



THE UNIVERSITY *of* EDINBURGH

Edinburgh Research Explorer

Sensitivity Theorists aren't unhinged

Citation for published version:

Collin, J & Bolos, A 2020, 'Sensitivity Theorists aren't unhinged', *Erkenntnis*. <https://doi.org/10.1007/s10670-019-00206-2>

Digital Object Identifier (DOI):

[10.1007/s10670-019-00206-2](https://doi.org/10.1007/s10670-019-00206-2)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Publisher's PDF, also known as Version of record

Published In:

Erkenntnis

General rights

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact openaccess@ed.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.





Sensitivity Theorists Aren't Unhinged

James Henry Collin¹ · Anthony Bolos²

Received: 10 January 2019 / Accepted: 16 December 2019
© The Author(s) 2020

Abstract

Despite its intrinsic plausibility, the sensitivity principle has remained deeply unpopular on the grounds that it violates an even more plausible closure principle. Here we show that sensitivity does not, in general, violate closure. Sensitivity only violates closure when combined with further auxiliary premises—regarding which of an agent's commitments constitute that agent's beliefs—which are optional for the sensitivity theorist.

1 Setting up the Problem

Here are two plausible and intuitive claims regarding knowledge: (1) we can expand our knowledge through competent deduction and (2) knowing that *p* requires that one have the ability to distinguish that *p* from that not *p*. The first claim, it is often thought, can be expressed in the following way:

The Closure Principle

If *S* knows that *p*, and *S* competently deduces from that *p* that *q*, thereby forming a belief that *q* on this basis while retaining her knowledge that *p*, then *S* knows that *q*.¹

The second claim can be expressed as a modal condition²:

¹ See Luper (2016) for an overview of closure principles. We take this formulation to be the most plausible. The closure principle here is, more specifically, a *transmission* principle. Transmission principles are, of course, kinds of closure principles. See e.g. Wright (1985), and Tucker (2010) for discussions of this distinction. Here, and elsewhere, we follow the standard ungrammatical practice of using 'p' and 'that p' interchangeably.

² That sensitivity captures the discrimination condition for knowledge is uncontroversial. For Nozick (1981), this was a fundamental reason to endorse sensitivity. See Bolos and Collin (2018) for more on this.

✉ James Henry Collin
james.collin@ed.ac.uk

Anthony Bolos
tonybolos@yahoo.com

¹ Department of Philosophy, University of Edinburgh, Edinburgh, UK

² Department of Philosophy, Universidad Católica San Pablo, Arequipa, Peru

The Sensitivity Principle

S's belief that p is sensitive if and only if, were that p false, S would not believe that p via the method _{n} S actually uses in forming the belief that p .³

The problem is that these two principles are at odds, or so it seems.⁴ Simply put, sensitivity, it's argued, violates closure. To see this, suppose I come to know, by the usual methods involved in coming to know such things, that I am typing on a computer. This is an uncontroversial knowledge attribution and the sensitivity requirement does its job here. In the closest possible world where that p is false (where I am not typing on a computer), I don't believe that I am typing on a computer. In other words, in my environment I can discriminate between typing on a computer and not typing on a computer. But if I know that I'm typing on a computer, then, supposing I make the relevant competent deduction, it follows, by the closure principle, that I know that I'm not a BIV.⁵ This second item of purported knowledge, though, fails the sensitivity test.⁶ In the closest possible world(s) where p is false (where I am a BIV), I continue believing that I am not a BIV. From this, it follows that you can know you are typing on a computer without knowing you are not a BIV. Closure fails. Ironically, for some, this is the upshot of what is usually taken to be another attractive feature of sensitivity: that one cannot know the negations of skeptical hypotheses. According to this line of thought, sensitivity gets it right, and closure needs to either be rejected or adapted to accommodate the sensitivity condition. This option has not been a popular one. The prevailing, indeed near universal, opinion amongst epistemologists is to save closure at the expense of sensitivity.⁷ Our aim here is not to challenge this intuition but to present another option, one which respects our intuitions about knowledge by maintaining both closure and sensitivity. In the option we present, closure and sensitivity can both be endorsed. This possibility is opened up so long as not every proposition competently deduced from a known proposition whilst retaining knowledge of that known proposition counts as a *belief*. Incidentally, there is an active research programme that provides principled grounds for making exactly this claim: Pritchard's broadly Wittgensteinian (or Prittgensteinian) account of hinge commitments and belief.

