Does the Argument from Sceptical Hypothesis prove that you do not know whether you have hands?

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Based on a twofold consideration of the *Argument from Sceptical Hypothesis*[1], our principal aim in this paper is to arrive at a cogent defense of a (*comparatively*) radical thesis of epistemic skepticism. The Sceptical Argument's two premisses, which shall be put forth precisely, are thus to be defended against the most immediately observable and defensible counterarguments posed against the Cartesian sceptic.

The Sceptical Argument – as stated equivalently by DeRose in *Responding to Skepticism*[2] ([5], *p.* 1) – takes the following form, where we observe an *ostensibly* valid form of *modus tollens* deduction:

P1	If I know that I have hands, then I know that I am not a brain in a vat	
P2	I do not know that I am not a brain in a vat	
C	I do not know that I have hands.	(P1, P2)

Firstly, we shall consider the former premiss, an instance of *the epistemic closure principle*. In its *purely epistemological* form, whereby we take knowledge to be closed under *known* entailment (as contrasted with merely *logical* entailment)[3], the principle can be given symbolically as a conditional, wherein all concerned variables are bound under universal quantification:

$$\forall a \forall \varphi \forall \psi \{[K_a(\varphi) \wedge K_a(\varphi \implies \psi)] \implies K_a(\psi)\} \qquad \text{(Closure)}$$

Intuitively, we interpret the above as expressing the following inferential principle: *"if φ is known, and it is known also that φ is sufficient for ψ, then it is known that ψ."* The operator K, then, ought be read as *'it is known that'*; we relativise the operator to an agent a[4] via a subscript.

[1] Henceforth the *Sceptical Argument*.

[2] DeRose's formulation is a *modus ponens* deduction; for clarity, we state the Sceptical Argument here in the form of a *modus tollens* deduction.

[3] That is, the latter half of the conjunction in the antecedent is fixed with the epistemic operator ($K_a(\varphi \implies \psi)$) as opposed to being left solely as a logical conditional ($\varphi \implies \psi$). We wish to avoid precisely the situation detailed by Dretske in *Epistemic Operators* ([6], *p.* 1010):

> Let P be a set of axioms, Q a theorem. S's knowing P does not entail S's knowing Q just because P entails Q; for, of course, S may not know that P entails Q, may not know that Q is a *theorem.*

We do not, however, necessarily accept the conclusion suggested by Dretske subsequent to the foregoing (*Ibid.*):

> Were we all ideally astute logicians, were we fully apprised of all the necessary consequences (supposing this to be a well defined class) of every proposition, perhaps then the epistemic operators would turn into fully penetrating operators.

[4] And, of course, *all* such agents, as guaranteed by universal quantification.

As illustrated by a considerable body of literature on the subject[5], perhaps the foremost concern one faces in accepting Closure as valid is the dubious tenability of firstly accepting *known entailment* and *logical entailment* to share a *comparable* – or, indeed, *identical* – degree of *legitimacy*.[6] Here we arrive at the first of two considered routes the anti-sceptic may take in attempting to justifiably deny the Sceptical Argument (that is, to provide a convincing refutation thereof): an *outright rejection* of the validity of Closure on the grounds of this uncertainty; *i.e.,* a rejection of the premiss P1.

Such a rejection, as we seek to illustrate below, can be considered a circumvention of what DeRose ([4], *p.* 199) has termed the *abominable conjunction* – that is, knowing one has hands yet *not* knowing one is not a brain in a vat. Take, for instance, the Moorean common-sense assertion that one does indeed know one has hands; a proposition the uninvolved anti-sceptic is likely to assert as *prima facie* fair and self-evident. It is uncontroversially a necessary condition to *not be a brain in a vat* in order to *have hands* – yet the anti-sceptic, understood in this sense, may not assert their *not-being* a brain in a vat as similarly self-evident. We arrive, therefore, at a simple yet simultaneously confounding contradiction:

$$\dfrac{\dfrac{\neg K_i(\neg q) \qquad \dfrac{K_i(p) \qquad K_i(p \implies \neg q)}{K_i(\neg q)}}{\neg K_i(\neg q) \wedge K_i(\neg q)}}{\bot}$$

To the anti-sceptic unwilling to comfortably assert their *not-being* a brain in a vat, this contradictory deduction serves as a convincing impetus to deny Closure. A satisfactory philosophical justification (independent from mere *convenience*) for such a denial, however, remains thus far absent and incumbent upon the anti-sceptic.

