

Mental States, Conscious and Nonconscious

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Abstract

I discuss here the nature of nonconscious mental states and the ways in which they may differ from their conscious counterparts. I first survey reasons to think that mental states can and often do occur without being conscious. Then, insofar as the nature of nonconscious mentality depends on how we understand the nature of consciousness, I review some of the major theories of consciousness and explore what restrictions they may place on the kinds of states that can occur nonconsciously. I close with a discussion of what makes a state mental, if consciousness is not the mark of the mental.

1. Introduction

It is plain that mental states—such as beliefs, desires, fears, perceptual states, and pains—are often conscious, but there are good reasons to think that mental states can also occur without being conscious. Historically, however, some philosophers have denied the possibility of nonconscious mental states. Descartes, for example, seems to have understood conscious states to be states of which one is aware and moreover assumed that we are always aware of our mental states (e.g., AT VII; see also, e.g., Aristotle; Locke; Strawson). On this view, if a person is in a state that is not conscious, then such a state is no more mental than the states of that person's retina or kidneys. Nowadays, however, few make the Cartesian assumption that mental states are invariably conscious. There is growing consensus not only in psychology and neuroscience but also in philosophy that mental states can and often do occur outside of consciousness.

In this survey article, I discuss the nature of nonconscious mental states and explore whether and in what ways they may differ from their conscious counterparts. I

begin by reviewing some of the commonsense and experimental reasons to think that some, if not all, types of mental states can occur nonconsciously.¹ Then, insofar as the nature of nonconscious mental states depends on how we understand the difference between conscious and nonconscious states, I summarize some of the main philosophical and scientific theories of consciousness, exploring what, if any, restrictions they place on the kinds of mental states that can occur nonconsciously. In closing, I consider the question of what makes a state mental, if consciousness is not the mark of the mental.

2. Evidence of Nonconscious Mental States

At the outset, it is important to note that the study of nonconscious mentality is often muddled by the problem of characterizing consciousness in a commonsense way. Following Nagel, many philosophers today gloss conscious mental states as states for which *there is something that it is like for one* to be in them (436). On this view, nonconscious states are those states for which there is *nothing* that it is like to be in them. Despite its intuitive appeal, however, this characterization has been criticized as vague or unexplanatory (e.g., Lycan 77). Many instead share Descartes's view that a conscious state is a state of which one is suitably aware; a nonconscious state is thus a state that one is *not* suitably aware of being in. But this characterization too is contentious (see, e.g., Dretske, *Naturalizing the Mind* 101). As a result, theories of consciousness often differ because of their fundamental disagreement about how to characterize the target phenomenon in the first place. In the following discussion, I remain neutral regarding the nature of consciousness. I assume that we have a sufficiently strong grasp of the phenomenon to identify clear-cut cases of nonconscious states.

Thanks primarily to Freud (e.g., *An Outline of Psycho-Analysis*), the idea that states such as beliefs or desires can occur without being conscious is now largely uncontroversial. Freud famously spoke of defensive mental processes such as *repression*, wherein troublesome thoughts or desires are forced out of consciousness and into the recesses of the unconscious. But such states are not absent from one's mind, Freud maintained, because they still find meaningful expression in one's behavior. Although many theorists these days do not understand mental states and processes in a Freudian way, most nonetheless agree not only that thoughts but also that perceptual states can occur without being conscious, as in cases of so-called *subliminal perception* (for discussion of the following and other examples, see, e.g., Rosenthal, 'Consciousness and Its Function'; Rosenthal, *Consciousness and Mind* chapter 7).

Nonconscious mental states are not mere exotica; there are many everyday examples of them. On the cognitive side, consider the ordinary experience of working on an intellectually demanding task, such as a math problem. After taking a break from a difficult problem, you often find that the solution seems to pop into consciousness. A reasonable explanation is that while taking a break from having *conscious* thoughts about the problem, you nonetheless had *nonconscious* thoughts about it, which eventually resulted in a solution entering consciousness. On the perceptual side, consider the experience of being absorbed by an activity in a crowded place, such as reading a book in a bustling coffee shop. It is not uncommon to find yourself suddenly looking up to meet the eyes of a stranger who has been staring at you. Again, a reasonable explanation is that at first you did not *consciously* see the person, but did so *nonconsciously*—and that

this subliminal perceptual state prompted you to look up. Indeed, it is unclear what could explain these kinds of behaviors, if not appeals to nonconscious mental states.

