ing to recall a name, or planning my day. However, in Wegner's account, in order for me to have this experience of consciously willing a mental action, *M,* I must have inferred its causation by experiencing a correlation between it and some prior mental event, *P.* If *P* is experienced as consciously willed, it too requires a prior correlated mental event, *Q,* and we are trapped in an infinite regress, with each consciously willed mental event preceded by yet another consciously willed mental event. To escape, we must allow that one mental event in the illusory causal sequence is not experienced as an intentional willed act. It follows from Wegner's thesis, that for me to experience a mental action as intentional, I must experience it as ultimately caused by an unintended unwilled thought. This is both counterintuitive and contrary to our experience of ourselves as agents.

5. Wegner argues that the experience of thoughts and plans causing actions is an illusion. However, there are many instances when our mental activities in fact cause our actions. Consider what happens when I consult my shopping list before buying a cereal. Unless Wegner is wedded to an outmoded notion of causation requiring temporal and spatial contiguity (i.e., the billiard ball model he is fond of), undoubtedly, the list, functioning as a stimulus, is a cause of my response. This type of causation is not different from saying that a reinforcement that occurred several days ago may be a cause for my response emitted today even though spatial and temporal contiguity is lacking. (This type of causation does not, of course, preclude the existence of an underlying causal chain of neuro-physiological temporally and spatially contiguous events.) Suppose, now, I have memorized the list and it appears not on a piece of paper, but rather in my memory. When I recall the list and make my cereal selection, the mental list, serving as an internal stimulus, is a cause of my response. Thus, our actions are often truly caused by internal mental events like planning, recalling, calculating, and reasoning, with no illusions involved.

6. Ultimately Wegner's concept of mind is based on a simple but flawed model. He assumes a self, independent of thoughts and actions, which experiences thoughts and actions distinct from itself. When the self notices a correlation between thoughts and actions, it infers that it intentionally caused the actions. This model in which the self, thoughts, and actions are logically separate, was analyzed and, I thought, demolished a long time ago by Gilbert Ryle (1949). In everyday life we know what it is like to do *A* by first doing *B.* For example, we turn on the TV by first pressing a button, and we lift the box by first pushing down on the lever. But we do not ordinarily experience ourselves as moving our arm by first doing an act of conscious willing, or anything else for that matter. In most cases we experience moving our arm as what Danto (1963) called a "basic action," that is, we simply move it as the act of an agent. When we perform basic actions, we experience them as willed, intentional, and ours. Thus, in contrast to Wegner's model, this alternative model suggests that the inter-dependent cluster of agency experiences – will, intention, self, basic acts – arise simultaneously, both conceptually and developmentally (Zuriff 1975; 1985, Ch. 9). There is no independent self that makes inferences and experiences itself as causing movements by first having thoughts.

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Author's Response

Frequently asked questions about conscious will

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Abstract: The commentators' responses to *The Illusion of Conscious Will* reveal a healthy range of opinions – pro, con, and occasionally stray. Common concerns and issues are summarized here in terms of 11 "frequently asked questions," which often center on the theme of how the experience of conscious will supports the creation of the self as author of action.

In the course of giving talks on conscious will, I have found that the question period after the talk yields spirited interchanges, not to mention the occasional rugburn. Like the commentators on *The Illusion of Conscious Will* (*ICW*) (Wegner 2002), audiences can be polarized. One tactic that I have found useful on these occasions is to summarize my talk as follows:

What you may have heard me say:

- Cognition does not cause action.
- Planning does not influence action.
- There is no intention and no responsibility.
- Life as we know it on earth is now over.

What I was hoping to say:

- Conscious will is based on interpreting one's thought as causing one's action.
- The experience of will comes and goes in accord with principles governing that *interpretive mechanism* and not in accord with a causal link between thought and action.
- The experience of conscious will thus is not direct evidence of a causal relation between thought and action.

This disclaimer suggests that people often read much more into *ICW* than is there. On studying the comments of this excellent field of commentators, I find that something like this has happened again. A variety of intriguing issues have been raised, several of which suggest important amendments to *ICW,* but some of the commentaries involve more being attributed to *ICW* than its pages actually held. Rather than trying to give the talk all over again, I propose to guide us through the question period in a way that will allow everyone out of the auditorium in time for the wine and cheese. To do that, I have organized what I hear people saying into a *FAQ about Conscious Will.*

As a backdrop for these questions, here is a Table with a very rough summary of what I think the commentators were saying. Their remarks can be sorted along two axes: whether they appear to agree or disagree with the main thesis of the book, and how they propose to contribute to the discussion.

This straw poll shows a field of commentators quite evenly divided – indicating that the topic is alive and worthy of continued consideration. *ICW* did not settle the controversy (alas), but it also did not merely pave over the sarcophagus of a question long decided. The ranks of commentators on each side are not too surprising. It is easy to see how **Dennett** would agree with *ICW* – despite the title of his latest book, *Freedom Evolves* (Dennett 2003a) – for example, and the positive votes of **Glymour**, **Ito**, **Kirsch**

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Table 1. *Themes of the Commentaries*

	. . . here are some questions and related ideas.	. . . conscious will is not what Wegner seems to think it is.	. . . someone else has already thought of this.	. . . here's a good scolding.
Conscious will is an illusion, but . . .	Dennett, Glymour, Ito, Morton, Raz & Norman, Velmans, Young	Jack & Robbins, Metzinger, Pylyshyn	Kirsch & Lynn, Mandler	
Conscious will is *not* an illusion, and . . .	Sternberg	Ainslie, Hardcastle, Heyman, Krueger, Schultz et al.	Tweney & Wachholtz	Bogen, Kihlstrom, Zuriff
Can't decide, but . . .	Panksepp			

& Lynn, **Mandler**, **Metzinger**, **Morton**, **Pylyshyn**, and **Velmans** make sense as well in light of their prior work. In various ways, these commentators have been pressing themes like those rendered in *ICW* for some time.

