armstrong (1981), for example, appears to think it simply evident that we lack visual experience in the absent-minded driving case. Jaynes writes:

We are constantly reacting to things without being conscious of them at the time. Sitting against a tree, I am always reacting to the tree and to the ground and to my own posture, since if I wish to walk, I will quite unconsciously stand up from the ground to do so. Immersed in the ideas of this first chapter, I am rarely conscious even of where I am (1976, p. 22).

Jaynes compares the lack of consciousness here to the lack of consciousness in early visual processing and cortical blindness – cases in which everyone agrees that not just attention but phenomenology itself is entirely absent. He invites us to agree based on our own sense of our experience but does not otherwise defend these claims.
A war of philosophical intuition thus threatens. Never to my knowledge has such a war had a happy outcome.

4. The inadequacy of existing empirical arguments.

We might then look for empirical arguments favoring one view over the other, arguments that go beyond mere appeal to the reader’s intuitive sense of her own experience. Advocates of the rich view, as far as I know, offer either no positive arguments or question-begging ones, such as Searle’s (1993) bald assertion that our capacity to shift attention to previously unattended stimuli proves that we had pre-existing conscious experience of those stimuli. (What the capacity to shift attention shows, of course, is that we do some perceptual processing outside attention, not – at least not without considerable further argument – that pre-attentive perceptual processing is conscious.)

Advocates of the thin view often offer empirical arguments for their position, but these arguments, too, are badly question-begging. A favorite argument is this: Absent attention, we fail to parse, respond to, notice, or remember what one might ordinarily think would be salient stimuli – a stream of speech coming in one ear (Cherry 1953; Moray 1959) or a woman in a gorilla suit walking through a ballgame (Simons and Chabris 1999). Therefore, it’s said, we are “blind” (or “deaf” or “numb”) to these stimuli; we don’t experience them (e.g., Dennett 1991; Mack and Rock 1998; Wright 2005). Here’s the flaw in that argument: It’s one thing (indeed a very important and interesting thing) to show that we don’t do much processing of unattended stimuli; it’s quite another to say we have no experience whatsoever of those unattended objects. The
conclusion simply doesn’t follow (and many psychologists refrain from drawing it). We may not parse the speech semantically (very much) or represent the black blob in the middle of the crowd as an ersatz gorilla, but we may still experience that unattended speech and gorilla in some more inchoate way (Simons 2000). Furthermore, unless we really are blind, or deaf, or numb, we do process the unattended stimuli to some extent— as Searle points out, and as is universally acknowledged on all sides of the debate. We are drawn to the unexpectedly approaching object, the unanticipated call of one’s name, the familiar phone ring or doorbell that others can barely hear, the gentle tap on the shoulder. Such things must first register pre-attentively in some way to call our attention.

The question is whether whatever processing or responsiveness or preparedness to respond we have prior to attention is enough to underwrite actual sensory consciousness. The present argument (and similar arguments involving “change blindness”, e.g. Rensink 2000, 2004) doesn’t address that question.

Some of Mack and Rock’s experiments (e.g., Rock, Linnett, Grant, and Mack 1992; Mack and Rock 1998) may give us pause. For example, subjects directed to attend carefully to a cross (presented for a fifth of a second, followed by a mask) will often fail to report some other stimulus (a dot, a triangle, etc.) unexpectedly presented in a nearby visual region, against an otherwise uniform background. Afterwards, they may say that all they saw were the cross and the background. Rock describes these subjects as “inattentionally blind”: They had no experience whatsoever of the unexpected figure. The conclusion is tempting.

But on reflection, I think Mack and Rock’s experiments should no more trouble advocates of the rich view than does the obvious fact that someone deeply absorbed in
something may fail to notice a distant (or even not-so-distant) shout, saying afterward that she heard nothing or heard only the uniform buzz of traffic. Several interpretations consonant with the rich view suggest themselves. One might grant Mack and Rock’s suggestion that the figure (or the shout) was not at all experienced, yet still hold that the uniform unattended background color (or the traffic hum) was experienced: Perhaps the sensory systems fail to register anything of enough interest to do anything other than “fill in” or represent the region in question (or the auditory environment) as uniform; it doesn’t follow that there’s no conscious experience of that uniformity. Or perhaps the figure contributed in an inchoate and unparsed way to an experience reported as uniform but actually an immemorable jumble – part of a stream of visual experience fluctuating not only with major changes in the display, measured in fractions of a second, but also with each saccade, blink, afterimage, accommodation, and glitch. Mack and Rock’s experiments simply don’t address these possibilities.

What evidence do we have, then, on the crucial, foundational question about consciousness posed at the beginning of this paper? Only conflicting folk psychological intuitions and badly question-begging arguments. In other words, we have essentially no evidence. Such is the absolute infancy of our understanding of consciousness.

5. Unpromising avenues.

How are we to approach the issue then? Further studies of the relationship between attention and successful report of stimuli won’t, I think, help much (pace Rensink 2000; Lamme 2003). We already have the key data: People have some, but only a very limited, sensitivity to unattended stimuli. The question remains: Is that sensitivity (whatever it is)
enough to underwrite consciousness? At this point, the interpretive questions loom larger than the flat empirical ones: People will (sometimes) deny having seen, heard, felt, unattended things; but does that mean that those objects, or the fields containing those objects, or the entire unattended modality in which they can report nothing (other than perhaps “there wasn’t a loud shout within a meter of my ear”, or “the whole background didn’t suddenly flick into a rerun of Gilligan’s Island”) was entirely unexperienced, rather than vaguely or inchoately or immemorably experienced? The typical attention-and-reportability study presupposes, more than it addresses, these larger interpretive issues, or else remains silent on them.

