

of the volitional status of suggested behavior have not only become the subject of passionate debate but constitute the crux differentiating theories of hypnosis (Kirsch & Lynn 1998a). Hypnosis data drawing on cognitive science and neuroimaging have provided significant insights into this conundrum.

It is not a coincidence that some practitioners prefer the term "self-hypnosis" to "hypnosis" (cf. Olness & Kohen 1996). Participants in hypnosis studies generally wish to be hypnotized and therefore consent to fill the hypnotic role and follow suggestions. Their compliance differs from that of a voluntary response to a request in that they must make plans not only to execute a suggested movement, but also to concurrently interpret the movement as non-volitional. Indeed, there are data supporting this mental process (Silva & Kirsch 1992). However, whether or not hypnotic responses are intentional, it is important to remember that they are experienced as involuntary by the subject. As it is likely that these responses are a product of both intentional and automatic elements, the issue becomes more a question of whether the response is elicited *intentionally* or *attentionally* (e.g., Raz & Shapiro 2002).

There are data showing that highly hypnotizable individuals can eliminate involuntary and ballistic effects (e.g., Stroop interference) following a specific posthypnotic suggestion (MacLeod & Sheehan 2003; Raz et al. 2002; 2003b; Schatzman 1980). When they do, specific brain changes related to this effect occur (Raz 2004). Furthermore, there are now genetic findings concerning individual differences that might relate to the distinction between highly and less hypnotizable people (Raz et al. 2003a; 2004; in press) as well as evidence that hypnotic inductions might lead to "behavioral lesions" reminiscent of actions following veridical lesions (e.g., stroke) (Raz 2004). Indeed, the heritability of hypnotizability is among the highest of any psychological individual-difference measure identified to date (Morgan 1973; Morgan et al. 1970) and neuroimaging findings associated with such hypnotic and attentional modulations consistently implicate differential activation patterns in the anterior cingulate cortex (ACC) (Fan et al. 2003; Raz et al. 2003a; 2004; in press).

A popular theory of cognitive control proposes that the ACC is part of a network involved in handling conflict between neural areas. While some researchers view the ACC through the lens of a conflict-monitoring model (Botvinick et al. 2001; Cohen et al. 2000), others construe it as a regulation model engulfing broader processes of consciousness and self-regulation, including executive attention and mentation (Bush et al. 2000). Consistent with the importance of the ACC to normal self-monitoring, there are syndromes of abnormal agency that occur with extensive lesions of the ACC and associated midline frontal cortex whereby a patient interprets the actions as caused by an outside force (Goldberg 1985). The ACC is well-situated to mediate between limbic motivational influences and the adjacent supplementary motor areas, and lesions associated with ACC and medial frontal regions have been documented to produce akinetic syndromes, in which patients do not engage in actions despite being quite capable of doing so (Damasio & Van Hoesen 1983). With their ACC impaired, these patients appear to lack motivation to act. Towards this end, psychosurgery sometimes aims for the ACC to alleviate chronic pain or decrease the symptoms of anxiety, as such interventions typically decrease the patient's concern over life problems (Rainville et al. 1997).

The illusion of conscious will can be also harnessed towards a low-cost and noninvasive therapeutic means. For example, hypnotic interventions have been used to alleviate tic symptoms in individuals diagnosed with Tourette syndrome (TS) (Crawford 1992; Culbertson 1989; Kohen 1995; Kohen & Botts 1987; Lindner & Stevens 1967; Young & Montano 1988; Zahm 1987). Hypnotic suggestion is believed to engage self-regulatory mechanisms (Ray & Tucker 2003), and, whereas effortful control can evanescently suppress TS symptomatology, rendering self-regulation a lens by which to view TS formulation, the fact that volitional as well as involuntary control of behavior can be interrupted and

modified by external suggestion proposes that, at least under appropriate conditions, hypnotic influence may engage mechanisms of control at an elementary level. By understanding the substrates of these processes, therefore, we may better understand not only the interesting phenomenon of conscious will, but mechanisms of self-regulation. This is particularly appealing in the context of human development, wherein studies have shown that the sense of control over actions becomes stronger with age. In this regard, studies of hypnotic susceptibility have repeatedly shown that children are more hypnotizable than adults (London 1965; Olness & Kohen 1996) and more readily attribute the cause of their actions to an external source, suggesting that the separation of action from authorship is perhaps more potent in younger age. The maturation of self-regulatory mechanisms across development is instructive in this sense, because prefrontal brain development reflects changes in perception of control over action as well as thought and emotion and may lead to a more complete understanding of the correlates of conscious will (Bronson 2000).