On the nay-saying side, **Kihlstrom** is especially fervent, representing the role of conscious will that appeared in his prior theorizing about hypnosis (Kihlstrom 1985; 1992a). **Krueger**'s vote is also understandable in view of his campaign to rid psychology of its tendency to focus on human shortcomings (Kreuger & Funder 2004). **Ainslie** nicely represents the field of judgment and decision making, for which conscious will is the Major Assumption No One Dare Mention, so his vote also has a history (although his disagreement with *ICW* seems based on definitional issues more than substantive ones). Several other commentators present disavowals of *ICW* based on thoroughgoing contrary positions, leaving only the negative response of **Schultz**, **Sebanz & Frith** (**Schultz et al.**) something of a mystery. My reading of the "forward model" of action control (Frith et al. 2000) suggests that Frith's group has been working on a mechanism that would account for variations in the human experience of control of action – which is much the same project as that in *ICW* – but the current response seems to set that aside in favor of some other minor matters.

Overall, the commentators express opinions on *ICW* that illustrate a pre-existing general bifurcation in the sciences of mind. In what follows, recurring questions about conscious will in general, and this book in particular, are introduced – with my best guesses at answers. I am delighted that these extraordinarily accomplished and wise commentators have stayed in the auditorium through the question period, and I hope my responses make their patience worthwhile.

R1. How could anyone possibly ever believe that conscious will does not cause action?

A number of the commentators unabashedly express the view that the basic thesis of this book is preposterous. The energy and conviction behind their responses is reminiscent of the strong words voiced by Nahmias (2002) in an earlier review of *ICW:*

> I have suggested that Wegner's *The Illusion of Conscious Will* is successful in presenting a host of empirical facts that inform us about the way we think and act (though mostly in marginal situations). We should pay attention to these facts. But the book is not successful in presenting a decisive challenge to the folk intuition at the heart of philosophical conceptions of free will, that our conscious experience of our deliberations, planning, intentions, and actions often plays an essential role in what we do . . . as Jerry Fodor put it, in the context of a closely related debate: "If it isn't literally true that my wanting is causally responsible for my reaching . . . and my believing is causally responsible for my saying . . . then practically everything I believe about anything is false and it's the end of the world" ([Fodor] 1990, p. 196). We philosophers should keep our guards up against any blow that would be the end of the world.

Whew. You thought I was kidding that someone might see the book as the end of life on earth. But there it is in black and white. Such shrill invective must have a motor, an emotional basis that drives the rhetoric and motivates some commentators to find not one error in the book, or a few, or even dozens, but instead to pronounce the entire work "an unwarrantable impertinence" (**Kihlstrom**). Several of the commentators express similar views (**Hardcastle**, **Bogen**, **Sternberg**, **Zuriff**), albeit somewhat less breathlessly. Where is this passion coming from?

I think it is the personal experience of conscious will that can make *ICW* hard to appreciate. Every day at innumerable junctures, we think of doing a thing and then do it. We think of getting a cup of coffee and do it; we think of checking our e-mail and do it; we think of taking a book back to the library and do it. These special instances of conscious will stand out, moments radiant in memory whenever we reflect on how it is that our actions occur. These experiences illuminate the guiding intuition that overwhelms our judgment. A fitting remark was made by Anais Nin: We don't see things as they are; we see them as we are.

It is difficult to savor this intuition of will and at the same time appreciate the unconscious mental and brain processes that *create* the intuition. The sense of conscious will seems to clash with its own causal underpinnings, contradicted as it were by the very events and processes that bring it into being. Curiously, the conflict between feelings and explanations of those feelings is not as strong in other niches of the mind. Not too many people would complain, for example, that they could no longer feel joy, or perhaps trust their feeling of joy, if science could deliver to them a good explanation of the unconscious circuits and circumstances that gave them the feeling of joy. Joy is not ruined by its explanation. Yet trying to discern the causes of conscious will seems to tamper with the meaning of the experience.

This is true because the experience of conscious will is involved in the creation of the self. The feeling of doing establishes a "doer," not only authenticating the self but con-

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structing the self from what was previously thin air (Wegner 2005). Those actions for which we feel no conscious will – such as the absent-minded noshing we do when a bowl of snacks is at hand – are actions that need no author. Such invisible actions arising without consciousness do not require us to be the ones who did them. They just seem to happen, and oh, by the way, they happened to us. Consciously willed actions, on the other hand, give the mind the opportunity to identify itself as author. Something was done because it *felt* like it was done, so there must have been an "I" who did it.

Like the commentators who defend the experience of conscious will, most of us see the experience of conscious will as necessary for our personal survival. This intuition is built into the human mechanism, preordaining a discomfort that ranges from uneasiness to pure existential dread whenever we ponder the possibility that conscious will is an illusion. Adopting the premise that conscious will is an illusion, then, is extraordinarily difficult, a move that seems to deny the ever-present reality of our selves. As **Jack & Robbins** note, "a genuine illusion remains compelling even when the subject knows their experience is misleading." One cannot really just "stop believing" that one has a self, no matter how useful this would be to one's theorizing, so the intuition constantly clashes with the kinds of things one must think in order to understand how the self is created.

But of course, each self must have been created sometime, somewhere, somehow. Short of imagining eternal souls, most of us recognize that there is a point in each human's development that marks the development of self. We each undergo a transition from being an organism that behaves to being a person who acts; and it is in this transition that we begin to experience what our bodies do as flowing from the prior thoughts of an entity we call "I." If science is ever to understand this extraordinary milestone in human development – the birth of an ego – it is incumbent on scientists to appreciate the possibility that the "I" is constructed. It is created. It was not there before, and now it is. This creation requires a causal mechanism. *ICW* proposes such a mechanism, a process that creates experiences of conscious will, which aid in the process of accruing actions to a self as author. Although it may feel like a death threat to our intuitions about our selves to propose that there are causes of our experience of conscious will, it is only the same threat we might experience on being told these selves may not have always existed since the beginning of time. Birth, like death, implies a non-self. Imagining that conscious will is an illusion is not the end of the world; it is a way of trying to understand the beginning of the world.

