Inductive Skepticism and the Methodological Argument

It has been argued elsewhere, on conceptual and empirical grounds, that attention is necessary for conscious perception (ANC). However, there are several reasonable objections to this thesis. Here I examine one of these objections as put forward by Christopher Mole, which I call the Methodological Argument: attention has only been shown to be necessary for observable conscious perception and so cannot be claimed to be necessary for all conscious perception. In his words, "attention is not necessary for *consciousness,* but it is necessary if one's experience is to provide one with knowledge of the sort probed by the experimenter's questions" ([1] *emphasis original*). My response to this objection has two parts. First, I deny that the plausible existence of unobservable conscious perception has been established. Second, I assert that without evidence in favor of unobservable conscious perception, this worry amounts to an indefensible form of inductive skepticism. Admittedly, Mole is up to more than what I tackle in this paper, but his other objections will need to be considered at a later date.

I. Mole's Objection to ANC

The evidence in favor of ANC correlates attention with reports and other outward signs of perception, rather than with conscious perception itself. Take the famous experiment by Simons and Chabris: when subjects in normal conditions watch a video involving a person in a gorilla suit (the "gorilla"), they report perceiving the gorilla. However, when subjects are distracted by an attention-involving task, such as tracking

the passing of a ball between players, they often fail to report perceiving a gorilla walking amongst the players [2]. As it seems to be the loss of attention that causes the failure to perceive the gorilla, Simons and Chabris reason that ANC. That is,

1. All subjects in condition x reported perceptual consciousness of the gorilla (hereafter, C(g)).
2. Some subjects in condition x minus some amount of attention (which is removed by adding a task) did not report C(g).
3. From 1 and 2, lack of attention is sufficient for a failure to report C(g).
4. Failure to report C(g) indicates an absence of C(g).
5. From 3 and 4, lack of attention is sufficient for an absence of C(g).
6. If attention is necessary for C(g), it is necessary for C(x).

C. Attention is necessary for C(x) (or ANC).

This argument, put forward by Simons and Chabris, has at least two main points of weakness. First, against the fourth premise, the failure to report does not necessarily indicate an absence of the relevant perception, even when we assume the honesty of the participants. This criticism is partially answered by Simons and Chabris when they claim that subjects who failed to report perceiving the gorilla also did not show other signs of having perceived a gorilla. However, more extensive observations of the subjects would be necessary to answer this worry. Second, against the sixth premise, even if attention is necessary for conscious perception in the conditions of the experiment, this does not show that attention is necessary for all conscious perception.

Both of these weaknesses, common to arguments in favor of ANC, are exposed by Christopher Mole.

Mole's main criticism of ANC is that the methods of testing this claim leave out unobservable types of conscious perception that do not require attention. That is, current methods of testing for the presence or absence of conscious perception rely on the subject being able to observe his or her perceptions; if subjects are only sometimes able to observe their conscious perceptions then our current methods of testing leave out their unobservable conscious perceptions. Thus, any tests that show certain features or mechanisms, like attention, to be necessary for conscious perception will at most exhibit necessity for observable conscious perception.

Against ANC, Mole puts forward the possibility that "inattention leads to a lack of accessibility, rather than a lack of consciousness" [1]. Mole suggests, in the language of Ned Block, that the experiments in favor of ANC may only show that attention is necessary for the subject to access his or her conscious perception, but not to have conscious perception. Failure to access conscious perception can cause both an absence of outward signs and an absence of report, which would explain the observable differences between Simons and Chabris' two groups.

Alternatively, Mole proposes that attention may be necessary to facilitate reference to perceptual experience, but not for perceptual experience itself. This idea derives from the work of John Campbell, who writes that selective attention provides for demonstrative reference [3] [4] [5]. As Mole puts it,

> …in order for the hypothesis that attention is necessary for perception to be established, it will be necessary to rule out the story outlined above, according to which there is conscious awareness without attention, but it is only after attention is paid that this awareness gives one a conceptually structured representation of the sort that improves one's epistemic position... [1]

Thus, although propositional conscious perception (which can be referenced) requires attention, imagistic conscious perception (which cannot be referenced) does not.