If we knew the neural basis of consciousness, we could perhaps use that knowledge to address the rich-vs.-thin question; but we don’t know it. In fact, perhaps, we will never be able to know it until we determine whether unattended stimuli are experienced or not – since (it seems) we need at least a rough understanding of what processes are conscious and not conscious prior to looking for a common neural basis among the conscious ones, and until we settle the rich-vs.-thin question we don’t have even a rough understanding of what neural processes are the conscious ones.

Are we left, then, with introspection? – with simply asking ourselves, or experimental subjects, whether experience is rich or thin? This should make us nervous for several reasons. For one, subjects’ reports of their own mental states are notoriously untrustworthy. Even introspecting in what would seem to be ideal conditions – carefully, patiently, regarding one’s own currently ongoing conscious experience – we often go badly wrong, or so I would argue (and have argued in, e.g., Schwitzgebel and Gordon 2000; Schwitzgebel 2002, in preparation). Indeed, scholars have tried addressing the
question introspectively – James, Jaynes, and Searle, for example – and they arrive at different answers. (I assume this is not because James and Searle actually experience every morsel and modality as constantly alive while Jaynes lives largely in blankness, though this resolution of their dispute is appealing to contemplate.)

Advocates of the thin view have often remarked on another problem, too, that plagues attempts to address this question introspectively: the “refrigerator light” problem, so named after the mistaken impression a child might have that the refrigerator light is always on because it’s on whenever he checks it. Jaynes describes the problem nicely:

It is like asking a flashlight in a dark room to search around for something that doesn’t have any light shining on it. The flashlight, since there is light in whatever direction it turns, would have to conclude that there is light everywhere. And so consciousness can seem to pervade all mentality when actually it does not (1976, p. 23).

Does it seem to you that you have tactile experience of your feet in your shoes? Yes, it does now that you mention it. That you have auditory experience of the traffic in the background? Yes, now that I think of it, I seem to be experiencing that too. But of course we can’t conclude from such observations that we have constant experience of such things when we aren’t thinking about them. The mere fact of thinking about whether you have experience of your feet in your shoes may itself create that experience. What we want to know is whether you were experiencing your feet in your shoes before the matter came to mind. But that’s now in the irretrievable past; you’ve been thinking too much about introspection, about your feet; you’re corrupted.

The question is thus a rather difficult one to study. The most obvious methods fail.
6. Immediate retrospection.

Despite my considerable qualms about introspection (and the fact that my recent career is largely devoted to criticizing it), I can’t seem to resist the urge to search for a better, more empirically controlled, means of addressing this question introspectively. After all, the rich and thin views of experience posit radically different phenomenal worlds. It seems that there should be some introspectively discoverable difference between them! (Doesn’t it?)

To avoid the refrigerator-light error, we might try this: Give participants beepers to wear during their normal daily activities, beepers that go off only at long intervals when participants are likely to be immersed in other things. Instruct the participants to reflect, each time the beeper sounds, on what their experience was immediately prior to the beep, when (in most cases) they won’t have been thinking about the richness or thinness of experience, or about their feet, or about the traffic in the background. Some participants might be asked to report everything in their experience; others whether or not they had visual experience; others simply whether they had tactile experience in the left foot.

A beeper is appealing because it has a sharp onset, targeting a single, specific moment of experience, and because participants can be told in advance what to reflect on in the targeted experience. No seconds-consuming verbal query is necessary. One can combine the advantages of surprise and preparedness. With a little practice, the participant ideally could reflect on her naturally occurring experience within a second of each sampled event.
In starting this project, I wasn’t convinced – I’m still not convinced, as you’ll see – that this approach would settle the question of the richness or thinness of experience. But I can think of no better approach (can you?); and I was curious what the results would be.

7. Experimental method.

Participants. I recruited 21 participants, mostly through an email sent to philosophy graduate students and an announcement in an upper-division philosophy class at the University of California, Riverside, but also through word of mouth. The recruiting announcement mentioned only that I sought volunteers to study conscious experience using a beeper worn during normal daily activity. Eleven graduate students in philosophy participated and five undergraduates (not all philosophy majors). Other participants included a secretary, a K-12 teacher, a psychology graduate student, a psychology professor, and a statistics professor. Participants were paid $20 per interview day, except the professors who participated gratis.

Materials. I provided each participant with one “beeper” on loan from Russ Hurlburt whose “Descriptive Experience Sampling” methodology (Hurlburt 1990, 1993; Hurlburt and Schwitzgebel in preparation) was the inspiration for this experiment (though I diverged from strict DES method). The beepers were designed to emit a beep anywhere from about one minute to one hour after being set. The beep came through an earpiece worn at all times, and I instructed participants to adjust the volume so that the tone would have a sharp and distinct, but not too startling, onset. One a beep began, it continued until the participant pressed a conveniently located button to reset the timer.
Preliminary interview. I divided participants into one of five conditions: the full experience condition, the full tactile experience condition, the full visual experience condition, the tactile left foot condition, and the far right visual field condition.