In addition to these everyday examples, there is a large body of experimental evidence of nonconscious thoughts, such as Dijksterhuis and colleagues' recent work on the power of nonconscious deliberation (for a review, see, e.g., Dijksterhuis and Nordgren). In one experiment, participants were asked to judge the relative quality of an apartment based on a complex set of dimensions. In one condition, participants were asked to make a snap judgment; in another, participants were asked to consciously deliberate before rendering a judgment; and in a third condition, participants were distracted with a demanding but unrelated task before making their judgment. Remarkably, participants in the distraction condition performed better than those in the other conditions. Dijksterhuis and colleagues surmised that the best explanation of this evidence is that the distracted participants were able to have nonconscious thoughts about the apartment problem. Indeed, it seems that these nonconscious thoughts were more effective than the conscious ones (there is, however, some debate about these results; for discussion, see, e.g., Bargh).

Psychologists and neuroscientists have also extensively studied nonconscious perceptual states. A striking example of nonconscious perception comes from the study of persons suffering from *blindsight*, a condition resulting from damage to the visual cortex (for an overview, see, e.g., Weiskrantz). People exhibiting blindsight typically report that they cannot see anything; however, they are nonetheless able to perform well on certain visual tasks. For example, in so-called *forced-choice* paradigms, blindsight participants are asked to determine whether two presented stimuli are the same or

different. Participants at first deny that they can see the stimuli, but when compelled to render judgments, they are able to distinguish the stimuli successfully. The evidence suggests that although participants cannot consciously see the presented stimuli, they can nonconsciously see them and respond effectively to what they see.

One might argue that blindsight is poor evidence for nonconscious perceptual states because it occurs in people with an unusual type of brain damage. But nonconscious perception has been studied in persons with intact brains as well. For example, in *masked-priming* paradigms, ordinary participants are presented with visual stimuli quickly followed by different visual stimuli known as *masks* (for a review, see, e.g., Kouider and Dehaene). For reasons not yet understood, such masks block the presented stimuli from entering consciousness, so that participants report not seeing the stimuli and perform no better than chance when asked to identify them. But there is nonetheless reason to think that these participants subliminally perceive the stimuli, because such stimuli *prime* them in various ways. For example, if a participant is presented with a masked square, the participant is faster at determining whether a subsequently presented unmasked square is a square or a diamond than if not first primed with the masked square.

There are many other psychological paradigms, such as *interocular suppression* in normal subjects (for a fascinating application of this technique, see, e.g., Jiang et al), and pathological conditions, such as *hemispatial neglect* (for a review, see, e.g., Bartolomeo), that provide evidence for nonconscious perceptual states. And the literature on nonconscious mentality is growing. There is burgeoning evidence that many kinds of mental states and processes occur without being conscious, including, for example,

emotional states such as fear (e.g., Hamm et al), social cognition (e.g., Bargh and Williams), and intentional action (e.g., Varraine et al).

2.1. What Kinds of States Can Occur Outside of Consciousness?

One might object to the forgoing discussion, maintaining that such states (whatever they are) are not really *mental* states. That is, though such states may seem like thoughts, perceptual states, emotional states, and so on, they are not *genuinely* mental.

But it is hard to see why not. Perhaps the paradigms of mental states are conscious ones, but the nonconscious states discussed above play virtually the same roles in our mental lives as conscious states—they simply lack consciousness. Such states are typically caused by sensory input or by other (conscious) mental states and can cause other (conscious) mental states or behavior. This is why most philosophers and other cognitive scientists alike use the same psychological vocabulary to describe these nonconscious states as they do to describe conscious ones.

