



The functional role of consciousness: A phenomenological approach

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Abstract: In this paper, a theoretical account of the functional role of consciousness in the cognitive system of normal subjects is developed. The account is based upon an approach to consciousness that is drawn from the phenomenological tradition. On this approach, consciousness is essentially peripheral self-awareness, in a sense to be duly explained. It will be argued that the functional role of consciousness, so construed, is to provide the subject with just enough information about her ongoing experience to make it possible for her to easily obtain as much information as she may need. The argument for this account of consciousness' functional role will proceed in three main stages. First, the phenomenological approach to consciousness as peripheral self-awareness will be expounded and endorsed. Second, an account of the functional role of peripheral perceptual awareness will be offered. Finally, the account of the functional role of peripheral self-awareness will be obtained by straightforward extension from the functional role of peripheral perceptual awareness.

Key words: attention, consciousness, function of consciousness, peripheral awareness, peripheral self-awareness

For many, the ultimate goal of scientific research into consciousness is to identify the neural correlate of consciousness – to uncover the neurological “seat” of consciousness in the brain. There are many ways scientific investigation can proceed in pursuit of such a goal. Perhaps the most straightforward way is as follows: first find out what it is that consciousness *does*, then find out what structure or process in the brain does just that; one would then be justified in identifying the structure or process in question as the seat of consciousness.¹

This approach requires, as a first order of business, a comprehensive account of what consciousness does, that is, of the functional role of consciousness in the cognitive system of a normal subject. In order to understand what consciousness *does*, however, we must have an agreement on what consciousness *is*. In what follows, I adopt a specific view of this matter, a view drawn from the phenomenological tradition. On this view, consciousness is a form of peripheral self-awareness. What is meant by the concept of peripheral self-awareness, and what the emerging conception of consciousness is, will be elucidated in due course. In any event, on the phenomenological approach to consciousness adopted here, the functional role of consciousness is given by that of peripheral self-awareness. The latter is what I propose to discuss in the present paper.

Various accounts of the functional significance of consciousness already exist, both in the scientific literature and in the philosophical one. Most of these accounts, however, rest content with pointing out a number of cognitive functions consciousness is somehow involved in. But this falls short of precisely distilling the singular functional contribution of consciousness to any process or state in which it is present. An account attempting to do that will be offered in Section 5 below. On this account, the precise functional role of consciousness is to provide the subject with just enough information about her ongoing experience to make it possible for her to quickly and effortlessly obtain as much more information as she may happen to need.

The argument will proceed as follows. In Sections 1 and 2, three constraints on the adequacy of an account of the functional role of consciousness will be set out. In Section 2, the phenomenological approach to consciousness in terms of peripheral self-awareness will be expounded and endorsed. In Section 3, I will expand on the notion of peripheral awareness, and in particular peripheral *self*-awareness. In Section 4, the functional role of peripheral awareness in general will be discussed. This will naturally lead to a discussion, in Section 5, of the functional role of peripheral self-awareness in particular. The account developed in Section 5 will be compared and contrasted with several other accounts of the functional role of consciousness in Section 6.

1. The functional role of consciousness and functionalism about consciousness

Mental states and events are rarely (if ever) idle. They normally bring about other mental states and events, as well as certain actions, and they are themselves brought about by other mental states and events, as well as certain physiological conditions. The set of causes and effects that surround a mental state is commonly referred to as the state's *functional role*.

The functional role of a mental state depends on how the state is. The picture is this: the state has various properties, F_1, \dots, F_n , and each property F_i contributes *something* to (or modifies *somehow*) the state's fund of causal powers. One of the properties that some mental states have and some do not is consciousness. We should expect consciousness to contribute something to the fund of causal powers of the mental states that exemplify it. It is not incoherent, of course, to maintain that the property of being conscious does not contribute *anything* to a mental state's fund of causal powers – that consciousness is causally inert, or epiphenomenal.² But that is an extremely unlikely possibility, a non-starter to say the least. In all likelihood, consciousness has some functional significance, and there is a contribution it makes to mental states that have it.

In this paper, I will assume that consciousness does have a functional role.³ As such, consciousness *adds something* to the mental states that exemplify it. On the other hand, it is implausible to suppose that consciousness is *nothing but* that “addition.” In other words, it is implausible that a functionalist approach to consciousness could be made to work. In general, functionalism is the view that mental states and properties can be *identified with* their functional role in the subject’s cognitive economy (Putnam 1967; Lewis 1972).⁴ With regard to consciousness, the thesis is that consciousness can be identified with its functional role, that is, that a mental state’s property of being conscious is just the property of having the kind of functional profile we find in conscious states but not in unconscious states (Dennett 1981).

A principled problem for functionalism is that functional role is a *dispositional* notion, whereas many mental states are *categorical*. Functional role is a dispositional notion, in that the causal powers of a mental state are what they are independently of whether the state actually manifests them. A mental state’s functional role is a matter of its subject’s *disposition* to do (or undergo) certain things, not a matter of the subject’s *actually* doing (or undergoing) those things. But where there is a disposition there must be a *categorical basis* for it. When an object or state is disposed a certain way, there is a reason *why* it is so disposed. There must be something about it that grounds the disposition. Now, many mental states appear to be precisely the categorical bases for certain dispositions, rather than the dispositions themselves. It is *because* the subject is in the mental state she is in that she is disposed the way she is, not the other way round. Such mental states are not just functional role, then; they are what *plays*, or *grounds*, the functional role.

There may be *some* mental states that are plausibly construed as *nothing but* the relevant bundles of dispositions. A subject’s tacit belief that there are birds in China is plausibly identified with a set of dispositions; there appears to be no need to posit a concrete item that *underlies* those dispositions. This is because nothing needs to *actually happen* with a subject who tacitly believes that there are birds in China. But many mental states are not like that. A subject’s conscious experience of the blue sky is more than a set of dispositions. Here there *is* a concrete item that underlies the relevant dispositions. Something does *actually happen* with a subject when she has the experience. In virtue of having a conscious experience of the blue sky, the subject is disposed to do (or undergo) certain things. But there is more to the subject’s having the conscious experience than her being so disposed. Indeed, it is precisely *because* the subject has her experience that she is disposed the way she is. The experience is the *reason* for the disposition, it is its *categorical basis*.

