

Beliefs don't simplify our reasoning, credences do

Alexander Dinges

alexander.dinges@fau.de

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Abstract: Doxastic dualists acknowledge both outright beliefs and credences, and they maintain that neither state is reducible to the other. This gives rise to the “Bayesian Challenge,” which is to explain why we need beliefs if we have credences already. On a popular dualist response to the Bayesian Challenge, we need beliefs to simplify our reasoning. I argue that this response fails because credences perform this simplifying function at least as well as beliefs do.

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1 Introduction

Doxastic dualists acknowledge both outright beliefs (henceforth “beliefs”) and credences, and they maintain that neither state is reducible to the other. This gives rise to the “Bayesian Challenge,” which is to explain why we need beliefs if we have credences already. This challenge arises for doxastic dualists because if we do not need beliefs, doxastic dualism entails an implausibly wasteful doxastic double structure.

On a popular response to the Bayesian Challenge, we need beliefs to simplify our reasoning. More specifically, we need beliefs because we sometimes have to ignore small probabilities to make our reasoning tractable and because only beliefs allow us to keep track of what we can and cannot ignore.¹

I argue that this response fails because credences perform this function at least as well as beliefs do. I describe a common practice of simplifying reasoning (§2) along with one account of this practice in terms of belief and another in terms of credences (§3). I argue that the credence account is at least on a par with the belief account (§4). I conclude that the indicated response to the Bayesian Challenge fails (§5).

¹ Jackson (2020: 2–3) reviews this dialectic with ample references to works of both doxastic dualists and Bayesian Challeng-ers. I assume throughout that reasoning based on credences is possible. Presumably, the Bayesian Challenge would not arise otherwise. See Staffel, 2013 for a defense of this assumption.

This shows neither that beliefs don't exist nor that doxastic dualism fails. I tend to think that beliefs exist trivially, and there may be other ways to respond to the Bayesian Challenge. My point is that dualists must explore these other options.

2 Simplifying reasoning

Many authors hold that we simplify both theoretical and practical reasoning by taking propositions for granted even when they could be false. On the practical side, Bratman (1992: 5), for instance, suggests that “[i]n planning my day—a June day in Palo Alto—I simply take it for granted that it will not rain even though I am not certain about this.” On the theoretical side, Staffel (2019: 940–941) considers a case where I try to figure out how likely it is to rain during an upcoming tennis match. The calculation is complicated because I am unsure where the match takes place, as represented by the following credence function.

$$\text{Cr}(\text{NY}) = 0.48$$

$$\text{Cr}(\text{Boston}) = 0.48$$

$$\text{Cr}(\text{LA}) = 0.04$$

Staffel suggests that we reduce complexity by just taking it for granted that the match will not take place in LA, working with something like the following simplified credence function instead.

$$\text{Cr}(\text{NY}) = 0.5$$

$$\text{Cr}(\text{Boston}) = 0.5$$

$$\text{Cr}(\text{LA}) = 0.04$$

Holton (2008: 36), Ross and Schroeder (2014: 264–266) and Weisberg (2020: 6–7) among others express similar ideas.

3 Two accounts

What explains this simplifying practice? What explains that we take some propositions for granted but not others in the way described? One response appeals to belief. Ross and Schroeder (2014: 267–268), for instance, suggest the following principle.

(B) If S believes that p, then S is disposed to treat p as true in her reasoning.

Given B, we can explain why we e.g. take for granted that it will not rain on a June day in Palo Alto while we do not take for granted that the sun will not shine. We do so because we believe the former proposition but not the latter. Call this the *B-account* of simplifying reasoning.² If the B-account is

² Holton (2008: 35–40), Smithies (2012: 278), Wedgwood (2012: 321), Ross and Schroeder (2014: 264–268), Staffel (2019: 941) and Jackson (2019: 515–518) all express sympathies to this account.

correct, then beliefs play an important role in reasoning, and we have answered the Bayesian Challenge.

However, there is an obvious alternative to the B-account in terms of credences.

(C) If S has a high credence in p, then S is disposed to treat p as true in her reasoning.

Given C, we can equally explain e.g. the Palo Alto case. We have a high credence in the proposition that it will not rain and a low credence in the proposition that the sun will not shine. Therefore, we take one proposition for granted but not the other. Call this the *C-account* of simplifying reasoning.³ If the C-account is correct, the B-account becomes superfluous, and appeals to simplified reasoning no longer suffice to answer the Bayesian Challenge.

