

Attention is Rational-Access Consciousness

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1. Introduction

What is the relationship between attention and consciousness? Is there attention without consciousness? Is there consciousness without attention? Or are attention and consciousness inextricably bound up together?

How one answers these questions depends on how one understands the concept of attention--in particular, it depends on whether attention is defined in terms of its phenomenology or its functional role. If attention is functionally defined, then there is a non-trivial question about its relation to consciousness, but there is no non-trivial question about its functional role. By contrast, if attention is defined in terms of its phenomenology, then there is a non-trivial question about its functional role, but there is no non-trivial question about its relationship to consciousness. As a result, debates about the relationship between attention and consciousness threaten to descend into purely verbal debates in which different answers correspond to different concepts of attention. Making progress depends on first getting clear about how to understand the relationship between the phenomenology and the functional role of attention.

Ordinarily, we think of attention both in terms of its phenomenology and its functional role. Shifting one's attention from one thing to another affects one's overall phenomenology, but it also affects one's functional dispositions to think about or act upon the one thing rather than the other. But there is a further question about the relationship between the phenomenology of attention and its functional role, which is especially pressing insofar as the functional role of attention can be played in the absence of its phenomenology. In that case, do we have

unconscious attention or merely an ersatz functional analogue of attention?

My main aim in this paper is to argue that attention is essentially a phenomenon of consciousness. If attention is understood in terms of its distinctive phenomenology, then it is built into the concept of attention that there is a phenomenal contrast to be drawn between attentive and inattentive modes of consciousness. On this view, attention is a distinctive mode of consciousness: in other words, there is consciousness without attention, but there is no attention without consciousness.¹

This conception of attention faces a challenge from recent empirical results, which have been taken to show that there is attention without consciousness, but no consciousness without attention. My response is to explain the empirical evidence by appeal to a claim about the functional role of attention: it makes information accessible for use in the rational control of thought and action. This has implications for the relationship between attention and consciousness: first, there is no attention without consciousness, since no unconscious information is accessible for use in the rational control of thought and action; and second, there is consciousness without attention, since not all conscious information is accessible for use in the rational control of thought and action. In short, consciousness is necessary but not sufficient for attention because consciousness is necessary but not sufficient for rational accessibility.

I conclude by appealing to the functional role of attention in arguing for the conclusion that attention is a distinctive mode of consciousness:

- (1) Attention is what makes information fully accessible for use in the rational control of thought and action.
- (2) But what makes information fully accessible for use in the rational control of thought and action is a distinctive mode of consciousness.

(3) Therefore, attention is a distinctive mode of consciousness.

2. The Phenomenology of Attention

It is customary to preface discussions of attention by quoting William James:

Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, concentration, of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others, and is a condition which has a real opposite in the confused, dazed, scatterbrained state which in French is called *distraction*, and *Zerstreutheit* in German. (1890, pp. 403-4)

James is sometimes taken to task for his claim that everyone knows what attention is. Does this mean philosophers of mind and cognitive scientists are out of a job? That would be absurd, but nothing so radical is implied. After all, everyone knows what pain is and yet pain is a central topic for research in philosophy of mind and cognitive science. James' proposal is simply that attention, like pain, is essentially a phenomenon of consciousness. As he puts it, attention is a kind of "focalization" or "concentration" of consciousness, which involves selecting among items in the stream of consciousness and "taking possession" of them "in clear and vivid form".

If attention is a phenomenon of consciousness, then we know what attention is on the basis of our own experience; however, this is not to say that we can define it. By analogy, we know what pain is through experience, but we cannot define it except by using synonymous expressions, e.g. "It hurts!" Attention is no different. It is natural to describe the objects of one's attention as being prominent, salient, focused or highlighted in one's experience and to contrast the attended foreground of one's experience with an unattended background. These metaphors gesture towards an important aspect of experience, which is familiar to everyone, but they do not amount to anything like a non-circular definition. And yet even without a non-circular

definition of attention, we can still elucidate the phenomenon by articulating some of its most general features.

Attention is a mode of consciousness: it modifies the stream of consciousness by structuring it into foreground and background.² Thus, attention is a contrastive notion: whatever occupies one's attention is in the foreground rather than the background of conscious experience.³ Moreover, the relevant contrast is to be understood in phenomenal terms: there is a phenomenal contrast between the foreground and the background of conscious experience. What it is like to perceive, act, or think attentively is different from what it is like, if anything, to do the same thing inattentively. The simplest explanation of this phenomenal contrast between instances of attention and inattention is that there is a distinctive and proprietary phenomenology--that is, a phenomenology that all and only instances of attention share in common. It is a further question how to characterize this phenomenology, but it is arguably *sui generis*: why suppose that the phenomenology of attention can be reduced to the phenomenology of perception, action, cognition, or anything else?⁴

Attention also involves a competition for selection. In cognitive science, this idea has been emphasized at the expense of the idea that attention is a mode of consciousness. Until recently, the dominant conception was that attention is a psychological mechanism or resource, which enhances performance in the exercise of various different psychological capacities, but which is limited in capacity and so gives rise to a competition for selection.⁵ A more recently influential idea is that attention does not involve competition for the use of a specific mechanism or resource, but a more global competition for the co-ordinated use of many specific mechanisms in the exercise of a particular capacity.⁶

If attention is a mode of consciousness, then we can explain the sense in which

attention involves a competition for selection without making further commitments about how this competition is implemented in the brain. According to James, selection is “the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought.” On this view, there is competition within the stream of consciousness for selection to occupy the attended foreground rather than the unattended background. This competition is general purpose in the sense that anything within the stream of consciousness can occupy one’s attention. However, not everything can occupy one’s attention at once, since attention is an essentially contrastive notion: there is a phenomenal contrast to be drawn between the attended foreground and the unattended background of consciousness. Therefore, it is a conceptual truth that attention involves competition for selection in the sense that whenever we attend to some things, we do so at the expense of others.⁷

Attentional selection may be understood in phenomenal terms, but it also has functional consequences: it affects what we see, and so, and think. As James writes, “It implies withdrawal from some things in order to deal effectively with others.” In what follows, I consider how the functional role of attention should be characterized before turning in the remainder of the paper to address the relationship between the phenomenology of attention and its functional role.

