Accuracy Monism and Doxastic Dominance:

Reply to Steinberger

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Abstract

Given the 'standard' dominance conditions used in accuracy theories for outright belief, epistemologists must invoke *epistemic conservatism* if they are to avoid licensing belief in both a proposition and its negation. Florian Steinberger (2019) charges the committed *accuracy monist* — the theorist who thinks that the only epistemic value is accuracy — with being unable to motivate this conservatism. I show that the accuracy monist can avoid Steinberger's charge by moving to a subtly different set of dominance conditions. Having done so, they no longer need to invoke conservatism. I briefly explore some ramifications of this shift.

Florian Steinberger (2019) has recently raised a problem for *accuracy monists* who think the sole epistemic good is accuracy. Central to Steinberger's complaint is that said monists lack the resources to rule out a class of accuracy functions which, when combined with the typical dominance rules, lead to troubling consequences. I reply on behalf of the monist that they can avoid Steinberger's problem by shifting to subtly different dominance rules. First, I'll briefly explain how the accuracy framework we're interested in works. Then I'll explain

Steinberger's problem case, and suggest that the core of Steinberger's objection differs slightly from its official statement. Lastly, I'll show how changing the dominance conditions can help us avoid the relevant unattractive consequences, and briefly comment on the implications of this change.

Accuracy epistemologists claim that, *ceteris paribus*, one's epistemic attitudes are better when they are in some sense 'closer to the truth' than further away. While most accuracy epistemologists have thus far been concerned with credences, there's been a recent upsurge of interest in the implications of accuracy for the epistemology of outright belief.[1] These accuracy frameworks make use of a formal setting like the following: we model an (ideally rational) agent's beliefs B as the (finite) set of propositions p that she believes. When neither p nor $\neg p$ are in B, then we treat our agent as suspending judgement on p.[2][3] Propositions themselves get modelled as sets of worlds w so that propositional conjunction corresponds to set intersection, disjunction to set union, entailment to the subset relation, and so on, in the usual way.

Once we have belief sets, we can define *accuracy functions* $\mathcal{A}$ which give us a precise, numerical assessment of how epistemically good or bad B is at some w; in other words, of how accurate our belief set is.

Definition 1 (Accuracy function)**.**

$$\mathcal{A}(B, w) = |\{p \in B : w \in p\}|T + |\{p \in B : w \notin p\}|F$$

Informally, what $\mathcal{A}$ does is count the true beliefs in B at w, count the false beliefs in B at w, and gives B a score of T for each true belief and F for each

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[1]See Joyce (1998), Greaves & Wallace (2005) and Pettigrew (2016) for paradigmatic credal accuracy epistemology. See Easwaran (2016), Fitelson & Easwaran (2015) and Dorst (2019) for paradigmatic accuracy-theoretic treatments of outright belief.

[2]Doubtless there is more to suspended judgement than this; we'll treat it as a harmless simplifying assumption. See Friedman (2013) for good discussion.

[3]My formal setup differs very slightly from that of Steinberger's but nothing material rests on this.

false belief.

Let's join these theorists in making the standard veritist, Jamesian assumption that $T > 0 > F$, i.e. believing truths is epistemically good, while believing falsehoods is epistemically bad. With these epistemic evaluations in place, accuracy theorists then appeal to dominance rules which, when invoked, rule out particular belief sets as irrational. We'll call these *global* dominance conditions, for they require evaluating a belief set at every possible world.

> **Strong Global Dominance:** If $\mathcal{A}(B', w) > \mathcal{A}(B, w)$ at all $w \in W$ then B is rationally impermissible.

> **Weak Global Dominance:** If $\mathcal{A}(B', w) \geq \mathcal{A}(B, w)$ at all $w \in W$ and $\mathcal{A}(B', w) > \mathcal{A}(B, w)$ at some $w \in W$ then B is rationally impermissible.

The thought being that it is irrational to adopt belief sets which are guaranteed to do worse than some other at some possible world, and never do better at any possible world. It gives us something like a 'third-personal' objective evaluation of the belief set. These dominance rules have some attractive properties. Easwaran (2016) shows that agents who satisfy them will obey single-premise closure. Fitelson & Easwaran (2015) suggest that the rules provide novel treatments of the well-known lottery and preface paradoxes.

However Florian Steinberger (2019, this journal) raises a problem for a particular kind of accuracy epistemologist: the *accuracy monist*, who thinks the only epistemic value is accuracy (the stuff represented by the scores of the accuracy functions described above).

Steinberger's objection centres on the following sort of case.

> **Coin Toss**: I toss a coin. You have to decide whether to believe HEADS, TAILS, both, or neither.

