Knowledge-Action Principles and Threshold-Impurism

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Abstract

Impurism says that practical factors encroach on knowledge. An important version of impurism is called 'Threshold-Impurism,' which says that practical factors encroach on the threshold that rational credence must pass in order for one to have knowledge. A prominent kind of argument for Threshold-Impurism is the so-called 'principle-based argument,' which relies on a principle of fallibilism and a knowledge-action principle. This paper offers a new challenge against Threshold-Impurism. I attempt to show that the two principles Threshold-Impurists are committed to—KJ and Fallibilism—are jointly in tension with a widely-held principle of credence that's called 'Truth-Directedness,' in the sense that the former two principles cannot both apply to those who know the third. This tension constitutes a serious challenge to Threshold-Impurists, because it leaves them two options, both of which are undesirable: denying Truth-Directedness, or accepting Truth-Directedness and accepting that whether KJ and Fallibilism apply to a person depends on whether she knows Truth-Directedness.

1 Introduction

Recently, various scholars have argued for impurism (which is sometimes called 'the thesis of pragmatic encroachment'), the claim that the normative status of one's belief depends not only on truth-relevant factors such as evidence or reliability of belief-forming processes, but also on truth-irrelevant factors such as practical stakes (Fantl & McGrath, 2002, 2007, 2009; Hawthorne, 2004; Schroeder, 2012; Stanley, 2005; Weatherson, 2012). A typical kind of argument for impurism posits a pair of cases, one low-stakes and the other high-stakes, that intuitively differ in knowledge but don't differ in truth-relevant factors (Stanley, 2005). These is called a 'case-based argument for impurism.'

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Another kind of argument for impurism—a supposedly more important kind because it can explain our intuitions in specific cases—is the so-called 'principle-based argument for impurism.'[1] It relies on two epistemic principles. The first is epistemic fallibilism, which says that knowledge doesn't imply rational certainty:

Fallibilism
It's not the case that, for every person S and every proposition *p*, S knows that *p* only if it's rational for S to be certain that *p*.[2]

The second is a kind of knowledge-action principle that says that knowledge can be relied on in decisions about action. An influential version of the principle is this:

Knowledge and Justifying Reason (KJ):
If you know that *p*, then *p* is warranted enough to justify you in Φ-ing, for any Φ. (Fantl & McGrath, 2009, p. 66).

The argument from KJ and Fallibilism to impurism can be put as follows (Fantl & McGrath, 2009, pp. 84–88). Given Fallibilism, we can suppose that there is a person S who fallibly knows a proposition *p*, that is, S knows that *p* and the credence rational for S is some value lower than certainty. Since S's rational credence is lower than certainty, we can imagine a variation of S's situation, in which all the truth-relevant factors are kept the same but the practical stakes are radically raised, so that S's rational credence in *p* is now too low for S to rely on *p* in his decision about action. Given KJ, S no longer knows that *p*. Therefore, practical factors alone can make a difference to whether S has knowledge.

It's worth noting that, as some impurists themselves have emphasized, Fallibilism is indispensable for this argument, although it's often not mentioned explicitly. (See Fantl & McGrath, 2019, pp. 436–437; More exactly, *Threshold-Impurists* must think that Fallibilism is indispensable; I will say more about this in Sect. 2). If knowledge always implies rational certainty, then if you know *p* in a low-stakes case, the credence rational for you is certainty—a value as high as your credence in a proposition could ever be; then it would be unclear how, as stakes rise, this credence could be 'too low' for you to rely on *p*. So, it would be unclear how changing stakes alone can make you lose knowledge.

In this paper, I offer a new challenge against the impurist's principle-based argument. I attempt to show that the two principles the argument rests on—KJ and Fallibilism—are jointly in tension with a widely-held principle of credence that's called 'Truth-Directedness,' in the sense that the former two principles cannot both apply to those who know the third. This tension constitutes a serious challenge to the impurist, because it leaves the impurist two options, both of which are undesirable: denying Truth-Directedness, or accepting Truth-Directedness but maintaining that

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[1] I borrow the term 'cased-based argument' and the term 'principle-based argument' from Roeber (2018, p. 173). Recent critics of these arguments include Brown (2013), Fumerton (2010), Reed (2010, 2012), and Roeber (2018) among others.

[2] In this paper, I don't distinguish 'certainty' from 'credence one'—all occurrences of 'certainty' in this paper could be replaced with 'credence one' without undermining my main arguments.

whether KJ and Fallibilism apply to a person depends on whether she knows Truth-Directedness. The first option is undesirable, since Truth-Directedness is almost universally accepted in the recently booming epistemic utility project; the second option is also undesirable, since it makes the applicability of KJ and Fallibilism depend on a person's knowledge of Truth-Directedness in a problematic way.[3]

Moreover, I will argue that the impurist cannot avoid the tension by replacing KJ with other knowledge-action principles, such as Fantl and McGrath's (2002) KA and Hawthorne and Stanley's (2008) RKP. So, although I will mainly focus on KJ in this paper, I intend to establish something more general: for *every* plausible knowledge-action principle, there is a tension among the knowledge-action principle, Fallibilism, and Truth-Directedness.

That said, I should note that my argument only hurts what's called 'Threshold-Impurism,' a popular impurist position in the literature which says that practical factors affect the threshold on rational credence that's relevant for knowledge (Basu, 2019; Fantl & McGrath, 2009; Ganson, 2008; Hannon, 2017; Owens, 2000, pp. 23–35; Pace, 2011). There is another impurist position, called 'Credence-Impurism,' which says that practical factors affect rational credence itself, not a relevant threshold (Clarke, 2013; Gao, 2019; Greco, 2015). This position is unaffected by my argument. So, an implication of my argument is that Credence-Impurism has an important advantage over Threshold-Impurism in being able to avoid the tension with Truth-Directedness.

