

# Hypnosis and the Unity of Consciousness

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## 1. Introduction

Hypnosis appears to generate unusual—and sometimes even astonishing—changes in the contents of consciousness. Hypnotic subjects report perceiving things that are not there, they report not perceiving things that are there, and they report unusual alterations in the phenomenology of agency. In addition to apparent alterations in the contents of consciousness, hypnosis also appears to involve alterations in the structure of consciousness. According to many theorists—most notably Hilgard—hypnosis demonstrates that the unity of consciousness is an illusion (Hilgard 1977).

The hypnotic phenomenon that bears most directly on the unity of consciousness is known as the ‘hidden observer’ phenomenon (Knox *et al.* 1974; Hilgard *et al.* 1975, 1978; Crawford *et al.* 1979; Spanos and Hewitt 1980; Laurence and Perry 1981; Nogrady *et al.* 1983; Spanos 1983; Spanos *et al.* 1983, 1985a; Zamansky and Bartis 1985). In a typical hidden observer experiment, the subject is hypnotized and informed that he or she will be amnesic for some stimulus, typically pain produced by immersion in icy water (cold-pressor pain). The subject is then given a ‘hidden observer’ induction, on the model of the following:

When I place my hand on your shoulder, I shall be able to talk to a hidden part of you that knows things that are going on in your body, things that are unknown to the part of you to which I am now talking. The part of you to which I am now talking will not know what you are telling me or even that you are talking. (Knox *et al.* 1974, p. 842)

A common finding is that highly hypnotizable subjects appear to be amnesic for the target stimulus when required to report via normal methods, but when given the hidden observer cue their reports are akin to those they give in conditions of hypnosis without amnesia. Such subjects appear to have a hidden part of them that is aware of the stimulus, just as the hidden observer induction suggests! This is a tempting conclusion, but we will find that there are reasons to resist drawing it.

## **2. Two models of the hidden observer**

Although Hilgard was the first to use the term, the hidden observer phenomenon pre-dates his work by some considerable time. Alfred Binet discussed automatic writing in his *Double consciousness* (1889–1900), as did William James in his *Principles of psychology* (1890). James took the phenomenon to demonstrate that ‘in certain persons, at least, the total possible consciousness may be split into parts which coexist but mutually ignore each other, and share the objects of knowledge between them’ (James 1890, p. 206). Morton Prince (1909) used the term ‘co-consciousness’ to refer to the relationship that experiences have when they are split off from each other and no longer occur within a single stream of consciousness.<sup>1</sup>

It is not hard to have some sympathy with these conclusions. The hidden observer phenomenon does tempt one to think that the subject has a divided or split consciousness—that he or she has lost the normal unity of consciousness. What exactly might it mean to talk of consciousness being ‘split into parts’? Indeed, what do we mean here by ‘consciousness’?

It is notoriously difficult to provide an illuminating and non-question-begging explication of the notion of consciousness. Perhaps the best that one can do is to say that there is ‘something it is like’ to have a (phenomenally) conscious mental state (Nagel 1974). Conscious states differ from unconscious states in that there is something it is like to have the former but there is nothing it is like to have the latter. Conscious states also differ from each other in terms of their phenomenal character. What it is like to hear a sound differs from what it is like to see a dog, and both of these states differ from what it is like to feel pain.

Just as ‘consciousness’ is variously understood in the literature, so too is the unity of consciousness. Some authors use the term to refer to the thesis that the contents of consciousness must be consistent at a time. Other authors use the term to refer to a sense of self-consciousness—the sense that all of our experiences are our own. Still other authors use the term to refer to the availability of the contents of consciousness to a wide range of consuming systems. I use the term to refer to the thesis that the simultaneous conscious

states of a person occur as parts (components, aspects) of a single field of consciousness (Dainton 2000; Bayne and Chalmers 2003). My visual, auditory, tactile, cognitive, emotional and agentic experiences do not occur as phenomenal atoms but are unified in a single global field of consciousness; they are mutually phenomenally unified.

The proponent of what I will call the 'two-streams model' argues that this global unity is lost in the hidden observer context, and perhaps in hypnosis more generally. According to this model, hypnotic subjects manifesting a hidden observer enjoy two streams of consciousness at once—a 'central' stream and a 'hidden observer' stream. The subject's overt reports are guided by conscious states in their central stream of consciousness, while their hidden observer reports are guided by those conscious states in their hidden observer stream.