Let w_H be the world where coin lands heads, and w_T be the world where coin lands tails, so the proposition HEADS corresponds to $\{w_H\}$ and the proposition TAILS corresponds to $\{w_T\}$. Then our decision table is as follows:

Belief set	$\mathcal{A}(\cdot, w_H)$	$\mathcal{A}(\cdot, w_T)$
$\{\{w_H\}, \{w_T\}\}$	T+F	T+F
$\{\{w_H\}\}$	T	F
$\{\{w_T\}\}$	F	T
$\{\}$	0	0

For the accuracy monist who thinks that rational believers configure their belief set solely with accuracy in mind, reaction to this case is determined entirely by the values one gives to T and F. Steinberger describes three classes of accuracy function.

Definition 2 (Epistemic conservativism). $|F| > T$

Definition 3 (Epistemic centrism). $T = F$

Definition 4 (Epistemic radicalism). $T > |F|$

Epistemic conservatives disvalue false belief more than they value true belief; epistemic radicals value true belief more than they disvalue false belief; epistemic centrists attach as much value to true belief as they do disvalue to false belief.

Officially, Steinberger's complaint is this. It's clear that we should suspend judgement in cases like **Coin Toss**. But epistemic radicals are forbidden from doing so: by their lights, $T + F > 0$, meaning that belief in both HEADS and TAILS strongly globally dominates belief in neither. Therefore the accuracy monist cannot accommodate the judgement that we should suspend, because the accuracy monist can give no principled accuracy-centred reason against epistemic radicalism; against the prizing of believing truths over failing to believe falsehoods.

Steinberger is correct that accuracy monists cannot oblige suspension of

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judgement in cases like this, but his point has nothing to do with epistemic radicalism *per se.* So long as $T > 0 > F$, taking a gamble and simply believing one of HEADS or TAILS (and refraining from believing the other) remains globally undominated, as the decision table shows.

Once we realise this, the position of the epistemic radical looks entirely unsurprising. Of course epistemic radicals should not be suspending judgement on coin tosses and the like, for that is exactly the sort of behaviour which is constitutive of epistemic radicalism. We ourselves may not find such behaviour appealing. But that is simply because we are not epistemic radicals. If we were, we might be more inclined to join them.

The real problem — one that Steinberger describes as 'undergirding' our intuitions in favour of conservatism, and therefore suspending judgement — is that epistemic radicals and epistemic centrists are permitted to believe both HEADS and TAILS (since no other belief set scores at least as well at every world, and better at some). But this combination of attitudes is rationally impermissible — a data point that any adequate epistemic theory must respect. Here, Steinberger's worry is sharp. What accuracy-centred reason can the monist give to rule out centrist-or-radical-endorsed contradictory beliefs? They are stuck.

I am persuaded that this is a problem for the accuracy monist, however I think it can be evaded. When we want our decision theory to respect (or avoid) some consequence, we can typically either modify our value function, or our decision rule. In effect, what Steinberger shows is that accuracy monists are not entitled to rule out certain value functions. But can they appeal to alternative decision rules?

I claim they can. Here are a pair of dominance conditions supposed to capture a sort of 'internal coherence' requirement for accurate believers.[4]

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[4] These are very closely related to the doxastic dominance conditions described in Pettigrew 2017.

Strong Doxastic Dominance: If $\mathcal{A}(B', w) > \mathcal{A}(B, w)$ at all $w \in \cap B$ then B is rationally impermissible.

Weak Doxastic Dominance: If $\mathcal{A}(B', w) \geq \mathcal{A}(B, w)$ at all $w \in \cap B$ and $\mathcal{A}(B', w) > \mathcal{A}(B, w)$ at some $w \in \cap B$, then B is rationally impermissible.

These doxastic dominance conditions encode the thought that accurate believers avoid being accuracy dominated at all those worlds their beliefs leave open; all those worlds which are — by their own lights — possible. These conditions are therefore roughly analogous to the *immodesty* condition standardly invoked in credal accuracy epistemology.[5] According to immodesty, one's credences must be more accurate in expectation than any others; according to doxastic dominance, one's beliefs must be as accurate as possible at those worlds the belief set considers 'live'. Being doxastically dominated is irrational, then, for roughly the same reasons that being modest (in the accuracy-theoretic sense) is irrational; one is doing epistemically badly by one's own lights.

The doxastic dominance conditions differ from the global dominance conditions in ignoring what goes on at those worlds which they have ruled out. This minor shift ensures that undominated agents will never have inconsistent belief sets — and so will never be permitted to believe both HEADS and TAILS.[6]

Proposition 5. *If B is inconsistent then B is strongly doxastically dominated.*

Proof. Suppose B is inconsistent. Then $\cap B = \emptyset$, for there is no w at which all $p \in B$ are true. So B is strongly doxastically dominated, since the strong dominance condition is vacuously satisfied. □

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[5]Thanks to an anonymous referee for this suggestion. See e.g. Pettigrew (2016) for discussion of immodesty (sometimes also called Strict Propriety).