Before turning to the details of the argument, it's important that one not overlook the considerable consequences this might have for epistemology. In the first place,

³ See Becker (2007) for this statement of the sensitivity principle, and Dretske (1970) and Nozick (1981) for earlier versions. The subjunctive conditional here is understood in the usual way (Stalnaker (1968)): in the closest possible world(s) in which that p is false, S does not believe that p using the method _{n} S actually uses in forming the belief that p . Methods _{n} , in the sense Becker has in mind, are to be individuated narrowly and in a content-specific way. See Becker (2012, 91).

⁴ The conflict between these two principles has been widely discussed and we won't repeat these arguments in any detail here. See Dretske (1970) and Nozick (1981).

⁵ A brain-in-a-vat. See Harman (1973, 5).

⁶ It is for this reason that Dretske (1970) and Nozick (1981) rejected this formulation of closure. Note, however, that their version of closure is not the same as the one we are endorsing here.

⁷ Becker (2007), though, rejects closure in favour of sensitivity. It is apparently not well known that Nozick (1981) did not reject closure altogether, but suggested his own elaborated closure principle, which is not incompatible with sensitivity. See Baumann (2012) for discussion.

the notion that sensitivity must be incompatible with closure is so widespread and deeply engrained that showing this to be false would, in itself, mark a real advance on our corporate understanding of the relationship between these two important principles. In the second place, while many are convinced (rightly, in our view) that there must be some modal condition on knowledge, almost as many are convinced (wrongly, in our view) that this must be a safety rather than a sensitivity condition, in order to hold on to closure. But safety and sensitivity produce different results for what counts as knowledge across a range of cases. If sensitivity should be given serious consideration after all, then our judgements about what counts as knowledge across this range of cases may well be reshaped.

2 Two Preliminaries: Hinge Commitments and the Über Hinge

We are claiming that there is a way to understand the nature of belief which maintains the compatibility between sensitivity and closure. In order to see this, we will briefly outline the Pritchard view of hinge commitments. The metaphor of a hinge comes from Wittgenstein's *On Certainty*:

The questions that we raise and our doubts depend upon the fact that some propositions are exempt from doubt, are as it were like hinges on which those turn. That is to say, it belongs to the logic of our scientific investigations that certain things are indeed not doubted... if I want the door to turn, the hinges must stay put. (OC, §§341–43).

The guiding idea here is that our commitments are not rationally evaluable *in toto*.⁸ Rather, the very nature of a system of rational evaluation is such that it is essentially *local*. One cannot doubt all of one's commitments; agents must have "fundamental commitments that are themselves immune to rational evaluation, but that need to be in place in order for a rational evaluation to occur,"⁹ including the claims that one is not a BIV, that one knows one's own name, that one has never been to the moon, that the past exists, and so on. The necessary structure of rational evaluation is such then that local or piecemeal rational evaluations of some commitments require one to have other commitments that are necessarily rationally groundless. Hinge commitments are those fundamental commitments that are immune to rational evaluation.

⁸ Though Pritchard does not make it explicit, based on what he says, it seems clear that he is understanding commitments in a *normative* way, along broadly the same lines as Brandom (1994, 2000). In this sense of 'commitment' it is possible to have or undertake a commitment without *acknowledging* that commitment, or being cognizant of it in any way. For instance, if one undertakes (perhaps consciously and explicitly) a commitment to the truth of the axioms of Peano arithmetic, one thereby undertakes a commitment to the infinitely many consequences of those axioms, even though they will not be cognizant of an (also infinitely large) subset of those consequences. Commitments follow from and are presupposed by other commitments. See Collin (2017) and Carter et al. (2017) for a concise discussion of the normative understanding of commitments.

⁹ Pritchard (2016, 66).