Before presenting my arguments for the C-account, let me address two objections against it. *First objection.* It is in the nature of every credence in p short of 1 that it disposes us to consider not-p in our reasoning. This means that, contrary to C, no credence short of 1 can dispose us to treat p as true in our reasoning. *Response.* It is not in the nature of every credence in p short of 1 that it disposes us to consider not-p in our reasoning, or at least I see no reason to believe this. For instance, I might die of a heart attack within the next hour, and my credence that I will not is less than one. Still, I am not disposed to consider this possibility in my reasoning. Maybe every credence in p short of 1 disposes us to consider not-p *under certain circumstances*, such as when the stakes are high. But we will see later that, properly spelled out, C is compatible with this assumption. Notice also that if credences short of 1 did entail a general disposition to consider not-p in our reasoning, principle B too would become unattractive for many doxastic dualists. It would entail that belief entails credence 1 (or the lack of any credence), for only a credence of 1 in p would be compatible with the disposition to treat p as true in ones reasoning. This conclusion is generally contentious, and doxastic dualists should find it particularly worrisome. For, if, as they argue, beliefs and credences were metaphysically distinct, one would not expect such entailment relations to hold.

Second objection. The C-account “give[s] away the game” (Weisberg, 2020: 8) by positing a state of treating something as true. Dualists can identify this state with belief. Thus, the C-account entails a role for belief in reasoning, and it cannot undermine this role. *Response.* The suggested identification of treating something as true with belief is implausible for two reasons. First, what we treat as true is under our voluntary control in a way that belief is not. I can decide to consider the possibility of rain

³ Tang (2015: 257) endorses the C-account, but for different reasons than mine.

in planning my day in Palo Alto and thus to stop treating it as true that it will not rain.⁴ Meanwhile, it seems implausible that I thereby decide to stop believing that it will not rain. Second, the state of treating something as true is less stable than belief is. I treat it as true that it will not rain while planning my day, but I stop doing so once my planning is over. Meanwhile, I do not lose my beliefs just because I stop deliberating. In response, one might suggest to identify belief with the posited state of *being disposed* to treat something as true. As we will see, however, the specific dispositions posited by the C-account cannot plausibly be identified with belief because they are often based on statistical evidence (§4.1) and because they come in degrees (§4.2).⁵

4 Against belief

Should we prefer the B-account or the C-account? In §§4.1 and 4.2, I argue that the C-account is explanatorily more powerful in two ways and therefore preferable. In §4.3, I weaken this conclusion slightly, suggesting that the C-account and the B-account are at least on a par.

4.1 Statistical evidence

The first reason to prefer the C-account is that, unlike the B-account, it explains why we take propositions for granted based on purely statistical evidence.

Consider Staffel's case of the tennis match, and suppose that the credences assigned to the indicated locations rely solely on statistical evidence, such as the known odds of a lottery that determines the location of the match. I submit that we would still take it for granted in the relevant bit of reasoning that the match does not take place in LA. I find this intuitively plausible, and Staffel seems to agree, as she apparently felt no need to guard against this statistical construal of her case. Moreover, the idea that we grant statistically likely propositions in reasoning follows from the general rationale behind our practice of simplifying reasoning. We do this when simplification foreseeably leaves the outcome of our reasoning untouched, or affects it only marginally (e.g. Ross and Schroeder, 2014: 274). That is often so when the proposition taken for granted is very probable, independently of whether the underlying evidence is statistical.

⁴ Staffel (2019: 958n5) states, contrarily, that “we usually can't employ deliberative control over which claims we take for granted in framing a reasoning problem, this is done automatically and without our conscious awareness.” I agree that we often grant propositions “automatically and without our conscious awareness” (via C). But it does not follow that we lack “deliberative control.” Analogously, we often blink automatically without our conscious awareness. Still, we can control our blinking if we want.

⁵ Weisberg (2020: 8) worries that the C-account requires “two extra computational steps,” one of comparing one's credence to a threshold and another of discarding not-p possibilities. Once we arrive at the more accurate principles B' and C' below, it should become apparent that the B'-account and the C'-account are on a par here.