There are two points to retain from the foregoing discussion. First, to engage in a search for the functional role of consciousness is not to subscribe to a functionalist approach to consciousness. Second, understanding the functional

role of consciousness requires two things. It requires, first of all, understanding how a subject's having a conscious mental state disposes her (in ways that having an unconscious mental state does not). That is, it requires that the functional role of consciousness be correctly identified. And it requires, on top of that, understanding what it is about a mental state's being conscious that endows it with this particular functional role. That is, it requires understanding *why* consciousness has just the functional role it does. This latter requirement is of the first importance. Our conception of consciousness must make it possible for us to see what it is about consciousness that yields the kinds of dispositions associated with conscious states and not with unconscious states. It must allow us not only to *identify* the functional role of consciousness, but also to *explain* it.

If consciousness was nothing more than a bundle of dispositions, there would be no question as to why consciousness is associated with just those dispositions. Consciousness would just *be* those dispositions. But because consciousness is more than a bundle of dispositions – because it is the *categorical basis* of those dispositions – there are two separate questions that arise in relation to its functional role: What does consciousness do?, and Why is that what consciousness does? The latter arises because, when we claim that consciousness underlies certain dispositions, we assume that there is a reason why these are the dispositions it underlies. The matter can hardly be completely arbitrary, a fluke of nature. Therefore, unless functionalism about consciousness is embraced, both questions must be answered. Conversely, functionalism about consciousness necessarily fails to explain *why* consciousness has the functional role it does, and is to that extent unsatisfactory. A more satisfactory account of consciousness would meet both our theoretical requirements: it would both *identify* and *explain* the functional role of consciousness.⁵ Let us call the former the *identification requirement* and the latter the *explanation requirement*.⁶

2. A phenomenological approach to consciousness

When discussing the functional role of consciousness, it is important to distinguish the role of conscious states from the role of consciousness proper. As noted in the previous section, the causal powers of mental states are determined by these states' properties. Each property a mental state exemplifies contributes something to the state's fund of causal powers. Clearly, then, some of the causal powers of a conscious state are not contributed to it by its property of being conscious, but by its other properties. They are powers the state has, but not in virtue of being conscious. It would have them even if it were not conscious. Therefore, it is important that we distinguish between the causal powers that a conscious state has and the causal powers it has precisely in virtue of being conscious. Let us refer to the latter as the causal powers of

consciousness *proper*. These are the powers contributed to a conscious state specifically by its property of being conscious.

Consider a subject's conscious perception of the words "terror alert" in the newspaper. Such a conscious experience is likely to raise the subject's level of anxiety. But it is unclear that the rise is due to the fact that the subject's perception is conscious. Indeed, data on the effects of *subliminal* perception on emotion suggests that an unconscious perception of the same stimulus would also raise the subject's level of anxiety.⁷ This suggests that while the subject's perception of the words "terror alert" has the causal powers to raise the level of anxiety, it is not in virtue of being conscious that it has those causal powers. The conscious perception's power to raise the level of anxiety is not a function of consciousness *proper*.

An account of the functional role of consciousness must target the causal powers of consciousness proper. It must distill the singular contribution of consciousness itself to the fund of causal powers of conscious states. Our concern is not with the causal powers of mental states that happen to be conscious, but with the causal powers conscious states have *because* they are conscious. This constitutes a third requirement on an adequate account of the functional role of consciousness; let us call it the *singularity requirement*.

To meet the singularity requirement, we must get clear on what consciousness proper *is*. What is the property mental states have *when and only when* they are conscious, and *in virtue of which* they are conscious? Oceans of ink have been spilled in recent years in search of an answer. A thorough discussion of the matter will require that we focus exclusively on it. For this reason, in this paper I adopt somewhat dogmatically a view of what consciousness *is*. Although I will do the minimum to justify that adoption, my main goal is to explore the implications of the view for the question of functional role.

The view I will adopt is drawn from the phenomenological tradition. It is well known that Brentano (1874) proposed intentionality as the mark of the mental. It is less well known that he proposed *self-directed intentionality* as the mark of the conscious. For Brentano, a mental state is conscious when, and only when, it is intentionally directed at itself. Moreover, it is in virtue of being thus directed at itself that the state is conscious.⁸ When a person is consciously aware of, say, a tree, she has a mental state that is intentionally directed both at the tree and at itself. Thus every conscious state includes within it an awareness of itself.

Normally, when a person is consciously aware of a tree, the focus of her awareness is the tree, not her awareness of the tree. In this respect, the self-directed intentionality enjoys a lower status, in a sense, than the outward-directed intentionality. To accommodate this fact, Brentano distinguished between *primary intentionality* and *secondary intentionality*.⁹ Primary intentionality is a conscious state's directedness at the main object of awareness,

whereas secondary intentionality is its directedness toward objects that are outside the focal center of awareness.

The upshot is that for Brentano, a mental state is conscious when it exhibits secondary self-directed intentionality, that is, when it is secondarily directed at itself. This conception of consciousness has subsequently become commonplace in the phenomenological tradition, through Brentano's influence on Husserl (1928), who defended a similar view.¹⁰ The view was then embraced by Sartre (1943), Henry (1963), Gurwitsch (1985), and the members of the Heidelberg School in Germany.¹¹

As I said, I will not present a detailed defense of the phenomenological conception of consciousness. But let me indicate the main source for its plausibility. At first approximation, a conscious state is a state the subject is *aware of having*.¹² When I have a conscious experience of the blue sky, I am aware of having my experience. The experience does not just take place *in me*, it is also *for me* – in the sense that I am *aware* of its taking place. If I was completely unaware of perceiving the sky, the perception would have been unconscious. Conscious mental states are not *sub-personal* states, which we “host” in an impersonal sort of way, without being aware of them.