Participants in the full experience condition were not informed in advance of the specific purpose of the research. I told them that the aim was to explore everyday experience generally and we discussed issues of privacy.

Participants in the other four conditions were more fully informed of the nature of the research prior to obtaining consent. During a preliminary interview, I described the rich and thin views of experience, and I offered intuitive examples of cases in which people might disagree – usually the absent-minded driving case and the shirt-on-your-back case. I asked participants for their initial inclinations on the question, then encouraged them to set those inclinations aside and be open-minded about the research. I carefully explained the refrigerator light error and the appeal of using a beeper to avoid that error.

I attempted to attain some balance between rich-biased and thin-biased subjects within conditions, and also between philosophy graduate students and others. In some cases, this involved not making the final assignment, among the four informed conditions, until the end of the preliminary interview.

I instructed participants in the far right visual field condition to fixate on a point and showed them another point 18 degrees to the right of fixation to define the beginning of the far right visual field.

Instructions for collecting samples. I instructed participants to wear the beeper for 3-4 hours, at their convenience and not necessarily consecutively, within 24 hours of a
scheduled interview, to collect approximately 6-8 samples during a diversity of activities. I instructed them to carry a sheet of paper and a pen, so that when a beep was emitted they could immediately record their experience. I emphasized the importance of immediacy: If they could not respond instantly, they were told to skip the sample entirely. I also encouraged them to skip samples they felt were too private to share in their entirety. No participant ever reported skipping more than two samples in a single interview day.

I instructed participants in the full tactile condition to write down first whether they were having a tactile experience or not; second what that tactile experience, if any, was; and third what they were doing in general and other background information. Proceeding in this order was crucial to the experiment, I emphasized. I also emphasized that it would be perfectly okay to find no tactile experiences at all, which would accord nicely with the thin view, or tactile experience in every single sample, which would accord nicely with the rich view, or some mixed result. I gave participants in the full visual condition the same instructions, except with reference to visual experience; similarly for the tactile left foot and far right visual field conditions. Participants in the full experience condition were simply asked to report what experience (if any) they had at the moment immediately prior to the beep.

**Sampling interviews.** I interviewed participants within twenty-four hours of collecting their samples, in most cases over the course of four separate interview days, with four separate groups of samples. All participants used their sampling notes as a reference, though I stressed that what mattered was what they said in the interview. (I
collected the sampling notes at the end of each interview. They generally accorded fairly well with the reports.)

If a participant reported an experience, I asked follow-up questions about the nature of the experience. For example, if a participant reported a pain in her foot, I asked her to localize it as precisely as possible and to describe it in words as much as she is able, sometimes offering suggestions such as “did it seem to be static or changing?”, “was it more of a dull ache or more of a sharp prick, or neither of those?” I also asked what was in the focus of attention in each sample, if there was a focus of attention (occasionally, participants reported having no focus of attention).

In discussing the first sample with participants in the full experience condition, I introduced the rich-vs.-thin debate as follows (the others had learned about the debate in the preliminary interview): After the participant had reported experiencing one or a few things and seemed to be slowing down or to have stopped, I asked whether they experienced anything else simultaneously with what was already reported, pointing out that some theorists would expect one to experience many things simultaneously while others would expect experience of only one or a few things at a time. I encouraged discussion of this point, to confirm that they understood the issue and to gain a sense of their own predispositions. However, the rich-vs.-thin issue was not stressed to the exclusion of other issues. For example, depending on the participants’ reports, we also discussed (sometimes in depth) whether visual imagery need be located in space and whether it interferes with sensory visual experience, whether emotional experience is bodily or cognitive or a hybrid or something else, whether there is an experience of “willing” a bodily motion, etc.
In general, I encouraged theoretical discussion. I discussed most of the topics raised in the first part of this paper with most participants, including clarifying as much as possible what is meant by “consciousness” or “experience”, in hopes of avoiding question-begging interpretations. I regularly played devil’s advocate, gently (I hope!) raising various potential doubts and concerns both about reports of experience and about reports of lack of experience. Most participants heard, or themselves raised, at one point or another, all the doubts and concerns mentioned in Section 10 below and were asked for their take on them.

I recognize that this interview approach completely violates the ordinary methodological advice that subjects be as naive as possible. However, regarding the richness or thinness of experience, I think it’s practically impossible to be naive, to have no initial inclinations or implicit assumptions. Given this, I thought it better to flood participants with competing alternatives and sources of skepticism than to leave them to the silent guidance of their own initial (or emerging) theories. By doing so, I hoped to make it seem not entirely obvious whether the rich or the thin view was correct, so that perhaps they would be guided more by data than by their presuppositions. I could not, of course, hope to be entirely successful in dislodging participants’ biases, but my impression in the end (as we’ll see) is that I was more successful than I would have expected. Detailed theoretical discussion during the interview also gave me the opportunity to convey as precisely as possible what was being asked and to correct misapprehensions about the task.