R2. Is conscious will really no more than a *feeling?*

One of the basic assumptions of *ICW* is that the primary manifestation of conscious will is the person's reportable experience of consciously willing specific actions. This is the center of the intuitive world of will, but a number of commentators suggest that this emphasis is in error. **Ainslie** describes the experience of will as only a facet of the phenomenon, noting that there are other important ways of understanding motivated and self-controlled behavior. **Hardcastle** views the sensation of will as entirely irrelevant to the question of whether conscious will is an illusion ("the sensation of will isn't the will itself"). **Jack & Robbins** suggest that limiting the idea of will to the experience of will prejudges the issues, and maintain without explanation that "it is perfectly coherent to claim that you have consciously willed something without having an experience of doing so."

The experience of conscious will is, of course, the basis of the intuition we all have that *we* cause our actions. Without this intuition, we might find it relatively painless to have free will extracted from our conceptions of behavior causation. In everyday discourse about action, though, the experience is essential: If you say you consciously willed leaving the ice cream out of the freezer to melt on the kitchen counter, you will get far more flack from any ice cream lovers who live with you than if you say you did not consciously will it. If you do not admit consciously willing leaving it out, it will not even matter if you say that you thought of leaving it out, or if you admit that it was indeed left out. You don't think you *did* it.

Legal decisions similarly rest on reports of the feeling: If a shooter claims not consciously willing the shot that killed a person, a jury – at least right now, in America – will find it difficult to convict the shooter of murder. Perhaps it was manslaughter (Denno 2002). The fact that animals (and plants and computers and babies and lots of other agents) simply cannot report consciously willing their actions, in turn, imposes a massive obstruction on anyone wishing to suppose that one of these agents indeed consciously willed *any* act (cf. Macphail 1998). If you cannot self-report an experience of conscious will, the conscious willing of the action may not have happened. The emphasis of *ICW* on the experience of conscious will is the same emphasis we all place on reports of the experience in every phase of life. Feeling is the essential ingredient of conscious will, not an add-on.

Certainly, there are many ways of defining the will that leave out the experience. At its most general, willful behavior can be said to occur whenever there is evidence that information input to a system caused a change in the subsequent behavior of the system (Carver & Scheier 1998; Kennedy 1992; Miller et al. 1960; Powers 1990; Wiener 1948). This fundamental form of will has never been at issue in *ICW* – indeed, I am convinced that control systems are good models of the architecture of human behavior production (Vallacher & Wegner 1985; Wegner & Bargh 1998). Thoughts *must* cause actions in this sense. This is the empirical will as defined in *ICW.* It is only when we add the *experience of conscious will* to the system that everything becomes murky. **Heyman** reports that *ICW* overlooks "the objective basis for the sensation." It does so because the book simply assumes intelligent goal-seeking behavior on the part of humans. The *experience* of such behavior is the issue.

The experience of conscious will often results in self-reports. The person volunteers something to the effect of "I thought of getting up for a soda and then I did." Asked whether he or she consciously willed getting up for the soda, the person would likely say yes. A basic point of *ICW* is that the person's self-report of this experience is not a direct revelation of the causal mechanism that gave rise to the soda-getting. **Krueger** calls this idea a kind of scientific chauvinism, a distrust of self-report akin to a blanket dismissal of "subjective explanations on the grounds of the 'We-know-more-than-you-do-theory.'" And in a way, it is.

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Psychological science sometimes does create knowledge about human behavior that the humans did not know (no matter how inane some of its other discoveries seem to be). Although *ICW* esteems the self-reported experience of conscious will as the main focus of any argument regarding the validity of conscious will in behavior explanation, it simultaneously calls into question the accuracy of this self-reported experience. The feeling is the key to conscious will, but the feeling just might be wrong. **Velmans** describes the role of the experience of conscious will very well: "an experience of will can arise from voluntary processes and represent them without governing them."

R3. What does it mean to call conscious will an *illusion?*

Before *ICW* was written, I had alternate titles for it: *The Construction of Conscious Will, The Experience of Conscious Will, The Fabrication of Conscious Agency,* and so on. Not far from these is **Heyman**'s suggestion: *The Sense of Conscious Will.* All of these titles lead to much the same point as *ICW,* but without the word *illusion.* I was even admonished by Dan Dennett prior to publication that *illusion* was a fighting word. Several commentators agree that *illusion* is loaded, and a number disagree on just what it is that *ICW* describes as illusory.

One common response to the word *illusion* is to see it as a challenge to the causal properties of mental events – the idea that thought causes action, or that plans influence action. There are some very deep grooves in the road running from determinism to free will, ways of thinking about things that have been so well trodden that it is easy for any vehicle to slip into the ruts. This seems to have happened to several commentators in the interpretation of the *illusion.* Some commentators deftly replaced my notion of the experience of conscious will the idea of an "act of will" – a temporally distinct mental event whose place in the causation of action they saw at issue. Unlike *ICW*'s notions of empirical will and phenomenal will, this notion captures something more like a spark of causation that sets off action. This interpretation was pursued by **Krueger** in a detailed causal analysis, and was similarly developed by **Sternberg** with the suggestion that human behavior "is part of a complex chain of events in which conscious will does not come at the beginning of the chain." The *ICW* analysis contains nothing that corresponds specifically to the causal spark envisioned by these commentators. Calling conscious will an illusion sounds like a call to snuff out that spark – to douse the flame of our selves.

What then is the illusion? The illusion I hoped to explore in *ICW* was the illusion of a *self-knowing causal mechanism.* Let me explain. Most of us would regard as absurd the idea that causal events should know that they have occurred. When a tree topples over in a forest and falls into a pond, for example, we are fully content to assume that no one knows. The tree doesn't know, the pond doesn't know, and the tree-falling-into-the-pond doesn't know. I bring up this entirely bizarre way of speaking about physical causation to contrast this case with the puzzling events of mental causation. When a person thinks of diving into a pond and then does so (and feels this was consciously willed), we normally accept that the causal mechanism underlying this event knows itself! The person's report on how it happened ("I consciously willed diving into the pond") is taken as a privileged communication from somewhere way down in the causation factory indicating *exactly what happened.* This simply cannot be the case. If it does not make sense for physical causation, it also should not make sense for mental causation.