As well as one having a number of individual hinge commitments, there is one special hinge commitment, the *über hinge commitment*: that one is not “radically and fundamentally mistaken in one’s beliefs.”¹⁰ According to Pritchgensteinians, that one is not radically and fundamentally mistaken in one’s beliefs is, by its very nature, not the sort of thing that is up for rational evaluation. As such, that one is not radically and fundamentally mistaken in one’s beliefs is a commitment one must undertake without first (or ever) having rational grounds to support it. Moreover, and for obvious reasons, one must first have this commitment before rationally evaluating other claims. For example, suppose you want to rationally evaluate the belief that there is milk in the fridge. The belief in question—that there is milk in the fridge—cannot be rationally evaluated without already having undertaken a commitment that you are not radically and fundamentally mistaken in your beliefs. For, if you did not trust your belief-forming practices in general, then the sorts of things that, in normal circumstances, would lead you to have reasons to believe that there is milk in the fridge—such as there appearing to be milk in the fridge, or receiving testimony that there is milk in the fridge— would no longer supply you with any such reasons.¹¹

One more point is in order. Consider the following quote, from Pritchard, regarding the relationship between beliefs and hinge commitments:

[I]t makes no sense ... for there to be an agent who believes that *p* while taking herself to have no reason whatsoever for thinking *p* to be true. A fortiori, it does not make sense for an agent to believe that *p* while taking herself to have overwhelming reasons for thinking that *p* is false. ... But if that’s right, then if we take seriously Wittgenstein’s suggestion that our hinge commitments are by their very nature never the result of rational processes nor responsive to rational processes, then we are obliged to reject the idea that we could have hinge *beliefs* altogether.¹²

The idea here is that hinge commitments, though propositional attitudes, are not properly thought of as beliefs, because they are not full participants in the practice of giving and asking for reasons.

¹⁰ Ibid., 95.

¹¹ Pritchard holds that more local hinge commitments ‘flow’ from or ‘codify’ the *über hinge commitment*. What he seems to have in mind here is the thought that rejecting a hinge commitment would involve undertaking a commitment that precluded entitlement to the *über hinge commitment*. For instance, if I held that I was a BIV or mistaken about my own name, then I would also become committed to my belief-forming practices being completely unreliable and hence “radically and fundamentally mistaken in [my] beliefs”. Hinge commitments then are unified in the following way: if one had reason to doubt any of one’s hinge commitments, one would have reason not to trust one’s own most fundamental belief-forming practices.

¹² Ibid., 90–91.

3 Solving the Problem

Our goal is not to defend the Prittgensteinian project, though we find it plausible.¹³ Instead what we claim is that this epistemological package entails that sensitivity does not need to violate closure. To put things differently, sensitivity only violates closure when combined with the auxiliary hypothesis that we have no hinge commitments, and there is no reason for sensitivity theorists, *qua* sensitivity theorists, to deny that we have hinge commitments. Closure violation is thought by many to disqualify sensitivity in the first instance, so the point is worthy of attention. Recall that the purported problem is that closure entails that S knows that she is not a BIV, whilst sensitivity entails that S does not know that she is not a BIV. Why then is this purported problem not a problem after all? Closure is supposed to capture the platitude that we can extend our knowledge through competent deduction. However, consider the proposition that Julius Caesar led his army across the Rubicon. From that proposition one can competently deduce, for example, that Caesar led his army across something, but one can also competently deduce that, for example, that the world was not created five minutes ago with faux traces of a past. The former is a legitimate, if trivial, case of extending one's knowledge through competent deduction, but the latter, if (erroneously) understood as a case of knowledge-extension via competent deduction, would be a spooky piece of epistemic boot-strapping. Although we can extend our knowledge through competent deduction, competent deduction cannot be a wholly *unrestricted* route to knowledge-extension, or knowledge would be cheaply gained indeed. With that in mind, consider again the closure principle:

The Closure Principle

If S knows that *p*, and S competently deduces from *p* that *q*, *thereby forming a belief* that *q* on this basis while retaining her knowledge that *p*, then S knows that *q*. (our italics)