Generally, the first time a participant in one of the visual conditions (the full experience, the full visual, and the far right visual field conditions) denied visual
experience in a sample, I introduced what I called the “phenomenal blindness” thought experiment. I explained phenomenal blindness as follows: There’s a difference between blindness as pure blackness (like in the dark) and blindness as genuine absence of visual experience, like the lack of visual experience you have behind your head. A phenomenally blind person is someone blind in the absence-of-experience sense. Once I felt the participant understood this distinction, I asked the following question: At the sampled moment, could a phenomenally blind person, a twin of you in all respects except lacking visual experience, have had the same conscious experience as you did at that moment? I mentioned that, of course, a real blind person might differ from the participant in a number of ways, including in his potential behavioral responsiveness (the potential to react to a suddenly looming object, say), and in the quality of his auditory experience, in lacking visual imagery, etc. However, I asked the participants to disregard such differences if possible. A few participants rejected the thought experiment as faulty – I invited them to reject it, if they thought so – but most participants said they found the comparison helpful. I stressed that my aim in this thought experiment was just to ask as clearly as possible whether the participant completely lacked visual experience, or whether there was some vague, or peripheral, or inchoate visual experience. I stressed that either answer was okay and that it was also okay to say “I don’t know” or “I don’t remember”. I would occasionally return to this thought experiment when a participant reported no experience, if it seemed helpful. For participants in tactile conditions, I offered a corresponding “numbness” thought experiment (with a distinction between numbness positively felt and numbness as absence of tactile experience).
I tried always to be balanced and accepting in my interview style, to ask open-ended questions, to convey respect for the participants’ opinions, but also frankly to express skepticism and sources of concern about the reports. If the participant seemed to show considerable bias toward one view or another – especially if she used inferential language in describing her experiences (e.g., “the cabinet was to my right, so I must have had a visual experience of brownness”) – I would stress the plausibility of the opposing view and discourage inferential answers.

All this discussion, of course, took a long time. I generally capped interviews at one hour, though they sometimes went longer. On the first interview day, especially, it was often impossible to get through more than one or two samples. If on the second day we still didn’t get through more than two samples, I would ask the participant on the third day not to begin with the first sample collected but rather with the last or with some randomly selected sample.

At the end of the last interview, I asked participants to guess whether I was more inclined to the rich or the thin view. I also asked whether their opinions on the debate had changed over the course of sampling.

8. Results.

I found most of the participants to be theoretically astute enough to comprehend the issues raised in the interviews, so that I felt they genuinely understood what was being asked and what the substantive and methodological issues were. I did, however, have doubts about the understanding of one of the undergraduates (S16), maybe two (S14), and concerns about the extent to which one of the graduate students (S13) may have
allowed himself to get too caught up in challenging me on fundamental theoretical and methodological points (especially regarding whether the rich-vs.-thin dispute is “merely linguistic”), to the detriment of his responses. I nonetheless include their data in the analysis. The mean number of samples collected was 17, ranging from 9 to 30 (excluding samples not discussed in the interviews).

I classified participants’ answers into three categories: “yes or leaning yes”, “undecided/don’t know”, “no or leaning no” as summarized in Tables 1-4. Undecided responses were discarded from later analysis, as were samples in which the participant reported thinking about the experiment. This was a small percentage of the total samples in all but two cases: the disputatious graduate student, who was undecided in 5 of 13 samples, and one participant in the tactile left foot condition who was undecided in 4 of 30 samples and thinking about the experiment in another 4. In analyzing the results, I interpreted “tactile” broadly to include any tactile, somatic, nociceptive, or proprioceptive experience, since participants had some difficulty distinguishing these in their reports. An alpha level of .05 was used for all statistical tests. The data were not assumed to be parametric.
TABLE 1: Where you having any visual experience immediately prior to the beep?

<table>
<thead>
<tr>
<th>Subject</th>
<th>Condition</th>
<th>Yes</th>
<th>Lean Yes</th>
<th>Don’t Know</th>
<th>Lean No</th>
<th>No</th>
<th>Thinking of Exp</th>
<th>%</th>
<th>Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4</td>
<td>full exp</td>
<td>9</td>
<td>0</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>rich</td>
</tr>
<tr>
<td>S5</td>
<td>full exp</td>
<td>18</td>
<td>0</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>rich</td>
</tr>
<tr>
<td>S6</td>
<td>full exp</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>mod/thin</td>
</tr>
<tr>
<td>S16</td>
<td>full exp</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>56%</td>
<td>rich</td>
</tr>
<tr>
<td>S1</td>
<td>full visual</td>
<td>12</td>
<td>2</td>
<td>(1)</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>74%</td>
<td>thin</td>
</tr>
<tr>
<td>S2</td>
<td>full visual</td>
<td>22</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>rich</td>
</tr>
<tr>
<td>S3</td>
<td>full visual</td>
<td>11</td>
<td>2</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>mod/rich</td>
</tr>
<tr>
<td>S7</td>
<td>full visual</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>89%</td>
<td>rich</td>
</tr>
<tr>
<td>S17</td>
<td>full visual</td>
<td>16</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>85%</td>
<td>thin</td>
</tr>
<tr>
<td>S9</td>
<td>far right visual</td>
<td>15</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>mod/rich</td>
</tr>
<tr>
<td>S12</td>
<td>far right visual</td>
<td>12</td>
<td>0</td>
<td>(2)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>mod/thin</td>
</tr>
<tr>
<td>S18</td>
<td>far right visual</td>
<td>7</td>
<td>1</td>
<td>(1)</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>73%</td>
<td>thin</td>
</tr>
<tr>
<td>S19</td>
<td>far right visual</td>
<td>11</td>
<td>1</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>rich</td>
</tr>
</tbody>
</table>

median = 100%
TABLE 2: Were you having far right visual field experience immediately prior to the beep?