We only understand mental causation in ourselves by virtue of an authorship processing system that examines a variety of indicators to determine whether this particular action was one we consciously willed (Wegner & Sparrow 2004; Wegner et al. 2004). The authorship processing system stands outside the processes that cause the action itself, laboring in parallel with it to generate feelings of doing that inform us of an estimate, based on available information, of who did the action. These estimates are accompanied by associated experiences of conscious will. The authorship processing mechanism gives rise to experiences of conscious will that compel us to believe that we cause our actions.

Ultimately, the illusion of conscious will comes down to an issue of the validity of self-reports of mental processes. Nisbett and Wilson (1977) pointed out that mental processes do not explain themselves – for example, that the process of choice does not necessarily "know" what produced a particular choice, or that the process of addition does not "know" how the computation was carried out. In this view, the products of mental processes may be knowable, but the mental processes themselves are not "self-luminous," the wonderful term for our mind's flattering self-portrait coined by Ryle (1949). It is a mistake to think that reported experiences of mental processes are valid indicators of the causal sequences underlying those processes. As noted by **Pylyshyn**: "Even though our causal mental process may go through a sequence that corresponds to the sequence that we experience, it does not in general proceed that way *for the reasons suggested by the conscious experience*"(his emphasis). The illusion of conscious will is the belief that we are intrinsically informed of how our minds cause our actions by the fact that we have an experience of the causation that occurs in our minds.

R4. What conclusion should be drawn when the feeling of conscious will is mistaken?

One of the main projects of *ICW* is to catalog cases in which the experience of consciously willing an action is at variance from the observed causal sequence whereby the action occurs. A person feels that she has consciously intended to point at a duck, for example, but it was arranged in advance that someone else holding her hand actually would move it to point to the duck (e.g., Wegner & Wheatley 1999). There are many cases like this one in which conscious will is present but verifiably voluntary action is not present, and there are also cases in which verifiably voluntary action occurs without benefit of the feeling of conscious will. Several of the commentators (**Hardcastle**, **Kihlstrom**, **Metzinger**, **Schultz et al.**, **Tweney & Wachholtz**) argue that the listing of exceptions to the efficacy of conscious will does not invalidate conscious will overall, and that the book's project is therefore in error.

This doesn't make sense to me. If someone has a theory that the earth orbits around the sun, for example, and it turns out that on Wednesday, February 4, 2004, it briefly orbited around a Wal-Mart store in Duluth, I'd say that

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pretty much shoots the sun theory. Exceptions do not prove rules, we all know – they *invalidate* them. If the experience of conscious will is indeed connected in any but the most capricious way to the causal sequence whereby actions occur, it should not be mostly right but sometimes wrong. *It should be perfect.* If the feeling of conscious will is intrinsically right, informed somehow by the fact that it is the cause of an action, it should *lock on* to that causal relationship and always reflect it correctly. The minor exceptions these commentators would allow in the accuracy of reports of conscious will – such as hypnosis or spirit possession or the automatisms – are not minor at all. They rend the fabric of conscious will from one end to the other.

This logic requires that we draw an important inference. From *The feeling of conscious will can be mistaken,* we must conclude that *the feeling of conscious will is never correct.* I agree that on its face, this seems extreme – **Metzinger** calls it a "non sequitur." But there is a deeply important reason for making this strong inference: Imagine the horrible kludge we would have to create to accommodate a *partly* valid experience of conscious will in any mental system we might envision underlying human behavior. In essence, we would need to create a double system – one to produce willed acts in which the feeling was authentic, and another to produce acts in which the feeling is disconnected from the action and did not reflect how the action has occurred. And what is more, this engineering nightmare would also require the installation of a higher-level super system that would need to determine when each of the systems would be deployed. I for one would hate to put this thing together for my toddler the night before Christmas, no matter how good the instructions in the box.

It turns out that prior theorists have indeed tried to imagine just such unwieldy systems – somehow combining authentic conscious will with illusory conscious will in the same model of mind. This is the architecture of the model of agency that William James (1879; 1890) had to propose to allow the coexistence of intentional action and ideomotor action, and is also the way Hilgard (1992) proposed to handle the apparent conscious and unconscious agency in hypnosis. Basically, this amounts to putting a "self" in one of the boxes in a process model of mind. The problem here is that the self *itself* is never understood. Instead, its presumed abilities retain their full homuncular bloom and so run afoul of the rest of the model.

Oakley (1999) comments on such models by Hilgard (1992) and Shallice (1988), for example, as follows:

> In both Hilgard's and Shallice's model it is implied that any mental processing which takes place via the central executive becomes part of our subjective experience and any actions which ensue are experienced as voluntary. This has the unfortunate consequence of seeming to suggest that we should be aware of the decision-making activities of the SAS or executive ego rather than of the consequences of those decisions. (Oakley 1999, p. 257)

Once you add the self to the machine, you can't stop the darn thing. The entire contraption is not only cumbersome, but also often internally contradictory. Too many flowcharts of mental processes in psychological theory star a little executive "controller" at the top, a hopelessly incorrigible homunculus that makes the whole flowchart a joke.

It is more parsimonious to assume that there is an action production system and an authorship processing system – one motor to make the actions, another to create the experience of willing them. The action production system does the marvelous things of which humans are capable; it causes behavior. The authorship processing system, meanwhile, rumbles alongside the main machine, taking in all the information that is relevant to determining which actions should be ascribed to the self and which occur because of outside events and other agents. Much of the time, the authorship processing system gets it right: Feelings of conscious will well up appropriately just as behaviors occur that *are* causally traceable to the person's brain and mind. Such feelings ebb at other times when events happen that are truly not authored by the person's brain and mind. However, this authorship processor is only loosely coupled to the action production system, a kind of *observer* of the system (cf. Gazzaniga 1988), so sometimes it can get things wrong. This kind of cognitive mechanism seems likely to be something that might reasonably have evolved to produce feelings of conscious will in the human. Theorists who insist that mistaken experiences of will and authentic experiences of will can coexist in the same organism would have us believe that instead of a self-knowing mechanism, the mind is a monstrous hybrid of robot and soul.