3. The functional role of attention

In cognitive science, attention is usually understood in terms of its functional role, rather than its phenomenology. In the seminal work of Donald Broadbent (1958, 1971), for instance, attention is operationally defined as a mechanism that serves a function of selection. Attention, so defined, is a mechanism whose function is to select information to pass through some limited capacity filter or bottleneck, which enhances the processing of selected information in such a

way as to facilitate one's performance in the exercise of certain cognitive capacities. Thus, Broadbent writes: "selection takes place in order to protect a mechanism of limited capacity." (1971, p. 178)

Broadbent's functional definition of attention embodies various assumptions: first, there is a unitary mechanism of attention; second, the function of the mechanism is to select information for enhanced processing; third, the need for selection derives from limits on the capacity of the mechanism to process information; and fourth, selection is necessary for processing certain kinds of information, but not others. These assumptions give rise to the classic debate about whether the locus of attentional selection occurs early or late in the hierarchy of information processing: in other words, how much information processing occurs preattentively and how much requires the allocation of attention?⁸

Alan Allport (1993) raised an influential criticism of the assumptions that drive this debate between early versus late selection theories of attention:

Even a brief survey of the heterogeneity and functional separability of different components of spatial and non-spatial attentional control prompts the conclusion that, qua causal mechanism, *there can be no such thing as attention*. There is no *one* uniform computational function, or mental operation (in general, no *one* causal mechanism), to which all so-called attentional phenomena can be attributed. On the contrary, there is a rich diversity of neuropsychological control mechanisms of many different kinds (and no doubt many yet to be discovered), from whose cooperative and competitive interactions emerge the behavioral manifestations of attention. It follows that to ask, *Which cognitive processes require attention?* and to search for common characteristics of all such processes, in contradistinction to all "spontaneous" processes (which supposedly *do not* require attention), is an enterprise that, like the search for one unique locus of attention, is incapable of resolution. (1993, p. 203)

Allport's criticism, in effect, is that there is no unique mechanism that satisfies the functional

definition of attention as whatever it is that selects information to pass through a limited capacity bottleneck for enhanced processing. Attention is associated with a diverse range of selective functions, including binding, tracking, spatial orienting, priming effects, short-term memory storage and the control of action and verbal report. But why suppose that there is any single mechanism that performs all of these diverse selective functions? Why not suppose that there are various different kinds of selective mechanisms, which perform various different selective functions? If this is right, then it undercuts the search for any unique locus of attentional selection in the hierarchy of information processing. More radically, it also threatens to yield a form of eliminativism. If there is no unique mechanism that satisfies the functional definition of attention, then how are we to avoid Allport's eliminativist conclusion that, "qua causal mechanism, there is no such thing as attention?"

The most popular response to eliminativism is disjunctivism. On this view, there is no single mechanism of attention, but rather a variety of attentional mechanisms, which play various different functional roles.⁹ However, this threatens to abandon the basic assumption that attention is a general-purpose mechanism or resource for which there is competition between different cognitive capacities. Worse still, if the various different mechanisms of selection have nothing in common besides the function of selecting information for some purpose or other, then it is not clear that attention is a natural kind that is capable of sustaining useful causal-explanatory generalizations. In which case, the concept of attention should simply be eliminated from a mature cognitive science and replaced by a more fine-grained taxonomy of selective mechanisms. Thus, it is not clear that disjunctivism succeeds in avoiding eliminativism.

An alternative response is to characterize attention in terms of its phenomenology, rather than its functional role. If attention is functionally defined, then we are faced with a

dilemma, since we must either find some unity in the selective mechanisms that play the functional roles in terms of which attention is defined or we must conclude that there is no such thing as attention, but only various different selective mechanisms. If attention is defined by its distinctive phenomenology, on the other hand, then this is a false dilemma: even if there is no unity at the level of underlying mechanisms, there may be unity at the level of consciousness. On this view, we need to distinguish more sharply between what attention is and what attention does. Attention may have a unified phenomenal nature even if it plays a disunified range of functional roles.

The problem with this response is that it threatens to undermine the theoretical significance of attention. If attention is just a distinctive kind of phenomenology, which plays no unified functional role in our psychological lives, then why regard it as a central topic in philosophy and in cognitive science? A more promising strategy is to argue that attention plays an important functional role at the level of commonsense psychology, which is multiply realized by various different functional mechanisms at the level of information-processing psychology.¹⁰ What we need is some fairly abstract characterization of the functional role of attention that unifies the phenomenon.

An attractive proposal is that attention selects information and makes it accessible for use in the control of action, reasoning and verbal report.¹¹ To illustrate, consider George Sperling's (1960) partial report paradigm, in which subjects are presented briefly with an array of three rows of four letters and then asked to report as many letters as they can remember. Subjects typically claim to see all of the letters, but can only identify about three or four of them. However, when a particular row is cued just after the disappearance of the array, subjects are able to identify all or almost all of the letters in that row. Sperling concluded that iconic

memory contains a detailed, but rapidly degrading representation of information about the whole array. The effect of cueing is to draw attention, which selects information from iconic memory and stores it in working memory in order to make it accessible for use in verbal report and other executive processes.

On some views, there is a specific neural mechanism that selects information from sensory producing systems and makes it accessible for use by consuming systems in the control of action, reasoning and verbal report. For instance, Stanislas Dehaene (2001) argues that sensory information becomes accessible when it is broadcast into a global neuronal workspace, which is realized by long-range neurons connecting sensory areas in the back of the head with cognitive and motor areas in the front of the head. He claims that attention is the mechanism that broadcasts information into the global workspace: “top-down attentional amplification is the mechanism by which modular processes can be temporarily mobilized and made available to the global workspace.” (2001, p. 14)

On other views, attention is not a specific neural mechanism, but is rather the global organization of specific mechanisms in the service of action, reasoning and verbal report. For instance, on Alan Allport’s (1987) theory of attention as selection for action, the need for selection does not arise from the limited capacity of any specific mechanism, but rather from the need for global organization within a system that the capacity to process more information than it can handle in an organized fashion. Along similar lines, Christopher Mole (this volume) proposes that attention is cognitive unison--that is, the unison of neural mechanisms operating in the service of some cognitive task. These approaches are naturally combined with the biased competition theory of attention, which is summed up by Robert Desimone and John Duncan: “Attention is an emergent property of many neural mechanisms working to resolve

competition for visual processing and control of behaviour.” (1995, p. 194)