<table>
<thead>
<tr>
<th>Subject</th>
<th>Condition</th>
<th>Yes</th>
<th>Lean</th>
<th>Don’t Know</th>
<th>Lean</th>
<th>No</th>
<th>Thinking of Exp</th>
<th>%</th>
<th>Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9</td>
<td>far right visual</td>
<td>7</td>
<td>0</td>
<td>(2)</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>50%</td>
<td>mod/rich</td>
</tr>
<tr>
<td>S12</td>
<td>far right visual</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>71%</td>
<td>mod/thin</td>
</tr>
<tr>
<td>S18</td>
<td>far right visual</td>
<td>4</td>
<td>2</td>
<td>(1)</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>55%</td>
<td>thin</td>
</tr>
<tr>
<td>S19</td>
<td>far right visual</td>
<td>7</td>
<td>1</td>
<td>(2)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>89%</td>
<td>rich</td>
</tr>
</tbody>
</table>

median = 63%

TABLE 3: Were you having any tactile experience immediately prior to the beep?

<table>
<thead>
<tr>
<th>Subject</th>
<th>Condition</th>
<th>Yes</th>
<th>Lean</th>
<th>Don’t Know</th>
<th>Lean</th>
<th>No</th>
<th>Thinking of Exp</th>
<th>%</th>
<th>Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4</td>
<td>full exp</td>
<td>6</td>
<td>1</td>
<td>(1)</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>78%</td>
<td>rich</td>
</tr>
<tr>
<td>S5</td>
<td>full exp</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>79%</td>
<td>rich</td>
</tr>
<tr>
<td>S6</td>
<td>full exp</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>56%</td>
<td>mod/thin</td>
</tr>
<tr>
<td>S16</td>
<td>full exp</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>89%</td>
<td>rich</td>
</tr>
<tr>
<td>S8</td>
<td>tactile</td>
<td>10</td>
<td>2</td>
<td>(3)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>86%</td>
<td>thin</td>
</tr>
<tr>
<td>S10</td>
<td>tactile</td>
<td>9</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>9</td>
<td>(1)</td>
<td>50%</td>
<td>thin</td>
</tr>
<tr>
<td>S13</td>
<td>tactile</td>
<td>0</td>
<td>6</td>
<td>(5)</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>75%</td>
<td>mod/rich</td>
</tr>
<tr>
<td>S15</td>
<td>tactile</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>69%</td>
<td>rich</td>
</tr>
</tbody>
</table>

median = 76.5%
TABLE 4: Were you having tactile experience in your left foot immediately prior to the beep?

<table>
<thead>
<tr>
<th>Subject</th>
<th>Condition</th>
<th>Yes</th>
<th>Lean Yes</th>
<th>Don’t Know</th>
<th>Lean No</th>
<th>No</th>
<th>Thinking of Exp</th>
<th>%</th>
<th>Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>S11</td>
<td>tactile left foot</td>
<td>2</td>
<td>2</td>
<td>(4)</td>
<td>4</td>
<td>14</td>
<td>(4)</td>
<td>18%</td>
<td>rich</td>
</tr>
<tr>
<td>S14</td>
<td>tactile left foot</td>
<td>9</td>
<td>3</td>
<td>(2)</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>80%</td>
<td>mod/thin?</td>
</tr>
<tr>
<td>S20</td>
<td>tactile left foot</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>12</td>
<td>(3)</td>
<td>16%</td>
<td>mod/thin</td>
</tr>
<tr>
<td>S21</td>
<td>tactile left foot</td>
<td>10</td>
<td>1</td>
<td>(1)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>92%</td>
<td>thin</td>
</tr>
</tbody>
</table>

median = 49%

As is evident from Table 1, a majority of participants in the full experience, full visual, and far right visual conditions (8 of 13) reported visual experience in 100% of the samples. No trend or significant difference between the three conditions is evident. The four participants in the far right visual field condition reported experience in that portion of their visual field considerably less often (Table 2). The difference in medians between these two groups (100% vs. 63%) is significant (p = .01) by a one-tailed Mann-Whitney test (adjusted for ties).

Participants in the full experience and full tactile experience conditions reported tactile experience at a median rate of 76.5% (Table 3). (Reports of general tactile experience weren’t systematically collected in the tactile left foot condition, so as not to interfere with the focus on the foot.) This median is significantly lower than the 100% median in the visual conditions (p = .01) using a two-tailed Mann-Whitney test. Results in the tactile left foot condition were highly variable and suggestive of the possibility of an underlying bimodal distribution: 18%, 80%, 16%, and 92% (Table 4). The difference
in medians (76.5% vs. 52%) is not statistically significant (Mann-Whitney one-tailed, p = .37).

I classified participants as either rich- or thin-biased, based on the preliminary interview (in most conditions) or the first day discussion (in the full experience condition). In one case (S14), it seemed likely from later discussion that the participant had mischaracterized his initial bias, but for the most part discussion bore out, or at least did not plainly contradict, participants’ assessments of their initial predispositions. Eleven participants were classified as rich-biased – as thinking (prior to collecting data) that, generally, we have a broad range of experiences in different modalities at any one time – and ten were classified as thin-biased, as thinking that, generally, experience is quite limited (or completely absent) outside a narrow range of attention. This suggests that intuitions regarding the rich/thin debate are roughly evenly divided in the population studied.