One might nevertheless deny that such states are mental because they are not, it might seem, states of persons. One might argue that such states are, to use Dennett's (*Content and Consciousness* 93) helpful expression, *subpersonal*—that is, attributable only to discrete subsystems of a person. Indeed, the kinds of empirical results discussed here are often described as evidence that your brain does all sorts of things that you don't do, and without your knowing it (this view is particularly prevalent in the popular media; see, e.g., Payne). But apart from the Cartesian assumption that mental states are always conscious, there seem to be no good reasons to deny that people nonconsciously perceive and nonconsciously think. That is, it would seem that the personal/subpersonal

distinction is orthogonal to the conscious/nonconscious distinction. Instead, one might concede that such states are mental, but insist that (despite appearances to the contrary) they are also conscious. But, again, besides the Cartesian assumption, it is hard to see why we should regard these states as conscious in any way, especially in light of people's fervent denials that they are in those states.

The discussion thus far suggests the following sensible hypothesis: that any kind of mental state that can occur consciously can also occur nonconsciously (for a statement and defense of a version of this claim, see, e.g., Carruthers 135). We can call this claim *the nonconscious-state thesis*. The nonconscious-state thesis holds that if one can consciously perceive a red ripe strawberry, then one can also nonconsciously perceive a red ripe strawberry. Likewise, if one can consciously think that global poverty is a grave injustice, then one can nonconsciously think that global poverty is a grave injustice. The nonconscious-state thesis is a substantive hypothesis about the mind; the remainder of this article explores its prospects.

At first, one might think that at least certain kinds of mental states must occur consciously. For example, some philosophers assume that in order for a state to play a role in *rationally* guiding behavior, it must be conscious (e.g., Block, *Consciousness, Function, and Representation* 168; Hellie 111). But it is unclear why we should assume this. As the evidence from Dijksterhuis' work suggests, people are able to think nonconsciously about complex information in order to render reflective judgments—a model of rational activity (e.g., Rosenthal, 'Consciousness and Its Function' 831-832).

Similarly, it is often assumed that bodily sensations such as pains, tickles, and itches are necessarily conscious (e.g., Kripke 146). How, one might wonder, could a

state be a state of pain if it is not consciously painful? But there are arguably examples of nonconscious sensory states. Consider, for instance, the ordinary experience of having a headache that lasts throughout the day (Rosenthal, *Consciousness and Mind* 39). When you suffer from such a headache, you do not typically *consciously feel* it at all times. It does nonetheless seem natural to say that you are in the *same state* throughout; this implies that the headache was conscious at times although at other times it was not conscious. This interpretation of the case is doubtless contentious. One might object, for example, that the headache comes and goes out of existence. Additional evidence, however, could help support one or the other of these competing hypotheses. If you behaved consistently throughout the day—by displaying poor concentration or grimacing continuously—it would seem that the headache remained present, despite being at times not conscious.

It is moreover suggestive that many mental phenomena that one might have initially assumed must be conscious—such as certain perceptual illusions—have been experimentally demonstrated to occur outside of consciousness. Recently, for example, it was shown that the so-called *simultaneous brightness-contrast illusion*, wherein a gray object on a dark background is illusorily perceived to be brighter than the same gray object on a lighter background, can occur while visually masked (Persuh and Ro). And there is mounting experimental evidence that other kinds of comparatively high-level mental functions can occur in the absence of consciousness too, such as so-called *amodal completion* (Aloi Emmanuel and Ro).

Of course, there are *some* differences between conscious and nonconscious mental states. Perhaps the most salient difference is that one cannot (or at least typically

cannot) *verbally express* one's nonconscious states. If you consciously think that it's raining outside, you can express that thought by saying that it's raining outside. You can, naturally, nonverbally express it as well, for example, by grabbing an umbrella before leaving the house. But if you nonconsciously think that it's raining outside, it would seem that you cannot verbally express this state—you can express it only through nonverbal behavior. But while such evidence does point to differences in the psychological roles that conscious and nonconscious states play, it is not demonstrate that nonconscious states are not mental. It is not even clear that such evidence says anything about the *intrinsic natures* of those states. It very well may be that conscious and nonconscious thoughts that it is raining outside are of the same psychological kind, even though they may play somewhat different roles in mental life.