Of the many such extant justifications, Dretske's *zebra case* may lend greatest credence to the cause of rejecting Closure. Dretske ([6], *pp.* 1015–1016) asks us to consider the following situation:

> You take your son to the zoo, see several zebras, and, when questioned by your son, tell him they are zebras. Do you know they are zebras? [. . .] We know what zebras look like, and, besides, this is the city zoo and the animals are in a pen clearly marked "Zebras." Yet, something's being a zebra implies that it is not a mule and, in particular, not a mule cleverly disguised by the zoo authorities to look like a zebra. Do you know that these animals are not mules cleverly disguised by the zoo authorities to look like zebras?

In the thought experiment above quoted, Dretske claims one *knows* the animal is a zebra but *does not know* that it is not a cleverly disguised mule, irrespective of the former fact trivially entailing the

[5] Significant works that express concern over the tenability of Closure in this sense include Brueckner [1] and Goldman [11].

Nonetheless, a great number (perhaps the majority) of epistemologists hold the validity of Closure in high regard. For a seminal defense of Closure, *cf.* Hawthorne [12].

[6] Concerning the extensibility of logical entailment to similarly "informal" operators, Dretske ([9], *p.* 13) advances the following – perhaps somewhat disingenuous – comparison:

> Why must S know Q to be true? Why does one have to know everything one knows to be implied by what one knows? One doesn't, after all, have to regret everything one knows to be implied by what one regrets.

This *disingenuity* of Dretske's comparison, we claim, arises when one considers the intrinsically *continuous* nature of the operator *"regrets"* – it is perhaps uncontroversial to remark that *regret* exists to a variable degree, in contradiction to the epistemological discretion to which *knowledge* conforms (or, rather, to which we claim knowledge to conform).

Legitimacy here is admittedly vague; Dretske's notion of the *penetration* of an epistemic operator, however, absolves this sentiment of precisely this vagueness. This notion is explored further later in the essay.

latter. Phrased alternatively, Dretske contends that one's knowing of the *entailed* fact is irrelevant to one's *justification* for knowing the *entailing* fact. The sceptic may escape Dretske's contention in two immediately obvious ways: firstly, by arguing that, in the given situation, if one knows the animal *is* a zebra, one would indeed know that the animal *is not* a painted mule; and secondly, by arguing that one *does not have the capacity to know* (and thus *would not at once know*) even that the animal *is* a zebra. As characterised here, we intend the latter recourse to be interpreted simply an instance of radical scepticism.

In formulating a defense of the former path of recourse, we introduce briefly Dretske's spectrum of *epistemic operators.* Dretske's spectrum, occupied by operators of varying degrees of *penetration,* is constituted roughly by three divisions; *non-penetrating, semi-penetrating* and *fully penetrating.* Intuitively, we regard an operator's *penetration* to be a measure of the applicability of the same operator to a statement's consequent, provided the operator's fixture to the statement's antecedent. A non-penetrating operator, at one extreme, concerns those ambiguous operators *usually* not transmissible from antecedent to consequent – Dretske gives the examples of *'it is strange that', 'it is accidental that'* and *'it is a mistake that',* which *'[...] fail to penetrate to some of the most elementary logical consequences of a proposition'* (Dretske [6], *p.* 1008). At the other extreme, fully penetrating operators are precisely those operators O that satisfy the condition $(\varphi \implies \psi) \implies [O(\varphi) \implies O(\psi)]$; *'it is true that', 'it is a fact that', etc.* Semi-penetrating operators, on Dretske's view, therefore occupy the midpoint of the spectrum.

Where on the spectrum does the epistemic operator we are principally concerned with lie? Dretske submits that *all* epistemic operators are semi-penetrating; *knowledge*, for Dretske, thus occupys a point squarely in the middle of the spectrum. The point of contention to be brought into consideration lies in Dretske's conclusion that this serves as an adequate refutation of scepticism.

An agreeable common ground shared with Dretske is the semi-penetrating nature of the epistemic operator. We can imagine[7] a *semantically complete* deductive system, wherein all semantically valid consequences are derivable, and such that all primitive deductive rules are manifestly valid by condition of an agent's use of the system.