The *thereby forming a belief* clause is key here, because hinge commitments, as we have seen, are not beliefs, since they are not subject to rational evaluation. Now we are in a position to see that the supposed problem case is not a violation of closure after all. The agent may competently deduce the proposition that she is not a BIV, but she cannot form a *belief* that she is not a BIV on this basis because that she is not a BIV is a hinge commitment. That we are not a BIV flows from the über hinge, in the way described above, and is something we need already to be committed to before we can ever lay claim to ordinary knowledge claims (e.g., that I know that I am typing on a computer). In other words, the most influential objection to sensitivity—that our beliefs about the negations of skeptical hypotheses are insensitive, and, hence, that sensitivity must violate closure—fails.

¹³ Not least of all because the anti-Prittgensteinian faces the formidable task of explaining exactly how one could, even in principle, have rational grounds to hold the über hinge that are somehow epistemically *prior* to the über hinge. If there are no such grounds then that the über hinge is indeed a hinge commitment must be conceded.

A note of clarification is in order. Could one, for some proposition that q , have *both* a hinge commitment that q *and* a belief that q ? If this is a possibility, then perhaps a subject S could, through the kind of competent deduction described by the Closure Principle, form a *belief* that q , where that q is the denial of a skeptical hypothesis. In that case, the apparent incompatibility between closure and sensitivity would reappear. According to the Prittgensteinian however, this is *not* a possibility. Prichard's (2016, 91) conclusion that 'we are obliged to reject the idea that we could have hinge *beliefs* altogether' is an integral part of the Prittgensteinian package. Both beliefs and hinge commitments involve taking a proposition to be true. However, for the Prittgensteinian, if a commitment is 'by [its] very nature never the result of rational processes nor responsive to rational processes' (ibid.) then it is a hinge commitment. Beliefs, on the other hand, are by their very nature, the result of rational processes or responsive to rational processes. In other words, any given commitment cannot both be a belief and a hinge commitment, because a commitment cannot both be responsive to and not responsive to rational processes. Having a hinge commitment may feel to some, phenomenologically, just like having a belief. They may (as philosophers often do) even describe it as a 'belief'. But, according to the Prittgensteinian understanding of hinge commitments and beliefs, they are mutually exclusive categories, because of their different roles in rational processes.¹⁴

A final comment is required, because if there are cases where S knows that p , and S competently deduces from p that q , thereby forming a (*bona fide*) *belief* that q on this basis while retaining her knowledge that p , where p is sensitive and q is not, then sensitivity still violates closure. As we have seen, that one is not a BIV is not a case of this, since one's commitment to not being a BIV is not properly thought of as a belief but as a hinge commitment. But could there be other cases in which, via competent deduction from known propositions and in line with the closure principle, one can arrive at *beliefs* that are insensitive? If so, sensitivity would, after all, violate closure, as the closure principle entails that these count as knowledge.¹⁵ Cleverly disguised mules may be thought to be problematic here.¹⁶ At the zoo I see a zebra. I form the true belief p , that what is front of me is a zebra. From p I competently deduce q , that what is in front of me is not a cleverly disguised mule, whilst retaining my knowledge that p . However, in the closest possible world where q is false (there actually is a cleverly disguised mule in front of me), I continue believing that q . The problem here is that this belief is not sensitive and therefore, according to

¹⁴ We thank an anonymous referee for pressing us to clarify this point.

¹⁵ One such case is suggested by Kripke (2011). In environments populated with both green barn façades and red genuine barns, an agent's belief that *This is a red barn* will be sensitive whereas the belief that *This is a barn* will not. Isn't this a genuine case of closure failure for sensitivity? We take it that Becker's (2012) proposal successfully deals with this case. It seems clearly wrong to classify the agent as failing to know that *This is a barn* whilst knowing that *This is a red barn*. Instead, the agent seems to lack knowledge of both these propositions. Becker's proposal, roughly speaking, is to first notice that the proposition *This is a red barn* has the logical form *This is a barn* and *this is red*, and to point out that belief in a conjunction is only sensitive if belief in each conjunct is sensitive. Closure doesn't fail in this case, because the sensitivity principle itself rules out knowledge of the proposition that this is a red barn.