The two-streams model is neutral as to the nature of those conscious states within the subject's hidden observer stream. To fix ideas, consider a hidden observer experiment involving cold-pressor pain. One possibility is that the subject is reporting conscious states of pain that are caused by immersion in the icy water. This would be a 'bottom-up' account of the aetiology of hidden observer experiences. Another possibility is that the subject is indeed reporting conscious states of pain, but these conscious states are not caused by the icy water but by the subject's imaginative involvement in the experiment. Roughly speaking, the subject expects to have a sensation of pain, and so she does. Call this a 'top-down' account of the aetiology of hidden observer experiences. Although the bottom-up theorist and the top-down theorist have very different accounts of how hidden observer states are formed, they agree that these states are experiences, i.e. conscious states.

Opposed to the two-streams model is what I call the 'zombie model'.<sup>2</sup> According to this model, hidden observer responses are made on the basis of unconscious representations of the stimulus. The subject perceives the stimulus in question (the pain, for example), but neither this perception nor the subject's report of it is conscious. The zombie theorist holds that those representations involved in hidden observer behaviours are no more conscious than are subliminal perceptions involved in priming experiments. Note, importantly, that the zombie theorist is not committed to the claim that the hypnotic *subject* is unconscious while engaged in hidden observer reports. The claim is that the mental states that generate such reports are unconscious, not that the subject of those mental states is unconscious.

The difference between these two models is of some importance for theories of consciousness. The truth of the two-streams model would show that the unity of

consciousness is a contingent feature of consciousness that can be disrupted with relative ease. It is widely granted that distinct streams of mental processing can proceed in parallel, but few would grant that such streams could be separately conscious, at least in the absence of major brain injury.

The truth of the zombie model would also have important ramifications for accounts of consciousness. While it is widely acknowledged that unconscious states can have cognitive effects, it is typically thought that only conscious states can generate the kind of intentional and goal-directed behaviours seen in the hidden observer context.

The zombie and two-streams models are both represented in the hypnosis literature, sometimes within the work of a single author. Hilgard frequently refers to hypnosis as involving a 'division' or a 'split' in consciousness, and in an early paper he and collaborators say of the painful experience that it is 'diverted from the normal open consciousness, but is processed by a hidden consciousness' (Knox *et al.* 1974, p. 847). Hilgard's more considered comments, however, seem to side with the zombie model. He writes: '...the "hidden observer" is a metaphor for something occurring at an intellectual level but not available to the consciousness of the hypnotized person' (1977, p. 188; see also 1992, p. 21). Hilgard does go on to say that the hidden observer had a 'covert experience of pain', but it is clear from the context that he is using the term 'experience' in such a way that an experience need not be conscious, for he says that this experience was 'masked by the amnesia-like process before it ever became conscious' (1977, p. 191). Hilgard is not the only hypnosis theorist to argue that hypnosis involves a division of consciousness without being entirely clear about the nature of the division in question. Kihlstrom seems to endorse the two-streams model when he says that dissociation involves 'a division of consciousness into multiple, simultaneous streams of mental activity', but in the very next sentence he appears to side with the zombie model, writing that 'dissociation proper occurs when one or more of these streams influences experience, thought, and action *outside phenomenal awareness* and voluntary control' (1985, p. 406; my emphasis).

### **3. The zombie model**

Although the central thrust of Hilgard's account of the hidden observer is suggestive of the zombie account, there is surprisingly little argument in his work for the view. His central motivation for the claim that hidden observer states are not conscious is that hidden observer 'reports' are produced by a subpersonal part of the subject: '...the experimenter makes contact with a cognitive system that is hidden from the subject himself as well as from the experimenter' (1973, p. 406; see also Hilgard 1977, p. 244). If

hidden observer 'reports' are not made by the subject then they can provide no direct evidence for claims about the subject's conscious states—indeed, they can hardly qualify as *reports*.

I find the argument unconvincing. Contrary to Hilgard, hidden observer behaviours appear to be reports, and it is not clear who produces them if not the hypnotic subject. In fact, there is a nasty little problem for hidden observer studies here. What is it that distinguishes hidden observer reports from standard reports? The literature provides no clear answer to this question. One cannot define hidden observer reports in terms of the motor systems employed, for there is considerable variety in the motor systems that have been taken to convey hidden observer reports. Hilgard and collaborators have elicited hidden observer reports via automatic writing, button pressing and even 'automatic talking' (Hilgard *et al.* 1975). Nor can hidden observer reports be distinguished from overt reports by reference to temporal factors, for in some experiments hidden observer reports and overt reports have been given roughly simultaneously, while in other experiments hidden observer reports have followed overt reports. The literature has treated any report that is made under the conditions specified by the experimenter as hidden observer conditions as a hidden observer report.<sup>3</sup> Theorists sometimes note that hidden observer reports do not occur spontaneously, as if this is an empirical observation (see, for example, Spanos 1983, p. 71), but if the account of hidden observer reports just offered is correct, then reports given spontaneously simply would not be coded as hidden observer reports. In light of all this, it seems uncontroversial that hidden observer behaviours qualify as genuine reports.<sup>4</sup> The question is whether these reports are indicative of conscious states or whether—as the proponent of the zombie model asserts—they are indicative only of unconscious states.