One might expect participants with an initial rich bias to report more experience than participants with a thin bias. To check this, I classified participants into two groups: those with a rich bias and results at or above median or a thin bias and below median results, on the one hand, and those with a rich bias and below median results or a thin bias and results at or above median, on the other hand. Participants with scores in two categories were classified twice, once for each category. (Thus, participants in the full experience condition were classified for both their visual and tactile data, and participants in the far right visual field condition were classified for both their general visual and their far right field data.) In 17 cases participants’ results accorded with their bias and in 12 cases the results went against the bias. Thus, there was only a weak trend for rich-biased
participants to report more experience, not statistically significant (p = .31 on the one-tailed Fisher exact test). This comports with my general sense that participants were impressively open-minded and often changed their views and expressed surprise over the course of the experiment.

Finally, although I incline toward the rich view, participants were unable to discern my bias. At the end of the last interview day, given a forced choice, 7 guessed I favored the rich view, while 13 guessed I favored the thin view. (One refused to guess.) Most spontaneously said I had been even-handed. So also did an outside observer with a thin bias who listened to one of the audiotapes.

9. Toward a moderate view?

If we assume participants’ responses accurately reflected their experience, then the data seem to support neither the rich view nor the thin view as normally characterized. Advocates of the rich view typically assume that we have constant, or very nearly constant, visual and tactile experience – probably even constant tactile experience in the left foot (recall James’s statement about every “morsel” being “sensibly alive”). The tactile data, if interpreted at face value, plainly do not support so strong a claim. Neither do some of the data from the visual condition: Peripheral visual experience was often denied and some participants denied visual experience altogether in a substantial minority of samples. And they did so by a very demanding test: In denying visual (or tactile) experience, they agreed, for the most part, that a phenomenally blind (or numb) twin of them – someone with absolutely no visual (or tactile) conscious phenomenology at all –
could have had exactly the same experience they did at the last undisturbed moment prior to the beep.

Against the thin view, every participant reported experience of unattended objects or in unattended modalities in some samples. I haven’t attempted to quantify this since the self-report of attention is fraught with perils and confusions I didn’t even attempt to remedy or prevent; but every subject (except the disputatious graduate student) was plainly and unambivalently confident, at least once, of having had positive conscious experience without attention – including subjects who began the experiment with a seemingly strong commitment to a radically thin view of experience. Even if we discount self-reports of attention, it seems highly unlikely that participants were attending to events in their far right visual field 63% of the time or to tactile or somatic events in their left foot 49% (or even 16%) of the time during the course of several hours of normal activities, unless wearing the beeper dramatically altered their run of experience.

Thus, one might read the data as supporting a moderate view, a view somewhere between the radically rich and thin views normally espoused by those who write on this topic. My participants universally exited the experiment with a moderate view of some sort, thinking that experience extends beyond the field of attention but does not occur in every major modality 100% of the time. Typically, participants expressed some degree of what seemed to be genuine surprise at their results – thin-biased participants surprised to (seemingly) find experience where they thought there’d be none, rich-biased participants surprised at what they took to be the absence of experience in some cases. Most reported moderating their view by the end of the experiment.
10. Worries.

I would love to be able to agree with the consensus of my participants. Unfortunately, a number of issues trouble me. In roughly ascending order:

Effects of wearing the beeper. Many participants expressed concern that participating in the experiment might cause them to reflect more about the relevant modality or region, and thus experience it more, distorting the results toward the rich side. While I acknowledge the legitimacy of this concern, and indeed the likelihood of such an effect, among the difficulties I’ll raise here, this one troubles me the least. Since this experiment is not concerned with small differences, only a very large effect of this sort would invalidate the general results. And if there were such a large effect, one might expect to see either rising rates of experience (as participants were “trained” to think about that modality or region) or declining rates (as participants grew more accustomed to the beeper and let it affect them less). But average rates of reported experience were stable between the first and last days (8 subjects increased, 8 decreased, and 13 [mostly ceiling] remained the same [counting full experience and right visual field subjects separately for each measure, as described above]). And of course I excluded from analysis samples in which participants reported thinking about the experiment – only a small minority of samples, as is evident from the tables. Most participants reported quickly becoming absorbed in their regular activities, largely forgetting about the beeper until it went off.

Theoretical concerns. Somewhat more troubling: Why do theorists tend to split between the radically rich and the radically thin, with no middle ground? Here’s why (I
think): To make sense, theoretically, of the moderate view, one must introduce an extra moving part into one’s theory of sensory consciousness. One must introduce, that is, some correlate of consciousness that may have even less apparent justification and a priori plausibility than either attention (on the thin view) or supraliminal perceptual attunement (on the rich view). One needs something, in other words, to explain why some apparently unattended sensory stimuli are consciously experienced and others aren’t. What should it be? Some kind of diffuse attention, perhaps? – a type of attention, distinct from focal attention, capable of being spread broadly across multiple modalities and objects (but still not across all major modalities all the time)? Or could we say, maybe, that intense concentration pulls enough resources away from non-focal sensory processing to prevent unattended stimuli from entering consciousness, while less intense concentration permits those stimuli to be (peripherally) experienced? Possibly either of these explanations could serve, or some other. But it would be better if there were prior, independent theoretical motivation for such views.