These two alternatives can be understood as follows: failure to exhibit signs of conscious perception when there is a loss of attention can derive either from a failure of conscious perception or from a failure of access/reference to conscious perception. As the former is sufficient (but not necessary) for the latter, Mole thinks that we should stick to the latter claim until we can clearly rule in favor of the former, stronger claim. Thus, according to Mole, attention has only been shown to be necessary for access or reference, and not for conscious perception. To evaluate this objection, I will have to look at his development of the Methodological Argument from the work of Ned Block.

II. Unobservable Consciousness

Although Ned Block did not put forward the Methodological Argument, it is his division of access from phenomenal consciousness [6] and his formulation of the Methodological Puzzle [7] that inspire it. The former of these is taken to be evidence for unobservable conscious states. That is, phenomenal consciousness is taken by Mole to

be an instance of unobservable consciousness that can be used against ANC. I will try to show that, to the contrary, the existence of p-consciousness has not been established and that, therefore, we do not yet have reason to endorse the view that there are unobservable conscious states.

Block understands phenomenal-consciousness (or p-consciousness) as the experiential aspect of consciousness: "Phenomenally conscious content is what differs between experiences as of red and green" [6]. This quote refers to the Inverted Spectrum Argument, where it is argued that behavioral and functional accounts of consciousness fail to distinguish between a normal subject experiencing red and an inverted-spectrum subject experiencing green [8]. Thus, p-consciousness is the experiential aspect of consciousness that is left out of behavioral and functional accounts[1]. Access-consciousness (or a-consciousness), on the other hand, is the functional aspect of consciousness. This is contrasted with functionality outside of consciousness (e.g. sleepwalking), which evinces "indirect control…but not direct control of the sort that happens when a representation is poised for free use as a premise in reasoning and can be freely reported. (It is this free use that characterizes access-consciousness.)" [9]. Block argues that conscious functionality occurs when we are able to access our mental states, in the sense that we are able to reflect and act on them.

Block's most recent attempt to distinguish p-consciousness from a-consciousness is proffered as a solution to the Methodological Puzzle. The

[1] As an identity theorist, Block would presumably say that p-consciousness is captured by the biological underpinnings of functional activity.

Methodological Puzzle is that of finding a method that can experimentally differentiate between p-consciousness and a-consciousness. As Block states the problem:

> It does not seem that we could find any evidence that would decide one way or the other [whether the neural correlate of consciousness necessarily includes the correlate of a-consciousness] because any evidence would inevitably derive from reportability of a phenomenally conscious state, and so it could not tell us about the phenomenal consciousness of a state which cannot be reported. So there seems a fundamental epistemic…limitation in our ability to get a complete empirical theory of phenomenal consciousness. This is the Methodological Puzzle that is the topic of this paper. [7]

That is, it seems that to find evidence of a purely p-conscious state we would need the subject to be able to report this state, but p-consciousness without a-consciousness is unreportable by definition. Block thinks that this problem can be circumvented by looking at experiential overflow, or experience that appears to overflow the capacities of our reporting mechanisms.

Experiential overflow can be found in studies on working memory limits [7] [10]. The limit to working memory, where working memory is the temporary store of information that allows for a-consciousness, is around four chunks[2] of information. This

[2] I am using the word “chunk” to evoke a comparison with the action of “chunking” in memory storage and retrieval. That is, one may chunk information together to facilitate memory, such as when one memorizes the digits of pi in groups. Similarly, I am suggesting, one may chunk information together to facilitate

means that if a subject is flashed a random group of twelve letters in a grid for a fraction of a second, as in the Sperling experiments, he or she will only be able to access and report around four individual letters [11]. In this case, each reported letter is a single chunk of information. However, the amount of information that can be stored in each chunk depends on the subject's conceptual toolbox and past experience. For example, if a subject familiar with reading the English language is flashed "four-letter word," he or she should be able to report all fourteen letters, as these letters are grouped into three chunks. If, on the other hand, a subject who is not familiar with reading Czech is flashed "čtyři-slova dopisu," he or she will probably only be able to remember four of the sixteen letters. Likewise, most adult humans can correctly choose the fuller of two buckets of candy after watching how many pieces have been put into each bucket [12]. An infant however, is unable to choose correctly if more than four candies are placed in one of the two buckets. The difference is in the ability to count: the baby is forced to use one chunk of information for each candy (maxing out at four candies), while the adult can chunk multiple candies into a single number concept.