As glossed above, the nonconscious-state thesis concerns what kinds of mental states can occur nonconsciously, but there is an equally interesting question regarding what kinds of mental states can occur consciously. After all, there may be reasons to think that certain kinds of mental states are invariably *nonconscious*. Consider, for example, the experimental evidence that people can successfully distinguish visually degraded stimuli in forced-choice scenarios, even when they report they cannot consciously see differences between those stimuli (e.g., Cheesman and Merikle). One way to interpret these results is to see them as evidence that what people can nonconsciously perceive outstrips what they can consciously perceive. In other words, it may be that the nonconscious-state thesis is true, but that the reverse of that thesis—that every kind of mental state that can occur nonconsciously can occur consciously—is not.

In any case, the status of the nonconscious-state thesis and its reverse depends on

how we understand the difference between conscious and nonconscious states—and theories of consciousness differ on this.

3. Theories of Consciousness

I will now discuss several of the predominant theories of consciousness and explore what, if any, restrictions they place upon the kinds of mental states that can occur nonconsciously (for similar surveys that focus on additional theories, see, e.g., Block, ‘Comparing the Major Theories of Consciousness’; Kriegel).

3.1. Philosophical Theories of Consciousness

A major debate in the philosophy of consciousness concerns so-called *first-order* and *higher-order* theories of consciousness. Higher-order theories share the assumption that a mental state’s being conscious is a matter of one’s being aware of that state in some suitable way (e.g., Armstrong; Lycan; Rosenthal, ‘Two Concepts of Consciousness’). First-order theories, by contrast, are far more heterogeneous; practically the only thing that unifies them is that they do not hold that consciousness consists in higher-order awareness.

The central motivation for higher-order views is the commonsense observation that if one is in a mental state, but in no way aware that one is in it, then that state is not conscious. This is logically equivalent to the claim that a mental state is conscious only if one is in some way aware of that state. There is considerable debate among higher-order theorists regarding exactly what kind of awareness results in consciousness, but most higher-order views hold that the states of awareness that result in states’ being

conscious are extrinsic to the conscious states themselves. Thus, on these kinds of views, it would seem that there is no reason to reject the nonconscious-state thesis.

For reasons beyond the limits of our discussion here, however, higher-order theories are often thought to face insuperable difficulties (see, e.g., Block, ‘The Higher-Order Approach to Consciousness is Defunct’; for reply, see, e.g., Rosenthal, ‘Exaggerated Reports’). Whatever the effectiveness of these objections, many flatly deny that consciousness consists of higher-order awareness. For example, Dretske maintains that conscious states are ‘states that we are conscious with, not states we are conscious of’ (*Naturalizing the Mind* 101). Dretske’s view is supported by several considerations, but a core motivation seems to be the idea that conscious states play the key psychological role of putting us in contact with the world.

Of course, this cannot be a complete characterization of consciousness because many and perhaps all nonconscious states—such as the perceptual states of people with blindsight in virtue of which they distinguish presented stimuli—put people in psychological contact with the world. Thus Dretske proposes that a perceptual state is conscious just in case it carries information about something and this information is available to one as a reason for one’s actions (‘Perception without Awareness’ 174). On such a theory of consciousness, then, the nonconscious-state thesis may turn out to be false: if tokens of a kind of state must make available reasons to act, then such states are necessarily conscious.

A lot depends, of course, on what it is for a state’s information to be available to the subject of that perception as a reason for action. If a state’s being so available requires that the subject is somehow aware of the state as a reason, it is then unclear how

Dretske's proposal differs substantively from higher-order accounts. If instead availability requires only that such a state function as a reason for action, then perhaps states that we should regard as nonconscious can meet this criterion. It is arguable, for example, that the perceptual states of people with blindsight do function as reasons for their actions (e.g., Berger). Such states guide perceptual discriminatory behavior in ways that appear reasonable—people are simply unaware of these states that rationally guide their actions.