The answer given by the zombie model is *prima facie* implausible: if—as I have suggested—hidden observer behaviours are reports of bodily and perceptual states, then we ought to treat them as we treat other reports of perceptual and bodily states, i.e. as representations of the subject's conscious states.

In response to this objection, the zombie theorist might say that the real criterion of consciousness is *global availability* (Baars 1988, 2002; Dehaene and Naccache 2001; Dennett 2001). The contents of consciousness differ from those of unconscious states in that all and only the former are available for the global control of thought and behaviour. We can unpack the notion of global availability in terms of what Ned Block calls 'consuming systems'—systems that are involved in the voluntary allocation of attention, memory consolidation, categorical perception, motor responses, and so on. Reportability is a guide to consciousness only insofar as it is a guide to global availability. Since hidden observer

content is not globally available to the subject, we have good reason to think that it is not conscious *even when verbally reportable*.

A first response to this argument concerns the status of global availability accounts of consciousness. Although such accounts are often advanced as (well-confirmed) empirical theories of consciousness, they are in fact nothing of the sort. Rather, they are methodological posits: the theorist assumes that all and only globally available content is conscious. Content that is not globally available is deemed by methodological fiat not to be conscious. These theorists use global availability as their criterion of consciousness, and hence could have no evidence that consciousness is identical to, or even correlated with, global availability.

A second issue concerns the characterization of global availability. What exactly does it take for content to be globally available? We can put the issue confronting the zombie theorist here as a dilemma.

On the one hand, the theorist might work with a very broad conception of global availability, according to which content must be available to a wide range of consuming systems in order to be globally available. On this conception of global availability, it may well follow that hidden observer content is not globally available, but there is good reason to think that conscious content need not be globally available in this sense. Subjects who are delirious or who are in a dream state appear to have states of consciousness whose content is not available to each of their consuming systems. The strangest events occur in delirium and dreaming—a dog turns into an elephant, one's aged grandmother eats a hamster on toast, and the Queen gets married to Lenny Bruce—without the subject registering any awareness of the incongruity. Those systems involved in belief-revision, introspection and (in at least some cases) memory consolidation appear to be off-line (Lipowski 1990; Gill and Mayou 2000; Fleminger 2002). So if dreaming and delirium involve conscious states—as they seem to—then global availability cannot be a necessary feature of consciousness.

On the other hand, the zombie theorist might work with a more restricted conception of 'global availability', according to which content need be available only to a restricted pool of systems—perhaps only working memory—in order to count as globally available. This conception of global availability shores up the connection between global availability and unconsciousness, but there is now no reason to think that hidden observer content fails to be globally available.<sup>5</sup>

A third problem with the zombie account concerns the conception of non-conscious states that the zombie theorist is committed to. The zombie model attempts to assimilate hidden

observer behaviours to syndromes in which non-conscious (or 'implicit') states exert physiological effects, influence categorization and trigger motor routines (Rossetti 1998; Koch and Crick 2001; Koch 2004). The assimilation is troublesome, because hidden observer behaviours appear to involve more cognitive sophistication and flexibility than those seen in those syndromes in which we are most inclined to invoke zombie systems. Attempts to explain more sophisticated behavioural routines—such as those that occur in the complex partial seizures of epilepsy—in terms of zombie systems (see, for example, Koch 2004) are highly tendentious precisely because we think that consciousness is necessary for high-level flexible behaviour.

#### **4. The two-streams model**

If the zombie model is wrong, then the states that generate hidden observer reports must be conscious. Are these states of consciousness unified with the subject's other conscious states in a single stream of consciousness, or does the hidden observer subject have two streams of consciousness, as the two-streams theorist claims?