Here is the plan. In Sect. 2, I clarify Threshold-Impurism and Fallibilism. Section 3 argues that there is a tension among KJ, Fallibilism, and Truth-Directedness. Section 4 generalizes this argument to other versions of the knowledge-action principle. In Sect. 5, I discuss whether the impurist can avoid the tension by placing some restriction on KJ. I argue that the restriction strategy is unsatisfactory. Section 6 concludes the paper with a brief explanation of why Credence-Impurism is unaffected by my argument.

2 Clarifications

Impurists disagree on exactly what property is encroached on by practical factors. Some claim that it's belief—change in stakes can change whether one has belief (Nagel, 2008; Weatherson, 2005, 2012). Others claim that the encroachment occurs at the normative level rather than the psychological level. And there are two major distinct normative versions of impurism. One is called 'Credence-Impurism' and the other—also a more popular position—is called 'Threshold-Impurism.'[4]

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[3] Thanks to an anonymous reviewer for pressing me to clarify my aim.

[4] Proponents of Threshold-Impurism include Basu (2019), Fantl and McGrath (2002, 2009), Ganson (2008), Grimm (2011), Hannon (2017), and Pace (2011). Proponents of Credence-Impurism include Clarke (2013), Gao (2019) and Greco (2015). (I should note that, strictly speaking, what Clarke, Greco and Gao primarily defend is still a psychological thesis which says that credence is pragmatically encroached on, not the normative thesis. However, some of these authors' arguments can also be used to support the normative thesis.).

This paper targets Threshold-Impurism. This view says that there is a threshold on how strong one's epistemic position has to be in order to count as 'strong enough' for knowledge, and the threshold might go up as stakes rise. Assuming that epistemic position can be measured by rational credence, Threshold-Impurism says that practical factors can affect knowledge by affecting the threshold on rational credence for relying on the proposition in question in action.[5] So, Threshold-Impurists accept a traditional stability view about rational credence, on which your rational credence function *itself* is not affected by practical stakes (Fantl & McGrath, 2009, pp. 86–87; Ganson, 2008, p. 450; Pace, 2011, p. 255). That is, when stakes rise dramatically, it's still rational to hold your original credence; it's just that the same rational credence would not meet the newly-set threshold for you to act on the proposition in question. In contrast, Credence-Impurism says that practical factors do encroach on rational credence (Clarke, 2013; Gao, 2019; Greco, 2015). So, in a low-stakes situation, it might be rational for you to be 0.9 confident in *p* but, as stakes rise, the credence that's rational for you might decrease to 0.5.[6] Since this paper will target Threshold-Impurism rather than Credence-Impurism, 'impurism' hereafter will refer to Threshold-Impurism unless otherwise stated.

I should note that, in making the distinction between Threshold-Impurism and Credence-Impurism, I'm only suggesting that there is an important version of impurism in the literature that is unaffected by my argument; I am not suggesting that an impurist must choose between the two. As an anonymous reviewer points out, if an impurist denies that rational belief is necessarily connected with rational credence above a threshold, then he needs not say that pragmatic factors encroach on rational belief either by encroaching on the threshold or by encroaching on rational credence itself.

So much for clarification of my target. Now, let's turn to Fallibilism. It says that knowledge doesn't imply rational certainty. Note that, *on the view that rational*

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[5] Fantl and McGrath (2009) use the notion 'epistemic probability' when they talk about epistemic positions. But it's reasonable to assume that Threshold-Impurists in the literature use 'epistemic probability' and 'rational credence' interchangeably. In fact, Fantl and McGrath (2009, pp. 1314) themselves have argued (convincingly in my opinion) that rational credence matches epistemic probability. Of course, knowledge-firsters tend to use a third notion, namely, 'evidential probability,' to measure epistemic position, and some of them have claimed that rational credence need not match evidential probability (Williamson, 2000, pp. 21,314). But as I will soon explain, the target of this paper is Threshold-Impurism, and knowledge-first impurists in the literature (such as Hawthorne & Stanley (2008)) are not Threshold-Impurists, since they tend to think that the evidential probability itself, not the threshold, shifts across practical contexts.

[6] Credence-Impurism has been developed in two ways. The first is a knowledge-first style (Hawthorne & Stanley (2008)). Knowledge-first impurists measure epistemic position by 'evidential probability' and they think the evidential probability itself shifts across contexts, because they define evidential probability in terms of knowledge and they think that knowledge shifts across contexts. (That said, a knowledge-first impurist would presumably call herself 'Evidential-Probability-Impurist' rather than 'Credence-Impurist' if he, like Williamson, thinks that evidential probability needs not match rational credence). The second way of developing Credence-Impurism focuses on the shiftiness of the space of possibilities over which your rational credence function is defined. On this view, the same evidence might warrant certainty in a low-stakes situation but doesn't do so in a high-stakes situation, simply because more possibilities will be included into the space over which your credence function is defined as stakes rise, and your evidence couldn't rule out newly included possibilities of error (Clarke, 2013; Greco, 2015).

credence is stable across practical contexts, rational certainty is a very strong epistemic status, a status that allows us to bet our life according to standard decision theory (which says that an option is rational iff it maximizes expected utility). So, if rational credence is stable, Fallibilism is a rather weak form of the fallibilist principle, 'weak' in the sense that denying it would lead us to a very strong, skepticism-inducing form of infallibilism that we may call 'Cartesian Infallibilism.' Cartesian Infallibilism is stronger than other versions of infallibilism in the literature. For instance, it's stronger than the view that knowledge implies evidential probability-1 (Williamson (2000)), or the view that knowledge implies evidence that guarantees the truth (Cohen, 1988; Brown, 2018, pp. 1–4), or the view that knowledge implies evidence that eliminates all relevant alternatives (Lewis, 1996). If you think that these epistemic statuses don't allow you to be certain in the sense of allowing you to bet your life, you can endorse all these forms of infallibilism without endorsing Cartesian Infallibilism.

