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Prospection by Any Other Name? A Response to Seligman et al. (2013)

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Abstract

We stand in agreement with Seligman et al. (2013, this issue) that prospection is an important psychological process, but we disagree that it has been neglected within the psychological literature. We further question some of the broader claims made by the authors regarding conscious decision making and free will. We argue that future-oriented cognition is fully consistent with deterministic accounts of cognition, including automaticity, and that prospection does little to advance the position of free will.

Keywords

automaticity, determinism, prospection, memory, decision making

Seligman, Railton, Baumeister, and Sripada (2013, this issue) offer a philosophical and historical account of how (on their reading of the literature) teleology has been cast out of psychology, resulting in widespread underappreciation for the cognitive processes and behavioral outcomes associated with prospection. In support of this claim, the authors detail various theoretical movements within psychology that they believe fail to pay due diligence to prospection. We agree with the authors that prospection is an important process; however, we disagree that it has been neglected within the psychological literature and take issue with some of the broader claims made by the authors regarding conscious decision making and free will. We argue that future-oriented cognition is fully consistent with deterministic accounts of cognition, including automaticity, and that prospection does little to advance the position of free will.

Prospection by Any Other Name?

Although few psychologists use the term prospection, it is evident that researchers in fields as diverse as self-regulation, judgment and decision making, learning, memory, automaticity, and computational neuroscience (to name a few) are deeply interested in how representations of the future affect current behavior. Since at least the 1960s and the blossoming of modern self-regulation research, psychology has embraced the notion that an organism's desired states of the world influence its behavior *right now*. First, children waited for marshmallows (Mischel, 1966), then pigeons pecked more for larger future rewards versus smaller immediate ones (Mazur & Logue, 1978). Next, Kahneman and Tversky (1979) advanced *prospect theory*, which describes how people simulate future states of the world in order to guide their decisions in the present. Over the last 20 years especially, researchers have expanded the theme of future-oriented cognition even farther and across multiple areas of psychology involving humans (e.g., Gilbert & Wilson, 2007; Lind & Williams, 2012; Martin-Ordas, Atance, & Louw, 2012) and nonhuman animals (e.g., Beran, Perdue, Bramlett, Menzel, & Evans, 2012; Crystal, 2012; Roberts, 2012). As one example of this work, social psychologists have repeatedly shown that goals (which are necessarily future oriented) motivate and organize behavior even outside of conscious awareness (see Custers & Aarts, 2010; Ferguson & Cone, in press; Shah & Gardner, 2008). Thus, although some areas of research have focused on how past experiences and thoughts about the past affect subsequent behavior (e.g., strict Pavlovian behaviorists), on our reading of the last 50 years of research, the field has exploded with exciting research that champions prospection as a guiding force for behavior.

It is worth noting that even researchers trained in the behaviorist tradition have incorporated prospection into their accounts of behavior. As Seligman et al. have rightly pointed out, animal-learning theorists had to incorporate an animal's expectations into their models to account for situations like Kamin's blocking effect (1969). However, Seligman et al.'s review of this literature does not emphasize that those theories, such as the Rescorla-Wagner model (Rescorla &

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Wagner, 1972), were quickly accepted and went on to become some of the most influential theories in animal learning (for a review, see Miller, Barnet, & Grahame, 1995). More recently, a central stream of research in computational neuroscience has posited *reinforcement learning* as a primary mechanism by which goals affect cognition and behavior (Cohen & Ranganath, 2007; Houk, Adams, & Barto, 1995; Montague, Dayan, & Sejnowski, 1996; Sutton & Barto, 1998; see discussion in Ferguson, Mann, & Wojnowicz, in press). It appears, then, that even behaviorist-based scholars have embraced (rather than resisted) prospection.

Thus, although we agree with Seligman et al. that prospection is a critical explanatory concept in psychology, we find little evidence that it has been neglected and would argue instead that it has been and continues to be a mainstream area of interest across multiple fields.

Why Divorce Future From Past?

Although we take issue with the authors' claim that prospection is understudied, we credit Seligman et al. for calling attention to a broader question of how thinking about the past and thinking about the future may differ from one another in terms of both content and consequences. Recently, other authors have taken up this question and have shown that the temporal placement of an event (whether it is set in the past or the future) has predictable effects on the way people think about its value and causal structure (Burns, Caruso, & Bartels, 2012; Caruso, Gilbert, & Wilson, 2008; Helzer & Gilovich, 2012).