To be sure, we can readily have conscious experiences without becoming wholly consumed with them. Thus, I can have my conscious experience of the sky when glancing at it inadvertently. In that case, I am not aware of my experience in a very focused way. However, I am necessarily aware of my experience *someway*; otherwise it would not be conscious. Therefore, in this case I am aware of my experience in some sort of *unfocused* way. Upon reflection, most of our conscious experiences are of this sort: they are not experiences we dwell on in a very focused and deliberate way. Normally, when we have a conscious experience of the sky, we do not concentrate on our experience, but on the sky itself. Normal conscious states are thus states of which we are aware in an unfocused way.

By way of clarifying the matter, let us distinguish three ways in which a subject may be related to one of her mental states, M. A subject may be either (i) completely unaware of M, or (ii) focally aware of M, or (iii) peripherally aware of M. Mental states the subject is completely unaware of are unconscious states. Only mental states the subject is aware of are conscious. Normally, the subject is only *peripherally* aware of her conscious mental states, though it may also happen that she is *focally* aware of a conscious state.¹³

Observe, however, that when a subject becomes focally aware of one of her mental states, it is not only the state in question that is conscious, but also that very state of focal awareness.¹⁴ Since every conscious state is a state one is aware of having, this focal awareness – being a conscious state – must be itself a state the subject is aware of having. So the subject must be either focally aware of this focal awareness or peripherally aware of it; she cannot be completely unaware of her focal awareness. However, if the subject is focally aware of

this focal awareness, her focal awareness of the focal awareness would also be conscious, and therefore the subject would have to be aware of it too. To avoid an infinite regress of focal awarenesses, at some point one of the subject's states of focal awareness must be such that the subject is not focally aware of having it. Yet being a conscious state it would have to be a state the subject is aware of. Therefore, the subject would have to be *peripherally* aware of that state. This peripheral awareness will cap the regress of focal awarenesses. It appears, then, that in every episode of our mental life in which we harbor a conscious state, we must be peripherally aware of at least one of our mental states. The same is not true of focal awareness: when I have my inadvertent experience of the sky, I am not focally aware of any of my mental states. Therefore, it is peripheral awareness of one of the subject's mental states that is present when and only when the subject harbors a conscious state. So an account of the functional role of consciousness proper would have to identify and explain the functional role of this sort of peripheral awareness.

In the next section, we will have occasion to clarify further the notion of peripheral awareness. As we will see, a subject can be peripherally aware not only of her own mental states, but of external stimuli as well. To distinguish peripheral awareness of external stimuli from peripheral awareness of one of one's own mental states, let us call the latter *peripheral self-awareness*. On the phenomenological conception of consciousness, such peripheral self-awareness is constituted by secondary self-directed intentionality.¹⁵

In conclusion, an adequate account of the functional role of consciousness must not only meet the identification requirement and the explanation requirement, but also the singularity requirement. If peripheral self-awareness is indeed what is present when and only when a subject is undergoing a conscious episode, then meeting the singularity requirement would involve accounting for the functional role of peripheral self-awareness. That is, the identification and explanation of the singular contribution of consciousness to the fund of causal powers of conscious states would require the identification and explanation of the functional role of peripheral self-awareness.

3. Focal awareness and peripheral awareness

The distinction between focal and peripheral awareness does not apply only to awareness of one's own mental states. It applies to awareness of external stimuli as well.

Consider the phenomenon of *peripheral vision*. When I look at the laptop in front of me, I am focally aware of the laptop. But in the periphery of my visual field appear other objects: books on the right side of my desk, printouts on the left side of my desk, etc. My awareness of these objects is not nearly as clear or as accurate as my awareness of the laptop I am focusing on, but it would be a mistake to say that I am completely unaware of these objects. The status

of the books and printouts on my desk *vis-à-vis* my perceptual experience is unlike the status of the table in the living room, which I cannot perceive and am completely unaware of. To distinguish among the status of the laptop, the status of the books and printouts, and the status of the living-room table, we must again introduce a distinction between focal and peripheral awareness, and say that I have focal awareness of the laptop, peripheral awareness of the books and the printouts, and no awareness of the living-room table.¹⁶

The same tripartite distinction applies to perceptual experiences in non-visual modalities. Suppose you are listening to Brahms' Piano Concerto No. 1. Your auditory perception of the piano is bound to be more focused than your perception of the cellos, or for that matter, of the cars driving by your window. That is, you are focally aware of the piano and only peripherally aware of the cellos and the cars.

Competition for the focus of awareness is not restricted to stimuli from the same modality. My current conscious experience is focused (visually) on the laptop before me, but it has many peripheral elements, only some of which are visual. I have *visual* peripheral awareness of the books and printouts on my desk, but also *auditory* peripheral awareness of the cars outside my window, *olfactory* peripheral awareness of burned toast, *tactual* peripheral awareness of the chair I am sitting on, etc. All these bits of awareness form part of a single overall experience. The focus of my overall awareness is the laptop, which is presented visually, but I am peripherally aware of a myriad of external stimuli presented in other modalities.

It was to capture the richness of peripheral awareness and its place in normal conscious experience that James (1890) introduced the notion of the *fringe of consciousness*. Similar notions have been developed by other psychologists, including within the phenomenological tradition. Brentano's notion of secondary awareness, Husserl's notion of *non-thematic consciousness*, Sartre's notion of *non-positional consciousness*, and Gurwitsch's notion of *marginal consciousness* are all supposed to capture the same phenomenon.¹⁷

Interestingly, some of the elements in the fringe of consciousness are altogether non-perceptual. Particularly conspicuous are emotional and mood-related elements. If I am in a good mood as I am having my conscious experience of the laptop, the experience will include, in its periphery, a certain feeling of cheerfulness. There are also intellectual elements in the fringe of consciousness, such as the so-called "feeling-of-knowing" and "rightness" phenomena (Mangan 2001).