R5. If the feeling of conscious will is not authentic, can thought still cause action?

Of course it can. The idea that the experience of conscious will is a poor indicator of a causal relation between mind and action is not the same as saying that mind does not have a causal relationship to action. It could, and in fact we all should be fairly certain that it does. I hoped that in defining the empirical will as this actual causal relationship between mind and action, and the phenomenal will as the experience of this relationship, I had made things sufficiently clear that no one would fall into the trap of thinking that these were the same thing. Yet here we have a number of commentators who have made exactly this mistake.

Mandler reports that "Wegner threatens to throw the baby out with the bathwater when he implies that mental events can never be causal agents for thought and action." I never said never. **Jack & Robbins** pounce gleefully on what they interpret as my dramatic reversal: "Wegner appears to have realized he can't defend this thesis, conceding in a later publication that we can construct a scientific account of consciously willed action." In a related vein, **Tweney & Wachholtz** note "Thus, we could prove that there *is* free will by pointing to biofeedback studies in which people can learn (within limits) to control their own autonomic functions, such as heartbeat." In saying this, they reveal their assumption that the actual relationship between thought and action is at issue here. It is not. Sometimes I wonder what book these folks were reading.

ICW is a theory of the experience of will, not a theory of the relationship between thought and action. It is entirely possible that experimental evidence can be assembled to establish to my and everyone else's satisfaction that a conscious (reportable) thought is a cause of an action in a given setting. I have found it useful to assume that thought does cause action in many, many ways (Vallacher & Wegner 1985; Wegner 1989; Wegner & Pennebaker 1993; Wegner & Vallacher 1977) and am a bit surprised that even this minority of the commentators would mistake my meaning. The fact is, though, that no one has fully demonstrated the causal neces-

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sity of *conscious* thought in a scientific way with anything even remotely near the impact of the demonstrations we give ourselves all day when we think of things and do them. As long as we as humans mistake the feeling for the causing, we as scientists won't gain good evidence for the causing.

Several investigators have been trying to examine this issue scientifically. Velmans (1991a) approached the problem by a process of elimination, examining whether consciousness is an essential ingredient of cognitive processes or behavior-production systems. His early conclusion was that it may not be required, and in his current commentary he develops that idea a bit more. Bargh (e.g., Bargh & Ferguson 2000; Bargh et al. 2001) has pursued a similar agenda by examining whether complex voluntary actions might be produced without benefit of consciousness, also suggesting the conclusion that consciousness might not be necessary. In contrast, Baars (e.g., 1988; 2002) has focused on the cases when consciousness seems to be essential, assembling examples when consciousness may contribute uniquely to the course of thought and action. There is some promise in studying whether conscious processes activate brain mechanisms that are not activated without consciousness – mechanisms that then show a causal influence on behavior – and this may be another helpful way of furthering this line of inquiry (e.g., Jack & Shallice 2001). In sum, the question of whether there is an empirical will, as noted in *ICW,* is an empirical question – not one to be settled by my presumption that there is no such thing, or by the presumption of others that I have been presuming too much.

R6. Is conscious will that occurs before action more causal than conscious will that occurs during action?

A number of commentators (**Heyman**, **Krueger**, **Schultz et al**.) brought up the distinction between prior intentions and intention in action (Bratman 1984; Searle 1983), hoping that this might solve the problem at hand. They noted that people think about doing things sometimes well in advance of acting, and that these conscious willings might often be causal even when the feeling of will occurring just as the action is running off might not be there in time to be causal. This comment suggests that these commentators saw the point of *ICW* as being the same as the one raised by Libet's classic studies (Libet 1985; Libet et al. 1982) on conscious will in finger movements. His research suggests that the experience of conscious will at the moment of deciding to move may precede the action, but that the experience of willing nonetheless *follows* brain events associated with the choice by several hundred milliseconds.

The timing of the experience of will with regard to action brings up some useful observations, but it is not particularly telling regarding the main thesis of *ICW.* The idea of *ICW* is not dependent on Libet's findings – although it isn't damaged by them either. This is because *ICW* (again, for those who've not been listening) is not about whether thought causes action. It is about whether the experience of conscious will reflects such causation. So, just because an experience of conscious will happens well in advance of brain events leading to an action (rather than some milliseconds afterward) does not mean that the experience is any more direct an indication of the causal process whereby that action was produced (than one occurring later on). The experience of conscious will is a mental reconstruction of the causal sequence whether it happens well before the action, well afterwards, or right on time.

Experiences of conscious will occurring for an action right now might, however, have causal implications for subsequent actions or events. This is the point elaborated nicely by **Young**. Indeed, this downstream causality is what keeps the experience of conscious will from being the sort of useless, epiphenomenal appendage that some envision when they think of determinism. The experience of conscious will for an action at one time is an event with repercussions later on: the person can report it, can remember it, can have subsequent thoughts based on it, and so on. This means that such an experience can have influences galore for events that follow the experience. Feeling that one has consciously willed an action that hurt a friend, for example, would seem to create conditions that could lead to later behavioral changes: apologies to the friend, adjustments of the behavior, and so on. Memory for what one seems to have consciously willed in the past can influence the direction of subsequent behavior in the future. Experiences of conscious will are not erased forever from candidacy for behavior causation by their lack of validity as explanations of the actions to which they refer.

R7. Where does the theory lead empirically?

If you have been paying close attention, you will know that nobody actually asked this question. In a curious way, this set of commentaries, as well as my response, involves a game of chess played without the pieces. This is regrettable, and I only hope that readers will turn to the rich array of evidence available in *ICW,* and in the scientific work of many of these commentators, to pursue a more informed understanding of these issues. I had hoped that *ICW* would suggest new lines of inquiry to researchers, as the ideas in it struck me as opening several such possibilities.