The fact that Fallibilism is a very weak form of the fallibilist principle explains why impurists often don't bother to mention it in giving principle-based arguments. But it's important to note that Fallibilism is indeed indispensable for such arguments (Fantl & McGrath, 2019, pp. 436–437). For if Fallibilism were false, then knowledge would always come together with rational certainty. But impurists (i.e., Threshold-Impurists) think that rational certainty, as a kind of rational credence, is stable across practical situations, since what shifts with practical contexts is the relevant threshold, not the rational credence itself. And if one's rational certainty is retained in high-stakes cases, then one's epistemic position will still be strong enough for one to rely on the relevant proposition in action, which means that knowledge-action principles would not explain knowledge loss in high-stakes cases.

3 KJ, Fallibilism, and Truth-Directedness Are in Tension

Truth-Directedness is a principle familiar from the literature on the epistemic utility project, the project of justifying epistemic norms in a decision-theoretic way. A common assumption of this project is that the most important goal of rational credence-revision is *accuracy*, just like the most important goal of rational belief-revision is truth. Another common assumption of this project is that appropriate accuracy measures must ensure that accuracy is connected to truth in this way:

Truth-Directedness
For any proposition *p*, if *p* is true, then the higher your credence in *p* is, the more accurate that credence is; if *p* is false, then the lower your credence in *p* is, the more accurate that credence is.

Truth-Directedness entails that the 'ideal' credence about a proposition *p* (also known as the 'vindicated' credence) is the one that matches the truth-value of *p*, and accuracy of other credence in *p* is determined by how close it is to the ideal one. So, Truth-Directedness entails that, if *p* is true, then certainty in *p* is the most accurate credence in *p*.

Truth-Directedness is almost universally accepted among those who work in the epistemic utility project (see Joyce (2009, p. 269) and Pettigrew (2016, p. 3)). Pettigrew, a prominent figure in this project, has even gone so far as to claim that the principle 'seems almost constitutive of the notion of accuracy' (2016, p. 40). So, if I'm right that KJ conjoined with Fallibilism is in tension with Truth-Directedness, advocates of the KJ-based argument for impurism will face a serious problem.

Before I give my argument, it will be important to note two clarifications that Fantl and McGrath (2009, p. 66) have made about KJ. First, 'Φ' in KJ ranges over any mental state and action: believing, doing, feeling, wanting, liking, hating, intending, etc. Second, to say that '*p* is warranted enough to justify you in Φ-ing' is to say that your epistemic position for *p* doesn't stand in the way of it justifying you to Φ. That is, if it turns out that *p* doesn't justify you to Φ, it must be factors other than your epistemic position for *p* that stand in the way—either *p* is not relevant to Φ at all or you have overriding countervailing reasons not to Φ.

Now comes the argument of tension. I argue that, if S is a person who knows Truth-Directedness and if Fallibilism applies to S (i.e., there is some proposition *p* such that S knows *p* even though it's irrational for S to be certain), then KJ doesn't apply to S.

Argument of Tension with Truth-Directedness ('ATD')

(1) S fallibly knows *p*.	(Supposition that Fallibilism applies to S)
(2) S knows [if *p*, then certainty in *p* is the most accurate credence in *p*].	(Supposition that S knows Truth-Directedness)
(3) S knows [certainty in *p* is the most accurate credence in *p*].	((1), (2))[7]
(4) If KJ applies to S, then [certainty is the most accurate credence in *p*] is warranted enough to justify S in being certain that *p*.	((3))
(5) If [certainty is the most accurate credence in *p*] is warranted enough to justify S in being certain that *p*, then it's rational for S to be certain that *p*.	
(6) If KJ applies to S, then it's rational for S to be certain that *p*.	((4), (5))
(7) It's irrational for S to be certain that *p*.	((1))
(8) KJ doesn't apply to S.	((6), (7))

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[7] The impurist might resist the application of closure here. This move will be addressed in Sect. 5.2.

Discharging the supposition, we have that, *if Fallibilism applies to S and if S knows Truth-Directedness, then KJ doesn't apply to S*.[8] In other words, KJ and Fallibilism cannot both apply to a person if the person knows Truth-Directedness. This conclusion means that the impurist, who is committed to KJ and Fallibilism, has only two options: (i) denying that there are persons who know Truth-Directedness or (ii) admitting that there are persons who know Truth-Directedness and accepting that KJ and Fallibilism don't apply to those persons. Neither option is attractive. Taking the second option limits the scope of KJ and Fallibilism in a problematic way: it's mysterious why there should be such a sharp difference between those who know Truth-Directedness such as philosophers and those who don't, with regard to the issue of whether they can rely on their knowledge and whether they can be certain of anything they know. Taking the first option comes at the cost of denying the widely-held principle Truth-Directedness—if Truth-Directedness were true if would be unclear why it's unknowable.

ATD is valid. All the premises but (5) are straightforward. Impurists must accept (5) for the following reason. Recall that, to say that the proposition [certainty is the most accurate credence in *p*] is warranted enough implies saying that S's epistemic position for the proposition doesn't stand in the way of the proposition justifying S to be certain that *p*. But then what could stand in the way of the proposition justifying S to be certain? It must not be irrelevance: surely accuracy considerations are relevant to deliberation on credence-revision. It also must not be the presence of overriding countervailing reasons: accuracy consideration is not just relevant, but is the most important consideration in credence revision. In fact, the central importance of accuracy consideration in credence revision is a consensus in the epistemic utility project, so denying it will be a serious cost for the impurist.[9]

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[8] ATD is reminiscent of Kripke's dogmatism puzzle, which says that, if one knows that *p*, then one knows that all potential evidence against *p* is misleading and thus one can ignore such evidence (Harman, 1973, p. 148).