Dretske expresses his concern for why the epistemic operators – "*knows*", specifically – fall short of being fully-penetrating by covertly appealing to Closure's minimal requirement of *logical* entailment (as opposed to the necessary condition of *known* entailment, as earlier discussed). As we have described Closure, and as Dretske's own admission would suggest, "*knows*" appears to be fully penetrating; this, however, does not follow. If *"knows"* is closed under individual deductive inference, it is closed generally under semantic consequence. It is certainly conceivable, within such a semantically complete deductive system, that not all entailment are codifiable.[8] Of what greater relevance is this observation? Precisely that Dretske's claim that the epistemic operators are semi-penetrating is tenable; but, as noted by Lycan [17], they are 'much closer' to being fully penetrating as contrasted to flatly non-penetrating. The semi-penetrative capacity of the epistemic operators, therefore, is *sufficient* to counter Dretskean anti-scepticism.[9]

Moreover, the *relevant alternatives* theory (RAT), as propounded initially by Dretske [7] and Goldman [11], appears also to do little in the way of refuting Closure. In *The Pragmatic Dimension of Knowledge,* Dretske summarises in brief the core thesis of RAT (Dretske [7], *p.* 367):

[7] As indeed Dretske does, albeit to a degree less explicit; *cf.* Dretske [6], *p.* 1010.

[8] Concerning this point, Lycan [17] provides the examples of the 'propositional calculus' and the 'various complete modal logics'.

[9] Of the animal in question, we can safely say that its *being a zebra* semantically entails its *not being a cleverely disguised mule* rather than a zebra:

> Knowledge [is] an evidential state in which all relevant alternatives [to what is known] are eliminated.

Dretske offers the following deductive argument, which – as interpreted in the most immediately obvious manner – he takes to be tenable:

P1′	I know that the animal is a zebra	
P2′	I know that if the animal is a zebra, then the animal is not a cleverly disguised mule	
C′	I know that the animal is not a cleverly disguised mule.	(P1′, P2′)

We allow Stine to outline the suspicion of the above deduction (Stine [22], *p.* 255):

> In Dretske's zoo example, the animal's being a mule painted to look like a zebra is not a relevant alternative. So what one means when one says that John knows the animal is a zebra, is that he knows it is a zebra, as opposed to a gazelle, an antelope, or other animals one would normally expect to find in a zoo.

That is to say, we cannot merely take the deduction as *prima facie* valid; as noted by Heller ([13], *pp.* 197–98), the epistemic operator *"knows"* is 'flagged with a hidden parameter', precisely a set of relevant alternatives *contingent on context*. Stine continues (*Ibid.*):

> If, however, being a mule painted to look like a zebra became a relevant alternative, then one would literally mean something different in saying that John knows that the animal is a zebra from what one meant originally and that something else may well be false. [According] to Dretske, so long as the animal's being a mule painted to look like a zebra is not a relevant alternative, the fact that John does not know that it is not does not count against John's knowing that it is a zebra.

As illustrated below, we can contrast Dretske's characterisation (the leftmost deduction) with what we assert to be the correct interpretation (the rightmost deduction):

$$\frac{K_a[Z(\varphi)] \qquad K_a[Z(\varphi) \implies \neg M(\varphi)]}{K_a[\neg M(\varphi)]} \qquad \frac{K_a^{RA}[Z(\varphi)] \qquad K_a[Z(\varphi) \implies \neg M(\varphi)]}{K_a^{RA'}[\neg M(\varphi)]}$$

Where, in the premiss $K_a^{RA}[Z(\varphi)]$, the superscript RA denotes knowledge *relevant* to the domain of the *proposition operated upon* ($Z(\varphi)$); RA', therefore, denotes a distinct set of relevant alternatives. Concerning the domain of alternatives relevant to both $P1'$ and C', Pryor concisely expounds upon the *contextual inconsistency* that Stine considers a 'logical sin akin to equivocation'[10] (Pryor [21], *p.* 2):

$$\dfrac{Z(\varphi) \qquad \dfrac{M(\varphi) \wedge \neg Z(\varphi)}{\neg Z(\varphi)}\ \text{(Conjunction Elimination)}}{Z(\varphi) \wedge \neg Z(\varphi)\ \text{(Conjunction Introduction)}}$$
$$\bot$$

[10] *cf.* Stine [22], *p.* 256:

> [My] account holds the set of relevant alternatives constant from beginning to end of the deductive closure argument. This is as it should be; to do otherwise would be to commit some logical sin akin to equivocation.