On the phenomenological conception of consciousness proper laid out in the previous section, another important element in the fringe of consciousness is awareness of the subject's current experience. When I have my conscious experience of my laptop, I am peripherally aware of the books and printouts on my desk, the cars outside my window, the chair I am sitting on, etc., but I am also peripherally aware of *having* that very experience. This sort of

self-awareness is a peripheral element in my conscious experience; it is peripheral self-awareness.¹⁸

Some readers may object that they cannot find anything like peripheral self-awareness in their phenomenology. Now, it is quite difficult to see how to erect an argument for the very existence of peripheral self-awareness, but let me note two things. First, in Section 5, I will argue that the functional role of peripheral self-awareness is such that there are good reasons to expect that something like it would emerge over the course of evolution. Second, rejecting the notion of peripheral self-awareness would force us into an unhappy dilemma: either we allow that there can be conscious states whose subject is unaware of having, or we claim that all conscious states are states the subject is focally aware of having. To my mind, both horns of this dilemma are worse options than admitting the existence of peripheral self-awareness.

4. The functional role of peripheral awareness

Even those disinclined to countenance peripheral *self*-awareness admit the existence of peripheral *visual* awareness. Yet the latter should not be taken for granted. The fact that our visual system employs peripheral awareness is not a brute, arbitrary fact. There are reasons for it.¹⁹

Our cognitive system handles an inordinate amount of information. The flow of stimulation facing it is too torrential to take in indiscriminately. The system must therefore develop strategies for managing the flux of incoming information. The mechanism that mediates this management task is, in effect, what we know as *attention*.²⁰ There are many possible strategies the cognitive system could adopt – many ways the attention mechanism could be designed – and only some of them make place for peripheral visual awareness.

Suppose a subject faces a scene with five distinct visual stimuli: A, B, C, D, and E. The subject's attention must somehow be distributed among these stimuli. At the two extremes are the following two strategies. One would have the subject distribute her attention evenly among the five stimuli, so that each stimulus is granted 20% of the subject's overall attention resources; let us call this the "20/20 strategy." The other would have the subject devote the entirety of her attention resources to a single salient stimulus to the exclusion of all others, in which case the relevant stimulus, say C, would be granted 100% of the subject's resources, while A, B, D, and E would be granted 0%; let us call this the "100/0 strategy." In-between these two extremes are any number of more flexible strategies. Consider only the following three: (i) the "60/10 strategy," in which C is granted 60% of the resources and A, B, D, and E are granted 10% each; (ii) the "28/18 strategy," in which C is granted 28% of the resources and A, B, D, and E are granted 18% each; and (iii) the "35/10 strategy," in which two different stimuli, say C and D, are treated as salient and granted 35% of the resources, while A, B, and E are granted 10% each.

The strategy our visual system actually employs is something along the lines of the 60/10 strategy. This strategy has three key features: it allows for only one center of attention; the attention it grants to the elements *outside* that focal center is more or less equal; and it grants considerably more attention to the center than to the various elements in the periphery. When I look at the desktop before me, my visual experience has only one center of attention, namely, the desktop; it grants more or less equal attention to the two elements in the periphery, namely, the books on the right side of the desk and the printouts on the left side; and the attention it grants to the desktop is considerably greater than that it grants to the books and the printouts. Each of the other models misrepresents one feature or another of such an ordinary experience. The 20/20 strategy implies that my awareness of the books and printouts is just as focused as my awareness of the desktop before me, which is patently false. The 100/0 strategy implies that I am completely unaware of the books and printouts, which is again false. The 28/18 strategy misrepresents the contrast between my awareness of the desktop and my awareness of the books or printouts: the real contrast in awareness is much sharper than suggested. And the 35/10 strategy wrongly implies that my visual experience has two separate focal centers.²¹ (There may – or may not – be highly abnormal experiences in which there are two independent centers of attention – say, one at 36 degree on the right side of the subject’s visual field and one at 15 degree on the left side of the visual field – but a normal experience is clearly unlike that. Normal experience has a single focal center.)²²

The described treatment of the possible strategies for managing the information overload facing the visual system (and perforce the cognitive system) is of course oversimplifying. But it serves to highlight two important things. First, the existence of peripheral visual awareness is a *contingent* fact. In the 100/0 strategy, for instance, there is no such thing as peripheral awareness: the subject is either focally aware of a stimulus or completely unaware of it.²³ In a way, the 20/20 strategy likewise dispenses with peripheral awareness, as it admits no distinction between focal center and periphery.²⁴ Only the three other strategies make place for the notion of peripheral awareness.

Second, if the 60/10 strategy (or something like it) has won the day over the other possible candidates, there must be a reason for that. The 60/10 strategy has apparently been selected for, through evolution (and perhaps also learning), and this suggests that there must be some functional advantages to it.²⁵

What are these functional advantages? It is impossible to answer this question without engaging in all-out speculation. In the remainder of this section, I offer my own hypothesis, but doing full justice to the issue at hand would be impossible here. I will only pursue the hypothesis to the extent that it may help illuminate, in the next section, the question of the functional role of peripheral *self*-awareness.

The distribution of attention resources in the 60/10 strategy accomplishes two things. First, with regard to the stimuli at the attentional periphery, it provides the subject with just enough information to know where to get more information. And second, by keeping the amount of information about the periphery to the minimum needed for knowing where to get more information, it leaves enough resources for the center of attention to provide the subject with rich and detailed information about the salient stimulus. On this hypothesis, the functional role of peripheral awareness is to give the subject “leads” as to how to obtain more detailed information about any of the peripheral stimuli, without encumbering the system overmuch. By doing so, peripheral awareness enhances the *availability* of rich and detailed information about those stimuli. Peripheral visual awareness thus serves as a *gateway*, as it were, to *focal* visual awareness: it smoothes out – facilitates – the process of assuming focal awareness of a stimulus (Mangan 1993, 2001).