¹⁶ This kind of case was first introduced by Dretske (1970), who took it to show that tracking accounts of knowledge were incompatible with closure.

the sensitivity condition, not knowledge. So, we have a violation of closure. But the problem is chimerical. We can see this by recognizing that cleverly disguised mule scenarios divide into two kinds of cases: realistic cases and idealized cases. Take the realistic case first. Real mules painted with stripes to look like zebras (they really exist) look like nothing of the sort; they look like painted mules.¹⁷ In realistic cases one *can* discriminate between zebras and cleverly disguised mules and my commitment that what is in front of me is not a cleverly disguised mule *is* in fact sensitive. In cases like these then, the problem does not so much as arise.

Take now the idealized case. In the idealized case we stipulate that, in fact, the faux zebra is indistinguishable from the real zebra; that is to say, I cannot discriminate between the real zebra and the faux zebra. (Note that we *have* to stipulate this in order for there even to be the *potential* for sensitivity to violate closure.) If we idealize the scenario enough to ensure the mule substitute is indistinguishable from a real mule there is still no problem for the sensitivity theorist, but for a different reason: it is a hinge commitment that perceptually indistinguishable faux versions of the real thing have not been substituted for the objects of our everyday experience. Worlds in which perceptually indistinguishable faux versions of the real thing are substituted for the objects of our everyday experience *are* sceptical scenarios; if this was taking place, we would be radically mistaken about vast swathes of our everyday beliefs. In other words, a commitment to the proposition that perceptually indistinguishable faux versions of the real thing are not substituted for objects of our everyday experience 'flows' from or 'codifies' the über hinge. Being committed to the über hinge involves being committed to the proposition that everyday objects of experience are not substituted for faux versions of the real thing. If we took it that this was happening we would have to concede that our belief-forming practices were radically unreliable, and hence that we were radically and fundamentally mistaken in our beliefs. One must already be committed to this not being the case in order to go in for the game of rationally grounding beliefs in the first place. In this sense, the commitment that what I see is not a perfectly constructed faux zebra is clearly in the same boat as the commitment that I know my own name.¹⁸

Disguised mule cases are structurally similar to others in the literature. Cohen (1988, 1999, 2002) considers a scenario in which one comes to know that a table is red on the basis of its looking red. Through the kind of competent deduction described by the Closure Principle, one comes to hold that it is not the case that the table is white but illuminated with red lights.¹⁹ As with the disguised mule, we can imagine red table cases of broadly two sorts: realistic cases and idealized cases. Real white tables illuminated with red lights *look like* white tables illuminated with red

¹⁷ See, for instance, BBC (2018).

¹⁸ Note that some scenarios in which zebras may be substituted for cleverly disguised mules are such that the belief *That what is in front of me is a zebra* is already insensitive and so, by the sensitivity theorist's lights, not knowledge. This happens when the closest possible world in which the proposition is false (i.e. where that which is in front of the agent is not a zebra) is (e.g.) one in which a perceptually indistinguishable faux zebra *has* been substituted for the real thing. In these cases, for obvious reasons, there is no scope for sensitivity to violate closure.

¹⁹ We thank an anonymous referee for suggesting we compare the disguised mule case to this one.

lights, because of the uneven way lightbulbs distribute light on a flat surface, interference from other light sources, and so on. As with realistic cases of painted mules, one can discriminate between red tables and white tables illuminated with red lights. In the closest world in which the table *is* white but illuminated with red lights, one does not form the belief that it is *not* white and illuminated with red lights. As such, an agent's commitment that what lies in front of her is not a white table illuminated with red lights, is sensitive. Here, closure and sensitivity cannot clash.