> When we consider [P1′], the mule-possibility is not likely to jump out at us, so we won't regard it as relevant. But when we consider [C′], then the mule-possibility does strike us as relevant. But what has happened here is that the context has changed. The context has changed because what epistemic possibilities we take seriously has changed. In the old context, the mule-possibility is not a relevant alternative, and so doesn't need to be ruled out; in the new context, it is relevant, and so does need to be ruled out. In no single context do we find any violation of Closure.

In analysing the validity of an argument, the absence of the 'equivocation' between premisses and conclusion must be assuredly absent. An argument subject to a *shifting of references* thus incurs an analysis which is, at best, fallacious. *Pace* Dretske, it is not assuredly the case that the foregoing deduction is absent of equivocation, for there is a distinct shift in reference from the set of relevant alternatives RA to the *vastly greater* set RA'. Dretske's deduction, far from a *counterexample* to Closure, is not even initially an *instance* of Closure.[11]

Therefore, we claim that the criticisms Dretske has levied against Closure do not adequately defeat the Sceptical Argument.

The anti-sceptic, as we have characterised him thus, may attack the Sceptical Argument instead by *explicitly* targeting its second premiss, P2. According to Nozick's *tracking* conception of truth (Nozick [19], *pp.* 23–27), an agent *a knows* a proposition φ *if and only if* the following criteria are satisfied:

1 φ is true,
2 a believes that φ,
3 If φ *were not* true, a *would not* believe that φ, and
4 If φ *were* true, a *would* believe that φ.

As such, *knowledge* is precisely an agent's satisfaction of the above criteria, representable symbolically:[12]

$$\frac{\varphi \qquad B_a(\varphi) \qquad \Box[\neg\varphi \implies \neg B_a(\varphi)] \qquad \Box[\varphi \implies B_a(\varphi)]}{K_a(\varphi)}$$

Nozick's theory at once presents a challenge to the skeptic. We draw attention to the counterfactual third criterion (the *Sensitivity* principle), and show that there indeed exists instances of *'valid knowledge'* – according, of course, to Nozick – which violate Closure.

Consider performing Nozick's deduction such that the proposition φ is the condition of one's *having hands*. One's having a true belief that one has hands is certainly sufficient to satisfy the initial two conditions. The counterfactual conditions are similarly satisfied: in the *closest possible worlds* where one does not possess hands, perhaps those worlds were one suffered an accident (and is indeed aware

[11] As a brief aside, and indeed to the convenience of the sceptic, the failure of Closure may not necessarily even be relevant to those instances where the sceptic may appeal to closure. To briefly consider an observation of Vogel ([24], *p.* 25; for brevity, we will not consider the specifics of the *'Car Theft Case'*):

> [...] Dretske's Zebra Case does not, on my view, provide a genuine counterexample to the Closure Principle. It seems more plausible that there is a violation of closure in examples like the Car Theft Case. However, even if the Closure Principle does fail in cases of that sort, there is, I maintain, no reason to believe that such a failure carries over to the contexts where the skeptic may appeal to closure.

[12] We follow Dancy [3] in notation: the modal prefix $\Box$ (*necessarily*) indicates the *counterfactual* or *subjunctive* nature of the subsequent conditional.

of having suffered precisely this accident), one would not, by nature of the *closeness* of these possible worlds, believe that one has hands. Further, the close worlds where one has hands and has true belief that one has hands are exactly comparable to the actual world, and thus we observe the full satisfaction of Nozick's range of criteria.

Suppose, however, that one has a true belief that one is *not a brain in a vat.* Contrary to the more propitious supposition of having hands, the third of Nozick's conditions – the first such counterfactual condition – fails to be satisfied in this instance, for in the closest possible world where one *is* a brain in a vat one would nonetheless believe this not be the case. We arrive, by Nozick's admission, at an outwardly valid instance of Closure failure (Nozick [19], *p.* 38):

> It is clear that any account that includes as a necessary condition for knowledge the subjunctive condition (3), $[\Box[\neg\varphi \implies \neg B_a(\varphi)]]$, will have the consequence that knowledge is not closed under known logical implication.

If we contend that Closure *always* holds, the foregoing consideration bears significance as it renders Nozick's theory *by necessity* misguided; that is, if we grant the veracity of this contention, Nozick's theory has not illuminated a flaw in Closure, but rather *vice versa.*

We have, if indeed not unassailable certainty, *good intuitive reason* to believe in the integrity of Closure. But what of the sceptic who does not take *all instances* of Closure to be valid? Leite, for instance, asserts that we *'should'* grant that tracking entails the rejection of Closure.[13] However, Leite forthrightly concludes: the *tracking account of knowledge is incorrect, sensitivity is incorrect,* and the sceptic *does not need to presuppose sensitivity.*[14] Therefore, we claim, provided even the failure of Closure in some instances, the Sceptical Argument is not unequivocally surmounted by Nozick's effort.[15]

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[13] *cf.* Leite [15], *pp.* 344–345:

> In sum, Nozick claims [...] the tracking account of knowledge entails the denial of Closure [...]. [This] should be granted.