And yet, there is a critical difference between examining how thoughts about the past and future differ in content and implications, on one hand, and arguing that memory as a whole is driven by the past versus the future, on the other. We see no reason why the scientific study of prospection should pit future and past against one another. In fact, we are hard pressed to see how it could be that prospection is not, itself, driven by the past. Most cognitive scientists interested in prediction, for example, stress that simulations of the future involve the recombination of information gathered in the past (Bar, 2009; Glenberg, 1997; Schacter & Addis, 2007; Schacter, Addis, & Buckner, 2007). In fact, Bar (2009) has claimed that memory is *for* prediction—that is, that the primary function of the memory system is to orient organisms toward future action. In addition, Schacter and colleagues (Schacter & Addis, 2007; Schacter et al., 2007) discussed the functional advantage of a flexible memory system that allows for memories to be combined, altered, and recast as predictions about the future. Furthermore, recent work in neuroscience has shown that the hippocampus, which has long been associated with memory formation and retrieval, is also similarly active in prospective thought processes (for a review, see Zeithamova, Schlichting, & Preston, 2012).

It is also worth noting that memories about the past are typically not seen as fixed or veridical records. Many researchers assume that memories are representationally distributed and thus recreated each time the memory becomes active in the mind (e.g., see Hinton, 1981; Norman, Detre, & Polyn, 2008; Norman & O'Reilly, 2003; Rogers & McClelland, 2004; Rogers, 2008). This perspective on representational format necessarily opens the door for all kinds of contextual influences—including motivation—on what and how we remember. Evidence for context effects on memory retrieval is so ubiquitous (for a review, see Engel, 2000) that the authors' core hypothesis—that an organism's current goals serve to organize cognition—could be applied as easily to memories about the past as it could be to prospection about the future.

With this in mind, it seems difficult to delineate where prospection about the future begins and memory for the past ends and how faithfully these modes of thought might actually map on to the authors' proposed distinctions. It seems fruitful to conceive of both prospection about the future and memory for the past as being driven by a common underlying cognitive system that recreates, distorts, and combines information to suit the organism's currently active goals and actions.

Prospection Is Not Inconsistent With Determinism or Automaticity

At its core, scientific determinism is the thesis that all current states of a system are sufficiently caused by antecedent conditions. This is the form of determinism described by Bargh and Ferguson (2000) and endorsed (necessarily) by experimentalists in any field.

Although determinism is often equated with billiard-ball theories of causation in which a singular event gives rise to a particular outcome, there is nothing simplistic about scientific determinism, particularly as it applies to the human mind interacting with its environment. Events in the brain—from the firing of localized networks of neurons to the production of detailed, conscious plans about the distant future—are the products of causes that converge in a particular moment in time to produce them. This rich complexity gives rise to a great deal of cognitive and behavioral flexibility, meaning that simple and isolated stimulus-response patterns are, in almost all cases, insufficient for capturing the totality (or even majority) of variance in behavior. We think it is a grave error, however, to equate causal complexity and behavioral flexibility with the absence of determinism.

Although we agree with Seligman and colleagues that prospection may be the capstone accomplishment of the sophisticated brains that we and other animals carry around with us, we think that prospection requires, is fully compatible with, and should be premised upon nothing more than a deterministic and physicalist account of cognition. However, this debate quickly creeps into the realm of metaphysics and there are no empirical data in existence (nor any we could imagine attaining) that would serve to resolve this matter (e.g., for a discussion see Prinz, 2007). Accordingly, we reject that evidence for conscious and intentional behavioral modification of any kind is a demonstration of free will, just as we acknowledge that widespread evidence for automatic and unconscious processes underlying a host of behaviors does not disprove

that free will exists. We do, however, wish to make two points. First, insofar as psychology is a scientific enterprise, it rests upon a deterministic understanding of human thought and behavior. The burden of proof, therefore, is on proponents of free will to account for cognition that might violate such a framework. Second, even if conscious versus unconscious processing cannot reveal anything about this metaphysical debate, it nevertheless remains an interesting empirical and theoretical question to examine the degree of conscious processing underlying prospection. And, on this point, we note that the automaticity literature clearly documents the pervasive and automatic (i.e., unintentional, fast, often nonconscious; see Custers & Aarts, 2010) influence of goals on attitudes (e.g., Ferguson, 2007, 2008; Moore, Ferguson, & Chartrand, 2011), thought (e.g., Förster, Liberman, & Higgins, 2005), perception (Alter & Balcetis, 2011; Balcetis & Dunning, 2006; Van Koningsbruggen, Stroebe, & Aarts, 2011), judgment (Rule, Rosen, Slepian, & Ambady, 2011), learning (Eitam, Hassin, & Schul, 2008), emotions (Shidlovski & Hassin, 2011), interpersonal closeness (Fitzsimons & Fishbach, 2010; Fitzsimons & Shah, 2008), and behavior (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001; Friese, Smith, Plischke, Bluemke, & Nosek, 2012). This means that many of the fundamental components of prospective cognition may happen reflexively and with little awareness, leaving open the interesting question of what necessary function traditional conscious processes serve as people think about and simulate the future.