Dretske's view thus does not seem to make intelligible room for nonconscious mental states, but other first-order theories may seem to fare better. For example, according to *attentional theories*, a mental state is conscious only if it is suitably modulated by attention (e.g., Prinz). Attentional theories are motivated by, among other things, consideration of experimental phenomena such as *inattention blindness*. In an inattention-blindness paradigm, participants fail to consciously notice salient stimuli because they are otherwise engaged in attention-demanding tasks (see, e.g., Mack and Rock). In Chabris and Simons's (1999) memorable set up, participants are asked to count the number of times a basketball is passed among several players on a court. As the participants count the passes, a confederate wearing a gorilla suit dances across the scene. Because the participants' attention is absorbed in the task of counting passes, the majority of them fail to consciously register the gorilla! On the basis of this and related evidence, it would appear that attention plays a crucial role in engendering consciousness.

Though there are several philosophical and psychological ways to understand the notion of attention (for a review, see, e.g., Mole, Smithies, and Wu), the main defender of the attentional theory, Prinz, holds that a state is modulated by attention just in case it is

made available to *working memory*—that is, the psychological system responsible for storing information needed for complex tasks such as reasoning. This version of the attentional view therefore does provide clear criteria for distinguishing conscious from nonconscious states. And, like Dretske’s view, attentional theories so described leave open whether or not they are committed to the nonconscious-state thesis. If it turns out that certain kinds of mental states are always available to working memory, or that certain kinds of states can never be made so available, then such attentional theories will regard the nonconscious-state thesis or its reverse as false. For example, Prinz hypothesizes that only certain kinds of states—perceptual states that occur at what he calls the *intermediate level* of processing—can be made available to working memory (e.g., chapter 2).

The problem with attentional theories is that there is a growing body of experimental evidence suggesting that attention can occur in the absence of consciousness (for review, see, e.g., van Boxtel et al). For example, it would seem that even those suffering from blindsight can deploy attention in their blind fields (e.g., Kentridge et al). If these are genuine cases of attention, then attentional theories would seem to hold that many, and perhaps all, mental states must occur consciously, which is implausible. Attentional theorists have offered various replies to this evidence (e.g., De Brigard and Prinz), but I cannot review this debate here. My point is that it is not obvious that attention goes hand in hand with consciousness.

3.2. Scientific Theories of Consciousness

Perhaps the dominant scientific theory of consciousness is the so-called *global workspace theory* ('GWT') (e.g., Baars; Dehaene et al; for philosophical views inspired by GWT, see, e.g., Dennett, *Consciousness Explained*; Van Gulick). On the basis of evidence comparing matched pairs of conscious and nonconscious states, proponents of GWT hypothesize that nonconscious mental processes proceed via many semi-autonomous neural modules and that consciousness arises when information from these modules is sufficiently broadcast to a central neural network located in frontal areas of the brain, which has come to be known as the *global workspace*. The global workspace enjoys long-range neural connections to many areas in the brain and thereby makes available the information encoded in it for a range of functions, such as verbal report, rational action, and long-term memory. In short, GWT holds that a mental state is conscious just in case it is 'in' the global workspace and thereby poised to have widespread impact on the rest of the mind and behavior. Like the theories discussed above, GWT provides criteria for distinguishing the conscious from the nonconscious, and furthermore may put the nonconscious-state thesis into question. If there are kinds of states that must produce complex effects on other states and behavior—one might speculate, for example, that certain extremely intense emotional or sensory states may be candidates—then such states must be conscious.

But GWT is questionable. Though the evidence is not decisive, there do seem to be reasons to think that nonconscious states can and do have widespread psychological impact. As the evidence from masked-priming studies suggests, nonconscious perceptual states carry information about the environment that can prime a creature to behave in

complex ways—findings which seems to indicate that there are multiple ways in which subliminal perceptual states impact other mental functions and behavior. Again, my goal here is not to refute GWT; rather, simply to suggest that the proponents of any theory of consciousness must take into account the emerging empirical literature on the functions of nonconscious mental states.

Another scientific theory of consciousness that has drawn the attention of some philosophers is the so-called *information-integration theory* ('IIT') (e.g., Tononi). According to IIT, a creature's degree of consciousness depends on its levels of informational integration—roughly, the amount of informational connections between its information-carrying states. In this way, IIT seems to distinguish conscious from nonconscious states in a manner similar to GWT: conscious states are those that have reached suitable levels of informational integration. In addition, IIT seems to face a similar objection—namely, that it is unclear whether or not nonconscious states cannot be informationally integrated in the way that the theory requires.