My votes for the best empirical leads suggested by commentators go to **Glymour**, **Pylyshyn**, and **Raz & Norman**, Glymour proposes that the implicit assumption of the freedom of will is essential to learning, and I find this an interesting proposition. Certainly, we know that voluntary actions in animals are best defined as those that are malleable through reinforcement (Passingham 1993), so it makes sense that the special character of such actions in humans might have something to do with their modifiability as well. The observation that modifiable behaviors seem to have been singled out in human mental architecture to be accompanied by experiences of conscious will, and so by experiences of responsibility and personal authorship, says that the experience is a critical signal indicating to the person that an *action open to future regulation* has been produced by the mental system. There should be some good experiments to do here.

Pylyshyn draws a parallel between the illusion of conscious will and the problematic role of conscious contents in the experience of any mental process. He points out in the case of mental effort, for instance, that what we consciously experience as "more effort" might not correspond to using more of an information-processing resource (e.g., more operations, more storage capacity, etc.), even if it might sometimes be correlated with these quantities. He points out that "the experience of effort is affected by our

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beliefs – including how hard we believe a problem to be, how much we dread it, and how anxious or worried we are about being able to carry it out." His observation suggests that studies of the misattribution of effort could be fruitful as ways of examining how experiences of will are influenced by inputs that are independent of processes of mental causation (cf. Wegner 2005).

Raz & Norman focus on how hypnosis can influence cognitive processes commonly thought to be resistant to conscious mental control (e.g., Stroop interference effects). These studies promise to help in separating the phenomenal will and the empirical will in the study of hypnosis – a field in which they have long been seriously muddled (e.g., Kirsch & Lynn 1999b). The experience of involuntariness in hypnosis is not necessarily a direct reflection of a change in the degree to which the action in question has been caused in a different way, nor are changes in the path of behavior causation in hypnosis (or consequent changes in the degree of mental control) necessarily indicative of changes in experienced voluntariness (Wegner & Erksine 2003). Further research examining how hypnosis impacts the will, in both its empirical and phenomenal aspects, is certainly welcome.

There are other research paths that *ICW* suggests, new ways of understanding how people keep track of agency, develop selves, and perceive their own actions against the backdrop of the actions of others and events in the world. People rapidly process information indicating their degree of authorship in the production of actions, thoughts, and events, for example, and they do so in a way that seems to be supported by their experiences of conscious will (Wegner & Sparrow 2004). There are conditions under which people may erroneously feel a sense of control over the actions of others (Wegner et al. 2004), conditions that prompt people to adopt responsibility for events over which they had no control (Pronin et al. 2004), and ways in which subtle primes can radically modify experiences of authorship (Dijksterhuis et al. 2004). The theory also suggests that people may misperceive their own actions so as to maintain consistency with an experience of will (Preston & Wegner 2005), and that they may sometimes even exert conscious mental control over their experience of conscious will (Wegner & Erksine 2003). Although it seems that *ICW* has turned out to be of some philosophical interest, it was written with science in mind.

The development of new research directions might help to assuage the concerns of some commentators. More scientists than philosophers, they anguish over the big muddy issues the book has stirred up and some hope forlornly for better days. **Mandler** says "Maybe it would be best to forget about the problem of will altogether," and **Panksepp** offers the hopeless hope that "future generations also need to endlessly debate these scientifically unfathomed and perhaps unfathomable neuropsychological issues." Maybe the better proposal for all of us is "back to the lab!"

R8. Who came up with this idea anyway?

Whom should we credit the authorship of this theory of authorship? Since I'm defending the darn thing at some length, I'm feeling kind of authorly right now – but I am all too aware of the many contributing strains of thought to claim that the apparent mental causation theory is new under the sun. Several commentators helped to remind me of my secondary role by serving up explicit reminders of prior theories. **Kirsch & Lynn** seem to suggest that I lifted the theory from their unpublished submission to a journal I was editing. This view could only follow from an indulgently sympathetic reading of their work (e.g., Kirsch & Lynn 1999b), along with a studied ignorance of the rest of psychology. Indeed, **Mandler** reports that *ICW* "rehearses an argument that has dominated scientific psychology for about a century," and goes on to suggest that Westcott (1977) also presaged the theory. **Tweney & Wachholtz** reach back yet earlier to attribute the idea to Jonathan Edwards (1754/1957) (although I fear on reviewing their analysis that I would never have found it there on my own reading). **Velmans** comments in passing on the "convergence between [Wegner's] views . . . and my own conclusions." Given this full range of attributions, I turned to reflect on my own theory of the origin of the idea.

I have been keeping my eye on a far different set of cothinkers. Most centrally, the early clear harbinger of this theory is David Hume (1739/1888), although I had not studied Hume's thinking on this until I was in the middle of the project. His view that experiencing will involves perceiving causation within one's own mind is exactly what I am talking about. Another remarkably prescient spokesperson for the idea that will is a causal inference was Michotte (1963). After these theorists, the lineage becomes more crowded. Although I did not realize it until after *ICW* was complete, Nisbett and Wilson (1977) can be read to say several of the essential ideas of apparent mental causation.

In 1996, as I began work on *ICW,* I encountered the writings of Brown (1989), Hoffman (1986), and Spence (1996), each of whom nailed some major part of the idea and made me feel that the theory had been scooped. In other ways, works by Bem (1972), Dennett (1992), Gazzaniga (1983), Harnad (1982), Langer (1975), Frith and Done (1989), Gopnik (1993), Spanos (1986b), and yes, **Kirsch & Lynn** (1999b) also captured facets of the idea and stayed in my mind as important influences. The work of Bargh on automaticity (Bargh 1997; Bargh & Chartrand 1999) served, too, as a major reminder that some of the richest and most complicated human behaviors are caused by mechanisms that do not require conscious will.