[6]Note that this makes consistency a necessary condition. Cf. Pettigrew 2017, p. 479, who as I read him takes consistency to be necessary *and* sufficient for the avoidance of doxastic dominance. Sufficiency does not hold given the doxastic dominance conditions discussed here.

Invoking doxastic dominance, and thereby requiring consistency, allows the accuracy monist to avoid Steinberger's deeper worry. Rational agents can never believe both HEADS and TAILS, regardless of how epistemically radical they are. Admittedly, when one's accuracy function is insufficiently conservative, then suspending judgement remains strongly doxastically dominated by $\{\{w_H\}, \{w_T\}\}$. But as we've seen this was never really an issue for epistemic radicals in the first place. The more serious problem has been avoided.

So we have a plausible dominance condition which precludes contradictory beliefs regardless of whether one is epistemically radical or conservative. We can answer Steinberger's charge without needing to provide any 'accuracy-theoretic' restriction on the class of admissible accuracy functions.

What does this mean for the monist? One interesting property of doxastic dominance is that it also requires the set of one's beliefs to be multi-premise closed.

Definition 6 (Multi-premise closure). *B is multi-premise closed iff, if $B' \subseteq B$ and $\cap B' \subseteq p$, then $p \in B$.*

Lemma 7. *B is multi-premise closed iff $B = \{q : \cap B \subseteq q\}$*

In other words, B is multi-premise closed iff B contains all and only supersets of $\cap B$.

Proof. $\Rightarrow$ By Definition 6, if B is multi-premise-closed, then if $B' \subseteq B$ and $\cap B' \subseteq p$, then $p \in B$. Multi-premise closure implies single-premise closure. Therefore since $\cap B \in B$, every superset of $\cap B$ is also a member of B, for by definition of entailment, $\cap B$ entails all of its supersets.

$\Leftarrow$ Suppose $B = \{q : \cap B \subseteq q\}$. Since for any $C \subseteq B$, $\cap B \subseteq C$, then by definition of multi-premise closure, B is multi-premise closed.

$\square$

Lemma 8. *If B is consistent, then at $w \in \cap B$, $\mathcal{A}(B, w) = |B|T$.*

Proof. Since B is consistent, by definition of consistency, all $p \in B$ are true at those $w \in \cap B$. As stated above:

$$\mathcal{A}(B, w) = |\{p \in B : w \in p\}|T + |\{p \in B : w \notin p\}|F$$

But when $w \in \cap B$, there is no $p \in B$ such that $w \notin p$. Therefore in the special case where B is consistent and $w \in \cap B$:

$$\mathcal{A}(B, w) = |\{p \in B : w \in p\}|T$$

But at $w \in \cap B$, all $p \in B$ are such that $w \in p$. Therefore:

$$\mathcal{A}(B, w) = |B|T$$

$\square$

Proposition 9. *If B is not multi-premise closed then B is strongly doxastically dominated.*

Proof. Suppose B is inconsistent, and not multi-premise closed. Then by Proposition 5, B is strongly doxastically dominated. Next, suppose B is consistent, but not multi-premise closed. Then by Lemma 7, there is some p such that $\cap B \subseteq p$ and $p \notin B$. Therefore by Lemma 8 $\mathcal{A}(B \cup \{p\}, w) > \mathcal{A}(B, w)$ at all $w \in \cap B$. $\square$

Taken together, these consequences show that to avoid doxastic dominance is to be *deductively cogent*. For those sympathetic to that norm, this is a happy result. For others, it will be a cost that the accuracy monist cannot treat the preface and lottery cases in the way Fitelson & Easwaran (2015) hoped, wherein neither consistency nor multi-premise closure were required.

Is there any way for the monist to tell a story like this? One possibility is requiring that belief sets be doxastically undominated relative to a partition determined by the question at issue, without imposing any inter-partitional consistency.[7] Then in a lottery case (for example) one could believe 'ticket i will lose' relative to the partition {ticket i will win, ticket i will lose} for all i, while not believing that all tickets will lose relative to the partition {ticket 1 will win, ..., ticket n will win}. In effect, one thinks a particular ticket will lose when considering just it, while not thinking all tickets will lose when considering the entire lottery. Properly explaining how this partition-shifting works would require more argument than has been given here. The lesson for the accuracy monist is that regardless of whether they want full-blown deductive cogency or some restricted, partition-relative version of the norm, it is doxastic dominance that offers them a way forward.[8]

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