

Wagering on Pragmatic Encroachment¹

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1. Introduction

Lately, there has been an explosion of literature exploring the the relationship between one's practical situation and one's knowledge.² Some involved in this discussion have suggested that facts about a person's practical situation might affect whether or not a person knows in that situation, holding fixed all the things standardly associated with knowledge (like evidence, the reliability of one's cognitive faculties, and so on).³ According to these "pragmatic encroachment" views, then, one's practical situation encroaches on one's knowledge. Though we won't endorse pragmatic encroachment here, we find the view intriguing, and it's popularity warrants carefully considering it's implications. One potential avenue of exploration concerns religious epistemology, in particular, whether pragmatic encroachment has consequences concerning the epistemic requirements of atheism. We begin the journey down that avenue by connecting Pascal's Wager to pragmatic encroachment in order to defend this conditional: If there is pragmatic encroachment, then it is *ceteris paribus* more difficult to know that atheism is true (if it is) than it is to know that God exists (if God does exist).

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² E.g., Anderson and Hawthorne (forthcoming); Fantl and McGrath (2002, 2009, ms.); Hawthorne (2004); Kvanvig (2011); Stanley (2005); Ross and Schroeder (forthcoming); Schroeder (2012); Weatherson (2005, 2011); Williamson (2005).

³ Fantl and McGrath (2002, 2009, ms.) and Stanley (2005) are arguably the most committed of the lot.

Two comments. First, on the claim that God exists. For the earlier stages of the paper, we stipulate that ‘God’ refers to the Christian God, the Trinitarian God of Abraham, Isaac, and Jacob as revealed in the Incarnate Christ, if such a being exists. ‘God exists’ is, then, roughly and contingently equivalent to ‘Classical, Creedal Christianity is true’. Ordinarily, the English word ‘God’ is more flexible than this. It can refer to, e.g., the being worshipped by Muslims, or Brahman, if such beings exist, and need not be an empty name if some non-classical version of Christianity is true.⁴ For sociological reasons to do with the religious affiliation of anglophone philosophers, we are initially concerned with Christianity. Further, because the names for the Supreme Being in Christianity overlap with those in Judaism and Islam, some sort of stipulation is necessary here. We’ve chosen this one to ease the prose, and do not mean to insinuate anything about the relationship between Christianity and Judaism, Islam, Hinduism, or any other religion. When it comes time to consider alternatives to Christianity below, we will alter the terminology. At any rate, denying that “God” exists, given our stipulation, is not equivalent to being an atheist, as ‘atheism’ is commonly understood. Second, on one proposition’s being “more difficult” to know than some other proposition. It is plausible that we can compare the strengths of two people’s epistemic positions, at least in some cases.⁵ This is especially true when the propositions in question are related in important ways. For example, one person may have some evidence for believing that the earth is flat, another person may have some evidence for believing that the earth is spherical. Even if the evidential bases are disjoint, we might be able to judge that the evidence that one person has is better or stronger than the evidence that another person has, and thereby judge that the former is in a stronger epistemic position than the latter (supposing evidentialism is true). When we say that one proposition is “more difficult” to know than another proposition, then, we mean to say that one must be in a stronger epistemic position to know the former proposition than one must be in to know the latter proposition.

⁴ Because ‘Allah’ is simply the Arabic word rightly translated into English as ‘God’, we do not deem it appropriate to use ‘Allah’ here. This is another part of the terminological problem we are up against.

⁵ We use ‘strength of epistemic position’ as DeRose (2009) does (cf. pp. 7-9). One’s strength of epistemic position is determined by those factors traditionally associated with knowledge, factors like evidence or the reliability or proper functioning of one’s cognitive faculties. If one is an evidentialist, then the better one’s evidence with respect to p , the stronger one’s epistemic position with respect to p . If one is a reliabilist, then the more reliable was the faculty that gave rise to a belief that p , the stronger one’s epistemic position with respect to p . And so on.

