

Supplementary Note 1 Inattentional Amnesia

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This replies to Lamme and to Block trade heavily on a distinction between inattentional blindness and Sperling-style cases, where stimuli are experienced but not reportable. I have said an adequate theory needs to distinguish between cases where there is no consciousness (which I hypothesize to result from inattention), consciousness without reportability (availability without encoding), and consciousness with reportability (availability with encoding). To effectively rebut this way of drawing the boundary, an opponent of the AIR theory would have to argue that subject *really are* conscious in cases of inattention. They would have to say, for example, that the surprise stimulus in inattentional blindness studies *is experienced* even though subjects insist they haven't seen anything. One possibility is that subjects have an experience and then forget that experience (Wolfe, 1999). If an explanation of this kind as available, then the distinction I have wielded against Lamme here, and Block earlier, will have no force. Indeed, such an interpretation threatens to undermine the evidence I brought to bear in favor of the view that attention is necessary for consciousness. If subjects in inattentional blindness studies really do experience the unexpected stimuli despite saying otherwise, then there can be consciousness without attention. This is the last objection I will consider. I think there are five reasons for thinking that this interpretation of inattentional blindness is unacceptable.

First, the defended of this interpretation owes us a story about why subjects in these experiments claim not to experience the stimuli if they really have experienced the stimuli. As suggested, the most obvious suggestion is that they simply forget about the experience by the time they were asked, because they are not stored in memory. So inattentional blindness is inattentional amnesia. I am actually sympathetic to the idea that we can have experiences that we instantly forget, and I committed to this possibility when I said consciousness doesn't require working memory encoding. So, given that concession, it may seem that I am forced to take the inattentional amnesia interpretation seriously. Still, I think the interpretation can be rejected. First, it's hard to square with the fact that we can be inattententionally blind for stimuli that are present for long durations (recall the 5 second example from Most et al., ***). If we were experiencing a very unusual stimulus for several seconds, why wouldn't we remember that? Furthermore, Mack and Rock (1998) conducted some very clever studies explicitly designed to rule out the inattentional amnesia interpretation. In one study, a shape is presented just prior to the attentionally demanding task, a short distance from where the surprise stimulus will appear. When attention is available, these two consecutive shapes induce experiences of apparent motion: the two stimuli look like one moving object. If the surprise stimulus is experienced under conditions of inattention, subjects should recall the experience of motion, since they readily recall and report the first stimulus. This is not what happened 67% of subjects report only the first stimulus

and say it was still. If the second stimulus had been experienced, the first stimulus would not be recalled as still.

A second reason to deny that there is conscious experience in inattentive blindness is that postulating experience doesn't take first-person reports seriously enough. If a theory of consciousness is not an account of what it is like for a subject, then it's not clear what it is supposed to be a theory of. If a subject insists that there was no experience, we should take that insistence seriously, unless there is very strong theory-independent pressure to think the report is inaccurate. And, those who don't trust verbal reports should try to be in one of these studies themselves, and see whether it feels like there is any experience of the unattended stimulus.

A third, and related, point, is that the postulation of conscious stimuli in inattentive blindness would threaten what I call *pan-phenomenalism*, the view that all mental states are conscious. If there can be conscious states that subjects insist are not conscious, why not conclude that all mental states are conscious? Where do we draw the line? Indeed, why not say that every particle in the universe is conscious? A theory of consciousness should try to explain the conscious/non-conscious distinction. Once we become skeptical of first person phenomenological reports about where that distinction arises, we lose a grip on the distinction itself.

Fourth, the standard interpretation of inattentive blindness does not rely entirely on subjective reports. It's true that subjects in these studies deny they have seen anything—that's a subjective measure of experience—but they also often fail on forced-choice tests just after the stimulus has been displayed (Mack and Rock, 1998; Cartwright-Finch and Lavie, 2006). Chance performance on forced-choice tests is considered an objective measure of experience, because it doesn't require subjects to say anything about their experiences or epistemic states (e.g., their levels of confidence). Forced-choice success does not require working memory encoding; activation of semantic networks may be enough. This suggests that subjects are not just failing to remember the stimulus; they are actually processing it in a way that differs quite dramatically from normal perception. So the claim that subjects lack experience does not depend on the assumption that first-person reports are *always* accurate. People do sometimes make false positive judgments about what they have seen, and this suggests they *might* be making false negative judgments. But the existence of objective measures suggests that subjects are not simply misremembering what they experienced.

Finally, there are functional differences between the effects of stimuli that subjects report experiencing and those that subjects insist they haven't experienced. One of these differences was already noted earlier. Stimuli that subjects fail to notice exhibit negative, as opposed to positive, compatibility effects (Sumner et al., 2006). In addition, ambiguous words prime multiple meanings, when presented below threshold and negatively prime irrelevant meanings when above threshold (Marcel, 1983). Functional differences are especially pronounced under conditions where there is objective evidence that subjects haven't experienced anything (such as failing at forced-choice tests). Snodgrass and Shevrin (2006) found, for example, that certain manipulations (such as asking people to use a guessing strategy that they like) can affect statistical variance in performance, but not average response when a test is administered. In conscious perception,

strategic processing influences average performance. And of course there are more obvious functional differences between ordinary perception and perception under conditions of inattention. Ordinarily, if you experience an object flashed on a screen, you might look for it, wonder about it, strategically chose to monitor the place where it was noticed in the future, and recall the episode later in the day. All these effects can occur spontaneously without an experimenter telling you that something was there. Under conditions of inattention, none of this happens. That suggests different processes are at work and we should not say that perception under inattention is just like ordinary perception, only weaker or less memorable. It is utterly like seeing under good conditions, and equally unlike seeing the unreported stimuli in the Sperling and Lamme experiments.