The first point to note here is that if the two-streams model is right, then hypnosis involves a departure—a quite *radical* departure—from the normal structure of consciousness. Consciousness is typically unified, in the sense that the simultaneous experiences of a single subject occur within a single state of consciousness—a unified phenomenal field. It is the content of this field that determines what it is like to be the subject in question. Assuming that consciousness is normally unified, the question arises as to how the hidden observer context might bring about its division. The most powerful evidence for the claim that a human being can have two streams of consciousness comes from data deriving from persons who have undergone a callosotomy (a section of the corpus callosum)—so-called 'split-brain' patients (Bogen 1993; Gazzaniga 2005). However, hypnotic subjects have undergone no such operation, and it is unclear what feature of the hypnotic context in general—or hidden observer paradigms in particular—might change the structure of consciousness.<sup>6</sup>

One might challenge the claim that consciousness is normally unified, as Hilgard himself does (1977, p. 185). Hilgard does not elaborate on what he takes a division in consciousness to involve, and the only example he gives of an everyday division of consciousness—involving the participation in a conversation—is unpersuasive. 'Person A, while listening to Person B, is simultaneously planning his reply, and even while replying he may monitor how well he is doing by watching the facial expression of person B, perhaps changing the direction of his argument if he appears to be unconvincing' (1977, p. 1f.). In what sense does this scenario involve a division in consciousness? There might be

two (or more) thoughts proceeding in parallel here, but it seems clear that these thoughts could be phenomenally unified—they could occur as components of a single stream of experience.

A similar account can be given of so-called trance logic, in which both the act and suggested states of affairs appear to be simultaneously represented in consciousness (Orne 1959). Orne described trance logic as the ‘apparently simultaneous perception and response to both hallucinations and reality without any apparent attempts to satisfy a need for logical consistency’ (1959, p. 295). One might argue that subjects fail to appreciate the need to resolve the tensions between the perceptual and imaginative experiences because these two sets of representations are not phenomenally unified—they involve not only different stream of mental activity, but different streams of *consciousness*. Indeed, one might argue that representational consistency is a constraint on phenomenal unity, such that experiences with inconsistent contents cannot be phenomenally unified.

Although there may be something to this line of argument, it is not adequate as stated, for experiences with representationally inconsistent contents can be phenomenally unified. Consider the fact that one can perceive the lines of the Müller–Lyre illusion as differing in length, even while one believes that they are of the same length. However, these two conscious states can be phenomenally unified, despite the representational conflict between them. Similarly, it is possible that the perceptual and imaginative experiences of subjects exhibiting trance logic might also be phenomenally unified, despite the fact that the contents of these states are at odds with each other.

The following line of thought, which Kirsch and Lynn ascribe to the neo-dissociationist, suggests a second argument for the two-streams view:

Responses to suggestion are produced by a division of the executive ego into two parts, separated by an amnesiac barrier. On one side of the barrier is a small hidden part of consciousness that initiates suggested actions and perceives the self and the external world accurately. On the other side is the hypnotized part of consciousness that experiences suggested actions as involuntary and is not aware of blocked memories or perceptions to which only the hidden part has access. (Kirsch and Lynn 1998, p. 67).<sup>7</sup>

We might develop this ‘phenomenology of agency’ argument as follows. A common component of the phenomenology of hypnosis is the experience that certain actions are non-voluntary.<sup>8</sup> When given suitable instructions, subjects exhibiting arm levitation report a diminished sense of agency with respect to the movement of their arm (Spanos and Barber 1972; Bowers *et al.* 1988; Comey and Kirsch 1999). Why do such subjects lack the

normal experience of agency? The two-streams theorist has a neat answer to this question: the subject has not lost the experience of agency, it is merely relegated to the 'hidden part of consciousness'. Hypnosis has split the subject's central executive, together with their stream of consciousness, into two. We should not expect the subject to report a normal phenomenology of agency, for the subject's reports are guided by the main part of their central executive, and it is the 'hidden' part of the central executive that initiated the actions in question.

Dissociated control theorists reject the phenomenology of agency argument on the grounds that hypnotic actions involve only non-executive mechanisms. They hold that the experience of non-executive agency in hypnosis is veridical, for hypnotic actions are produced by automatic action systems rather than executive systems (Bowers 1990, 1991; Bowers and Davidson 1991; Miller and Bowers 1993). The problem with this response, I think, is that subjects can lose the experience of agency for actions that appear to be executive, such as eliminating the concept of the number 4 from their mathematical operations (Evans 1980).

I think the phenomenology of agency argument fails for quite different reasons. The argument assumes that actions must be accompanied by an experience of agency—or at least that actions cannot be accompanied by an experience of automaticity. I see no reason to grant either assumption. There is no reason to think that the phenomenology of agency is a necessary concomitant of agency itself, even when the actions in question are 'executive'. It seems possible that hypnosis could remove the experience of agency—what we might call the experience of willing—without impairing the exercise of agency itself (Bayne 2006; Bayne and Levy 2006).