If attention is functionally defined in terms of accessibility, then our target question about the relationship between consciousness and attention can be reformulated as a question about the relationship between consciousness and accessibility. Many philosophers and cognitive scientists have argued that accessibility of the right kind is both necessary and sufficient for consciousness. For instance, Dehaene (2001) argues for a global workspace theory of consciousness, according to which information is conscious if and only if it is broadcast into the global workspace and thereby made accessible for use in the control of executive processes.¹² Meanwhile, others have argued that the mechanisms of accessibility and consciousness can be dissociated and hence that accessibility is neither necessary nor sufficient for consciousness.¹³

On the face of it, the debate about whether the mechanisms of accessibility and consciousness can be dissociated in this way is straightforwardly empirical. In what follows, however, I argue that there is a hidden conceptual dimension to this debate. In particular, I draw a distinction between two concepts of accessibility--*causal* accessibility and *rational* accessibility--and I argue that there is a conceptual relationship between consciousness and rational accessibility, which is independent of the empirical facts about the relationship between consciousness and causal accessibility. If attention is functionally defined in terms of rational accessibility, rather than causal accessibility, then consciousness is necessary but not sufficient for attention.

4. Is there Consciousness without Attention?

Do we consciously experience more than we attend to? Or are the limits of conscious experience set by the limits of attention? According to *the limitation thesis*, one

consciously experiences something only if one attends to that very thing.

It may seem obvious by introspection that the limitation thesis is false. Visual experience seems to present us with a unified and continuous visual field, which attention moves around like a spotlight. Moreover, this is just one dimension of a wider stream of consciousness, which includes experiences of thinking, deciding and acting. Different experiences within the stream of consciousness compete for attention as some are brought into the foreground, while others recede into the background. Introspectively, it seems as if the stream of consciousness is continually shaped by changes in the focus of attention and structured into an attended foreground and an unattended background.

However, there is a basic problem with this appeal to introspection. When we engage in introspection, we thereby turn our attention towards our own experience. It may be true that whenever I attend to it, I am aware of the feeling of my feet in my shoes, but it doesn't follow that I am aware of it when my attention is directed elsewhere. Analogously, it may be true that the refrigerator light is on whenever I open the door to check, but it doesn't follow that the light is on all the time. So, perhaps the introspective sense that we consciously experience more than we attend to can be explained away as an instance of the so-called "refrigerator light illusion".¹⁴

A more sophisticated appeal to introspection invokes perceptual memory. Michael Martin (1992) argues that the contents of perceptual memories provide us with defeasible evidence about the contents of earlier perceptions. For example, if I am looking for a lost cufflink and I suddenly remember that the cufflink was in the drawer upstairs, then this is defeasible evidence not only that the cufflink was in the drawer, but also that I saw it, although it failed to capture my attention at the time. But why suppose that the contents of perceptual memories provide evidence about the contents of conscious perceptions? Why not suppose instead that my earlier

perception of the cufflink was unconscious, since it failed to capture my attention?

Here, we can bolster the argument by appealing to Martin's (2001) account of the distinctive features of episodic memory. The experience of episodic memory, unlike semantic memory, is "Janus faced" in the sense that it has two aspects: it represents not only past states of the world, but also past states of conscious experience of the world. For example, my episodic memory of the cufflink represents what the cufflink looked like, but it also represents what it was like for me to look at it: in other words, it represents my past experience. It therefore provides me with defeasible introspective evidence for the claim that I experienced the cufflink, although it failed to capture my attention at the time. Thus, we can have introspective grounds to believe that there is consciousness without attention.

Presumably, introspection is not infallible. Nevertheless, in the absence of specific reasons to doubt its reliability, it is a defeasible source of evidence about the nature of our own experience. However, some philosophers and cognitive scientists have argued that any introspective evidence for conscious experience without attention is defeated by converging empirical evidence that attention is necessary for conscious experience.

Inattention blindness is an experimental paradigm in which subjects fail to report unattended objects.¹⁵ For example, subjects fail to detect a prominently visible red cross which moves across the center of a video screen when their attention is distracted by the task of counting black and white figures bouncing against the sides of the screen. More strikingly, subjects fail to detect a person in a gorilla suit when their attention is distracted by the task of counting passes between a team of basketball players. Change blindness is a related experimental paradigm in which subjects fail to report unattended changes.¹⁶ Subjects take a surprisingly long time to detect a clearly visible difference between two scenes shown one after the other

when their attention is distracted by mud splashes or flickers. Many subjects even fail to realize when their conversational partner is replaced when two workmen carrying a door walk obscure the change. In addition, further empirical results have been claimed to support the limitation thesis, including the attentional blink, visual masking and unilateral neglect.¹⁷

Why do we fail to report unattended objects and unattended changes? According to the *blindness* hypothesis, attention to an item is necessary for conscious experience of the item, so we do not report the unattended item because we do not experience it.¹⁸ However, it is a non-trivial question whether so-called inattention blindness and change blindness are best explained in terms of the blindness hypothesis. Verbal report is good evidence of conscious experience, but an absence of evidence is not always evidence of absence. Moreover, it is question-begging in the present context to assume that verbal report is a necessary condition for conscious experience. Nevertheless, proponents of the blindness hypothesis argue that it provides the best explanation of the data, so the question is whether there is any alternative explanation of the data, which applies to purported cases of conscious experience without attention.

There is a range of competing explanatory hypotheses, which attribute different functional roles to attention. On the *amnesia* hypothesis, attention to an object is necessary for storing information about the object in short-term memory, so we do not report unattended objects because they are almost immediately forgotten.¹⁹ On the *agnosia* hypothesis, attention to an object is necessary for high-level perceptual categorization, so we do not report unattended objects because we do not categorize them in terms of their high-level perceptual features.²⁰ On the *inaccessibility* hypothesis, attention to an object is necessary for making information about the object accessible for use in the control of action, reasoning and verbal report, so we do not report unattended objects because they are inaccessible.²¹ Given this range of competing

explanations of the data, why should we prefer the blindness hypothesis over the alternatives?

Different cases may need different explanations. Detecting changes in objects is more demanding than simply detecting objects, since it requires storing a representation of an object at one time and comparing it with a representation of the object at another time. For this reason, change blindness is plausibly explained in terms of amnesia, rather than blindness. However, inattention blindness is not so plausibly explained in terms of the amnesia hypothesis. First, seeing a gorilla is not the kind of experience that one usually forgets. And second, the gorilla is visible for several seconds, so even if it is quickly forgotten, one might expect some kind of reaction at the time of the experience. This is even clearer in cases where the unexpected object is relevant to the subject's goals: for example, Haines (1991) found that pilots using an aircraft simulator failed to react to another aircraft blocking the runway just before landing.