Consider the subject’s position with regard to stimulus E, of which she is peripherally aware, and an object F, of which she is completely unaware. If the subject suddenly requires fuller information about E, she can readily obtain it simply by turning her gaze onto it. That is, the subject has enough information about E to be able to quickly and effortlessly obtain more information about it. By contrast, if she is in need of information about F, she has to engage in a “search” of some sort after the information needed. Her current visual experience offers her no leads as to where she might find the information she needs about F. (Such leads may be present in memory, or could be extracted by reasoning, but they are not to be found in the subject’s visual experience itself.) Peripheral awareness of a stimulus thus allows the subject to spend much less energy and time to become focally aware of the stimulus and obtain detailed information about it. It makes that information much more available to, and usable by, the subject.

5. The functional role of peripheral self-awareness

The hypothesis delineated, concerning the functional significance of peripheral visual awareness, suggests a simple extension to the case of peripheral *self*-awareness. The subject’s peripheral awareness of her ongoing experience makes detailed information about the experience much more available to the subject than it would otherwise have been. More specifically, it gives the subject just enough information about her current experience to know how to get more information quickly and effortlessly, should the need arise.

More accurately stated, the suggestion is that when, and only when, a mental state M is conscious, so the subject is peripherally aware of M, the subject possesses just enough information about M to make it possible for her to easily (i.e., quickly and effortlessly) obtain fuller information about M. Compare the subject’s position with regard to some unconscious state of

hers, a state of which she is completely unaware. If the subject should happen to need detailed information about that unconscious state, she would have to engage in certain energy- and time-consuming activities to retrieve that information.

It is important to stress that the information provided by peripheral self-awareness concerns the experience itself, not the *objects* of the experience. Consider again my laptop experience. In having my experience, I am focally aware of the laptop and peripherally aware of at least three things: the books on the right side of my desk, the printouts on the left side, and my very experience of all this. My peripheral awareness of the books provides me with just enough information about the books to know how to get more information about them. My peripheral awareness of having the experience provides me with just enough information to know how to get more information – not about the laptop or books, but about the very *experiencing* of the laptop and books.²⁶

Peripheral self-awareness is a constant element in the fringe of consciousness: we are at least minimally aware of our ongoing experience throughout our waking life. This continuous awareness we have of our experience multiplies the functional significance of the awareness. The fact that at every moment of our waking life we have just enough information about our current experience to get as much further information as we should need means that our ongoing experience is an “open source” of information for all other modules and local mechanisms in the cognitive system. This is the basis of the idea that consciousness makes information globally available throughout the system. Baars (1988) puts it in what I think is a misleading way by saying that consciousness “broadcasts” information through the whole system; I would put it the other way around, saying that consciousness “invites” the whole system to grab that information.

It is not hard to see, on this picture, why peripheral self-awareness is a good thing to have. Consciousness is often described as a monitoring device, a device that allows us to gather and process detailed information about our very mechanisms of gathering and processing information (Lycan 1996). On the picture here defended, this is inaccurate: consciousness is not the monitoring device itself, but a *gateway* to the monitoring device. Consciousness does not give us detailed information about our inner goings-on, but rather makes it easy for us to get such detailed information whenever we want, by giving us just enough information about our concurrent inner goings-on to know how to get fuller information.²⁷ However, even though consciousness is not itself the monitoring device, the functional benefits of having a monitoring device – detecting malfunction in the processes of information gathering and processing, integrating disparate bits of information into a coherent whole, etc.²⁸ – explain also the benefit in having a gateway to the monitoring device. Whatever the function of the monitoring device itself, the function of

consciousness is to give the subject “leads” that would prompt and facilitate the deployment of monitoring as need arise.

The fact that peripheral self-awareness is a good thing to have may help us counter the objection, brought up at the end of Section 3, that there is no such thing as peripheral self-awareness. If peripheral self-awareness is a good thing to have, it is unsurprising that it should appear in the course of evolution. To be sure, the fact that a feature is good to have does not necessitate its evolution. But given that the existence of neither peripheral awareness itself nor self-awareness itself is in contention, it is hard to motivate the idea that something like peripheral self-awareness would not come into existence.²⁹

The account I have defended offers the following answer to the question of identification: the functional role of consciousness proper is to give the subject just enough information to know how to easily obtain fuller information about her concurrent experience. Against the background of Sections 3 and 4, the answer to the question of explanation should be clear: the reason consciousness has just this sort of functional role is that consciousness is essentially peripheral self-awareness, and peripheral self-awareness involves just this sort of functional role; the reason peripheral self-awareness involves just this sort of functional role is that it is a form of peripheral awareness, and this is the kind of functional role peripheral awareness in general has; and the reason peripheral awareness in general has just this kind of functional role has to do with the cognitive system’s strategy for dealing with the information overload it faces.

(This model explains both why there is such a thing as peripheral self-awareness and why peripheral self-awareness plays the functional role of giving the subject just enough information about her ongoing experience to be able to easily obtain fuller information. The key point is that providing the subject with just this sort of information is not what consciousness *is*, but what consciousness *does*. What consciousness *is* is peripheral self-awareness, that is, peripheral awareness of one’s concurrent experience. So in this account consciousness is not *identified* with the providing of the information, but is rather the *categorical basis* for it.)

In conclusion, the account of the functional role of consciousness here proposed may be summarized in terms of the following three tenets:

- (1) A mental state M is conscious when and only when the subject is peripherally aware of M.³⁰
- (2) The functional role of consciousness is to give the subject just enough information to know how to quickly and effortlessly obtain rich and detailed information about her concurrent experience.
- (3) The reason this is the functional role of consciousness is that the cognitive system’s strategy for dealing with information overload employs peripheral awareness, a variety of which is peripheral self-awareness (hence

consciousness), and the functional role of peripheral awareness in general is to give the subject just enough information to know how to get fuller information about whatever the subject is thereby aware of.

The three tenets satisfy our three requirements on an account of the functional role of consciousness. (1) is intended to meet the singularity requirement: it says what consciousness proper *is*. (2) is intended to meet the identification requirement: it says *what* the functional role of consciousness is. (3) is intended to meet the explanation requirement: it makes a claim as to *why* it is that consciousness has just the functional role attributed to it in (2).³¹

6. Other approaches to the functional role of consciousness

Before closing, I would like to situate the account I have defended in relation to other central accounts of the functional role of consciousness. The purpose is not so much to argue against these other accounts as to illustrate the force of the present account.