[14] *Ibid.:*

> [...] 1) Closure and Sensitivity are incompatible; [...] 3) The tracking account of knowledge is incorrect; 4) Sensitivity is correct; 5) The skeptic must presuppose sensitivity [...]. I have argued that claims (1), (3), (4), and (5) are incorrect.

Leite's lengthy justification for these conclusions is given by way of an example (inspired by Leite's own admission from McDowell [18]). For brevity we must omit the details of the argument, but it is worth noting that we submit that it indeeds holds as a valid counterexample to Nozick.

[15] Additionally, Lehrer levies a counterargument against the counterfactual conditions propounded by Nozick (Lehrer [14], *pp.* 393–394):

> Some forms of externalism repudiate justification as a condition of knowledge, according to Nozick and Dretske, for example. Such accounts may provide an interesting account of what it is like for belief to constitute correct information or to track truth, but they provide no account of knowledge. The reason is that no one knows that what she accepts is true when it would have been just as reasonable for her to have accepted the opposite on the basis of her information. A necessary normative condition of a person knowing that $[\varphi]$ is that it be more reasonable for her to accept that $[\varphi]$ than to accept the denial of $[\varphi]$ on the basis of her information. This condition implies the need for a justification condition [...].

Lehrer appears, therefore, to suggest a less stringent theory of knowledge, perhaps of the following form:

1 φ is true,
2 a believes that φ,
3 a has good reasons for believing φ, as directly opposed to believing $\neg\varphi$, on the basis of her information.

We focus on Nozick's analysis in order to show that considerably strict and exact theories concerning knowledge still fall short of overthrowing the Sceptical Argument (*viz.,* by way of denying P2). *A fortriori*, the tripartite analysis offered by Gettier [10], for example, falls short also, as a far greater degree of liberty (*i.e.*, an allowance of instances of *epistemic luck*[16]) is employed in Gettier's analysis when contrasted with Nozick's tracking conception. Gettier-style epistemological theory, therefore, is far from escaping the reach of skepticism; rather, its invalidity is trivially entailed by the demonstrated insufficiency of Nozick's offering.

We appreciate that *"knowledge"* is incontrovertibly polysemous, and the manner in which we have purported to understand it does not make provision for a satisfactory refutation of P2. To explicitly address our initial thesis, the condition under which the argument *proves* that one *does not know that one has hands* – that is, a particularly epistemologically parsimonious conception of knowledge – is precisely the condition we have attempted to identify as discrete from (*viz.,* conclusively unaffected by) the foregoing theories. It is patently obvious that one may have good reason to believe that one has hands; but, self-evidently, the standards of knowledge are far greater than those of mere belief. Therefore, whilst we fall short of reaching the radical skepticism of, say, Unger[17] – insofar as we don't necessarily suppose that *nothing* can be known[18] (for this is not strictly entailed by the Sceptical Argument) – we arrive squarely within the domain of traditional Cartesian scepticism.

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The above, however, immediately faces Gettier problems of the kind outline by Lewis ([16], *p.* 508):

> I think that Nogot owns a Ford, because I have seen him driving one; but unbeknownst to me he does not own the Ford he drives, or any other Ford. Unbeknownst to me, Havit does own a Ford, though I have no reason to think so because he never drives it, and in fact I have often seen him taking the tram.

Substituting *'Nogot or Havit owns a ford'* for φ, we can see the above conditions are satisfied for some agent a; there remains, however, suspicion in claiming that a knows φ, for her belief is correct *only by virtue of coincidence.*

[16] *cf.* Pritchard [20] for an analysis of *epistemic luck.*

[17] For a concise explication of Unger's scepticism, *cf.* [23].

[18] Returning briefly to our examination of the semi-penetrating epistemic operator with regards to Dretske's objections, we observe that to propose *nothing* can be known would render the given defense at best superfluous; for, if indeed nothing can be known in this Ungerian sense, the penetrative capacity of the operator in question may be made all but irrelevant.

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