Moreover, it is not clear that the agnosia hypothesis fares much better. The suggestion is that subjects do not react to the gorilla because they do not categorize it as a gorilla, but rather as another basketball player or as an unidentifiable black blob. But we cannot explain why pilots do not react to the aircraft on the runway in terms of the claim that they fail to categorize it as an aircraft, since the representation of a large object on the runway should be enough to prompt a reaction however it is categorized. Moreover, the unattended object is sometimes differentiated from everything else in the scene by low-level perceptual features, such a red cross among black and white letters. Extreme versions of the agnosia hypothesis, on which attention to an object is necessary for representation of even its low-level perceptual features, fail to block the argument for the limitation thesis.

The inaccessibility hypothesis provides an alternative explanation of the data, which does not support the limitation thesis. If attention is necessary for information to be accessible for

use in the control of action, reasoning and verbal report, then this explains why subjects fail to react to unattended objects. Indeed, it is the minimal hypothesis that is needed in order to explain the data. A common feature of the various candidate explanations is that each appeals to some aspect of the functional role of attention. Perhaps the functional role of attention includes not only cognitive accessibility, but also short-term memory storage, high-level perceptual categorization and the modulation of conscious experience. These are plausible empirical hypotheses, which merit further investigation, but they are not necessary for explaining the data in question. It is sufficient to note that attention is necessary for making information accessible for use in the control of action, reasoning and verbal report, since this explains why unattended items go undetected in inattention blindness experiments.

It may be objected that the inaccessibility hypothesis fails to explain why subjects in inattention blindness experiments not only fail to report unattended objects, but also insist that they do not see them. Here, the blindness hypothesis might seem to have an advantage. But while introspective reports provide defeasible evidence about one's own experience, it is defeated by specific reasons to doubt the reliability of introspection. Moreover, there are specific reasons to doubt the reliability of introspection in the cases at hand. After all, subjects will deny having an experience if it is not introspectively accessible, but the inaccessibility hypothesis entails that unattended experiences are not introspectively accessible, so it predicts that subjects will deny having unattended experiences regardless of whether in fact they do. Therefore, introspective reports cannot bear much theoretical weight in this context.

A different objection to the inaccessibility hypothesis is that information from unattended objects is in fact accessible for use in the control of action, reasoning and verbal report, as shown by evidence that unattended objects often display priming effects on performance.²² My

response to this objection is developed more fully in the following section: in short, attention is necessary for information to be accessible for use in the *rational* control of action, reasoning and verbal report; however, it is not necessary for information to be accessible for use in *non-rational* forms of causal influence, including priming effects, on action, reasoning and verbal report.

The limitation thesis is a universal generalization, so it is falsified by a single case in which the subject experiences an object without attending to it. Therefore, opponents of the limitation thesis need not deny that attention sometimes limits conscious experience, but only that it always does.²³ However, if the limitation thesis is false, then we are faced with a hard and seemingly intractable question: if there is conscious experience without attention, then how much? The question seems intractable because first-person introspective data and third-person behavioural data speak only to the extent of conscious experience in the presence of attention, so they do not address the question. Perhaps we can make gradual progress in holistic fashion by considering all the available data from neuroscience, psychology and introspection, but there may be principled limits on how much progress it is possible for us to make.²⁴

5. Is there Attention without Consciousness?

Do we attend to more than we consciously experience? Or are the limits of attention set by the limits of conscious experience? According to *the converse limitation thesis*, one attends to something only if one consciously experiences that very thing.

Robert Kentridge (2001, this volume) argues that there is attention without conscious experience in blindsight.²⁵ He uses Posner's (1980) spatial cueing paradigm to measure spatial attention. In this paradigm, subjects are presented with a spatial cue, such as an arrow, which indicates where out of two possible locations the target is likely to appear. Response times

are faster for targets that appear at the cued location and slower for targets that appear elsewhere. The usual interpretation is that spatial cueing activates a spatially selective mechanism of visual attention, which speeds the detection of targets at the cued location. Kentridge found that spatial cueing speeds target detection in blindsight patients without conscious experience of either the cue or the target. He concludes that there is attention without conscious experience in blindsight.

Mole (2008) argues that the empirical evidence is consistent with the converse limitation thesis. He argues that blindsight subjects attend to locations in the blind field on the grounds that this is how subjects naturally describe themselves.²⁶ However, he also argues that they experience the blind field in something like the way that we experience the space around our heads--that is, as parts of space within which our experiences are oriented. Certainly, blindsight subjects do not experience the objects within their blind field, but Mole also denies that they attend to those objects. Thus, he concludes that there is no single thing such that blindsight subjects attend to that thing in the absence of conscious experience of that very thing.

Mole's argument hinges on the distinction between spatial attention and object-based attention--that is, between attending to a spatial location and attending to an object at that location. To illustrate the distinction, he gives the example of the blind spot: one can attend to the spatial location corresponding to one's blind spot without thereby attending to an object which is located there. This is presumably because there is no processing of visual information from objects in the blind spot. However, blindsight is quite different insofar as attention to locations in the blind field enhances the processing of information from objects in those locations.

In response, Kentridge (2008) argues that if spatial attention is deployed in such a

way as to enhance the processing of information from an object at the attended location, then we must distinguish the basis of selection, which is a spatial location, from the object of attentional enhancement, which is the object at that location. The challenge, then, is to make sense of the distinction between attending to an object and attending to a location in a way that enhances processing of information from an object at that location. However, it is not immediately clear how to draw this distinction in purely functional terms. For instance, if object-based attention is functionally defined as the selection of information from an object for use in the control of action, reasoning or verbal report, then it seems undeniable that there is object-based attention in blindsight.²⁷

An alternative strategy is to insist that attention is to be understood in terms of its phenomenology, rather than its functional role. On this view, conscious experience of an object is necessary for attention to the object, so there is no object-based attention in blindsight. There is merely an ersatz functional substitute, which plays some aspects of the functional role of attention, including enhanced processing of objects at attended locations, and which may involve some overlapping neural mechanisms. If we draw a distinction between what attention is and what attention does, then perhaps the functional role of attention is multiply realized in the sense that it can be played in the absence of attention. In that case, it would be a confusion to infer from the premise that X plays the functional role of attention to the conclusion that X is an instance of attention.