According to Baars (1997), consciousness does a good number of things: it prioritizes the cognitive system's concerns, facilitates problem-solving, decision-making, and executive control, serves to optimize the trade-off between organization and flexibility, helps recruit and control actions, detects errors and edits action plans, creates access to the self, facilitates learning and adaptation, and in general "increase[s] access between otherwise separate sources of information."³² (1997, pp. 162–163)

There are two problems with Baars' account. First, the functions he cites are not peculiar to consciousness. There is no question that conscious mental states are involved in all those things. But it is far from clear that conscious states perform any of these functions precisely *in virtue* of being conscious. By putting together this list, Baars is not distilling the singular functional significance of consciousness *proper*, but simply enumerating the functions performed by mental states which happen to be conscious. That is to say, Baars' account fails to meet the singularity requirement. Second, all the specific functions Baars cites are monitoring functions. If the account offered in the previous section is correct, monitoring functions do not characterize consciousness proper, although consciousness does enhance the performance of those functions (by serving as a gateway to monitoring).

Another common error is to misconstrue the relation between consciousness and its functional role. Consider Block's (1995) distinction between what he calls *phenomenal consciousness* and *access consciousness*. Phenomenal consciousness is consciousness proper, the truly mysterious phenomenon we all want to understand. Access consciousness is, by contrast, a functional notion: a mental state "is access-conscious if it is poised for free use in reasoning and for direct 'rational' control of action and speech." (1995, p. 382)

One problem with Block's distinction is that any function we may wish to attribute to phenomenal consciousness would be more appropriately attributed to access consciousness, leaving phenomenal consciousness devoid of functional significance (Chalmers 1997). The source of this unhappy consequence is the notion that phenomenal and access consciousness are two separate phenomena sitting side by side at the same theoretical level. In reality, access consciousness appears to be the functional role *of* phenomenal consciousness. The relation between phenomenal and access consciousness is therefore the relation of player to role: phenomenal consciousness *plays* access consciousness, if you will. Once we construe access consciousness as the functional role of phenomenal consciousness, we can attribute again any function we may wish to phenomenal consciousness: the function is construed as *part of* access consciousness and is therefore *performed by* phenomenal consciousness. The conceptual confusion caused by Block's distinction is overcome.

Another problematic aspect of Block's views here is his particular characterization of access consciousness, the functional role of consciousness proper. On the account offered in the previous section, it is quite true that conscious states are poised for free use in reasoning and action control. But this is a secondary function of theirs. The primary function of consciousness is to give the subject just enough information to know how to easily obtain detailed information about her concurrent experience. The secondary function identified by Block is a result of two factors: the primary function and the fact that peripheral self-awareness is constant throughout our waking life. That is to say, Block's account offers an incorrect identification of the functional role of consciousness and therefore fails to meet the identification requirement.

Tye (2000) also identifies the functional role of consciousness in terms of poise for use in rational control and deliberation. More specifically, he claims that "experiences and feelings, *qua* bearers of phenomenal character . . . stand ready and available to make a direct impact on beliefs and/or desires."³³ (2000, p. 62)

If the account defended in Section 5 is on the right track, then Tye's identification of the functional role of consciousness is at least incomplete, as it leaves out the function consciousness has in giving the subject basic information about her concurrent experience. Furthermore, unless a lot rides on the phrase "stand ready and available," the role identified by Tye is routinely played by unconscious perceptions (which do of course make an impact on beliefs and desires). So Tye's account appears to fail the identification requirement as well.

According to Tye's representational theory of consciousness, conscious states are essentially representational, in that what makes them the conscious states they are is their representational content. One major difficulty facing the representational theory is that, on the face of it, every stimulus can be represented either consciously or unconsciously, so the difference between

conscious and unconscious states is not found in their representational properties (Kriegel 2002). Tye's response is to claim that conscious representations, unlike unconscious representations, are functionally poised in the way described.³⁴ The problem with this response is that it leaves Tye with no way to *explain* the functional role of conscious states. By claiming that what distinguishes conscious from unconscious states is functional role, Tye is effectively embracing a functionalist account of consciousness proper. But as we saw in Section 1, a functionalist account of consciousness proper is incapable of explaining why consciousness has just the functional role it has, since it *identifies* consciousness with the role in question, rather than construing consciousness as the categorical basis for it. Therefore, Tye's account also fails to meet the explanation requirement.

One of the most interesting empirical findings about the function of consciousness is Libet's (1985). Libet instructed his subjects to flex their right hand muscle and pay attention when their intention to flex the muscle is formed, with the goal of finding out the temporal relationship between (i) muscle activation, (ii) onset of the neurological cause of muscle activation, and (iii) the conscious intention to flex one's muscle. Libet found that the neurological cause of muscle activation precedes conscious intention to flex the muscle by about 350 ms and the muscle activation itself by 550 ms. That is, the conscious intention to flex one's muscle is formed when the causal process leading to the muscle activation is already well underway. This suggests that consciousness proper does not have the function of initiating the causal process leading to the muscle activation, and is therefore not the cause of the intended act. According to Libet, the only thing consciousness can do is undercut the causal process at its final stages. That is, the only role consciousness has is that of "vetoing" the production of the act or allowing it to go through.

The phenomenological approach to consciousness proper we have taken in Section 2 starts from the assumption that conscious states are states we are aware of having. This means that a mental state must exist for some time before it becomes conscious, since the *awareness* of the state in question necessarily takes some time to form. Now, it is only to be expected that the state in question should be able to perform at least some of its functions before it becomes conscious. In many processes, the state can readily play a causal role independently of the subject's awareness of it. So it is unsurprising that consciousness proper should have a small role to play in such processes (Rosenthal 2002b). What would be surprising is for consciousness to play that limited role in *all* or *most* cognitive processes. But this cannot be established by Libet's experiment. One overlooked factor in Libet's experiment is the functional role of the subjects' conscious intention to follow the experimenter's instructions (Flanagan 1992). This introduces two limitations on Libet's findings. First, we do not know what the causal role of the conscious intention to follow the experimenter's instructions is in the production of muscle activation. Second, we

do not know what causal role a conscious intention to flex one's muscle plays when it is *not* preceded by a conscious intention to follow certain instructions related to flexing one's muscle. Given that the majority of instances of muscle flexing involve a single conscious intention (rather than a succession of two separate but related conscious intentions), we do not as yet know what the functional role of conscious intention to flex one's muscle is in the majority of instances.