Despite the similarity, the two arguments are distinct enough to warrant different treatments, because current solutions to the dogmatism puzzle won't help the impurist address ATD. For instance, one solution denies the principle that knowing that evidence is misleading allows one to ignore it (Baumann, 2013; Ye, 2016). This looks like a denial of the principle that knowing a proposition allows one to act on it and thus is not acceptable to the impurist. Another solution says that knowledge doesn't allow ignoring counter-evidence because having the evidence would defeat one's knowledge (Harman, 1973, pp. 1489). This defeasibility solution will not help the impurist, as I will argue in Sect. 5.2.

[9] The impurist might claim that binary beliefs aim at knowledge rather than truths and thus, similarly, credence aims at knowledge rather than accuracy. And if asked in what sense credence could be knowledge, the impurist might point to the idea of 'probabilistic knowledge' that has recently been defended by Moss (2018b).

A full discussion about the aim of credence goes beyond the scope of this paper; here I only give some tentative reasons to doubt the idea that credence aims at probabilistic knowledge rather than accuracy. Even if belief aims at knowledge rather than truth, it's unclear why credence similarly aims at probabilistic knowledge rather than accuracy, for the following reasons. In the case of binary belief, knowledge cannot be less valuable than truth, since a binary belief that is knowledge is necessarily also a true belief. However, a credence that is probabilistic knowledge is not necessarily also the maximally accurate credence—when *p* is true but the epistemic probability of *p* falls short of certainty, an uncertain credence is probabilistic knowledge but is not maximally accurate; so, we don't get to say "probabilistic knowledge cannot be less valuable than a maximally accurate credence." Moreover, if you are asked to choose between a credence in *p* that is probabilistic knowledge and a credence in *p* that is maximally accurate, it

To further explain why impurists shouldn't think that there are overriding countervailing reasons, let's consider a possible countervailing reason. If you only fallibly know *p*, then the rational credence to have in *p* is lower than certainty. Let's suppose that you know [the rational credence in *p* is lower than certainty]. Then advocates of KJ can say that you have a reason *not* to be certain. However, this reason cannot override the reason provided by [certainty is the most accurate credence in *p*]. We normally defer to rationality because it's the best guide to accuracy. In other words, if you know the rational credence in *p* is x, you know that the credence that maximizes *expected* accuracy is x.[10] But for impurists, the reason provided by known *expected* accuracy cannot override the reason provided by known *actual* accuracy—you should not resolve the conflict of the two reasons by thinking 'although certainty is most accurate, 0.9 is most expectedly accurate; so I should be 0.9 confident in *p*.' As Fantl and McGrath (2009, p. 80) have emphasized, in weighing reasons provided by knowledge, you shouldn't place greater weight on *expected* outcome than on *actual* outcome.[11]

Perhaps you would say that expected outcome can sometimes provide weightier reason than actual outcome does, if we are more confident about the expected outcome than about the actual outcome. For example, you might be *certain* that [credence 0.9 in *p* maximizes expected accuracy], but only *0.9 confident* that [certainty in *p* maximizes actual accuracy] (because you infer this proposition from *p* and you are only 0.9 confident in *p*). And you might think that, in weighing reasons, both the content and the probability of a reason matter to its weight.

Now, I myself share the above thought that a reason's probability matters to its weight. However, the important point here is that this thought is *not* available to advocates of KJ. It's against the spirit of KJ to insist that the probability of a reason provided by knowledge matters to its weight: Suppose you know *p* and *p* is a reason to Φ; if *p* could be overridden by a countervailing reason due to *p*'s probability, it would mean that your epistemic position for *p* stands in the way of *p* justifying you to Φ, and thus you don't know *p* at all according to KJ. So, advocates of KJ cannot think that a reason's probability matters to its weight. Thus, it's no wonder that Fantl and McGrath depict their picture of reasons as a 'ledger-keeping' one. They claim that, when a proposition is a reason, it gets put in the 'ledger' with countervailing

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Footnote 9 (continued)

seems that you should choose the latter—after all, when it comes to those *p*-dependent decisions, the latter enables you to choose the optimal action in all those decisions while the former doesn't.

[10] For any value x, [the rational credence in *p* is x] implies [credence x maximizes *expected* accuracy], given the following two common assumptions in the epistemic utility project. First, the relevant accuracy measure is 'strictly proper' (that is, the measure ensures that every probability function maximizes expected accuracy relative to the probability function itself); second, in rational credence-revision, the relevant probability underlying expected accuracy is the rational credence function.

[11] Note that impurists can say that, when you *don't* know which option has the best actual outcome, you can choose the option with the best expected outcome even though you know that it doesn't have the best actual outcome. See Fantl and McGrath's (2009, pp. 2156) discussion of Parfit's 'Mine Shafts' case.

reasons and weighed against them, and "the probabilities of these reasons don't get recorded alongside" (2009, p. 79).[12]

The fact that the above thought—that a reason's probability matters to its weight—is unavailable to KJ-advocates can help to alleviate another worry for ATD. The worry is that ATD seems to cause a problem for all Fallibilists, not just those Fallibilists who also hold KJ. This is because the inference from (1) to (3) in ATD already looks like a reductio against Fallibilism—even if we deny KJ, we have the temptation to think that if S knows 'certainty is most accurate' then S can be certain. To this worry, my response is that KJ-deniers *can* resist this temptation, by appealing to the above thought that the probability of a reason can matter to its weight. That is, KJ-deniers can say that, although you know both 'certainty is most accurate' and '0.9 is most expectedly accurate,' the latter reason can be weightier because you are more confident in it. And it's only KJ-advocates—those who are committed to thinking that once propositions are known then their probabilities don't matter to their weights—that couldn't resist the temptation. So, ATD doesn't threaten all Fallibilists.