This strategy threatens to collapse into a purely verbal manoeuvre. One option is to use the term ‘attention’ in a restrictive way to include conscious states that play a certain functional role, but not unconscious states that play the same functional role. Another option is to use the term ‘attention’ in a more permissive way to include both conscious and unconscious states

that play the relevant functional role. Is there any reason besides purely verbal stipulation to use the term in the restrictive way, rather than the more permissive way? The only substantive issue is whether there is a theoretically significant distinction to be drawn between conscious attention and its unconscious functional analogues. But how could there be any theoretically significant distinction to be drawn here unless it corresponds to some broadly functional distinction?

There is a dilemma in the offing here. If attention cannot be functionally defined, then why suppose there is any theoretically significant distinction to be drawn between attention as a mode of consciousness and a merely ersatz functional substitute? If it can, then why not suppose that the functional role of attention can be played in the absence of consciousness? The key question, then, is whether there is any functional role for which consciousness is necessary or whether it is possible for its functional role to be played in the absence of consciousness.

We grasp the concept of consciousness by experience, rather than by knowing any functional definition, so there is nothing to exclude the conceptual possibility of a functional zombie whose unconscious states play the same causal role that our conscious states play in us. Consider Ned Block's (1997) super-blindsighter, which is a hypothetical blindsighter whose unconscious visual representations of objects in the blind field play the same functional role as our conscious visual experiences. Block claims that super-blindsight is conceptually possible, but he denies that there are any actual cases, which provides a useful starting point for reflecting on the functional role of consciousness. What are the functional differences between actual cases of blindsight and conceptually possible cases of super-blindsight?

In blindsight, unconscious visual information is accessible for use in the control of action and verbal report. For instance, it is used in detecting objects both verbally and non-

verbally by means of button pressing; moreover, it is used in acting upon objects in the blind field, including pointing, reaching and grasping. As Block observes, however, unconscious information in blindsight is not accessible in the normal way – in particular, it is not accessible for spontaneous use, but only under forced choice conditions. Blindsighted subjects do not spontaneously report or act upon stimuli in the blind field, but only when they are prompted to guess.

Are there any actual cases of super-blindsight in which unconscious visual information is accessible for spontaneous use in the control of thought, speech and action? Nicholas Humphrey cites the case of Helen, a blind monkey:²⁸

Helen, several years after removal of the visual cortex, developed a virtually normal capacity for ambient spatial vision, such that she could move around under visual guidance just like any other monkey. This was certainly unprompted, and in that respect ‘super’ blindsight. (1995, p. 257)

Over the course of several years, Helen learned to use unconscious visual information to control her actions, such as navigating a room full of obstacles and even reaching out to catch a passing fly. At first, though, she demonstrated no ability to use unconscious visual information in the control of action until she was prompted with food rewards to orient towards moving objects in her blind field.²⁹ In effect, what she learned was to prompt her own use of unconscious visual information, rather than relying on external prompting. But the need for such a learning period shows that her unconscious visual information was not accessible for spontaneous use in the usual way. Block (1997, p. 385) describes a super-blindsighter who is “trained to prompt himself at will, guessing without being told to guess.” But if unconscious visual information plays the same functional role as our conscious visual experiences, then it is spontaneously accessible, in which case there is no need for learned self-prompting.

This suggests a proposal about the functional role of consciousness – namely, that information must be conscious if it is to be accessible for spontaneous use in the control of thought and action. However, this proposal is challenged by David Milner and Melvyn Goodale’s (1995) “two visual streams” hypothesis. According to this hypothesis, the anatomical distinction between ventral and dorsal streams corresponds to a phenomenal-cum-functional distinction between conscious information that is used in visual recognition and identification and unconscious information that is used in the visuomotor control of action.³⁰

Milner and Goodale studied a patient, D. F., who has visual form agnosia. She experiences colours and surface textures, but she lacks conscious experience of visual form properties, such as orientation, shape and size. Nevertheless, she has unconscious visual information about form, which is accessible for spontaneous use in the control of action. For example, she can post a card in a tilted slot, although she cannot report the orientation of the slot or reproduce it by means of a manual gesture. She can grasp a pencil, but she cannot say whether it is horizontal or vertical. And she can step over obstacles placed in her path, but she cannot accurately estimate their height.

Similar results have been found in normally sighted patients. For example, Bruce Bridgeman (1975, 1981) found that if subjects are asked to point to a target which is moved during a saccadic eye movement, they adjust their pointing to keep track of it, although they do not experience any movement or change in position. Similarly, if a stationary target is presented within a rectangular frame that moves in one direction, subjects experience the illusion that the frame remains stationary, while the target moves in the opposite direction. And yet subjects are accurate in pointing to the location of the target, which suggests that unconscious information about the location of the target is accessible for spontaneous use in the control of action.³⁰

These results undermine the proposal that consciousness is necessary for spontaneous accessibility. However, they also reveal double dissociations between different kinds of accessibility. In visual form agnosia, unconscious visual information is accessible for use in the control of action, but not in speech and reasoning; whereas in optic ataxia, conscious visual information is accessible for use in speech and reasoning, but not in the control of action. In effect, Milner and Goodale's proposal is that consciousness is necessary for accessibility in the one way, but not the other. However, this does not offer a plausible strategy for defending the claim that consciousness is necessary for attention. Why should attention be functionally defined in terms of what makes information accessible for use in speech and reasoning, rather than for use in the control of action? Why not say instead that there is a bifurcation in the notion of attention corresponding to the bifurcation in the notion of accessibility? Indeed, this is more or less exactly what Milner and Goodale propose:

There is more than one substrate supporting selective visual attention and only one of these substrates is linked with conscious experience. In particular, we would propose that attentional mechanisms associated with the ventral stream are crucial in determining visual awareness of objects and events in the world. Yet at the same time, we believe that there are also selective attentional mechanisms in the dorsal stream...that are not obligatorily linked to awareness. (1995, p. 183)

My strategy is different. Rather than exploiting a bifurcation in the notion of accessibility, I invoke a distinction between causal and rational notions of accessibility. On this proposal, attention is functionally defined as what makes information accessible for use in the rational control of action, reasoning and verbal report. The crucial claim is that although unconscious information is sometimes accessible for spontaneous use in the control of action, it is not *rationally accessible* in the sense that it is accessible to the subject as a reason that justifies the subject in forming a belief or performing an action.³¹