The plan for the paper is straightforward. In section 2, we say more about what pragmatic encroachment is. We do this by introducing and unpacking the technical term ‘practical adequacy’ and then using this technical term to give a more precise definition of pragmatic encroachment. We then quickly sketch some of the reasons pragmatic encroachers have offered in favor of their view. In section 3, we connect this form of pragmatic encroachment and Pascal’s Wager. The connection reveals that pragmatic encroachment entails that it’s more difficult to know that God does not exist than it is to know that God exists. There are some worries about our argument, so in section 4 we consider and reply to these worries.

2. Pragmatic Encroachment

According to pragmatic encroachers, whether one knows p requires more than having a non-gettiered true belief that p that has the right truth-conducive features. Knowledge also depends on the practical features of one’s situation. This characterization of pragmatic encroachment is thin. All it says is that one’s knowledge depends on one’s practical situation *in some way or other*, and it makes no attempt to characterize the nature of this dependence. There is more than one such characterization, and each corresponds with a particular version of pragmatic encroachment. Some of these versions are expressed in the literature. We will focus on a particularly popular version of pragmatic encroachment, characterized in terms of practical adequacy. Before we articulate that version, we want to note two assumptions that will simplify the discussion. First, we’ll assume an evidentialist gloss on strength of epistemic position, such that the strength of one’s epistemic position with respect to any proposition p is a function of the strength of one’s evidence that bears on p . Second, we’ll model the strength of one’s evidence in terms of a rational credence function. The overall idea, then, is that the higher one’s rational credence in a proposition, the stronger one’s evidence must be with respect to that proposition, and the stronger one’s epistemic position is with respect to that proposition. We believe that nothing turns on these simplifications.

The practical adequacy version of pragmatic encroachment claims that a necessary condition for some subject s to know that p is that s ’s epistemic position with respect to p is “practically adequate”. Clearly, we need to unpack this term of art ‘practical adequacy’. The basic idea is this: one’s epistemic position with respect to p is practically adequate when no amount of improvement in one’s evidence about p would make a difference as to what

actions are rational for one. Anderson and Hawthorne (forthcoming) put it this way:

The gap between one's actual epistemic position and perfect epistemic position with regard to p makes a practical difference to a decision in a scenario just in case...one's actual ranking of actions differs from one's ranking of actions conditional on p We will call a subject's strength of epistemic position 'practically inadequate' when the gap makes a practical difference and 'practically adequate' when the gap does not make a practical difference. (p. 4)

We should work a bit more slowly through this terrain. First, for some subject s and some proposition p , if the gap between s 's actual strength of epistemic position for p and the perfect strength of epistemic position for p makes no *practical difference*, then this strength of epistemic position is practically adequate. And the gap between one's actual strength of epistemic position and the perfect strength of epistemic position makes a practical difference if and only if the action that is actually rational for s differs from the rational action for s conditional on p . But how are actions ranked? Here's one way. Using standard decision theory, calculate the expected utilities of all the available actions and list them from greatest to least. And what of actions conditional on p , how are they ranked? Again calculate the expected utilities of all the available actions, except this time, use the probabilities of each proposition conditional on p , and list these results from greatest to least. If the lists have different actions ranked first, then the gap made a practical difference, and s 's epistemic position with respect to p is practically inadequate; if the lists have the same action ranked first, then the gap made no practical difference, and s 's epistemic position with respect to p is practically adequate.

An example is helpful. A sea captain is just about to take a ship full of 200 passengers for a harbor tour. Now consider the following proposition: the sea captain's ship is seaworthy. Suppose that her rational credence that the ship is seaworthy is .9, and accordingly that her rational credence that the ship is not seaworthy is .1---fill in the details however you like to get these numbers. Here and throughout, we use 'C' represent an agent's rational credence function. In this case, then, $C(\text{seaworthy}) = .9$ and $C(\text{not seaworthy}) = .1$. Furthermore, she has two available ways in which she could act: she could depart immediately or she could delay the harbor tour to do some further checking to raise her confidence that the ship is seaworthy.