In conclusion, Wegner's book is a delightful composition and a fine demonstration of how cognitive science can learn from the insights of an accomplished social psychologist. Although we would have liked to see a more rigorous treatment of relevant psychopathology and, particularly, data concerning the neural correlates of consciousness, books take time to prepare and some of the data we cite here were probably unavailable as Wegner was putting pen to paper. Apropos, Christof Koch's latest, *Quest for Consciousness* (2004) nicely complements Wegner's efforts on these points.

Conscious will in the absence of ghosts, hypnotists, and other people

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Abstract: We suggest that certain experiences reported by patients with schizophrenia show that priority, consistency, and exclusivity are not sufficient for the experience of willing an action. Furthermore, we argue that even if priority, consistency, and exclusivity cause the experience of being the author of an action, this does not mean that conscious will is an illusion.

Wegner (2002) discusses an impressive variety of phenomena demonstrating that when the three conditions, priority, consistency, and exclusivity are met, an action feels willed, whereas when one or more do not apply, the cause of an action is attributed to forces other than the self. He convincingly shows that the feeling of conscious will can be erroneous, such that a person can either believe he was the author of an action even though he was not, or that he can believe he was not the author while in actual fact he was. The strongest version of Wegner's claim would be that priority, consistency, and exclusivity are both necessary and sufficient for the experience of willing an action. However, we suggest that certain experiences reported by patients with schizophrenia show that priority, consistency, and exclusivity are not sufficient for the experience of willing an action.

Patients with delusions of control report that their actions, even quite trivial actions, are being controlled, not by themselves, but by some alien force. Patients report such abnormal experiences even though they have the prior intention to make the action, the action made is consistent with their intention, and there is no obvious ambiguity about who is making the action. We have suggested elsewhere (Hohwy & Frith 2004) that what is missing is an aspect of

the feeling of what it is like to be in control of one's actions; knowing what is going to happen and, at the same time, minimal awareness of the sensory consequences. Thus, will has a specific phenomenology in addition to the knowledge of authorship.

We also propose that, even if priority, consistency, and exclusivity are sufficient for the experience of being the author of an action, this does not mean that conscious will is an illusion. The situations Wegner draws upon to claim that conscious will is simply an emotion of authorship are all very specific and differ in important ways from everyday settings. First, they are characterized by a lack of exclusivity, such that the intention to perform an action can either be attributed to oneself or another entity, be it a hypnotist, a ghost, or simply another person. Faced with a lack of exclusivity, we are likely to attribute authorship of an action to somebody else – unless priority and consistency are reinforced as in the “I Spy” study, wherein people are tricked into attributing to themselves an intention they never had. In everyday life, most of our actions and intentions can usually unambiguously be attributed to ourselves. Second, Wegner focuses on situations where intentions in action rather than prior intentions (Searle 1983) are at stake. He investigates the feeling of authorship in situations where one did not have a strong prior intention to perform a specific action. However, in everyday life, many of our actions seem to be the consequence of prior intentions that have been formed following conscious deliberation. A recent experiment (Lackner et al., in preparation) suggests that when a prior intention for an action has been formed, performance of the action is less susceptible to the influence of a distracter (a voice referring either to the action to be performed or an action not to be performed) than when the action is only accompanied by an intention in action. It seems that Wegner, in his remarkable study of the phenomenal will, has extended his conclusions slightly too far to include all kinds of intentions, and while his thought-provoking ideas explain cases of intentions in action, they do not explain prior intentions very well.