As the working memory limit of four chunks is also a limit to a-consciousness, Block argues that we have introspective evidence for p-consciousness without a-consciousness anytime we are conscious of more than four chunks of information. Specifically, he claims that because we experience all of the letters in a flashed display but can only report four of them, p-consciousness overflows a-consciousness [7]. However, as information can be chunked in different ways, showing that a subject was

---

perception. In the latter case, however, the amount of information that can be chunked is inversely related to the quality of the information.

able to be p-conscious of all the letters at one time and a-conscious of only four letters at another does not show that the subject was not first a-conscious of all the letters. That is, the subject could have been a-conscious of all the letters as a single, degraded chunk at one time and a-conscious of four distinct letters at the other. To show that p-consciousness overflows a-consciousness, Block must show that there is more total information available to p-consciousness than a-consciousness. Consider the bucket example: most adult humans can hold more than four candies together in their working memory without having a distinct image of each candy. Literate humans have enough exposure to letters that the ability to identify and experience a group of letters as a group of letters is unsurprising, even if they are unable to verify the identity of each individual letter. In contrast, literate humans flashed a group of twelve novel shapes would probably not report experiencing each shape, but rather a single image of indistinct shapes. Sid Kouider experimented on this possibility to show that when a subject claims to experience all the letters in a flashed display, he or she does not notice when the letters are reversed or replaced with non-letters [13]. This suggests that the subject does not experience all of the letters distinctly, but experiences all of the letters only as a single, degraded chunk of information. In this case, the limit to working memory may be a limit to both a-consciousness and p-consciousness. Therefore, the limit to working memory is neither conclusive evidence for p-consciousness without a-consciousness nor a solution to the Methodological Puzzle.

It may be that Block is unsuccessful in distinguishing a-consciousness from p-consciousness because gathering evidence for this distinction is impossible. In order to

establish a distinction between p-consciousness and a-consciousness, evidence is required for a-conscious states that are not also p-conscious, p-conscious states that are not also a-conscious, or both. However, it seems that the evidence for p-conscious states must piggyback on a-conscious mechanisms. That is, even to verify one's own p-conscious states by introspection, one relies on the ability to access those states. Thus, p-consciousness outside of a-consciousness is undetectable by either internal or external measures. Likewise, a-consciousness without p-consciousness is unverifiable because we can never be sure whether a subject is merely a-conscious or a-conscious and p-conscious [14]. Thus, Block's divide between a-consciousness and p-consciousness appears impossible to establish.

Similar arguments can be applied to Campbell's distinction between imagistic and propositional consciousness: although we have evidence for propositional consciousness, it does not seem possible to obtain evidence for imagistic consciousness. That is, as imagistic consciousness cannot be referred to (by definition), neither the subject nor an external observer would be able to identify an imagistic conscious state. Thus, it appears that we do not have any more evidence for imagistic consciousness than for phenomenal consciousness.

Recall that the purpose of attempting to establish evidence for p-conscious states that are not also a-conscious is to give evidence for unobservable conscious states. If the reasoning given so far is correct then we do not yet have this evidence. The next step of my argument will be to try and show that, without evidence for unobservable

conscious states (where p-conscious states are the strongest contender), Mole's objection collapses into an indefensible form of inductive skepticism.

III. Inductive Skepticism

Even if the Methodological Puzzle is insoluble, one might use it as an objection to the view that a failure to exhibit (by report or other behavioral evidence) p-consciousness indicates a lack of p-consciousness. This Methodological Argument could go as follows:

1. In condition x, everyone exhibits p-consciousness of y (hereafter, P(y))
2. In condition x minus access to P(y), no one exhibits P(y).
3. In condition x minus P(y), no one exhibits P(y).
4. From 1 and 2, lack of access to P(y) can cause a failure to exhibit P(y).
5. From 1 and 3, absence of P(y) can cause a failure to exhibit P(y).
6. From 4 and 5, failure to exhibit P(y) in condition x may indicate either a lack of access to P(y) or a corresponding absence of P(y).
7. That the failure to exhibit P(y) in condition x indicates an absence of P(y) and access to P(y) is a stronger claim than that it only indicates a lack of access to P(y).
8. Given two distinct claims that explain the same evidence, one should adopt the weaker of the two claims.

C: In condition x, failure to exhibit P(y) only indicates a lack of access to P(y).

If successful, the Methodological Argument can be used to argue against any instance of denying the presence of experience from evidence of its absence, including the evidence in favor of ANC. Importantly, the argument hinges on the eighth premise, that one should not claim more than is necessary. As used in this argument, the eighth premise relies on a form of inductive skepticism.