Bias. I think my own (rich) bias and the participants’ (various) biases must have influenced the results. Still, I was fortunate in a number of respects: the even division (10 vs. 11) of my participants’ biases; the weak relationship between participant bias and results; the inability of most participants to guess my bias; my own surprise at some of the results (in particular the below-ceiling results in the far right visual and the full tactile conditions). Although I acknowledge – indeed insist on – the corrupting force of bias in the report of experience, for the reasons just described, I’m permitting myself the optimistic hope that bias was not the principal factor driving these results. The best test
of this, though, would be a replication with a different population and an experimenter of
different theoretical orientation.

**Timing errors.** Participants may have erred toward excessively rich reports either if
they reached too far into the past, gathering up the last conscious experience (whenever it
was) in the relevant modality or region, or if they inadvertently reported on their
experience after the beep, experience that may have been *created* by the beep. Certainly
human beings are subject to illusions of timing (e.g., Libet 1985; Nijhawan 1994; Spence,
Shore, and Klein 2001). In response I can say two things, each of only limited value, I
know: (1.) I repeatedly stressed the importance of trying to hone in as accurately as
possible on the last undisturbed moment before the beep. For what it’s worth, the
participants all felt they could do this, most of the time, with reasonable if not perfect
accuracy. Whether this is something that can be done voluntarily and reported on
accurately is of course another question. (2.) Unless the timing illusions are worse for
central visual experience than for peripheral and tactile experience (and I see no reason to
suppose this), the asymmetry of the results (and thus the main effect) still stands.

**Preference for mixed results.** Experimental subjects often prefer moderate or mixed
responses to extreme ones. I attempted to counter this inclination in the interviews, for
example by stating explicitly (in the four informed conditions) that all yesses or noes
would be okay and indeed interesting as support for the rich or thin views – but I doubt I
was wholly successful in extirpating the middle-of-the-scale inclination. Since
participants gave nearly uniform “yes” answers to general visual experience questions,
pressure to mix it up can’t explain the entire pattern of results, of course; but an advocate
of the rich view might suggest that it’s only in the “obvious” central vision case that
participants will have had the self-confidence to present an extreme pattern of data. (No parallel argument is available to the advocate of the thin view: She’ll need something other than the middle-of-the-scale bias to explain the (visual) results that run counter to her position.) If I browbeat people into changing their reports from rich to thin and vice versa, that could also generate an overall pattern of intermediate data. There was, indeed, some risk of this, since I tried to counteract participants’ biases by occasionally pointing out the plausibility of the alternative view. Fortunately, an analysis of first-day vs. final-day results shows no evidence of massive browbeaten conversions (9 crossing median, 20 staying either above or below [again counting full experience and far right visual subjects twice]).

Still more troubling, to me:

**Subtle experience.** In the tactile left foot condition, one participant – a philosophy graduate student who reported tactile left foot experience in 92% of his samples – typically said he had a general sense of the position and disposition of his body, its posture and its contact with things. He usually claimed not to have experienced his left foot separately and distinctly, but only as a small and subtle part of this holistic bodily sense. This pattern of reporting apparently surprised him: He came into the experiment with a thin bias. Indeed within the full tactile and tactile left foot conditions, four participants (three thin-biased, one rich-biased) reported discovering a holistic bodily sense of this sort, and all had above-median results. Is this just a compelling theoretical idea that, once entertained, inclined these participants to invent experience to match it? Or did this idea reflect a discovery of, and allow them to report, a subtle sort of background experience that others might easily miss whose reflections are more swiftly
directed to what is at the center of their attention and thoughts? In my heart, I lean toward the latter view, but I fear there may be no way reasonably to discount the former.

Stimulus error and confabulation. Participants may have reported on states of the world rather than on their experience of the world, leading to overly rich or otherwise erroneous reports; or they may have reported what seems plausibly to have been their experience rather than the actual experience itself. For example, a participant asked to report on visual experience in the far right visual field may simply have reported on visible objects to her right – what it seems “must” have been in her field of view (and thus experienced?) – regardless of whether those objects were actually experienced by her immediately prior to the beep. Wearing the beeper in piloting this experiment, I sometimes had the following type of reaction: The beep goes off, I close my eyes (some subjects did this, some didn’t – I left it up to them), and I attempt to recall my immediately prior visual experience. There was a black street in front of me, green trees to my left. But am I simply now recalling the objects that I remember to have been in front of me, or am I recalling my experience of those objects? Is there, perhaps, no difference between those two judgments? (That seems wrong to me, though perhaps it would bode well for the task if it were true.) I’m not sure these questions can be sorted out entirely satisfactorily (though see Titchener and Boring on “stimulus error” or “R-error” for a plausible attempt: 1901-1905, 1910/1915, 1912; Boring 1921). Three facts reassure me – though only very partially – on this head: (1.) Every participant (except perhaps the confused undergraduate) appears to have understood the distinction between reporting experience and reporting remembered objects, at least on a superficial level, and at least once denied experience of something in her sensory environment that could
have been experienced. (2.) If participants generally reported simply on what was in their environment, or what (on a rich view) one might expect to have experienced, then we would see near ceiling results in every condition, which we don’t see. (3.) In the far right visual field condition, participants quite readily reported blurriness and vagueness in their experience – properties, of course, of the experience itself, not of objects in the outside world. The reader fully satisfied with these responses must be a very sanguine and generous one, I’m afraid.