Importantly, a central motivation for IIT stems from findings in sleep research, which purport to show that states are less informationally integrated during sleep than during wakefulness. But the property of a *creature's being conscious*—as in awake, responsive to stimuli, and not asleep or incapacitated—is arguably different than the property of a *mental state's being conscious* (e.g., Rosenthal, *Consciousness and Mind* 344). Indeed, there are reasons to think not only that nonconscious states can occur while creatures are conscious (as in cases of subliminal perception), but also that conscious mental states can occur while creatures are not conscious (as in, perhaps, cases of so-called *lucid dreaming*, dreams in which one is aware that one is dreaming). Thus it is

uncertain whether IIT is a theory of the relevant phenomenon—a theory of why mental states are conscious.

It is a difficult question whether or not nonconscious states can play the various roles that these theories hold to be impossible. But, as things stand, the debate regarding the nonconscious-state thesis is still far from resolved.

4. The Mark of the Mental

Since Descartes maintained that all mental states are conscious, he had a ready explanation of the difference between one's mental states and states that are clearly not mental, such as states of one's retina or one's kidneys. The evidence discussed above, however, puts Descartes's view into question. But if consciousness is not what makes a state mental, then what is the mark of the mental?

Perhaps a better hypothesis is Searle's proposal that a state is mental not just in case *it is* conscious, but just in case it *can be* conscious—what Searle calls the *connection principle* (155). One difficulty with this suggestion, however, is that it is incompatible with the evidence described above suggesting that we can perceive more nonconsciously than we can possibly perceive consciously. A more fundamental challenge is that it is difficult to understand what it means to say that a mental state *can be* conscious. Does this mean that creatures are disposed to be in token states (of that kind) that are conscious? The notion of a *potentially* conscious state is somewhat obscure.

Another commonly proposed candidate for the mark of the mental is *intentionality*—that is, the power of mental states to be about or to represent things (e.g., Brentano; Crane). It seems clear that a perception of red represents red or that a thought

about Philadelphia represents Philadelphia. That is, these states exhibit intentionality. This proposal has the benefit of distinguishing mental states from nonmental states in a way that seems to be wholly independent of consciousness. A perception of red or a thought about Philadelphia arguably exhibits intentionality, whether or not those states are conscious.

But there are problems with this suggestion. First, while it may seem compelling that perceptual states and thoughts are representational, the case of sensory mental states such as pains is far less clear (e.g., Block, *Consciousness, Function, and Representation* chapter 27). Moreover, even if we were to grant that all mental states are representational, as many philosophers have recently argued (e.g., Dretske, *Naturalizing the Mind*; Tye; Lycan), many nonmental states carry information about the world as well. States of one's retina carry information about properties such as edges and colors, and states of one's kidneys register the salt concentration of the blood. Thus, as most philosophers would agree, merely carrying information is not sufficient for the kind of representation arguably distinctive of mentality. Proponents of this mark therefore require some way to distinguish the *genuine* intentionality of mental states from the nonmental information-carrying states of creatures. It is not obvious, however, how to draw this distinction.

In the end, such considerations may support the view that there is no unified mark of the mental—that *mentality* is instead a cluster concept that encompasses many conditions, none of which are individually necessary or sufficient.

However we are to distinguish mental states from nonmental ones, it seems quite clear that not all mental states must be conscious. Nonetheless, it remains an open

question what kinds of mental states can or must occur nonconsciously. Going forward, philosophers and other cognitive scientists should work together to develop theories of consciousness and mentality that integrate evidence from both in and out of the lab.²

¹ To be clear, what is at issue here is whether mental states occur nonconsciously in an *occurrent*, and not merely *dispositional*, fashion. Most would agree that there is a way in which one continues to believe that Philadelphia is in Pennsylvania, even if one does not have at all times the occurrent thought that Philadelphia is in Pennsylvania. This is for one to have that belief in the dispositional way—that is, one is disposed to have an occurrent thought that Philadelphia is in Pennsylvania. It is uncontroversial that dispositional mental states are not conscious. The question I explore here is whether occurrent mental states occur nonconsciously.