Finally, we suggest that from the finding that the phenomenal will can be illusory it does not follow that the empirical will, defined as “the causality of the person's conscious thoughts as established by a scientific analysis of their covariation with the person's behavior” (Wegner 2002, p. 14) is also an illusion. Although Wegner claims to address only the phenomenal will, he uses demonstrations of how the feeling of conscious will can be erroneous at times to draw conclusions about the empirical will, suggesting that all or most of our voluntary actions are caused by unconscious forces rather than conscious intentions. From the observation that the feeling of conscious will and actions are not causally related in certain specific conditions such as hypnosis, automatism, and particular experimental settings, it does not automatically follow that conscious thoughts are generally not causally related to actions.

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Is the illusion of conscious will an illusion?

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Abstract: This book is a tour de force in showing that what we believe to be actions dictated by conscious will are not, in fact, wholly dictated by conscious will. However, Wegner has fallen into the trap of making claims that go beyond his data to make his case more compelling and newsworthy. Psychology needs to be informed by common sense.

The Illusion of Conscious Will (Wegner 2002) is a wonderful book that shows that much of what we believe to be consciously-driven

action is, in fact, more complexly driven than we are likely to think possible. For those who maintain an illusion of tight control, the book will be an eye-opener. For some notable examples, the foibles of Strom Thurmond, Newt Gingrich, Bill Clinton, Richard Nixon, and other very intelligent individuals may make clear, at least to some, that even the brightest among us have much less control over their actions than they would like to believe – and certainly than they would like others to believe.

The title of the book implies that conscious will is a myth. Indeed, Wegner ends the book by stating that “the feeling of doing is how it seems, not what it is – but that is as it should be. All is well because the illusion makes us human” (p. 342). But is it an illusion?

I would argue that nothing in the book quite shows conscious will to be an illusion. Rather, it is part of a complex chain of events in which the conscious will does not necessarily come at the beginning of the chain. However, as Aristotle and everyone since who has studied causality has appreciated, causality always represents a complex chain of events. One can almost always ask for a cause one step further back in a causal chain. For example, why do people procreate? Because they want to? Because of their motivations? Because of their emotions? Because evolution drives them to? Because God willed them to? Because they are victims of their genes? The causal chain is long, and it is complex rather than linear. The fact that there may always be one step further back does not mean that causal value cannot be assigned to each step along the way. To argue otherwise is the ultimate in reductionism.

An example can be viewed in the case of the murders committed by Lee Boyd Malvo in and around the Washington, DC, area in 2002. It is uncontroversial that Malvo committed them. But why? Because he was under the dominating influence of John Muhammed? Because he was psychopathic? Because he was a natural-born killer? The causal chain, as in most events, is long and complex. Unquestionably, research paradigms such as those used by Wegner would show that his conscious willing of the killings was not at the beginning of the causal chain. Was the jury therefore wrong in convicting him of murder and sentencing him to life in prison? The causal chain is complex. But one would shudder to think of Wegner testifying at the trial that Malvo's will was only at some intermediate step in the causal chain, and that therefore, Malvo, as well as Muhammed, must be set free. They aren't responsible for their actions because their conscious volition was at some midway stage of the decision process. Does Wegner or anyone else want to move to this position – that no one is responsible for his or her own actions? Do we want, in deciding what is, to spend our time deciding exactly what “is” means, as some powerful defendants would have us do?

I believe there is a general lesson here. Mischel (1968) once argued that research did not support the notion of personality traits. Jensen (1998) has argued that when all is said and done, general ability (*g*) pretty much captures all that is worth capturing in the study of intelligence. These claims seem, through common sense, off-base. Mischel (Mischel & Peake 1983) later backed off from his earlier claim. Perhaps someday Jensen or his disciples will back off from theirs. When the evidence of everyday experience suggests that the story told by psychological research is not quite right, we need to listen to it and consider the possibility that our paradigms are leading us astray, at least in our interpretation of conclusions. Wegner's research does not show conscious will to be an illusion. It shows it to be complexly determined. But I would suspect, or at least hope, that Wegner would not entirely exculpate Malvo or Muhammed on the argument that what they did was not the product of conscious will. Rather, the process was complex, but in the end, we must take responsibility for our own actions, however complexly determined they may be. The process by which Malvo committed the murders may well not have started with conscious will. But conscious will could have kept Malvo from committing the murders. It didn't. Hence, he is culpable. And his culpability is no illusion, and it in no way makes him “human.”

Psychology, and science in general, have long been plagued by their failure to recognize fully the relevance of the Hegelian di-