We would also like to note that the automaticity literature offers several inroads toward the successful implementation of many of the clinical interventions reviewed by the authors. The authors mention, for example, the strategy of replacing faulty futuristic if–then strategies with more adaptive and realistic pairings of behaviors and their outcomes. In a parallel line of work, automaticity researchers (e.g., Aarts, Custers, & Holland, 2007; Custers & Aarts, 2005; Kawakami, Steele, Cifa, Phills, & Dovidio, 2008) have shown that responses to certain targets can be modified through repeated association of the target with behavioral approach-or-avoid tendencies. For example, Kawakami et al. (2008) showed that having women approach the word "math" with a computer joystick led women to feel more positively toward math and identify themselves with the subject. This change in evaluation of anxiety-provoking stimuli would likely have downstream consequences for the expected outcomes associated with math performance (and may thus affect the then content of people's if–then strategies). Such an intervention, though seemingly behaviorist at its core, may help provide people with the same behavioral flexibility advocated for by Seligman and colleagues.

Prospection Is Not Sufficient for Free Will

Last, but not least, we would like to address the authors' remarks on the intersection of prospection and free will. Here, we found the discussion to be a back-and-forth between, on the one hand, the experience of free will, which may be illusory (Wegner, 2002), and, on the other, the ontological status of free will. We caution against using participants' own introspections on what it is to be a free agent as fodder for an empirical investigation of the actual existence of free will. Those participants (who, on average, believe in free will) are likely to highlight the very capacities that they possess, resulting in empirical work that merely confirms a hypothesis that was biased from the outset.

On the topic of what it feels like to be a free agent, the authors have this to say:

> So the experience of "freely willing" is running through these prospections until one feels that one's mind is made up and then taking the course of action one has settled upon and nothing more.
>
> The "settled outcome" is in an obvious sense one's own idea, because it came about through one's own unimpeded mental activity, without internal compulsion (which is insensitive to what one prefers) or external coercion (which prevents one from weighing options without interference) or overpowering temptation (in which case the agent does not have the will he wants). (Seligman et al., 2013, p. 133)

This is, indeed, an elegant description of what it feels like to claim authorship over a particular decision. The catch is that decision makers are rarely in a position to know when their thinking is biased, influenced, or shaped by forces "inside" or "outside" of themselves (Johansson, Hall, Sikstrom, & Olsson, 2005; Johansson, Hall, Sikstrom, Tarning, & Lind, 2006; Nisbett & Wilson, 1977; Pronin & Kugler, 2007). Research on priming has clearly shown that people are often unaware of the factors that shape their attitudes and behavior (e.g., Bargh, 2007; Nisbett & Wilson, 1977). Similarly, people can be unaware of internally competing desires (Kleinman & Hassin, 2011). We would argue that, far from being impediments to effective decision making, external influence and internal competition are often important determinants of thoughts about the future and subsequent behavior, regardless of whether the agent is aware of their operation.

The Road to Self-Improvement May Be Traversed Automatically

One message that can and probably should be taken from Seligman and colleagues is that human beings and other animals are not merely passive pawns of fate, driven uncontrollably to repeat past patterns of undesired behavior. Instead, we are active agents whose complex calculations about the future orient and propel us toward desired action and goal fulfillment in novel and flexible ways. On this point, we do not disagree. We do, however, think that the human capacity for prospection and future-oriented action is bounded by the usual constraints imposed upon any physical system, has no bearing on the question of free will, and is fully consistent with contemporary automaticity research.

Much like how the humanists during the mid-20th century were responding to psychodynamic psychology as limited in terms of human flourishing, Seligman et al. appear to have the same concerns for an automaticity perspective. It is true that a great deal of research across areas in social psychology focuses on how people are less aware and less in control of their thoughts and behaviors than they think and that they often fail at attempts to be better self-regulators and decision makers. Much of this emphasis has to do with a response to the classical economics view of humans as rational agents. However, there has also been abundant research in learning, judgment and decision making, and self-regulation on how and when people can change and improve their behavioral outcomes.

At the end of their article, Seligman and colleagues argue that the scientific endeavor of unveiling the determinants of behavior is no longer as useful as it once was and that a prospection framework will be more effective at creating positive changes in human behavior. We have argued that the field at large is in agreement about the importance of prospection, and we concur that it is critical to arrive at a better understanding of how people can alter their behavior. However, we believe that the potential for real and lasting change in human behavior requires sophisticated understanding of the actual determinants of behavior, regardless of where in time those determinants are perceived to be situated. Only then can we identify which strategies will be effective in improving the future.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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