In blindsight, unconscious visual information is accessible in the sense that it primes performance in certain tasks, but it is not rationally accessible in the sense that it is accessible to the subject as a justifying reason for belief and action. This is why blindsighted subjects do not spontaneously form beliefs or perform actions upon objects in the blind field, but claim to be merely guessing or acting randomly.³² Rossetti (1998) describes a blindsighted subject who was able to correctly rotate his wrist for purposes of inserting a card in a tilted slot. In this case, unconscious visual information about the orientation of the slot is accessible for use in the control of action, but it is not accessible as a reason for action, which is why the subject is unable to say why he is rotating his wrist in one way rather than another. As Rossetti reports, “He first explained that he could not perform the task since he did not perceive the stimuli. After several encouragements, he agreed to perform the task, performing verbal guesses and making movements ‘by chance’.” (1998, p. 534)

What is missing in blindsight is not just a mechanism that makes unconscious visual information accessible for spontaneous use in the control of action, reasoning and verbal report. After all, we can imagine a super-blindsighter who spontaneously forms beliefs and performs actions on the basis of unconscious visual information about objects in the blind field. This might involve a feeling of confidence instead of a feeling of guessing, but there is nothing else to distinguish his beliefs and actions from those based on mere guesswork. And yet the mere feeling of confidence is not sufficient for justifying one’s beliefs and actions – justification is not so easy to come by!

Of course, a blindsighted subject who knows about his own reliability can use unconscious visual information by reasoning as follows: I’m inclined to guess that P, but my guesses under these circumstances are highly reliable, so it is probably true that P. Even so,

unconscious visual information is not rationally accessible as a reason that justifies the subject in believing that P. On the contrary, what justifies the subject in believing that P is his reasoning about his own reliability. Unconscious visual information plays only a non-rational causal role in influencing the subject's inclination to guess one way, rather than another.

If the two visual streams hypothesis is correct, then much of our visually guided action is controlled by unconscious visual information. However, this does not mean that our actions are irrational. It is a routine point in the philosophy of action that an agent's reason for acting may justify or rationalize what she does under some descriptions, but not others. To borrow Donald Davidson's (1963) example, if I intentionally flip the switch in order to turn on the light, I may thereby unintentionally alert a prowler to the fact that I am home. In this case, my desire to turn on the light may rationalize my action under the description, 'flipping the switch', but not under the description, 'alerting the prowler'.

Similarly, in Bridgeman's experiment, pointing to a target which is moved during a saccadic eye movement may be rational under the description, 'pointing to that target', but not under the description, 'redirecting from the old location to the new location'. After all, I know why I am pointing at the target, but I do not why I am redirecting my pointing; indeed, I do not even know that this is what I am doing. My visual experience of the target is accessible as a reason for action, whereas my unconscious visual information about its movement is not. So, I have a reason for pointing to the target, since I can see it, but I have no reason for redirecting my pointing: it is not something that I do for a reason. More generally, insofar as the spatial parameters of actions are fine-tuned by unconscious visual information, they are not susceptible to rationalizing explanation in terms of the subject's reasons for acting.

Why is unconscious visual information inaccessible for use in the rational control of

thought and action? This raises deep theoretical issues about the nature of rationality, which are pursued in more detail elsewhere, but here is a brief sketch. The basic intuition is that it is no more rational to believe or act on the basis of unconscious visual information than it is to believe or act on the basis of blind guesswork. After all, there is nothing accessible to the subject by introspection that distinguishes the one case from the other. This diagnosis relies on a crucial assumption, which is that the rationality of one's beliefs and actions depends solely on factors that are accessible to the subject by introspection. The underlying rationale for this assumption is that these are the only facts that one has to go on in engaging in critical reflection about what to believe and do. One's beliefs and actions are not justified or made rational by unconscious visual information because it is not accessible by introspection for use in critical reflection about what to believe and do. In short, rationality is essentially tied to its regulative role in critical reflection: roughly speaking, a belief or action is rational if and only if it has an introspectively accessible basis in virtue of which it has what it takes to survive critical reflection.³³

6. Consciousness, Attention and Demonstrative Thought

Over the last two sections, I have provided the outlines for an argument that consciousness is necessary but not sufficient for attention. After all, the functional role of attention is to make information accessible for use in the rational control of thought and action, but consciousness is necessary though not sufficient for making information accessible for use in the rational control of thought and action. In this section, I sketch a related argument for the conclusion that consciousness is necessary but not sufficient for demonstrative thought. In short, consciousness is necessary but not sufficient for rational accessibility, which is itself a necessary condition for demonstrative thought.

John Campbell (2002) argues that conscious perceptual attention to an object is a necessary condition for thinking perceptually-based demonstrative thoughts about the object. Subjects with blindsight cannot think demonstrative thoughts on the basis of unconscious visual information about objects in the blind field; they can only think about them by description – say, as the objects at a certain location. Likewise, normally sighted subjects cannot think demonstrative thoughts on the basis of peripheral conscious experience of unattended objects. To illustrate, Campbell gives his “sea of faces” example in which we are looking at a group of people around a dinner table and you make a remark to me about ‘that woman’. He writes:

It is only when I have finally managed to single out the woman in my experience of the room, when it ceases to be a sea of faces and in my experience I focus on that person, that I would ordinarily be said to know who was being referred to. So...conscious attention to the object is needed for an understanding of the demonstrative. (2002, p. 9)

Why is conscious perceptual attention to an object a necessary condition for thinking demonstrative thoughts about the object? It is one thing to make this claim intuitively plausible, but it is another thing to provide a theoretical explanation of why it is true. Campbell invokes the role of conscious attention to an object in setting in motion and defining the targets for the unconscious information processing that underpins one’s ways of thinking about and acting upon the object in question. But this raises the question why the target-setting role of conscious attention cannot be played at least in principle by something remote from consciousness. In Smithies (2010), I discuss Campbell’s proposal in more detail and reject it in favour of an alternative proposal, which explains the role of conscious attention in demonstrative thought as a consequence of the epistemic role of conscious attention together with the epistemic constraints on demonstrative thought. The arguments of this paper suggest a different way of articulating

this proposal.