Here is another possible move the impurist might make, and it's similar to the above one appealing to the probability of reasons. Perhaps the impurist can replace KJ with the following weaker principle:

KJ': If you know that *p*, then *p* is warranted enough to justify you in Φ-ing, *for any Φ that is not irrational for independent reasons*.

The replacement allows the impurist to reject (4) in ATD, because it's stipulated that it's irrational for S to be certain that *p*.[13]

In response, I admit that weakening KJ into KJ' can block ATD, but I submit that KJ' is too weak to be an attractive option for the impurist. What the restriction clause in KJ' essentially says is that the reason provided by your knowledge *p* might not be strong enough to justify you to Φ, because sometimes the reason for Φ provided by knowledge is outweighed by other factors that are reasons against Φ. But note that the original principle KJ has already admitted the possibility that the reason provided by knowledge can be outweighed. What KJ maintains is that those outweighing reasons must have nothing to do with your epistemic position for *p*; that is, if it turns out that it's irrational for you to Φ, it must not be because your evidence for *p* is not strong enough, but can only be because there are some other considerations (for instance, perhaps you have a moral reason not to Φ.) So, for KJ' to be genuinely weaker than KJ, the restriction clause in KJ' must say that those outweighing reasons *can* include reasons having to do with your epistemic position for *p*; that is, it must say that acquiring knowledge improves your epistemic position but

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doesn't imply that your epistemic position is strong enough. In another word, when you know that *p*, your epistemic position for *p* is better than when you don't know but you might still need to gather more evidence in order to act on *p*. I submit that this results in a too weak knowledge-action principle for the impurist to accept.

A different worry you might have for ATD is this: premise (5) in ATD might beg the question against impurists in assuming that the consideration of accuracy is the most important consideration in decisions about credence. This assumption is widely held, but perhaps it's only acceptable to purists. Don't impurists think that practical factors matter for knowledge? If so, wouldn't they reject the idea that truth is the most important goal in decisions about belief? And if so, wouldn't they also reject the parallel idea that accuracy is the most important goal in decisions about credence?

This worry is misguided. Most impurists in the literature are 'moderate pragmatists' rather than 'hard pragmatists' (Worsnip, forthcoming). A hard pragmatist thinks that the practical consequence of believing *p*, *no matter whether it's true*, can be a reason to believe *p*. For example, he thinks that when a demon threatens to kill you unless you believe that two plus two is six, the high practical cost of not holding this false belief is a reason to hold it, even if you clearly recognize its falsity. So, for a hard pragmatist, one's practical goal can *compete with* one's truth goal in doxastic deliberation. By contrast, most impurists in the literature are not committed to such competition. For these impurists (e.g., Fantl and McGrath (2002, 2009), Moss (2018a), Schroeder (2012), and Stanley (2005)), the practical factors that encroach on knowledge are not the practical costs of believing *p* regardless of the belief's truth, but the practical costs of having *a false belief* about *p* or the practical cost of *missing out on having a true belief* about *p*. You can avoid these costs only by trying to avoid falsehoods and seek truths, that is, only by trying to meet your truth goals. So, the kind of practical interest impurists have in mind is such that it's best served only when your truth goals are served.[14] Therefore, it doesn't beg the question against impurists to say that the most important goal of doxastic deliberation is truth or accuracy.

Before moving on, I will mention one last worry about ATD but will postpone my response to Sect. 5.2. The worry is about the application of closure involved in the inference from (1) to (3). The impurist might insist that closure fails in this case because raising the question 'is certainty the most accurate credence in *p*?' will dramatically increase practical stakes and defeat knowledge *p*. In Sect. 5.2, I will argue that even if this 'defeasibility response' can block ATD, it cannot block a variant of ATD.

To sum up, ATD shows that KJ conjoined with Fallibilism is in tension with Truth-Directedness—the former two principles cannot both apply to those who know the third. And this tension creates a serious problem for the impurist, as I have

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[14] At least these claims are what the abovementioned impurists intend to make. See Worsnip (forthcoming) for an interesting discussion of whether moderate pragmatists can really resist hard pragmatism.

explained. In the following section, I generalize ATD to other knowledge-action principles.[15]

4 Generalizing ATD

Besides KJ, there are other knowledge-action principles in the literature on impurism. The following are some examples.

KA: One knows *p* only if one can rationally act as if *p*. (Fantl and McGrath, 2002)

RKP: Where S's choice is *p*-dependent, S knows that *p* in *c* iff it is appropriate for S to treat the proposition that *p* as a reason for acting in *c*. (Hawthorne & Stanley, 2008, p. 578)

BC*: It's rational for S to believe that *p* in *c* only if the credence that *p* that is rational for S to have is high enough to ensure that S can rationally act as if *p*.[16]

Among these principles, KA has been explicitly used to motivate impurism (Fantl & McGrath, 2002). So, in what follows, I discuss in detail how ATD generalizes to the KA-based argument for impurism. I hope that, at the end of the discussion, the pattern of my argument would be clear so that it's easy to see how it applies to arguments for impurism that are based on other versions of the knowledge-action principle.