Take now the idealized case. In the idealized case the white table illuminated with red lights is *ex hypothesi* visually indistinguishable from the red table. Reflection on what it would take for this to be the case highlights how exotic this kind of scenario really is. We must imagine the red lights to (somehow) be entirely hidden from view, that they (somehow) distribute light on the surfaces of the table so evenly as to make it indistinguishable from a red table, that (somehow) other light sources are not interfering so as to make the red-light-illuminated white table perceptually distinguishable from the red one, and so on. As Black (2008, 605) rightly notes, we should conceive of this as a skeptical hypothesis. That fantastical scenarios such as these—which are *ex hypothesi* indistinguishable from the world as we take it to be—don't obtain, is, on the Prittgensteinian view, a hinge commitment, just as much as the commitment that fantastical BIV scenarios—which are *ex hypothesi* indistinguishable from the world as we take it to be—don't obtain. Since it is a hinge commitment that the table is not white but illuminated with red lights, in this idealized sense, closure and sensitivity again do not clash.

Consider a final related case. Suppose that a professor S knows that she is talking to a student Anne. Through the kind of competent deduction described by the Closure Principle, S comes to hold that she is not talking to an identical twin of Anne. Is the proposition that S is not talking to Anne's identical twin a hinge commitment?²⁰ As with the cleverly disguised mule, and the white table illuminated with red lights, how this goes depends on how one fleshes out the details. Again, it will be helpful to consider both an idealized case and more realistic cases. Take first a related idealized case. Say that you know that you are having a conversation with your older brother, who, to your knowledge, has no identical twin. Through the process described by the Closure Principle you competently deduce that you are not having a conversation with an identical twin of your brother. In this case, it seems clear that, for the Prittgensteinian, it *is* a hinge commitment that you are not in conversation with an identical twin of your brother. As with the idealized version of the white table illuminated by red lights, we should conceive of this possibility as a skeptical hypothesis. That your brother has not, in this instance, been replaced by a perceptually indistinguishable faux version of the real person, is a commitment you already bring to the table, prior to rationally evaluating whether the person you are speaking to is your brother. Because this is a hinge commitment, there can be no clash between sensitivity and closure.

At the other end of the spectrum, take a case in which S knows that her student Anne has an identical twin, Jan, and, moreover, that they are pranksters who often

²⁰ We thank an anonymous referee for suggesting we discuss this case.

pretend to be each other. This kind of case can also be accommodated, but for a different reason. In this case, S is not warranted in forming the belief that she is talking to Anne. Since closure involves competently deducing some proposition that q from a *known* proposition that p , closure will not give S knowledge that she is not talking to Anne's twin sister. This points to why twin scenarios, quite generally, can be accommodated. Consider more normal cases, in which S is aware that Anne and Jan are identical twins, but where they are not pranksters. A student comes to S's office. By her appearance alone, the student could be either Anne or Jan. If this is all S has to go on, S will not be warranted in forming a belief that the student is Anne, and will not be warranted in forming a belief that the student is Jan. As such, there is no danger of violating closure. Say however that the student has provided some extra identifying information (perhaps by saying "Hi, it's Anne here"). In this case, absent defeaters, S *does* know that she is talking to Anne. However, S's belief that she is not talking to Anne's twin, Jan, is also sensitive. Were it the case that S *was* talking to Jan, S would not believe that she was talking to Anne via the method S actually uses in forming the belief that she is talking to Anne. (Were it the case that S was talking to Jan, Jan would not introduce herself saying "Hi, it's Anne here".) The belief that has been competently deduced is itself sensitive. Here too then, sensitivity and closure fit nicely together.

4 Concluding Remarks

The standard, and influential, closure-based counterexample to sensitivity is not a counterexample after all. This means that a particularly attractive package of views becomes available. One can hold on to (i) a plausible closure principle; (ii) the plausible claim that we cannot know the negations of skeptical scenarios, *and* (iii) the plausible claim that knowledge of a proposition that p requires one to be able to discriminate between it being the case that p and it not being the case that p . There is a degree of irony here. In Pritchard's early work, he favored the safety condition over sensitivity, for the reason that sensitivity violated closure.²¹ His project now however has developed to a point at which it undercuts its original motivation for rejecting sensitivity. The Pritgensteinian package shows that sensitivity need not violate closure. Sensitivity theorists aren't unhinged after all.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

²¹ See Pritchard (2005).