This data is hard to explain on the B-account. To explain why we take for granted that the match will not take place in LA in the envisaged case, proponents of the B-account have to hold that we believe this, despite the fact that we have purely statistical evidence. However, outright belief is connected to knowledge and assertion. For instance, it is often assumed to be something like the inner version of assertion (e.g. Williamson, 2000: 255–256), and it supposedly feels like knowledge (e.g. Greco, 2015: 180). We would not assert that the match does not take place in LA, and we would not feel like we know this, if we only had statistical evidence. Hence, one would be hard-pressed to claim that we believe this.

Proponents of the B-account might abandon the indicated roles for belief in knowledge and assertion. Instead, they might focus exclusively on our ordinary notion of belief. According to Hawthorne et al. (2016), this notion is “weak,” and it allows for beliefs based on statistical evidence alone. I will come back to this in §4.3.

Meanwhile, notice that the C-account nicely explains the data. Independently of the type of our evidence, statistical or otherwise, we have a high credence in the proposition that the match will not take place in LA. Given C, we take this proposition for granted.

One may object that we do not always take propositions for granted when they are statistically likely. For instance, when asked to bet on the match taking place in LA, I would not treat it as true that the match does not take place in LA. I would have to accept absurd bets otherwise. But this just shows that the disposition described in C is defeasible. It is defeated, for instance, when there is no need to simplify because the envisaged reasoning is straightforward enough as it is. Following Holton (2008: 39–40), this is typically so in betting situations, where the relevant decision “does not require much from you.”⁶

My opponents—proponents of the B-account—should be happy with this response. For the indicated worry arises for them too, and they have to respond in the same way. Even if I had an outright belief that the match does not take place in LA (e.g. based on a newspaper report), I would not take this for granted when asked to bet on it. I would not bet my life on the other options. The disposition in B must be defeated in betting situations, just as the disposition in C is on my account.

⁶ For the same reason, we do not throw away our lottery ticket before the draw, while someone of modest means may still ignore the possibility of winning the lottery when they decide whether to go on an African safari next year (to slightly modify an example from Hawthorne, 2004: 1–2). We do throw our ticket away once we hear the winners announced and lost. For this shifts our credences and thereby the expected utility of keeping the ticket.

In sum, I grant that we do not form beliefs (or judge or assert) based on statistical evidence alone. It would beg the question, though, to infer that we do not take things for granted on the same basis. We do, as argued. The C-account explains that, the B-account does not.

4.2 Stakes

The second reason to favour the C-account is that it explains how simplification is sensitive to stakes, while the B-account does not.

For starters, consider a blunt worry with the B-account. In the Palo Alto case as described, we grant that it will not rain, in line with the B-account, assuming that we believe this outright. Now suppose that I do not plan a picnic, say, but a trip to my wedding. My wedding dress is delicate, and it would not withstand rain. In that situation, I might no longer take it for granted that it will not rain. Instead, I might consider this for safety. The B-account may seem to predict otherwise, for my belief that it will not rain should still dispose me to take this for granted.

Here is a convincing response. The disposition described in B is defeasible. Accordingly, we can sharpen principle B along the following lines, where t_s is a relatively high threshold on the scale of stakes (see e.g. Ross and Schroeder, 2014: 267 and Weisberg, 2020: 4).

(B⁷) If S believes that p , then S is disposed to treat p as true in her reasoning *when the stakes regarding p are below t_s .*

If t_s is well chosen, the stakes are above t_s in the wedding case, where being mistaken about the rain has terrible consequences. Hence the B⁷-account no longer predicts that we grant that it will not rain in this situation, in line with the data.⁷

Let us now turn to the real challenge for the B⁷-account. Take the proposition that it will not snow, and assume that snow would also ruin the dress so that the stakes with respect to this proposition are as high as they are for the proposition that it will not rain. Even so, we plausibly take this proposition for granted in the wedding case, intuitively because snow is even less likely than rain. More generally, there should be situations such that (i) we take a bunch of propositions for granted due to

⁷ Another response would be that, as the stakes rise, we lose our beliefs. See e.g. Weatherson, 2005, Ganson, 2008, Gao, 2019, Clarke, 2013 and Greco, 2015 for different versions of “pragmatic credal reductivism” that deliver this outcome. Being versions of credal reductivism, however, these views are unavailable to dualists. Ross and Schroeder (2014) present a version of pragmatic *dualism*, where beliefs are sensitive to stakes while not being reducible to credences. However, on their view, one-off changes in stakes like in the wedding case need not suffice to shift our beliefs (see e.g. p. 279). It might be possible to defend a more flexible version of pragmatic dualism, but such a view remains to be fleshed out and it remains to be seen, first, whether the resulting position answers my main challenge below and, second, whether it has any advantages over my purely credence-based account; see §4.3.

our beliefs (B'-account) or our credences (C-account); and (ii) equally raising the stakes for these propositions leads us to stop taking some of these propositions for granted (e.g. that it will not rain) but not others (e.g. that it will not snow).