In any case, observe that Libet's findings bear only on the role of consciousness *vis-à-vis* motor output. But internal states of the cognitive system can bring about not only motor output, but also further internal states.³⁵ On the account defended here, the latter is more central to the functional role of consciousness. The fact that a subject is peripherally aware of her mental states plays a role in bringing about states of focal awareness of those mental states, and more generally a role in the operation of internal monitoring processes.

The account of the functional role of consciousness I defended in Section 5 is thus different in clear and significant ways from other accounts to be found in the literature on consciousness, including some leading accounts in the psychological, philosophical, and neuroscientific literature.

7. Conclusion

In this paper, I have developed a novel account of the functional role of consciousness. This account identifies a very specific function which it claims characterizes the singular contribution of consciousness to the fund of causal powers of conscious states, and embeds this identification in a larger explanatory account of the purpose and operation of attention. According to the account I have offered, when a mental state *M* is conscious, its subject has just enough information about *M* to be able to easily obtain fuller information about it.

The account is grounded in empirical considerations but is quite speculative, in that it depends on a number of unargued-for assumptions. As such, it is a "risky" account, an account whose plausibility may be undermined at several junctures. At the same time, none of the assumptions made is flagrantly implausible. So at the very least, the account of the functional role of consciousness here defended offers a viable alternative to the accounts currently on offer in the literature on consciousness.

In any event, if one does accept the phenomenological conception of consciousness, the account proposed here of its functional role is hard to deny. Conversely, the fact that a clear and precise account of the functional significance of consciousness follows rather straightforwardly from the phenomenological conception of consciousness in terms of peripheral self-awareness is a testimony to the theoretical force of the phenomenological conception.³⁶

Notes

1. According to Kim (1998), this is how all scientific reduction proceeds. Thus, the reduction of water to H₂O proceeded according to the same “plan”: in a first stage, water was “functionalized,” meaning that its causes and effects were studied; in a second stage, H₂O was studied till it was known to have just those causes and effects singled out in the first stage; finally, water was identified with H₂O on this basis.
2. This seems to be Velmans’ (1992) view, for instance.
3. For concrete argumentation in favor of the causal efficacy of consciousness, see Flanagan (1992), and Van Gulick (1992). According to Kim (1998), all phenomena must be causally efficient, hence not epiphenomenal, because of what he calls “Alexander’s dictum”: to be is to be causally efficient. If Alexander’s dictum is correct, nothing can be completely causally inert. If so, either consciousness is not epiphenomenal, or there is no such thing as consciousness.
4. Functionalism is *not* the view that mental states and events *have* a functional role – that is almost beyond dispute. What functionalism claims is there is *nothing more* to a mental state or event beyond its functional role.
5. In other words, the discussion of this section paves the way for a certain argument against functionalism about consciousness, namely, the argument that functionalism necessarily fails to *explain* the functional role of consciousness.
6. In this paper, however, I am less interested in the *causes* of consciousness and more in its *effects*. The notion of functional role relates equally to the causes and effects of whatever plays the role, but the ‘causes’ part is of lesser interest to me here.
7. For very concrete effects of subliminal perception on anxiety, see Silverman et al. (1978). For more general discussion of subliminal perception and its functional significance, see Dixon (1971). Another well-known form of unconscious perception, which retains some of the causal powers of conscious perception is blindsight (see Weiskrantz 1986). Unless the function of consciousness is implausibly duplicated, such that another mechanism has exactly the function consciousness has, any function a blindsighted subject can execute in response to her blindsighted perceptions must thereby not be part of the function of consciousness proper.
8. For close interpretations of Brentano along these lines, see Smith (1986, 1989), Zahavi (1998a, 1999), Thomasson (2000) and Kriegel (2003a, 2003b).
9. He writes (Brentano 1874, pp. 153 – 154): “[Every conscious act] includes within it a consciousness of itself. Therefore, every [conscious] act, no matter how simple, has a double object, a primary and a secondary object. The simplest act, for example the act of hearing, has as its primary object the sound, and for its secondary object, itself, the mental phenomenon in which the sound is heard.”
10. This is not to say that there are no important differences between Husserl’s and Brentano’s views. For a comparison of their respective views, see Zahavi (1998a). For other discussions of Husserl’s view, see Brough (1972), Sokolowski (1974), Smith (1989) and Zahavi (1999).
11. Again, each of these views is importantly dissimilar to Brentano’s original view and to each other. But they all share the same general outlook. For discussion of Sartre’s view, see Wider (1997), Zahavi (1999) and Gennaro (2002). For discussion of Henry’s view, see Zahavi (1998b, 1999). For discussion of Gurwitsch’s view, see Natsoulas (1999). For work by members of the so-called Heidelberg School, see Henrich (1966), Frank (1995) and Sturma (1996).
12. See Smith (1986), Rosenthal (1986, 2002a), Lycan (1996), Carruthers (2000) and Levine (2001).