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Bibliography

- Aloi Emmanuel, T. and Ro, T. 'Amodal Completion of Unconsciously Processed Objects.' *Journal of Vision* 12 (2012): doi: 10.1167/12.9.922.
- Aristotle. *de Anima: Books II, III (with passages from Book I)*. Tr. D. W. Hamlyn. Oxford: Clarendon Press, 1993.
- Armstrong, D. M. *A Materialist Theory of the Mind*. London: Routledge and Kegan Paul, 1968.
- Baars, B. J. *A Cognitive Theory of Consciousness*. Cambridge, MA: Cambridge UP, 1988.
- Bargh, J. A. 'Unconscious Thought Theory and Its Discontents: A Critique of the Critiques.' *Social Cognition* 29 (2011): 629-647.
- Bargh, J. A. and Williams, E. L. 'The Automaticity of Social Life.' *Current Directions in Psychological Science* 15 (2006): 1-4.
- Bartolomeo, P. 'Visual Neglect.' *Current Opinion in Neurology* 20 (2007): 381-386.
- Berger, J. 'Perceptual Justification Outside of Consciousness.' *Consciousness Inside and Out: Phenomenology, Neuroscience, and the Nature of Experience*. Ed. R. Brown. New York: Springer, 2012. 137-145.
- Block, N. *Consciousness, Function, and Representation: Collected Papers, Volume 1*. Cambridge, MA: MIT Press, 2007.
- Block, N. 'Comparing the Major Theories of Consciousness.' *The Cognitive Neurosciences IV*. Ed. M. Gazzaniga. Cambridge, MA: MIT Press, 2009. 1111-1121.
- Block, N. 'The Higher-Order Approach to Consciousness is Defunct.' *Analysis* 71 (2011): 419-431.
- Brentano, F. *Psychology from an Empirical Standpoint*. Ed. L. McAlister. London: Routledge and Kegan Paul, 1973.
- Carruthers, P. *Language, Thought, and Consciousness: An Essay in Philosophical Psychology*. Cambridge, UK: Cambridge UP, 1996.
- Chabris, C. and Simons, D. 'Gorillas in our Midst: Sustained Inattentive Blindness for Dynamic Events.' *Perception* 28 (1999): 1059-1074.
- Cheesman, J. and Merikle, P. M. 'Distinguishing Conscious from Unconscious Perceptual Processes.' *Canadian Journal of Psychology* 40 (1968): 343-367.
- Crane, T. 'Intentionality as the Mark of the Mental.' *Current Issues in Philosophy of Mind*. Ed. A. O'Hear. Cambridge, UK: Cambridge UP, 1998. 229-251.
- De Brigard, F. and Prinz, J. 'Attention and Consciousness.' *Wiley Interdisciplinary Reviews* 1 (2010): 51-59.
- Dehaene, S., Changeux, J. P., Naccachea, L., Sackura, J., and Sergenta, C. 'Conscious, Preconscious, and Subliminal Processing: A Testable Taxonomy.' *Trends in Cognitive Science* 10 (2006): 204-211.
- Dennett, D. C. *Content and Consciousness*. New York: Routledge and Kegan Paul, 1969.
- Dennett, D. C. *Consciousness Explained*. Boston: Little, Brown and Co, 1991.
- Descartes, R. *Descartes: Selected Philosophical Writings*. Tr. J. Cottingham, R. Stoothoff, and D. Murdoch. Cambridge, UK: Cambridge UP, 1988.
- Dijksterhuis, A. and Nordgren, L. F. 'A Theory of Unconscious Thought.' *Perspectives on Psychological Science* 1 (2006): 95-109.