The B'-account cannot explain this. If the raised stakes are below t_s , then we should keep taking all relevant propositions for granted. For, the manifestation conditions in B' are satisfied, and hence our beliefs should lead to this outcome. Meanwhile, if the raised stakes are above t_s , then we should no longer take any of the relevant propositions for granted. For, the manifestation conditions in B' are no longer satisfied, and hence our beliefs should no longer lead us to take anything for granted. Independently of how we raise the stakes, if we raise them equally for all propositions involved, we should grant them all or none.

One response would be that t_s is a function of S's context (or the context of the ascriber or the assessor). This will not do because the decision to ignore e.g. rain or snow takes place in the same context, and yet we ignore one possibility but not the other. Another response would be that belief comes in degrees with corresponding lower or higher thresholds t_s . On one way to spell this out, belief itself is graded (e.g. Williamson, 2000: 99). On another, belief combines with credences to deliver degrees of belief. A high degree of belief would thus amount to a belief *with a high credence*. Based on either proposal, one could argue that we take for granted that it will not snow, while we do not take for granted that it will not rain, because we have a higher degree of belief in the former proposition. I will challenge this idea in §4.3.

Notice, meanwhile, that the C-account explains the data perfectly. Proponents of the C-account will also hold that the disposition in C is defeasible. Let $t_s(\cdot)$ be a function that takes any given credence onto a certain stakes threshold, where higher credences go to higher thresholds. We get a principle along the following lines.

(C') If S has a credence of x in p , then S is disposed to treat p as true in her reasoning *when the stakes regarding p are below $t_s(x)$* .

This principle explains why we no longer grant that it will not rain in the wedding case. We have a high credence in this proposition, and $t_s(\cdot)$ maps this credence onto a relatively high stakes threshold. Given that the stakes in this case are very high, though, this threshold is surpassed and the manifestation conditions in C' are not satisfied. C' also explains why we continue to take for granted that it will not snow. Our credence in this proposition is even higher, and so $t_s(\cdot)$ maps it onto an even higher stakes threshold. This second threshold may fail to be surpassed and the manifestation conditions in C' may be satisfied.

4.3 Coda

I have left open one response strategy on behalf of the B-account for each worry I raised. In response to the worry from statistical evidence, one could suggest that belief is weak and that we form beliefs based on purely statistical evidence. In response to the worry from stakes, one could suggest that simplified reasoning relies on degrees of belief. Thus, one could mimic the just described account in terms of C'.

By themselves, these responses may be fine,⁸ but one must recall the dialectical context here. The B-account is part of a defence of dualism against the Bayesian Challenge. Hence, it must be compatible with dualism, the view that beliefs and credences are metaphysically distinct. Once we construe beliefs as weak and graded, we undermine this assumption, for degrees of weak belief just are credences. At least, a case would have to be made to tear these states apart. Williamson (2000: 99), for instance, motivates his distinction between credences and degrees of belief based on the idea that we do not form beliefs of any degree on statistical evidence alone. This motivation seems convincing on a strong conception of belief. On a weak conception, however, it fails because on this conception, we form such beliefs.

Even if we could distinguish degrees of weak belief from credences, problems would remain. Dualists could establish that the B-account and the C-account are *on a par* as far as statistical evidence and stakes are concerned. To answer the Bayesian Challenge, however, they must show that the B-account is *preferable* to the C-account. Only this would allow them to conclude that we need beliefs in addition to credences. Once we construe the B-account in terms of degrees of weak belief, however, this becomes exceedingly difficult. What work can degrees of weak belief do that credences cannot? No answer to this question seems forthcoming.

5 Conclusion

Appeals to simplified reasoning do not suffice to answer the Bayesian Challenge, for credences explain this phenomenon at least as good as beliefs do. We must either abandon doxastic dualism or find another response to the Bayesian Challenge.

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⁸ Though see e.g. Moon, 2017, who argues that belief does not come in degrees.

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