References

- Baumann, P. (2012). Nozick's defense of closure. In K. Becker & T. Black (Eds.), *The sensitivity principle in epistemology*. Cambridge: Cambridge University Press.
- BBC News. (2018). Egypt zoo accused of painting donkey to look like a zebra. <https://www.bbc.co.uk/news/world-africa-44968509>. Accessed September 26, 2018.
- Becker, K. (2007). *Epistemology modalized*. New York: Routledge.
- Becker, K. (2012). Methods and how to individuate them. In K. Becker & T. Black (Eds.), *The sensitivity principle in epistemology*. Cambridge: Cambridge University Press.
- Black, T. (2002). A Moorean response to brain-in-a-vat skepticism. *Australasian Journal of Philosophy*, 80(2), 148–163.
- Black, T. (2008). Solving the problem of easy knowledge. *The Philosophical Quarterly*, 58(3), 597–617.
- Bolos, A., & Collin, J. H. (2018). A sensitive virtue epistemology. *Synthese*, 195(3), 1321–1335.
- BonJour, L. (1987). Nozick, externalism, and skepticism. In S. Luper (Ed.), *The possibility of knowledge: Nozick and his critics*. Rowman: Littlefield.
- Brandom, R. (1994). *Making it explicit*. Cambridge: Harvard University Press.
- Brandom, R. (2000). *Articulating reasons: An introduction to inferentialism*. Cambridge: Harvard University Press.
- Carter, A., Collin, J. H., & Palermos, O. (2017). Semantic inferentialism as (a form of) active externalism. *Phenomenology and the Cognitive Sciences*, 16(3), 387–402.
- Chisholm, R. M. (1966). *Theory of knowledge* (1st ed.). Upper Saddle River: Prentice Hall.
- Cohen, S. (1988). How to be a fallibilist. *Philosophical Perspectives*, 2, 91–123.
- Cohen, S. (1999). Contextualism, skepticism, and the structure of reasons. *Philosophical Perspectives*, 13, 57–89.
- Cohen, S. (2002). Basic knowledge and the problem of easy knowledge. *Philosophy and Phenomenological Research*, 65(2), 309–329.
- Collin, J. H. (2017). Human uniqueness and the normative conception of the rational. In M. Fuller, D. Evers, A. Runehov & K. Sæther (Eds.), *Issues in science and theology: Are we special?* (pp. 235–246). Cham: Springer.
- Dretske, F. (1970). Epistemic operators. *Journal of Philosophy*, 67(24), 1007–1023.
- Harman, G. (1973). *Thought*. Princeton: Princeton University Press.
- Kripke, S. (2011). Nozick on knowledge. In *Philosophical troubles (collected papers, volume 1)*. New York: Oxford University Press.
- Luper, S. (1984). The epistemic predicament: Knowledge, Nozickian tracking, and skepticism. *Australasian Journal of Philosophy*, 62(1), 26–49.
- Luper, S. (2016). Epistemic closure. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy, Spring 2016*. Stanford: Metaphysics Research Lab, Stanford University.
- Nozick, R. (1981). *Philosophical explanations*. Cambridge: Cambridge University Press.
- Pritchard, D. (2005). *Epistemic luck*. New York: Oxford University Press.
- Pritchard, D. (2012). Wittgenstein and the groundlessness of our believing. *Synthese*, 189, 255–272.
- Pritchard, D. (2016). *Epistemic angst: Radical scepticism and the groundlessness of our believing*. Princeton: Sochow University Lectures in Philosophy, Princeton University Press.
- Sosa, E. (1999). How to defeat opposition to Moore. *Noûs*, 33(13), 141–153.
- Stalnaker, R. (1968). A theory of conditionals. In N. Rescher (Ed.), *Studies in logical theory* (pp. 98–112). Oxford: Blackwell.
- Tucker, C. (2010). When transmission fails. *Philosophical Review*, 119, 497–529.
- Wright, C. (1985). Facts and certainty. *Proceedings of the British Academy*, 429–472. Reprinted in Williams, Michael (ed.). 1993. *Skepticism*. Aldershot: Dartmouth Publishing Company Limited, pp. 303–346.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.