- Dretske, F. *Naturalizing the Mind*. Cambridge, MA: MIT Press, 1995.
- Dretske, F. 'Perception without Awareness.' *Perceptual Experience*. Eds. T. S. Gendler and J. Hawthorne. Oxford: Oxford UP, 2006. 147-180.
- Freud, S. *An Outline of Psycho-Analysis*. New York: W. W. Company, 1949.
- Hamm, A. O., Weike, A. I., Schupp, H. T., Treig, T., Dressel, A., and Kessler, C. 'Affective Blindsight: Intact Fear Conditioning to a Visual Cue in a Cortically Blind Patient.' *Brain* 126 (2003): 267-275.
- Hellie, B. 'There It Is.' *Philosophical Issues* 21 (2011): 110-164.
- Jiang, Y., Costello, P., Fang, F., Huang, M. and He, S. 'A Gender- and Sexual Orientation-Dependent Spatial Attentional Effect of Invisible Images.' *Proceedings of The National Academy of Science* 103 (2006): 17048-17052.
- Kentridge, R. W., Heywood, C. A., and Weiskrantz, L. 'Attention without Awareness in Blindsight.' *Proceedings of the Royal Society B* 266 (1999): 1805-1811.
- Kouider, S. and Dehaene, S. 'Levels of Processing During Non-Conscious Perception: A Critical Review of Visual Masking.' *Philosophical Transactions of the Royal Society B* 362 (2007): 857-875.
- Kriegel, U. 'Consciousness, Theories of.' *Philosophy Compass* 1 (2006): 58–64.
- Kripke, S. *Naming and Necessity*. Cambridge: Harvard UP, 1980.
- Locke, J. *An Essay Concerning Human Understanding*. Ed. P. H. Nidditch. Oxford: Clarendon Press, 1975.
- Lycan, W. G. *Consciousness and Experience*. Cambridge, MA: MIT Press, 1996.
- Mack, A., and Rock, I. *Inattentional Blindness*. Cambridge, MA: MIT Press, 1998.
- Mole, C., Smithies, D., and Wu, W. (Eds.) *Attention: Philosophical and Psychological Essays*. Oxford: Oxford UP, 2011.
- Nagel, T. 'What is it Like to be a Bat?' *Philosophical Review* 83 (1974): 435-50.
- Payne, K. 'What Your Brain Won't Let You See.' *Salon.com* 13 June 2013
www.salon.com/2013/06/13/what_your_mind_wont_let_you_see_partner/.
- Persuh, M. and Ro, T. 'Context-Dependent Brightness Priming Occurs without Visual Awareness.' *Consciousness and Cognition* 21 (2012): 177-185.
- Prinz, J. J. *The Conscious Brain: How Attention Engenders Experience*. Oxford: Oxford UP, 2012.
- Rosenthal, D. M. 'Two Concepts of Consciousness.' *Philosophical Studies* 94 (1986): 329–59.
- Rosenthal, D. M. *Consciousness and Mind*. Oxford: Clarendon Press, 2005.
- Rosenthal, D. M. 'Consciousness and Its Function.' *Neuropsychologia*, 46 (2008): 829-840.
- Rosenthal, D. M. 'Exaggerated Reports: Reply to Block.' *Analysis* 71 (2011): 431–437.
- Searle, J. *The Rediscovery of the Mind*. Cambridge, MA: MIT Press, 1992.
- Strawson, G. *Mental Reality*. Cambridge, MA: MIT Press, 1994.
- Tononi G. 'An Information Integration Theory of Consciousness.' *BMC Neuroscience* 5 (2004): 42.
- Tye, M. *Ten Problems of Consciousness: A Representational Theory of the Phenomenal Mind*. Cambridge, MA: MIT Press, 1995.
- van Boxtel, J. J. A., Tsuchiya, N. and Koch, C. 'Consciousness and Attention: On Sufficiency and Necessity.' *Frontiers in Psychology* 1 (2010): 1-13.
- Van Gulick, R. 'Higher-Order Global States (HOGS): An Alternative Higher-Order

- Model of Consciousness.’ *Higher-Order Theories of Consciousness*. Ed. R. J. Gennaro. Philadelphia: John Benjamins Publishers, 2004. 67–92.
- Varraine, E., Bonnard, M., and Pailhous, J. ‘The Top Down and Bottom Up Mechanisms Involved in the Sudden Awareness of Low Level Sensorimotor Behavior.’ *Cognitive Brain Research* 13 (2002): 357-361.
- Weiskrantz, L. *Consciousness Lost and Found: A Neuropsychological Exploration*. Oxford: Oxford UP, 1997.