First, a clarification on KA is in order. KA says that one knows *p* only if one can rationally act as if *p*. What does it mean to say one can 'act as if *p*'? Here is Fantl and McGrath's gloss:

It's rational for S to act as if *p* just in case:
For any two states of affairs A and B, it's rational for S to prefer A to B, given *p*, if and only if it's rational for S to prefer A to B, in fact. (2002, p. 77)

And according to Fantl and McGrath, 'it's rational for S to prefer A to B, given *p*' is equivalent to 'it's rational for S to prefer A&*p* to B&*p*' (2002, p. 76).

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[15] Fantl and McGrath (2009) have criticized two arguments for the claim that KJ doesn't sit well with Fallibilism; however, their criticisms don't apply to ATD. First, their criticism to what they call 'The Argument From Being Certain' (2009, p. 224) doesn't apply to ATD, because ATD doesn't involve the fallacious claim that *p* is a reason to think that the epistemic probability of *p* is one (it only involves the claim that *p* is a reason to think that the most accurate credence in *p* is one). Moreover, their criticism to what they call 'The Argument From Hypothetical Gambles' (Brown, 2008, p. 1144; Fantl & McGrath, 2009, pp. 2256) also doesn't apply to ATD, because ATD doesn't involve any high-stakes gambles.

[16] BC* is a rationality-action principle that is implied by Ganson's (2008, p. 451) BC. It's also a knowledge-action principle if we assume that knowledge requires rational belief.

Now, we can see why my argument ATD also applies to KA; that is, KA and Fallibilism cannot both apply to those who know Truth-Directedness. Let CERTAIN refer to the state of affairs 'S is certain that *p*' and let UNCERTAIN refer to the state of affairs 'S is uncertain that *p*.' We show that, if S knows Truth-Directedness and if KA applies to S, then S cannot fallibly know *p*.

ATD-KA

1. It's rational for S to prefer CERTAIN & *p* to UNCERTAIN & *p* (for the sake of accuracy).	(Assumption that S knows Truth-Directedness)
2. If it's rational for S to act as if *p*, then [it's rational for S to prefer CERTAIN & *p* to UNCERTAIN & *p*] only if [it's rational for S to prefer CERTAIN to UNCERTAIN].	(Definition of 'act as if *p*')
3. If it's rational for S to act as if *p*, then [it's rational for S to prefer CERTAIN to UNCERTAIN].	(1, 2)
4. If S knows that *p*, then it's rational for S to act as if *p*. (Assumption that KA applies to S)	
5. If S knows that *p*, then [it's rational for S to prefer CERTAIN to UNCERTAIN].	(3, 4)
6. If it's rational for S to prefer CERTAIN to UNCERTAIN (for the sake of accuracy), then it's rational for S to *be* certain that *p*.	
7. If S knows that *p*, it's rational for S to be certain that *p*.	(5, 6)

ATD-KA is valid. All the premises but 1 and 6 are straightforward. Premise 1 is plausible given our stipulation that S knows Truth-Directedness. As we have explained above, accuracy is the most important goal in decisions about credence. Since S knows that certainty in the truth is the most accurate credence, S should prefer the state of affairs CERTAIN & *p* to the state of affairs UNCERTAIN & *p*. Premise 6 is also plausible. If it's rational for you to prefer a specific credence *for the sake of accuracy*, it seems that it's rational for you to have that credence—presumably, the point of being rational is that it can best serve our accuracy goals.[17]

By now, the pattern instantiated by ATD and its extension ATD-KA should be clear. The core idea of knowledge-action principles is about 'reliance': if you know *p*, then you can 'rely on *p*' in those *p*-dependent decisions; Since one *p*-dependent decision is a decision about what credence in *p* to have, knowing *p* means that you can rely on *p* in such a decision. Then if you know Truth-Directedness, by relying on this knowledge and relying on *p* in your credence decision, you would be certain that *p*, since certainty in *p* is the most accurate credence if *p* is true. Therefore, if you know Truth-Directedness and if knowledge-action principles apply to you, then knowledge implies certainty.

In the following section, I discuss a response to ATD that the impurist might offer.

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[17] The generalization of ATD to BC*-based argument for impurism will be slightly different, because the term 'knows' in ATD-KA and in Fallibilism will be replaced with 'rationally believes.'.

5 A Possible Response to ATD

Recall that, in their clarification of KJ, Fantl and McGrath emphasize that KJ applies to any possible value of Φ. But in order to resist ATD, they might place some restriction on KJ. Perhaps they could revise KJ into.

KJ*   If you know that *p*, then *p* is warranted enough to justify you in Φ-ing, for any *relevant* Φ.

And then they could say that being certain in *p* is an 'irrelevant' value of Φ. Given such a restriction, ATD wouldn't get off the ground.

Such a restriction response is unsatisfactory. An impurist who gives the restriction response should answer this question: if certainty is irrelevant, is it because credence in general is irrelevant, or is it because there is something particular to the certainty credence, so that only *this* credence is irrelevant? But if the impurist claims the former, his claim is ad hoc, and if he claims the latter, his claim doesn't threaten the basic strategy behind ATD. Or so I will argue.

5.1 Credence in General is Irrelevant?

First, consider the impurist's answer that certainty is irrelevant because credence in general is irrelevant. This is to claim that KJ is not supposed to apply to decisions about credence at all, although it's supposed to apply to decisions about actions or decisions about binary beliefs. But this claim would be ad hoc. Here is why.