According to Gareth Evans (1982), demonstrative thought is a species of information-based thought: in thinking demonstrative thoughts about an object, one thereby exploits a current information-link with the object. In normative terms, one is disposed to use information from the object in forming immediately and non-inferentially justified beliefs about the object. Thus, one has a demonstrative concept or way of thinking of an object only if one has information from the object, which is accessible for use in forming immediately justified beliefs about the object. In light of the foregoing discussion, we can add a further premise. One has information about an object which is accessible for use in forming immediately justified beliefs about the object only if one's information is not only conscious, but also attended. Thus, we can argue as follows:

- (1) One can think demonstrative thoughts about an object O only if one has information from O which is accessible for use in forming immediately justified beliefs about O
- (2) One has information from O which is accessible for use in forming immediately justified beliefs about O only if one has conscious perceptual attention to O
- (3) Therefore, one can think demonstrative thoughts about an object O only if one has conscious perceptual attention to O

Now we can explain why blindsighted subjects are capable of thinking descriptive thoughts, but not demonstrative thoughts, about objects in the blind field. They do not satisfy the epistemic constraints on demonstrative thought because their unconscious visual information is not rationally accessible for use in forming immediately justified beliefs about the object. By contrast, there are no such epistemic constraints on descriptive thought – for example, I can entertain various thoughts about the tallest man who ever lived without having any information that justifies me in forming beliefs about this individual. Similarly, we can explain why

normal subjects cannot think demonstrative thoughts about objects in the unattended background of experience because their unattended conscious experience is not rationally accessible for use in forming immediately justified beliefs. In this way, we can explain inattentive blindness and related phenomena as failures of cognition, rather than perception, since subjects are unable to form justified beliefs about unattended objects, whether those objects are experienced or not.

7. Two Concepts of Attention?

In this paper, I have been concerned to understand the relationship between the phenomenology of attention and its functional role. In an influential paper, Ned Block (1997) raises a related set of questions about the relationship between the phenomenology and the functional role of consciousness. Block argues that our ordinary concept of consciousness is a “mongrel concept” which conflates at least two distinct concepts: phenomenal consciousness and access consciousness.

Phenomenal consciousness cannot be defined in more basic terms, but only in terms of rough synonyms, such as phenomenology, subjectivity, experience, awareness, qualia, or “what it’s like for the subject”. It can, however, be defined ostensively by means of examples, such as the feeling of pain or the taste of vegemite, together with contrasts, such as digestion or hormone secretion. Access consciousness, by contrast, is defined in terms of its functional role. As Block defines it, “A state is A-conscious if it is poised for direct control of thought and action. To add more detail, a representation is A-conscious if it is poised for free use in reasoning and for direct “rational” control of action and speech. (The “rational” is meant to rule out the kind of control that obtains in blindsight.)” (1997, p. 382)

Block illustrates the distinction between phenomenal consciousness and access consciousness by giving conceptually possible cases in which they come apart: he argues that there is phenomenal consciousness without access consciousness in cases of inattention and access consciousness without phenomenal consciousness in cases of super-blindsight. Block's super-blindsighter is a partial functional zombie – that is, a creature with phenomenally unconscious states that duplicate the functional role of our phenomenally conscious states. A functional zombie is not conscious in the phenomenal sense – there is nothing it is like to be a zombie – but it nevertheless satisfies Block's definition of access consciousness. However, there is no intuitive sense in which a zombie is conscious, which prompts the objection that Block's definition of access consciousness does not correspond to any genuine kind of consciousness, but a mere ersatz functional substitute for consciousness.³⁴

Block warns against confusing different kinds of consciousness, but perhaps the real danger is that we should confuse consciousness itself with a mere ersatz functional substitute. Nevertheless, the strength of Block's contribution is the clarity it brings to the distinction between questions about the phenomenology of consciousness and questions about its functional role. If there is a weakness, however, it is the failure to illuminate the connection between these questions. Block claims that our ordinary concept of consciousness conflates phenomenal and functional concepts, but he does not explain why this conflation occurs. On Block's view, there is at best a conceptually contingent relationship between phenomenology and functional role, so why are they conflated in our ordinary concept of consciousness?

The problem is more evident when we turn to the relationship between the phenomenology and functional role of attention. Following Block, one might argue that our ordinary concept of attention is a “mongrel concept” that conflates two distinct concepts of

attention – a phenomenal concept, which defines attention as a distinctive mode of consciousness, and a functional concept, which defines attention as what makes information accessible for use in the control of action, speech and reasoning. But if the phenomenology and the functional role of attention are conceptually separable and independently varying dimensions, then we face a dilemma of sorts. If we understand the concept of attention in terms of its phenomenology, then we lose the theoretical significance of attention, since there is no functional role for which attention is necessary. And if we understand attention in terms of its functional role, then we lose the connection between attention and consciousness, since there is no phenomenology which is necessary for playing the relevant functional role. So why do we conflate phenomenology and functional role in our ordinary concept of attention?

The main thesis of this paper is that there is in fact a conceptually necessary connection between the phenomenology of attention and its functional role. Here, it is crucial to distinguish between two different functional notions of accessibility. On the one hand, there is the purely causal notion of information that is accessible for use in the control of thought and action. On the other hand, there is the normative notion of information that is accessible for use in the rational control of thought and action. Block obscures this distinction, since he defines accessibility in terms of a purely causal notion of so-called “rational” control, which is understood as a mere placeholder to rule out the kind of control that obtains in blindsight. In super-blindsight, unconscious visual information is accessible in this purely causal sense, but not in a genuinely normative sense. Thus, consciousness is neither conceptually nor empirically necessary for information to be accessible in the causal sense, but it is both conceptually and empirically necessary for information to be accessible in the normative sense.

The distinction between normative and causal notions of accessibility suggests a way

to reinstate Block's idea that there is a functional element in our ordinary concept of consciousness. Is accessibility a genuine kind of consciousness or merely an ersatz functional substitute for consciousness? Block's purely causal criteria for accessibility are satisfied by a zombie, but there is no intuitive sense in which a zombie is conscious. So, if accessibility is functionally defined in purely causal terms, then accessibility is not a mode of consciousness, but merely an ersatz functional substitute for consciousness. By contrast, the normative criteria for rational accessibility are not satisfied by a zombie, since consciousness is conceptually necessary for rational accessibility. So, if accessibility is functionally defined in terms of rationality, then accessibility is a genuine mode of consciousness. To distinguish it from Block's notion of access consciousness, we might call it *rational-access consciousness*.