Another argument for the two-streams model appeals to the restricted availability of hidden observer content. Consider the hidden observer subject in an analgesic experiment. If her experience of pain were unified with her other experiences (visual experiences, auditory experiences, and so on), why does she not report them when asked? After all, she can report her visual and auditory experiences, why should her pain experiences be unreportable? Why, instead, does she report levels of pain that approximate those reported by hypnotic subjects in non-analgesic conditions? Ruling out dishonesty, we must conclude that she is unable to report them. However, if she is unable to report them, then it seems to follow that they must occur in a stream of consciousness that is inaccessible to the subject's report modalities (prior to the hidden observer prompt, at least).

The problem with this argument is that hidden observer subjects can report their hidden observer experiences.

I felt ... that I was hypnotized but that there really was a clear side of me. ...it felt like a division, a division in myself (Laurence and Perry 1981).

After you put your hand on my shoulder I felt much lighter, as though I was floating...It is as though you were contacting someone else outside of me but part of me at the same time; as though I had a twin 'me' and in a way I could not immediately communicate with each part at the same time (Spanos *et al.* 1985a, p. 1161).

A sort of numbness—detachment—came over me, almost as if I were two entities, but still I was one. . . . When the [experimenter's] hand touched my shoulder I did indeed feel as if there were two parts to myself. My left hand was supposed to tap out numbers corresponding to the pain it felt, and it was much less sensitive than my real hypnotized self (Spanos 1983, p. 174).

These reports also indicate that there are some consuming systems, i.e. memory systems, that have access to both normal and hidden observer experiences. How else would subjects be able to report both normal and hidden observer experiences? These facts are difficult to reconcile with the two-streams model.

## **5. The switch model**

Rejecting the zombie and two-streams models leaves us with one option: the hidden observer states must be conscious, and they must be unified with the rest of the subject's conscious states. In this final section, I examine two versions of this model.

We might gain a hint for how to develop a 'unity' model of the hidden observer by considering the so-called 'duality reports' of age-regressed subjects (Perry and Walsh 1978; Laurence and Perry 1981). Whereas some age-regressed hypnotic subjects report having experienced themselves as solely age-regressed, others report the feeling of having been both an adult and a child:

*Subject 21:* I became small again, small, small. Physically, ... I saw myself again with my curls at school. ... I felt 5, and I felt 23 also ... I knew I was 5 years old at school, but I knew I was 23 years old, also, that I was an adult.... I really felt 5 years old. I would not be able to say that I was solely 23 years old.

*Subject 17 (Did you really feel you were 5 years old?):* I felt ... you know, I was two people, one standing off looking at the other, and the other that was standing was saying, you idiot, you can write your name, why are you taking so long? Yet the one

that's writing it is struggling away, to form these letters....can't (Laurence and Perry 1981, p. 338).

These subjects appear to experience two contents at once: the feeling of being an adult and the feeling of being a child. Nonetheless, these contents appear to occur as components of a single phenomenal state, what I have been calling a 'stream of consciousness'.

Now, if age-regressed subjects can maintain two separate identities within a single stream of consciousness, then it might also be possible for hidden observer subjects to do likewise. Perhaps hidden observer subjects have two clusters of content, both of which occur within a single unified stream of phenomenology. The connection between duality reports and the hidden observer is supported by the fact that Laurence and Perry (1981) found a correlation between the two: subjects who produced duality reports in age regression tended to show significant differences between levels of pain as reported by the hidden observer and as reported normally.<sup>9</sup> Might hidden observer and normal experiences co-exist as simultaneous components of a single phenomenal state?

I think not. The problem is this. Consider a hidden observer subject (HO) who produces 'overt' reports in line with hypnotic analgesia but produces hidden observer reports of high levels of cold-pressor pain. Applying the model just examined to this case generates the result that HO has, at a single time, an experience of pain and an experience of no pain. It is unclear that this is a phenomenal state that one could be in. Arguably, one could only experience an absence of pain by not experiencing pain; but, by hypothesis, HO is experiencing pain. Whereas the experience of being a child is not inconsistent with the experience of being an adult, some hidden observer experiences do appear to be inconsistent with the subject's corresponding 'overt' experiences. If we are to develop a 'full unity' account of the hidden observer, we need look elsewhere.