When Thalia Wheatley and I published the first paper on the theory of apparent mental causation (Wegner & Wheatley 1999), many of these key ideas had already come together to influence us. We added to the mix our own naming of the variables governing inferences of causation from thought to action (consistency, priority, and exclusivity), although these had been recognized in various ways in the causal attribution literature (Gilbert 1995; Heider 1958; Jones et al. 1972; Kelley 1972; Michotte 1963; Nisbett & Ross 1980; Young 1995). My own best guess about the original contribution of *ICW* is in this area – the proposition that an internal causal analysis leads to the feeling of will. This paper then formed a chapter of *ICW,* and the book was designed to illustrate how this idea might have empirical consequences. Just as *ICW* was being published, I was surprised to encounter independent theoretical statements similar to apparent mental causation by Claxton (1999) and by Thompson et al. (1998). Notwithstanding **Mandler**'s judgment that *ICW* echoes the dominant view of the past century of scientific psychology, it also is an idea whose time is now.

It seems clear that determinism has been with us for a

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long time, as has the feeling of conscious will. This particular way of trying to put them together has dawned on a lot of people. Now, as it happens, thinking of things and keeping track of the fact that you thought of them are two quite different mental processes – the first a matter of mental causation, the second a matter of apparent mental causation and authorship processing. If I promised you that I knew I was the author of every idea I wrote, I would be claiming that my mental processes somehow knew their own authorship. I would be claiming, in short, that my conscious will created these ideas. With Ryle (1949), I want to say instead merely that I am in as good a position as anyone to try to keep track of the origins of the things I find myself thinking and doing.

R9. How does neuroscience inform questions of conscious will?

Both **Bogen** and **Raz & Norman** complain about the relative lack of neuroscience in *ICW.* There are no brain scans, and for their money the book's lack of sophistication in neuroscience is a problem. At one level, this criticism sounds rather egocentric. Just because these folks are neuroscientists, their chosen topic must be covered in detail in any book they read, including one written by a social cognitive psychologist? Do they find it distressing when art museums fail to hang pictures of brains on their walls?

Actually, I think their critique is worth considering – but not because neuroscience should be trotted out these days whenever anyone talks about anything. Rather, it seems that the recent advancement in the study of the brain is involved in motivating the contemporary rethinking of consciousness and conscious will. There is something about seeing our own brains in Technicolor, twinkling with their myriad activations, that prompts a reappraisal of the status of the conscious causer in our heads. The novelist Tom Wolfe (1996) attended a neuroscience conference and summed it up with an essay called *Sorry, but your soul just died.* Although psychology has long promoted determinism as a way of understanding humans, even offering up radical solutions such as behaviorism, it has never had quite the impact on intuitions about conscious will that is now being driven by pictures of the brain in action.

Indeed, one of the most exciting new ventures in neuroscience is the pursuit of conscious will through scanning methods. **Ito** traces the processes whereby conscious will is experienced to cerebellum-mediated internal feedback. A number of other investigators have approached the problem of localizing willed action by examining activations during choice tasks. Brain activity associated with willed action has been explored by comparing self-initiated movement with externally triggered action (Cunnington et al. 2002; Hunter et al. 2003), by comparing perception of one's own movement and others' movement (Farrer & Frith 2001), or by comparing normal voluntary movements with movements conducted by patients who have limited experience of voluntariness for the same actions (Spence et al. 2000). These studies often fail to distinguish the experience of conscious will from the functioning of will or choice, and so have not yet yielded an entirely clear picture of how the brain contributes to the feeling of conscious will – as opposed to simply how the brain contributes to choice or action control.

Nonetheless, there is something about the palpable reality of brain activations that makes it a bit easier to envision our own minds as mechanical wonders (rather than magical agents). Perhaps the widespread everyday communication of neuroscience will eventually change our intuitions about conscious will. In a paper examining the impact of neuroscience on moral intuitions, Greene and Cohen (2004) wonder exactly this: whether "questions, which seem so important today, will lose their grip in an age when the mechanical nature of decision making is fully appreciated."

R10. How can we understand responsibility in light of this theory?

How do humans become responsible for their actions if they do not consciously will them? **Sternberg** puts the question most clearly: "Does Wegner or anyone else want to move to this position – that no one is responsible for his or her own actions?" He decries this theory for departing from common sense, noting that everyone knows that people are responsible for their actions. The related worries of several commentators surface in hand-wringing about not only the moral repercussions of *ICW* (**Heyman**), but the religious repercussions, as well (**Young**, **Glymour**, **Tweney & Wachholtz**). Young wonders aloud if this is "a battle that Wegner wishes to fight?" What exactly is at stake?

To begin with, I think we owe nothing to **Sternberg**'s common sense. Also by someone's common sense, pictures cannot fly through space, and for that matter, Copernicus had better shut up about the center of the universe. Common sense is sometimes the enemy, and in this case I think it is gravely misleading.

Qualms about responsibility arise when we make the mistake of believing that responsibility is the same thing as causality. And of course it is not (Hart 1948/1949; 1968). Causality is something you can see in mechanical systems, a relationship between events, and is not dependent on what kinds of events are involved. Responsibility, on the other hand, involves persons – those *selves* that are constructed through the process of identifying actions as caused by an agent, the "I" (Radden 1996; Wilkes 1988). The creation of a self that can be responsible for anything is a process that is dependent on the feeling of conscious will. Responsibility is created when a person is created. As we have seen, if people say they did not consciously will an action, they have explained that *in their view* they are not responsible. But this is just their personal estimate of whether the self instantiated in their bodies, brains, and mental processes appeared to them to be *causal.* And that estimate could be wrong.

The allocation of responsibility is dependent on regarding something as a person, and the first step in this process is that the thing should regard *itself* as a person. In Dennett's (Dennett 1987; 1989) terms, this is to say that something is not a person if it does not take the intentional stance toward itself (see also Angel 1989; Scassellati 2002). Because having experiences of conscious will – whether they are correct or incorrect in any given instance – is a necessary step for assigning authorship to oneself, and so doing, fabricating the self, the experience is what creates the possibility of responsibility. Yes, we can hold people or things or events responsible all we want. But this is merely *spectator* responsibility, the kind of responsibility a judge and

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jury can give for practical purposes. Only if the accused person accepts the responsibility and experiences moral emotions such as shame or guilt (or in the case of positive actions, pride) will the real work of responsibility be done. We can argue all day about what caused a given action, but this is simply not the same argument as whether the person is responsible.