Tyler Burge (1997) also appeals to a notion of rational-access consciousness, but he denies that it is a mode of consciousness in the phenomenal sense. Burge's view is supported by the fact that unconscious information in the belief system is accessible for use in the rational control of action, speech and reasoning. For example, my plans to go shopping are rationally influenced by all sorts of background information about the location of the shops, their opening times, their merchandise, affordability, and so on, which need not enter consciousness as the content of an explicit judgement. However, two points are crucial here. First, unconscious information is rationally accessible only insofar as it is accessible to consciousness as the content of an explicit judgement.³⁵ This includes unconscious information in the belief system, but it excludes unconscious information in the visual system, which is the kind involved in blindsight and visual form agnosia. And second, rational accessibility comes in degrees. Unconscious information in the belief system is rationally accessible to some degree for use in the control of action, reasoning and verbal report. However, it becomes rationally accessible to a much

higher degree when it is made accessible to consciousness as the content of an explicit judgement, which fully engages one's attention. In response to Burge, then, it may be argued that consciousness in the phenomenal sense is necessary but not sufficient for the highest degree of rational-accessibility.

In conclusion, the argument of the paper can now be stated quite simply. Attention is what makes information fully accessible for use in the rational control of thought and action. But what makes information fully accessible for use in the rational control of thought and action is a distinctive mode of consciousness. Therefore, attention is a distinctive mode of consciousness. In a slogan, *attention is rational-access consciousness*.³⁶

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Endnotes

1. Mole (2008) also defends this view; I discuss his argument in section five below. There is an apparent tension here with Mole's proposal (this volume) that attention is cognitive unison, since consciousness is not necessary for attention unless consciousness is necessary for cognitive unison. However, this paper suggests a strategy for resolving the tension: if cognitive unison is functionally defined in terms of rationality, then consciousness is necessary for cognitive unison.
2. See Watzl (this volume) for a detailed development of the idea that attention involves structuring in the stream of consciousness.
3. Is attention all-or-nothing or does it come in degrees? We talk both ways, but there is an easy recipe for translating back and forth: something occupies one's attention *simpliciter* if and only if it occupies a sufficiently high degree of attention. In phenomenological terms, something is in the attended foreground, rather than the background, of consciousness if and only if it is sufficiently salient in one's stream of consciousness.
4. For more detailed discussion of the question of how to characterize the phenomenology of attention, see Block (2010), Speaks (2010), Watzl (this volume), Wu (forthcoming).
5. Broadbent (1958, 1971) is the classic source, but compare the discussion of so-called "cause theories" in Johnston and Dark (1986). For an excellent overview of Broadbent's theory and its influence on subsequent research, see Driver (2001).
6. See Desimone and Duncan (1995) for the classic statement of the biased competition model of attention; for further discussion, see Allport (this volume) and Ruff (this volume).

7. Here, I am indebted to Chris Mole, who makes a related point in relation to his cognitive unison theory of attention.
8. See Driver (2001) for an overview of the debate between early and late selection theories.
9. Compare Styles (1998, p. 10): “There is no unitary concept of attention.”
10. Block (1978) draws a pertinent distinction between commonsense functionalism and psycho-functionalism. The need for such a distinction arises quite generally – not only in giving a functional characterization of attention, but also memory, belief, reasoning, and so on.
11. Wu (this volume) argues that attention is selection for action, but action is construed broadly to include not only bodily action, including speech, but also mental action, including reasoning and belief-formation.
12. Prinz (this volume) develops a related theory of consciousness on which attention is functionally defined in terms of its role in making perceptual information accessible for encoding in working memory, which he argues is necessary and sufficient for consciousness.
13. Block (1997, 2007), Lamme (2003), Koch and Tsuchiya (2006).
14. O’Regan and Noe (2001).
15. Mack and Rock (1998), Simons and Chabris (1999), Most et al. (2005).
16. Rensink, O’Regan and Clark (1997), Simons and Levin (1997).
17. See Prinz (this volume) for an overview.
18. Mack and Rock (1998), Prinz (this volume).
19. Wolfe (1999), Hardcastle (1997).
20. Simons (2000), Schwitzgebel (2007).
21. Block (2007).
22. Moore and Egeth (1997), Mack and Rock (1998, Ch. 8).

23. Mole (2008) is especially clear on this point.
24. See Block (2007) for an optimistic view and Schwitzgebel (2007) for a pessimistic view.
25. Similar results have been found in normal subjects, e.g. Jiang et al. (2006) and Kentridge et al. (2008); see also Koch and Tsuchiya (2006) for an overview.
26. Kentridge and Heywood (2001, p. 168) report: “Quite by chance, during one of the breaks in testing, GY remarked that he had just realized that the stimuli were sometimes being presented well above the horizontal and so now he was trying to pay attention higher up in his blind visual field.”
27. Wu (this volume) develops a version of this argument.
28. Humphrey is careful to note that Helen’s blindsight is unlike super-blindsight insofar as she suffers visual agnosia – that is, an inability to recognize familiar objects by sight.
29. De Gelder et al. (2008) report a similar case of a patient, T. N., who has bilateral damage to the visual cortex and who lives as a blind man, requiring assistance and walking with a stick, but who is capable of navigating obstacles when prompted to walk along a corridor.
30. Wallhagen (2007) and Mole (2009) argue that visual information processed in the dorsal stream for use in the control of action may be conscious, but inaccessible for use in the control of verbal report. If this view is correct, then visual form agnosia, like inattentional blindness, may be explained as a form of inaccessibility, rather than blindness.
31. For related proposals, see Eilan (1998) and Dretske (2006). Dretske claims that consciousness is both necessary and sufficient for rational accessibility, whereas I claim that it is necessary but not sufficient.
32. A related point applies to normal subjects in masked priming experiments. For instance, unconscious visual information is accessible in the sense that it primes performance in stem

completion tasks, but it is not rationally accessible, which is why subjects claim to be guessing, rather than acting on the basis of what they have seen.

33. For a more detailed development of this conception of rationality, see Smithies (ms), “Why Care About Justification?”

34. Compare Searle (1992, p. 84), Burge (1997, p. 428).

35. For a more detailed discussion of belief and conscious accessibility, see Smithies (ms), “The Mental Lives of Zombies”.

36. Some of the ideas in this paper were presented at *Attention: Fundamental Questions*, University College Dublin in May 2008; at *The Philosophical Significance of Attention*, Dubrovnik Inter-University Center in May 2009; and at *Attention and Consciousness*, Australian National University in June 2009. Many thanks to all the participants at these events and especially to Ned Block, Chris Mole, Daniel Stoljar, Sebastian Watzl and Wayne Wu for very helpful comments on a previous draft.