Let us take a step back. An account of the hidden observer needs to explain why the subject's reports differ depending on whether or not they are subject to a normal or a hidden observer probe. Both the zombie and two-streams models explain this by reference to the fact that the normal and hidden observer probes are tapping independent streams of information (which may or may not be conscious). Perhaps the subject has but one stream of consciousness, the content of which depends on how it is probed. As Spanos and Hewitt (1980) suggest, the hidden observer probe might change the patient's phenomenology by directing his or her attention to the previously neglected stimulus. The probe ('hand on the shoulder') functions as an alarm bell, bringing into consciousness previously unconscious content. I will call this the 'switch model' model, for it conceives

of hidden observer reports as tracking a switch in the contents of the subject's consciousness.<sup>10</sup>

Although Spanos and Hewitt were the first to endorse the switch model, Hilgard had considered and rejected it some years earlier (Hilgard 1977). Hilgard begins his criticisms of the switch model by pointing out that in some hidden observer experiments the hidden observer probe occurs *after* the trial has been completed (1977, p. 238f.). Since only the memory of the stimulus is accessed, it follows that the information must have been stored while the analgesia or deafness persisted, and thus that the availability of the target information could not depend on the presence of a probe, as the switch model demands.

In making this objection, Hilgard adopts what I earlier called a bottom-up account of the hidden observer: hidden observer reports are primarily responsive to the perceptual stimulus rather than the subject's expectations or imaginative states. Hilgard argues for the bottom-up approach by pointing to the fact that the levels of hidden observer pain reported by his subjects were in rough agreement with the levels of pain reported by control subjects, i.e. hypnotized subjects who had not been given analgesia suggestions. As I understand Hilgard's view, the hidden observer probe makes the hidden stimulus *reportable*, but it does not make the stimulus *conscious*, because it was already conscious.

In an important series of studies, Spanos and collaborators cast doubt on the claim that the content of hidden observer reports is controlled by the stimulus administered to the subject. Spanos and Hewitt (1980) were able to elicit hidden reports of high levels of pain or low levels of pain depending on the wording of the hidden observer instructions, a finding replicated in Spanos *et al.* (1983). Spanos *et al.* (1985a) provided additional evidence of top-down effects on hidden observer responding by showing that hidden observers could be led to breach hypnotic amnesia according to whether or not the possibility of such breaches was implicated in the hidden observer instructions. In a delightful variant on this approach, Spanos *et al.* (1985a) gave subjects a hidden observer induction in which they were informed that concrete words were stored in one half of the brain and abstract words in the other half, and were led to believe that each half of the brain had its own hidden part. Breaching was now category specific, with subjects able to remember only concrete or abstract words depending on which hidden part the experimenter contacted.

In response to these studies, Kihlstrom and colleagues have argued that although hidden observer behaviours might be subject to influence from the content of the induction, it does not follow that the hidden self is an experimental creation, as Spanos puts it (Laurence *et al.* 1983; Kihlstrom and Barnier 2005). Kihlstrom and Barnier (2005) point out

that nobody would conclude from the results of Sherif's or Asch's experiments on social influence (Sherif 1935; Asch 1956) that the autokinetic phenomenon is not genuine or that subjects do not really perceive the length of lines. True, but the analogy is not a fair one.<sup>11</sup> The results that Spanos and collaborators report do not merely show that the contents of hidden observer reports are subject to top-down *modulation*, rather, they suggest that such contents can be *fully* accounted for in terms of such influences. Consider the first experiment reported in Spanos *et al.* (1983), in which subjects were told that they had a hidden observer, but were not given *any* cues about how much access the hidden self had to the pain. If, as Hilgard and Kihlstrom hold, the hidden observer induction enables the subject to access previously inaccessible representations of pain, one would expect subjects in this experiment spontaneously to report a higher level of pain than in the hypnotic condition. However, this was not the case: subjects did not report higher levels of hidden observer pain than they did during hypnotic analgesia, and in fact the majority reported equal levels of hidden and hypnotic pain. The work of Spanos undermines Hilgard's response to the switch objection, for even when hidden observer reports of the stimulus in question are veridical, it is possible that such reports are veridical only because the experimental context contains the appropriate cues, and that the report is grounded in top-down expectations rather than bottom-up sensory processing.

Note, as an aside, that there is nothing in the results of Spanos that demonstrates that hidden observer subjects deliberately misrepresent their experiential states (as Spanos and colleagues sometimes suggest). It is quite possible that the experimental context—the hidden observer instructions together with the prompt—leads subjects to imagine that they are (say) in pain, which in turn leads them to be in pain. Presumably this sort of top-down modulation of experiential content occurs in typical hypnotic context, with the subject (say) forming a visual experience of a rabbit in her lap on the basis of the hypnotist's suggestions. Alternatively, it could be that the experimental situation leads the subject to form the (false) belief that they are in the target phenomenal state. Deciding between these possibilities can be done only in the context of a general account of how hypnosis brings about changes in the contents of consciousness, and this is too ambitious a project to be tackled in this chapter.