In motivating knowledge-action principles like KJ, impurists typically invoke our linguistic practices in ordinary life. They point out that, in daily life, we often defend or criticize people's actions by invoking knowledge claims. For instance, in defending my decision to turn left, it's very natural to say 'I know the restaurant we want to go to is on the left.' And in criticizing your partner's decision to throw away a lottery ticket, it's natural to say 'You don't know you won't win.' Impurists may reasonably take such practices as evidence that there is some knowledge principle governing actions. But the problem is that this kind of linguistic practice is not limited to *action*—in daily life, we also defend or criticize people's *credence* by invoking knowledge claims. For instance, in defending my being 0.5 confident that the coin will land heads, it's natural to say 'I know the coin is fair.' And in criticizing your high confidence in tomorrow's raining, it's natural to say 'you don't know that there is a high chance of raining—you haven't checked the weather forecast!' So, if our linguistic practices imply that there is some knowledge principle governing actions, as impurists claim, then similar practices should also imply that there is some knowledge principle governing credence. Therefore, it's ad hoc to claim that KJ is supposed to apply to action but not to credence.

Another motivation for knowledge-action principles would also vindicate the claim that it's ad hoc to keep such principles from applying to credence. Weatherson (2012, pp. 80–81) has argued that, if we want our decision theories to be applicable

to real-life situations, then we must admit that our decision tables are structured by knowledge rather than by stronger positions such as iterated knowledge or rational certainty, since we rarely have those stronger positions in real-life situations. But if this argument suggests that our decisions about action are guided by knowledge rather than those stronger positions, then it should also suggest that our decisions about credence are guided by knowledge rather than those stronger positions. After all, it's not as if iterated knowledge or rational certainty is rare when we make decisions about action but suddenly they become abundant when we make decisions about credence.

Now, perhaps the impurist would respond to the worry of ad hocness in this way: although in ordinary life we do rely on knowledge in forming, defending, or criticizing credence, strictly speaking, this kind of practice is at best an approximation to some ideally rational practices. Strictly speaking, they might say, rational credence should just obey those well-established, apparently 'knowledge-free' norms of credence, norms like 'Match your credence with epistemic probability' or 'Update your credence by the Bayesian rule of conditionalization.' And we conform to knowledge principles merely as a quick-and-dirty way of conforming to those stricter norms. Therefore, strictly speaking, we shouldn't expect that there are any knowledge principles for credence. Well-established norms of credence that don't (or needn't) involve the notion of knowledge are good enough.

But this response wouldn't alleviate the ad hocness of the claim that knowledge norms like KJ are supposed to apply to action but not to credence. If the fact that we have well-established, apparently 'knowledge-free' norms of credence means that we shouldn't expect knowledge norms like KJ to apply to credence, then the same thing holds for action. After all, there are also well-established, apparently 'knowledge-free' norms of action, such as the Bayesian norm of maximizing expected utility.

Of course, we know that advocates of knowledge norms like KJ have gone to great lengths to reconcile them with the Bayesian norm of maximizing expected utility. They have argued that, even if we accept the Bayesian norm, knowledge norms still play an important role in guiding and regulating people's actions. Some argue that the Bayesian norm is about substantive rationality and knowledge norms are about procedural rationality (Hawthorne & Stanley, 2008, pp. 580–581; Weisberg, 2013, pp. 4–5); others argue that knowledge norms may function as useful heuristics for ordinary people with limited time and resources (Weisberg, 2013, pp. 6–9). No matter whether these arguments are ultimately successful, the important point here is that, for impurists, accepting those apparently 'knowledge-free' norms of action like maximizing expected utility doesn't mean that we shouldn't expect a knowledge norm for action. But then they should say the same thing about credence: accepting those apparently 'knowledge-free' norms of credence like conditionalization doesn't mean that we shouldn't expect a knowledge norm for credence—perhaps a knowledge norm for credence may still function as a good procedural norm or as a useful heuristic. In conclusion, the impurist doesn't have a non ad hoc reason to claim that knowledge norms like KJ are supposed to apply to actions or binary beliefs but not to credence.

5.2 Credence in General is relevant, But Certainty is Not?

We have seen that the impurist shouldn't claim that certainty is irrelevant simply because it's credence. Let's consider a second option: perhaps certainty is irrelevant not because it's credence but because it's a particular kind of credence. For instance, perhaps certainty is not a *salient* credence, where an attitude or action is salient for S if it's rational for S to seriously consider it.[18] And the impurist might say that certainty is not worthy of serious consideration in one's reasoning about credence because it's psychologically difficult for ordinary persons to really be certain of something.

However, even granting that certainty is an irrelevant attitude for the above reason, the basic idea behind ATD will not be threatened. ATD instantiates a strategy of arguing that there is a tension among KJ, Fallibilism, and Truth-Directedness; this strategy can work in a slightly different way, even if ATD itself fails because certainty is ruled out as irrelevant. Let me explain.

Let's suppose *for reductio* that I know Truth-Directedness and that both KJ and Fallibilism apply to me. Then imagine the following scenario. I know that p, and I am deliberating on how confident I should be in p. I don't seriously consider certainty, since I am aware of the psychological difficulty of being certain in a contingent proposition like p. In fact, reflecting on my evidence, I find that it supports credence 0.8, so I am tempted to be 0.8 confident in p. But then I remember that the most important aim in credence-revision is accuracy. So, I reason 'p is true; so, the higher my credence in p is, the more accurate my credence would be; so, I should go as high as I can.' Then I end up adopting a credence higher than 0.8, although I am still not certain.

Now, if I know Truth-Directedness and if both KJ and Fallibilism apply to me, then the above scenario would be coherent and my reasoning in the scenario would be correct; so, my rational credence can be bootstrapped from 0.8 to a credence higher than 0.8, even though I'm well aware that my evidence supports only 0.8 credence. This bootstrapping is unacceptable. But as we have seen, to get this bootstrapping result, we don't need to assume that KJ applies to the attitude of certainty. What we assume is that KJ applies to reasoning of credence in general. And the impurist must accept this assumption, as I have argued in Sect. 5.1.