Memory error. I’m not too concerned about long-term memory error. In the four informed conditions, the basic data point is very simple, and participants may consult their notes during the interview. If a participant gets it right in the first few seconds after the beep, I doubt she’ll misreport later. (There’s obviously much more room for long-term memory error in the full experience condition, but fortunately those results harmonize with the results in the other conditions.) The bigger issue is this: What’s the likelihood of failing to remember the targeted moment of experience, or non-experience, between the time of its occurrence immediately prior to the beep and the act of judgment shortly after the beep?

I’m struck by how much we fail to encode, fail to remember, even over very short intervals, if our attention is not upon it as it occurs. Perhaps the most striking demonstrations of this are the “change blindness” experiments of Rensink and others (e.g., Rensink, O’Regan, and Clark 1997, 2000; Simons and Levin 1998). You look at a picture. It flickers and is replaced by a very similar picture, with one major change. It’s often difficult to detect that change, even when the stimuli are presented repeatedly. Or: You’re having a conversation with a stranger. In the middle of the conversation, two
people carrying a door briefly walk between you, and the stranger is surreptitiously replaced by another in different clothing, with a different build. Many people fail to notice the change. Experiments like this (along with older experiments on eyewitness testimony [Münsterberg 1927; Loftus 1979; Haber and Haber 2000] and the forgetting of mundane everyday details [Sanford 1917/1982; Nickerson and Adams 1979]) suggest that we may fail to encode or remember surprisingly large aspects of our perceived external environment.

Now whether we likewise might fail to encode or remember large tracts of our stream of conscious experience (as distinguished from our outward environment) is an open question, but I see no reason to suppose it merits a different answer, especially if the rich view is correct. If sensory experience is a complex, massively detailed flux, it may be at least as expensive and pointless to retain as are the unimportant or readily available environmental details we so easily forget. The beeper method brings to a practical minimum the delay between experience and reflection, but the experience and reflection still aren’t simultaneous (they can’t be, if we’re to avoid the refrigerator light error) – and that very non-simultaneity may be enough to guarantee the forgetting of substantial portions of experience that are never encoded even into short-term memory.

11. Conclusion.

The phenomenological difference between the rich and the thin views is vast. On the first view, our stream of conscious experience is aswarm with detail in many modalities at once, both inside and outside the field of attention; on the second, the stream of experience is limited to one or a few attention-occupying activities or
perceptions at a time. On the first view, unconscious perception exists only on the margins if it exists at all; on the second, most of our perception is unconscious. On the first, we always have a complex flow of visual experience; on the second we may quite often have no visual experience at all. What, it seems, could be easier to decide than between these two views? Shouldn’t a moment’s introspection settle the matter incontroversely?

The fact that it doesn’t is striking. Perhaps this should suggest to us that what lies at the root of the dispute is not a disagreement about phenomenology but a disagreement in the use of words. Yet this seems to me not so: The positions, framed even in a single vocabulary, seem substantively distinct. If one seemed preposterous, I might wonder whether no one occupied it. Then, perhaps, I would suspect the disagreement stemmed only from scholars’ speaking at cross-purposes. But both views, as I distinguish them substantively now, seem surprisingly live, despite my best introspective efforts on the issue, despite even my best experimental attempts. The refrigerator light error explains the failure of concurrent introspection to yield useful data; memory error, stimulus error, and the potential subtlety of the target experiences explains the difficulty in interpreting even carefully collected retrospective data.

What, then, are we left with? Can we do this research better? Declarations that a topic is impossible to study regularly collapse in the face of experimental genius – and yet I can’t see how any method could avoid the present sources of uncertainty, or worse. Any concurrent introspective method will be polluted by the introspective act itself. Any retrospective method invites concerns about short-term memory (at least). Any attempt to report introspectively on the presence or absence of experience will invite charges of
participant bias, confabulation, conceptual confusion. Any method that attempts to do away with introspective (or immediately retrospective) reports, in favor of more “objective” correlations of stimulus and response, begs the crucial question if it then postulates some connection between those behavioral patterns and the presence or absence of consciousness in a phenomenal (and not just an operational, behaviorist-inspired) sense – begs the question because it is exactly those connections we’re trying to discover. Furthermore, the question at hand is so foundational, so fundamental to the study of consciousness, that it seems impossible that consciousness studies can progress very far without addressing it; and it likewise seems impossible that any general account of consciousness could be developed independent of a take on these issues which might then shine light back upon them.

And yet here I am at my desk, wearing a beeper, still trying to figure it out! If the despairing conclusion of the previous paragraph doesn’t appeal to you, then perhaps I can offer another thought – though I worry it may be too thinly justified. Among the three most troubling sources of error, the “subtle experience” error and the short-term memory errors, combined, seem to me to more than overbalance the “stimulus” and confabulation error, which the data at least partly address (and which may be limited for participants with a thin bias). And the former two errors both imply that subjects will tend to err on the thin side. So perhaps we can conjecture that either my participants are correct in their moderate view of experience, or experience is richer than they suggest.
Acknowledgements:

Many thanks to the participants in this study – as much collaborators as subjects – who spent hours in conversation with me about these topics and doubtless shaped my thinking more than I know. Thanks also to the audience at the 2005 meeting of the Association for the Scientific Study of Consciousness and especially to Nelson Cowan, Dan Dennett, and Russ Hurlburt for helpful discussion and criticism. This research was supported in part by an Academic Senate grant from U.C. Riverside.
References:


Hurlburt, R.T., and Schwitzgebel, E. (in preparation). Describing inner experience?