However, although Hilgard's objection cannot be sustained on the basis of his own hidden observer studies, there may be something to it nonetheless. Zamansky and Bartis (1985) gave subjects a battery of hypnotic suggestions, one of which was an anosmia suggestion and another one of which was a negative visual hallucination. After each of these suggestions, the stimulus was removed and the suggestion cancelled. Subjects were then quizzed on their ability to identify the stimuli, with a pass being awarded only if at

least one of the two stimuli could be identified. Those subjects who passed the first stage were then given an introduction to the hidden observer induction, and were told that after a count of three the previously hidden information 'will no longer be hidden and you will be aware of things that you were not aware of or did not know before' (1985, p. 245). Of the 11 subjects who passed the first stage, 10 identified the previously unidentified stimulus or stimuli successfully. The switch model has no account of these findings ready to hand.

Hilgard's second objection to the switch model is that hypnotic subjects do report the occasional intrusion of the stimulus in question, but 'these reports are not given when the covert experience is accounted for' (Hilgard 1977, p. 238). I am not completely sure what Hilgard has in mind here, but I think his point is this: if the switch model were right, hidden observer subjects would describe hidden observer experiences in the way that normal subjects report their experiences of spontaneous intrusions into consciousness of suppressed stimuli, but in fact hidden observer reports are easy to distinguish from such reports.

The objection underestimates the resources of the switch model. There are two ways in which a previously suppressed stimulus might intrude into the subject's consciousness: spontaneously, or via a hidden observer probe. The subject's phenomenology will be similar in the two conditions in that the subject will be aware of the stimulus, but the *manner* of the subject's awareness may well differ. When the subject's attention is spontaneously drawn to the stimulus, the subject will be inclined to describe the stimulus as intruding into consciousness but, when the subject's attention is drawn to the stimulus by the hidden observer trigger, they will probably be inclined to describe themselves as accessing what they have been told by the hypnotist are the experiences of a 'hidden part of them'. It is relevant to note here that although those administering the hidden observer induction may not endorse homuncular conceptions of the hidden observer, the induction that they administer to the subjects suggests that they do. It is not surprising that some subjects are drawn to report their experiences in homuncular terms because, in giving the hidden observer induction, the experimenter contrasts 'the hidden part of you' with 'the part of the subject to which I am now talking'!

That the contents of consciousness can seamlessly and rapidly switch between contents—often without the subject realizing that such a switch has occurred—is suggested by a series of studies conducted by Levy and Trevarthen on split-brain subjects (Trevarthen 1974; Levy and Trevarthen 1976; Levy 1977, 1990). Levy and Trevarthen presented their subjects with stimuli created by conjoining two similar stimuli at the vertical midline. Since each hemisphere received a different stimulus, one would expect subjects to have

produced conflicting motor responses if representations of both stimuli were conscious. Such responses were vanishingly rare...

For all patients examined, and for tasks including the perception of faces, nonsense shapes, pictures of common objects, patterns of Xs and squares, words, word meaning, phonetic images of rhyming pictures, and outline drawings to be matched to colours, patients gave one response on the vast majority of competitive trials. Further, the nonresponding hemisphere gave no evidence that it had any perception at all. Thus, if the right hemisphere responded there was no indication, by words or facial expression, that the left hemisphere had any argument with the choice made, and, similarly, if the left hemisphere responded, no behavior on the part of the patient suggested a disagreement by the right hemisphere (Levy 1990, p. 235).

Of course, even if the switch model accounts for the split-brain data, it might not account for the hidden observer data. Nevertheless, I think it is instructive to note that a syndrome which is often presented as involving two streams of consciousness in a single human being might be best accounted for in terms of the switch model.

It is also instructive to note that the switch model has been given for another experimental result that has shades of the hidden observer about it. Miller and Bowers (1993) asked subjects engaged in a cold-pressor task to report on their levels of pain intensity by means of two report modalities: verbally, and via a foot-pedal mechanism that used pressure to indicate pain intensity. The subjects' verbal reports were retrospective, while their foot-pedal reports were concurrent with the stimulus. The pedal-pressure reports of hypnotized highly hypnotizable individuals indicated increasing levels of pain over the duration of the task, while no equivalent increase of pain over time was indicated via retrospective verbal report. Miller and Bowers themselves suggest that changes in the focus of the subjects' attention might account for the discrepancies between their verbal reports and their foot-pedal reports.

It might be objected that in at least one hidden observer experiment subjects are said to have produced simultaneous overt and covert reports (Hilgard *et al.* 1975). If the covert and overt reports are simultaneous, then it is hard to see how one could explain the difference between them in terms of alterations in the focus of the subject's attention. However, I am sceptical that these reports really were produced simultaneously. Hilgard's reports contain no quantitative data about the timing of reports, and when hidden observer studies have specified simultaneity measures they have operationalized it to within 500 ms (Spanos and Hewitt 1980), which is certainly long enough for the subject's attention to change its focus.