So, only ruling out certainty as irrelevant will not block the above variant of ATD. This point can also help answer the worry I've mentioned at the end of Sect. 3. The worry, as we recall, is that the impurist might be able to resist the inference from (1) to (3) in ATD. Suppose that I know p on a fallible ground; more specifically, suppose that I am 0.8 confident in p because I know that the credence supported by my evidence is 0.8. The impurist can say that, once I raise the question 'is certainty the most accurate credence in p,' practical stakes will dramatically increase and will defeat my knowledge p—if I act on the belief that certainty is the most accurate credence in p and thus become certain, and if this belief turns out to be false (because p turns out to be false), I would be certain in p when in fact p is false,

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[18] Weatherson ([2005](), pp. 4223) proposes a similar restriction on his belief-action principle.

and being certain in a false proposition presumably would bring a very bad conse-
quence, a consequence much worse than being 0.8 confident in a false proposition.
For instance, on the view that rational credence is stable across practical contexts, it
would mean that I would bet my life on a proposition that turns out to be false. So,
the impurist can say that knowing Truth-Directedness and knowing p don't imply
knowing that certainty in p is the most accurate credence.

Now, we can see why this defeasibility solution is unsuccessful. Even if the
defeasibility solution can block my inference from 'p' to 'certainty is the most accu-
rate credence in p,' it cannot block the inference from 'p' to '0.81 is more accurate
than 0.8.' Perhaps raising the question 'is certainty the most accurate credence in p'
would dramatically increase practical stakes and defeat knowledge, but it's implausi-
ble that raising the question 'is 0.81 credence in p more accurate than 0.8 credence'
would have the same effect. Suppose that 'retaining my current credence 0.8' and
'moving up to 0.81' are the only two options I consider in my credence decision.
If I act on the belief '0.81 is more accurate than 0.8' and if this belief turns out
false (because p turns out false), the direct consequence would just be that I am 0.81
rather than 0.8 confident in a false proposition, and it's implausible that having a
credence slightly higher than one's current level on a false proposition would in gen-
eral make one's life much worse. In other words, whatever the practical consequence
of being 0.8 confident in a false proposition p is, we shouldn't expect that the practi-
cal consequence of being 0.81 in p is dramatically different. Therefore, the defeasi-
bility solution cannot block the slight bootstrapping.[19]

In conclusion, the restriction response is unsatisfactory: ruling out credence in
general as irrelevant will be ad hoc, and only ruling out certainty as irrelevant will
not threaten the basic strategy behind ATD.

6 Conclusion

The KJ-based argument for impurism claims that KJ coupled with Fallibilism
entails impurism. I have raised a new challenge against this argument by arguing
that KJ and Fallibilism are jointly in tension with Truth-Directedness, a widely-held

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[19] An anonymous reviewer has suggested the following response: the impurist can say that, when we ask
the question of which credence to have, stakes do become high so that fallible knowledge is defeated—
it's just that the relevant stakes are not practical stakes associated with action, but stakes having only
to do with inaccuracy. That is, when we ask which credence in p to have and when the evidential prob-
ability of p is below certainty, the stakes that have to do with inaccuracy become high enough so that p
is no longer 'practically adequate.' (See Anderson and Hawthorne (2019) for the property of practical
adequacy.).

  This response has the surprising result that, whenever the epistemic probability is below certainty and
when we're facing the question of which credence in p to have, we'll lack knowledge as to whether p.
The reviewer thinks that this result doesn't lead to skepticism, because the notion 'facing a question'
should be construed narrowly, so that we don't often face the question of which credence to have. I'm
inclined to disagree. I think that credence deliberation is something we engage in quite often in ordinary
life. Perhaps we rarely ask the question explicitly in the form 'what credence in p should I have?' but we
do often ask the question implicitly by asking 'how likely is p?'.

principle of credence, in the sense that the former two principles cannot both apply to those who know the third. I've also argued that the impurist cannot avoid this tension by replacing KJ with other plausible knowledge-action principles. Last, I've argued that restricting KJ so that it doesn't apply to credence revision is an unsatisfactory move.

Of course, I haven't considered all possible knowledge-action principles but only those major players in the literature. Perhaps there is some knowledge-action principle that can avoid the above tension. However, my arguments in this paper cast serious doubts on the prospect of finding such a principle: any knowledge-action principle must say that knowledge governs decisions about action, but reasons for thinking that knowledge governs decisions about action will imply, or at least point us to, reasons for thinking that knowledge governs decisions about credence, and given one's knowledge of Truth-Directedness (and assuming the central importance of accuracy for credence), if knowledge governs decisions about credence then knowledge implies rational certainty.

However, as I have emphasized in Sect. 2, my target in this paper is Threshold-Impurism. I will end this paper by arguing that Credence-Impurism is not threatened by my argument, because rejecting Fallibilism is unproblematic for Credence-Impurists. As I explained in Sect. 2, Threshold-Impurists must accept Fallibilism due to their acceptance of the stability of rational credence across practical contexts. Assuming stability of rational credence, denying Fallibilism will (1) induce skepticism and (2) render knowledge-action principles useless in defending impurism. If knowledge always implies rational certainty, then knowledge-action principles can't explain knowledge loss in high-stakes cases, because rational certainty in p is retained and it's strong enough for relying on p in action in high-stakes cases. But since these two bad consequences of denying Fallibilism only follow if we assume that rational credence is stable across practical contexts, and since Credence-Impurists reject the assumption, denying Fallibilism is harmless for them. Therefore, a Credence-Impurist can respond to the tension among KJ, Fallibilism, and Truth-Directedness simply by giving up Fallibilism. For this reason, a lesson of this paper is that Credence-Impurism has an important advantage over Threshold-Impurism.

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