Induction, as I understand it, is an inference from evidence of particulars to general claims. For example, from the evidence that a significantly large number of plants require water to grow, one might inductively conclude that plants generally require water to grow. Inductive skepticism questions the justification of this inference. The doubt cast by inductive skepticism can come in two forms: logical and pragmatic. In what I call its logical form, inductive skepticism is based upon an allegedly unbridgeable gap between particular and general claims in virtue of the numerical distinctness of the particulars. Thus, for this sort of skeptic about induction, the claim that all tokens of a type share a certain property requires confirmation of the instantiation of this property for every token, and not just for a significantly large number of tokens that are members of the same type. But one can also have what I call a pragmatic skepticism about induction when there is reason to doubt the extension of the available evidence to other cases. That is, to claim that all tokens of a type share a certain property, we need to rule out any positive evidence that distinguishes the untested from the tested tokens. However, not every distinction between the tested and untested tokens causes concern for the pragmatic skeptic—the distinction must be relevant to the extension of the property in question. For example, a pragmatic skeptic would not bar an inductive move

from the claim that some flowers in Kansas require water to grow to the claim that flowers in Oklahoma also require water to grow, because the difference between Kansas and Oklahoma is not relevant to the property of requiring water to grow.

A practical concern about logical inductive skepticism is that accepting its force greatly restricts the types of claims that can be justified. To see this, consider the evidence we have for the claim that plant growth requires water: for any n between 1 and some significantly large number, plant ρ^n at location ι^n and time τ^n changes height when given water ω^n. According to the logical inductive skeptic, we are unjustified in making inductive inferences across times and locations, much less across individual plants and samples of water. Thus, the most we can do in informing others of these findings is to state the combination of particulars; one could not even say that water was required for the first plant to grow, but only state the co-presence of water and plant growth at a particular time and place. Conversely, in order to treat particulars as tokens of a type, logical inductive skepticism must be set aside. That is, to draw an inference from the particular evidence of plants ρ^1 and ρ^2, for example, one must claim that plants ρ^1 and ρ^2 are tokens of the same type. To make any positive claims, one must move beyond logical inductive skepticism and embrace the use of type-language.

One way of satisfying this problem is to accept the use of type-language for practical reasons while limiting the scope of logical inductive skepticism to metaphysical claims. Logical inductive skepticism is suited to this limited application because it is based upon the unqualified (i.e. metaphysical) contention that a new token might not instantiate a property solely because it is numerically distinct from the tested tokens.

This worry is illegitimate when applied to claims that remain metaphysically neutral about induction. For instance, logical inductive skepticism should not be applied to discussions about claims in the domain of particular sciences or the philosophies of particular sciences, since the use of terms like "necessity" in these domains is metaphysically neutral. That is, for the research scientist, it suffices that our best knowledge points to x as necessary for y in all observable cases where natural laws are held to be constant, without taking a stand on whether x is necessary for y in every metaphysically possible case. In other words, logical inductive skepticism may usefully put into question the justification of inductive inferences in general, but not the status of a particular inference, qua particular inference.

Thus, the success of the Methodological Argument depends both on whether one accepts these claims on the legitimate uses of inductive skepticism and whether the difference between p-consciousness and a-consciousness (or imagistic and propositional consciousness) is logical or pragmatic. That is, if one accepts the arguments given above on the legitimate uses of inductive skepticism, then the eighth premise should be modified: "given two *pragmatically* distinct claims that explain the same evidence, one should adopt the weaker of the two claims." In that case, the Methodological Argument will only be successful if it can produce a pragmatic distinction between phenomenal and access consciousness (or imagistic and propositional consciousness).

Neither of Mole's alternative hypotheses (that attention is necessary for access or reference to conscious perception) offers a pragmatic reason to question ANC because

we do not have evidence for unobservable conscious states. First, as shown above, we do not have reason to believe that there are phenomenally conscious states that are not also access-conscious. In fact, that there could be such states is unverifiable, even by the subject: verification of a mental state by the subject relies on the subject having access to that mental state. Likewise, we do not have reason to think that there are conscious perceptions that we are unable to reference. Moreover, that there could be such perceptions is unverifiable, even by the subject: each time we introspect to find these perceptions we have to use reference. The mere possibility that (tokens or types of) unobservable perceptual states may not require attention does not count as evidence against the claim that conscious perception requires attention.