There is another objection lurking in these waters. Even if subjects do not produce overt and 'hidden observer' reports simultaneously, they do report having been simultaneously aware of normal and 'hidden observer' experiences 'from the inside', as we might say. I think this is the toughest objection facing the switch model, and I am not entirely sure what to say in response to it. It is possible that subjects are remembering (and thus reporting) sequential experiences as having been simultaneous. Here, as elsewhere, further research on the phenomenology of hypnosis is vital.

## **6. Conclusion**

I have argued that hypnosis does not involve a breakdown in the unity of consciousness. By far and away the most suggestive data in this regard are provided by the hidden observer paradigm, and for the most part these data are best accounted for in terms of switches in the contents of consciousness rather than simultaneous (but disunified) streams of consciousness, or in terms of two streams of mental activity, only one of which is conscious. I have not examined the question of whether hypnotic subjects really undergo the radical changes in the content of consciousness that they seem to, and, if so, how these changes might come about. However, those seeking to develop an account of consciousness would do well to address these questions. Hypnosis provides students of consciousness with an intriguing data set, one that it would be as foolish to ignore as the data sets deriving from the study of dreaming, psychosis or indeed ordinary waking consciousness.

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<sup>1</sup>Within the philosophical literature on the unity of consciousness, the term ‘co-consciousness’ is typically employed to refer to a very different relationship—the relationship that experiences have when they are components of a larger experiential whole. In an attempt to stave off confusion, I use the term ‘phenomenal unity’ for this relationship (see immediately below).

<sup>2</sup>My use of the term ‘zombie’ draws on recent discussions of consciousness rather than voodoo practices as portrayed in B-grade films. A philosophical zombie is a creature who can carry out the normal cognitive operations of consciousness but lacks phenomenally conscious states.

<sup>3</sup>This is not to say that there have not been debates over what qualifies as a genuine hidden observer paradigm. Kihlstrom and Barnier (2005) criticize the hidden observer study of Green *et al.* (2005) on the grounds that Green *et al.* substituted Hilgard’s ‘prosaic touch on the shoulder’ probe for the sound of ‘Ohm in a slow, deep, mantra-like voice’. However, why should altering

the nature of the probe in this way undermine the claims of this study to being a hidden observer study? Laurence *et al.* (1983) detail what they describe as a canonical method for eliciting the hidden observer effect, but they do not say why the method that they outline is canonical. [They also misrepresent the hidden observer procedure used by Hilgard, as Spanos (1983) points out.] If the hidden observer has a robust existence, then it should be possible to study it by means of a variety of experimental tasks.

<sup>4</sup>I suppose that one could allow that hidden observer reports are the action of a subject, but insist that the subject who produces the hidden observer reports is distinct from that which produces the normal reports. However, not only is this move unappealing in its own right, it is also of no help to the proponent of the zombie model, because a homunculus is a subject and as such is the kind of thing that could have conscious states.

<sup>5</sup>One way to think about global availability is in terms of access to whatever consuming systems the subject has at the time in question. It might be that the hypnotic context has the effect of 'shutting down' some of the subject's consuming systems, such that although the content is not available to all of the subject's consuming systems, it is available to each of the consuming systems that are 'on-line' at the time in question.

<sup>6</sup>One might argue that our inability to conceive of how the hypnotic context might generate changes in the structure of consciousness is no reason to think that it does not. After all, we have good reason to think that hypnosis operations generate changes in the contents of consciousness even though we have no good model of how this occurs. Nonetheless, it seems more plausible to suppose that features of the hypnotic context might alter the contents of consciousness than to suppose that they might alter the structure of consciousness.

<sup>7</sup>However, note that in their diagram of the neo-dissociation model, Kirsch and Lynn label the contents of the hidden part as *unavailable* to consciousness (p. 67)!

<sup>8</sup>It is sometimes suggested that this experience of a lack of normal agency is a typical component of the phenomenology of hypnosis—that it is a feature of the hypnotic state as such. However, in fact, such experiences appear to attach to particular actions as a result of the hypnotist suggesting that the subject will lose the sense of agency for an action. Thanks to Graham Jamieson for this point.

<sup>9</sup>Note that this finding is contested. Nogrady *et al.* (1983) replicated the correlation, but Spanos *et al.* (1985b) failed to find a significant relationship between hidden observer responses and duality reports.

<sup>10</sup>There are also hints of this model in Oakley and Eames (1985).

<sup>11</sup>For a full response to Laurence *et al.* (1983) see Spanos (1983).