Responsibility, in this light, is something that exists in the eye of the beholder. Just as consciousness cannot be verified in anyone other than oneself, responsibility is something we each experience. We can then talk about it and make agreements about how much of it a person might have, but these assignments second guess the person's own experience (Freeman 2000). *ICW* describes the experience of will as an *authorship emotion,* a feeling that marks actions whenever they seem to be attributable to self. It is through this process that self is constructed, repeatedly and continually in the course of the day's actions. Responsibility gives rise to the self, and is not something a self has that gives rise to actions.

How does this view square with **Sternberg**'s concern that responsibility is being undermined by the theory of apparent mental causation? Indeed, it makes trouble. In the approach of *ICW,* the whole idea of a "person" is an elegant accounting system for making sense of actions and ascribing them to constructed entities that are useful for purposes of social justice and the facilitation of social interaction. A person is constructed in the mind of the person, and, through a variety of communications and evidences, in the minds of others as well (cf. Dennett 1987). One of the most compelling functions for having conscious will installed in human minds is to give rise to the authorship attribution system we currently have in place, making each person not only understand own authorship but actually *feel* it whenever actions feel consciously willed. Far from undermining responsibility for action, the mental processes of apparent mental causation function to create such responsibility by making us each feel that we do things. The illusion of conscious will is essential for the development of the first-person sense of responsibility, and this in turn is the basis for the social and legal sense of responsibility we negotiate with each other to achieve effective social relations.

In biology, much theory and research is devoted to questions of how organisms distinguish self from non-self. Complex biological adaptive systems need to be able to make this discrimination at many levels, from the individual molecule to the whole organism, because this discrimination is at the center of successful immune response to antagonists, as well as successful self-organization and development. To date, psychology has not made much of this distinction. Perhaps it is time to start. We should recognize that the experience of conscious will is the start of a self-identification system, a way of tagging actions as belonging to self that, in so doing, creates the self. *ICW* is not the end of responsibility, but rather a way of modeling how the beginning of responsibility accrues to persons in their own minds.

R11. How should we speak of our *selves?*

All this talk of selves being destroyed and created is difficult to carry out using normal everyday language. Several commentators who are particularly savvy about this project identify conflicts between what is being said in *ICW* and the way it is being said, most typically noting that the book talks of "we" or "us" or "I" in ways that promote confusion and occasionally seem ironic. **Dennett** makes this his central point, asking where the self is in the system that experiences will. He toys with the possible places a self might be, as he has in greater depth elsewhere (Dennett 2003b), and wonders at my saying things like "we inhabit an extraordinarily complicated machine." Part of this is a personal habit I have of using the indefinite or universal "we," a locution I find particularly useful for talking about psychology (e.g., "We have each had the experience of . . ."). But a larger part of the problem with talking about the self is that it is very difficult to speak of psychological processes without referring to agents or minds by using pronouns.

The shortcomings of language for talking about psychological events and processes are also clear in some of the commentators' pronouncements. It is all too easy to talk about intrapsychic events sometimes as though they are mechanical events, and other times as though they are the doings or viewings of a person/self. **Metzinger** says "one right now is a system," for example, leaping directly from self language to mechanical metaphor in a single phrase. **Ainslie** talks about functions of will "which depend on our accurate monitoring of them," and in so doing, runs the equation the other way from system to self. **Zuriff** says there is "no independent self that makes inferences and experiences itself as causing movements by first having thoughts," so illustrating the problem again. **Velmans** expressed this difficulty most directly with his concern that my "first person" analysis cannot be folded back into science. What can be done?

Should everyday language about mental events be jettisoned in favor of some kind of self-free rhetoric? Perhaps if psychologists were not allowed to use pronouns in their papers, the problem would go away. No more homunculi, no more little people in the head doing or saying or experiencing things! The final curtain could fall on **Dennett**'s Cartesian Theater. This approach could rapidly remake psychology into a deeply uninteresting science. One of the great joys of psychological investigation and thought is that we theorists get to trample back and forth across the line between subject and object a hundred times every hour, noting in rapid alternation what has caused a person to behave, for example, and what it is like to be the person behaving (Lana 1976; Maslow 1966; Wegner & Gilbert 2000). The wonder of doing science on objects that experience things may simply be too great to give up for the sake of linguistic purity.

William James (1890, p. 138) worried that a desire for precision could end in psychology losing "naturalness of speech," and asked why we should be asked to forswear the language of our childhood for science. I would hate to start looking over my shoulder and start whispering every time I used a self word to talk about a psychological process. But perhaps that is what it will take (if **Dennett** is to be satisfied). Ultimately, we may be in for some radically new ways of talking about our selves if we are to understand when it is that selves are actually the topic of conversation, and when we are merely talking about them as a figure of speech. Talking about how our selves come to be may require that we imagine, at least for the sake of argument, that we are not here.

R12. Conclusion

The question period is now at a close, even though many questions less-frequently-asked remain to be broached at all.

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One last question comes to mind: What have we learned? I for one am impressed with the danger of being *self-explanatory.* If someone tells you that a software product is self-explanatory, or that a diagram or chart is self-explanatory, that usually means the thing is obvious. Simple. Needs no further ado. But the human mind is self-explanatory as well – in the sense that it presents a simple picture of its own operation to itself. The mind's model of its operation involves the production of an experience of conscious will for some of its actions and thoughts, and this allows the mind to build a continuing representation of itself as an agent. The self-explanatory property of mind is the basis for the entire matrix of social interaction, the creation of a world of selves who act and interact and ascribe authorship for actions to each other. The self-explanatory mind stands, however, as a significant impediment to psychological scientists bent on discovering how that mind actually works. The illusion of conscious will is both the basis for the construction of persons, and also the rock-hard obvious intuition that often stands in the way of our attempts to understand how persons are constructed.

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Letters "a" and "r" appearing before authors' initials refer to target article and response respectively.

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