13. Focal awareness of our conscious states characterizes the more reflective, or introspective, moments of our mental life. When a person introspects, she focuses on her conscious state. When she starts focusing on something else, her state either becomes unconscious, or she retains a peripheral awareness of it.
14. I am assuming that focal awareness is always conscious (i.e., that states of focal awareness are conscious states). This is admittedly not an indubitable assumption, but a full defense of it would take us too far a field.
15. In the sense in which I am using the term, peripheral self-awareness is not necessarily peripheral awareness of oneself. Rather, it is peripheral awareness of a mental state, event, or process going on *within* oneself. This does not mean that peripheral self-awareness *cannot* be awareness of the self. Self-awareness in the sense in which I am using the term may be either awareness of oneself or merely awareness of one of one's mental states – or both. We need not commit to any particular view here, although there are good independent reasons to think that peripheral self-awareness does involve awareness of the self (see Rosenthal 1990; Kriegel 2003b). In any event, it is clear that peripheral self-awareness as construed in the phenomenological tradition, does include reference to *the* self.
16. In the case of visual perception, the distinction between focal and peripheral awareness is what cognitive scientists refer to as the distinction between foveal vision and peripheral vision. Foveal vision is vision of stimuli presented to the fovea, a tiny central part of the retina with an angle on about two degrees of the visual field; peripheral vision is vision of stimuli outside that central part of the visual field.
17. The same phenomenon was referred to by Husserl (1928) as *non-thematic* consciousness and by Sartre (1943) as *non-positional* consciousness.
18. Indeed, peripheral self-awareness seems to be a constant element in the fringe of consciousness. This must be the case if peripheral self-awareness is indeed what consciousness proper is. Peripheral self-awareness is then necessarily an element in every conscious state, since it is what *makes* the state conscious.
19. The functional analysis of peripheral awareness that I will develop in this section owes much to the work of Bruce Mangan (1993, 2001).
20. At least this conception of attention has been widely accepted since Broadbent's (1958) seminal work on attention. See also Moray (1969).
21. It may happen that two adjacent stimuli form part of a single center of focus for the subject, but this situation is not a case in which the experience has two independent focal centers. To make sure that the example in the text brings the point across, we may stipulate that A, B, C, D, and E are so distant from each other that no two of them could form part of a larger, compound stimulus which would be the focal center of attention.
22. There are other possible strategies that would misrepresent other features of normal experience. Consider the strategy that grants 60% of attention to C, 2% of attention to A, 8% to B, 8% to D, and 22% to E. It violates the principle that all elements in the periphery are more or less granted equal attention, which is a feature of the 60/10 strategy. We need not – should not – require that the amount of attention granted to all peripheral elements would be exactly identical, of course, but the variations seem to be rather small.
23. Note, furthermore, that there are conditions under which peripheral awareness is actually extinguished. When a subject comes close to passing out, for instance, more and more of her peripheral visual field goes dark, starting at the very edge and drawing nearer the center. The moment before passing out, the subject remains aware only of foveated stimuli (i.e., stimuli presented in foveal vision), while her entire peripheral visual field lies in darkness. It appears that the system, being under duress, cannot afford to expend any

- resources whatsoever on peripheral awareness. The presence of peripheral awareness is the norm, then, but hardly a necessity.
24. Although we might understand the notion of peripheral awareness in such a way that the 20/20 strategy entails that all (or at any rate most) awareness is peripheral. I think this would be a mistake, but let us not dwell on this issue. The possibility of the 100/0 strategy is sufficient to establish that there is no deep necessity in the existence of peripheral awareness.
 25. It does not matter for our purposes whether the 60/10 strategy is based in a mechanism that is cognitive in nature or biologically hardwired. It is probably a little bit of both, but in any event the mechanism – whether cognitive, biological, or mixed – has been selected for due to its adaptational value.
 26. There is a question as to what precisely one is aware of in peripheral self-awareness. Am I peripherally aware of my entire experience, including the peripheral elements in it, or only of the focal center of the experience? For instance, am I peripherally aware of my peripheral awareness of the books, or only of my focal awareness of the laptop? I will not broach this issue here, as it does not seem to bear on the issue of the functional role of peripheral self-awareness (at least not at the level at which I am interested in it).
 27. I am construing here the notion of a monitoring device in a relatively restrictive way, i.e., as describing a mechanism that gives the subject focused, rich information on its own processes and states. There is also a more relaxed usage, in which any mechanism that gives the subject *some sort* of information on its own states and processes is a monitoring mechanism. In this more relaxed sense, consciousness as portrayed in this paper does qualify as a monitoring mechanism.
 28. For a fuller list, see the discussion of Baars' (1997) account of the functional role of consciousness at the beginning of Section 6. For more on the functional significance of a monitoring module, see Baron-Cohen (1995), Carruthers (2000, 2002), and Nichols and Stich (2003).
 29. If we accept the common conception of evolution as a process of variation-and-retention, we may say that the fact that a feature is good to have does suggest that it will be *retained*, although it does not guarantee that it will appear through variation in the first place. The fact that peripheral awareness and self-awareness surely exist, however, suggests that the basic building blocks for peripheral self-awareness have been in place, so that the appearance of peripheral self-awareness through variation should be expected.
 30. At least this is normally or typically so. In some cases, M may be conscious when the subject is peripherally aware of a chain of focal awarenesses leading up to M.
 31. It might be objected that the sort of functional role attributed to consciousness in the present paper could in principle be performed by an unconscious mechanism, and this would defy the singularity requirement. This objection would be misguided, however. The singularity requirement is intended to rule out functions that conscious states have, but not *in virtue* of being conscious. It is not intended to rule out function that unconscious states could also but do not in fact have.
 32. This list is obtained by bringing together the titles of different sections in Chapter 8 of Baars (1997).
 33. Note that Tye stresses that this is the functional role of conscious experience precisely *qua* conscious experiences – suggesting that he has the singularity requirement in mind.
 34. About blindsighted perception, Tye writes: “It is worth noting that, given an appropriate elucidation of the ‘poised’ condition, blindsight poses no threat to the representationalist view . . . What is missing, on [my] theory, is the presence of appropriately poised, nonconceptual, representational states. There are nonconceptual states, no doubt

- representationally impoverished, that make a cognitive difference. . . But there is no complete, unified representation of the visual field, the content of which is poised to make direct difference in beliefs.” (Tye 2000, pp. 62, 63).
35. Thus, a thought that it is raining can play a causal role in taking an umbrella, which is a motor output, but it can also play a causal role in producing the thought that it has been raining for the past week, which is a not a motor output but a further internal state.
36. I would like to thank George Graham and Cybele Tom for helpful comments on a draft of this paper.

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