Second, even if we accept the existence of unobservable conscious states, in order to agree that attention may only be necessary for observable conscious states we have to think that attention could be relevant to the difference between these; we have to think that there is some type of conscious perception, unlike the types of conscious perception that have been shown to require attention, that is different from the tested group in a way that could make it immune to this requirement. However, the difference between accessible and inaccessible (or referential and a-referential) perception does not seem to rely on attention. In fact, the difference between these is generally accepted to be due to working memory, and not attention. Even if a certain level of attention is necessary for working memory to be activated, as is argued by Stanislas Dehaene [15] [16], this does not show that conscious perception outside of working memory operates in the absence of attention. It would make more sense for attention to “oil the gears” of

perceptual processing, such that lower levels of attention would be required for low-level processing and higher levels of attention would be necessary for high-level processing. Thus, without a pragmatic reason to question the extension of the evidence for ANC to all types of conscious perception, I find this version of Mole's objection unconvincing.

IV. Conclusion

The Methodological Argument is not a legitimate criticism of ANC because it merely stipulates the possibility of a type of consciousness that might not require attention, without offering clear evidence for this type of consciousness, nor reason to think that this type of consciousness would operate outside of attention. We are left waiting for evidence that there is a type of conscious perception that does not require attention and is different from expressible conscious perception in a way that makes us think it should not require attention.

The Methodological Argument seems doomed to fail: access and reference may require attention, but so does the internal verification of conscious perception. Thus, there is no way of determining whether attention is necessary for perception or for the subjects' access/reference to their conscious perceptions, because we cannot obtain data about states of consciousness that the subjects cannot access/reference. This alternative to the general claim can be neither ruled out nor verified. However, without independent reason to believe that attention divides accessible from inaccessible perceptions (or referential from a-referential perceptions), this possibility can motivate only logical inductive skepticism. As I have tried to argue so far, logical inductive

skepticism is out of place in a discussion about whether or not attention is necessary for conscious perception.

References

[1] Mole, Christopher (2008a). Attention and consciousness. *Journal of Consciousness Studies* 15.

[2] Simons, D., and C. Chabris (1999). Gorillas in our midst: sustained inattentional blindness for dynamic events. *Perception* 28:1059-1074.

[3] Campbell, John (2004). Reference as attention. *Philosophical Studies* 120: 265-276.

[4] Campbell, John (2002). *Reference and consciousness.* Oxford: Oxford University Press.

[5] Campbell, John (1997). Sense, reference, and selective attention. *Proceedings of the Aristotelian Society* 71: 55-74.

[6] Block, Ned (2005). Two neural correlates of consciousness. *Trends in Cognitive Sciences* 9.

[7] Block, Ned (2007). Consciousness, accessibility, and the mesh between psychology and neuroscience. *Behavioral and Brain Sciences* 30: 481-499.

[8] Block, Ned (1990). Inverted earth. *Philosophical Perspectives* 4: 53-79.

[9] Block, Ned (1996). How not to find the neural correlate of consciousness. (http://cogprints.org/228/0/199712001.html accessed August 15th, 2009)

[10] Block, Ned (2008). Phenomenal and access consciousness: consciousness and cognitive access. *Proceedings of the Aristotelian Society* 108.

[11] Sperling, George (1960). The information available in brief visual presentations. *Psychological Monographs* 74: 1-29.

[12] Feigenson, Lisa and Susan Carey (2003). Tracking individuals via object files:

evidence from infants manual search. *Developmental Science* 6: 568–84.

[13] Kouider, Sid (2007). Partial awareness and the illusion of phenomenal consciousness. *Behavioral and Brain Sciences* 30.

[14] Chalmers, David J. (1996). *The conscious mind: in search of a fundamental theory.* New York: Oxford University Press.

[15] Dehaene, Stanislas, Jean-Pierre Changeux, Lionel Naccache, Jerome Sackur, and Claire Sergent (2006). Conscious, preconscious, and subliminal processing: a testable taxonomy. *Trends in Cognitive Sciences* 10: 204-211.

[16] Dehaene, Stanislas and Lionel Naccache (2001). Towards a cognitive neuroscience of consciousness: basic evidence and a workspace framework. *Cognition* 79: 1-37.