This setup has two options for action and two world states, so there are four outcomes to consider. First suppose that the sea captain chooses to start the harbor tour on time. If the ship is not seaworthy, then everyone drowns. If the ship is seaworthy, then everyone has a pleasant harbor tour and none of the passengers get upset due to a delay. Now suppose that the sea captain delays the cruise to do some further checking. If the ship is not seaworthy, then the sea captain will discover this and cancel the harbor tour. This would make the passengers angry, and it would lose the captain the revenue that would have been generated by the trip. If the ship is seaworthy, then the captain's extra checking would delay the departure a half hour, and this would make some of the passengers mildly upset.

We can represent the sea captain's practical situation with the following table:

	ship is seaworthy	ship is not seaworthy
start the harbor tour on time	+10	-10,000
do some further checking	-10	-200

Here and throughout, we use 'EU' to represent an agent's expected utility function. In this case, $EU(\text{start on time}) = .9(10) + .1(-10,000) = -991$, whereas $EU(\text{do further checking}) = .9(-10) + .1(-200) = -29$. Thus the actual rankings of the sea captain's actions are as follows:

1. Do some further checking
2. Start the harbor tour on time

What about the rankings of the sea captain's actions conditional on the ship's being seaworthy? In that case, $EU(\text{start on time}) = 10$, while $EU(\text{do further checking}) = -10$.⁶ Thus the rankings of the sea captain's actions conditional on the ship's being seaworthy are as follows:

1. Start the harbor tour on time.

⁶ $1(10) + 0(-10,000) = 10$; $1(-10) + 0(-200) = -10$. The second column of the decision table becomes irrelevant when conditional on the ship's being seaworthy, since (if one is rational), $C(\text{not seaworthy}|\text{seaworthy}) = 0$.

2. Do some further checking.

The order of the sea captain's actual rankings differs from her rankings conditional on the ship's being seaworthy. Thus, the gap for the sea captain makes a practical difference, and accordingly, the sea captain's strength of epistemic position with respect to the ship's being seaworthy is practically *inadequate*.

The sea captain's strength of epistemic position could become practically adequate if it were sufficiently improved. Obviously if she became certain that the ship is seaworthy, if $C(\text{ship is seaworthy}) = 1$, then her actual strength of epistemic position would be practically adequate. But, what is the minimally strong epistemic position for her that would be practically adequate? That is, what is the rational credence below which the sea captain is guaranteed to have practically inadequate belief? The value of the minimally strong epistemic position is given by the minimal value of $C(p)$ such that an agent's rankings of actions given $C(p)$ has the same top-ranking actions as the rankings of actions conditional on p . In the sea captain case, this value is given by solving for x in the following inequality: $x(10) + (1-x)(-10000) > x(-10) + (1-x)(-200)$. Thus the sea captain's belief that the ship is seaworthy is practically adequate when $C(\text{seaworthy}) > 490/491$, approximately .99796. Thus it turns out that the sea captain needs a rational credence tantamount to certainty in order to be in a position to know that the ship is seaworthy, given the utilities we've assumed for the possible outcomes.

Let's now consider a subject whose strength of epistemic position, with respect to this same p , is *practically adequate*. Consider Kenji and his friend Smith who both happen to walk by the ship mentioned above right as it is scheduled to start its harbor tour. Kenji likes to bet on everything, so he proposes the following set of bets to Smith. If Smith bets that the ship will sink during its next harbor tour and he's right, then he wins \$5, and if he's wrong, then he loses \$5. Also, if Smith bets that the ship will *not* sink during its next harbor tour and he's right, then he wins \$5, and if he's wrong, then he loses \$5.

It turns out that Smith has the exact same evidence that the ship is seaworthy that the sea captain has, and accordingly $C(\text{seaworthy}) = .9$ and $C(\text{not seaworthy}) = .1$. We can represent Smith's scenario with the following table:

	ship is seaworthy	ship is not seaworthy
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bet ship is seaworthy	+5	-5
bet ship is not seaworthy	-5	+5

$EU(\text{bet seaworthy}) = 4$, whereas $EU(\text{bet not seaworthy}) = -4$. Thus the actual rankings of Smith's actions are:

1. Bet seaworthy
2. Bet not seaworthy

What about the rankings of the Smith's actions conditional on the ship's being seaworthy? With this constraint, $EU(\text{bet seaworthy}) = 5$, while $EU(\text{bet not seaworthy}) = -5$. Thus the rankings of the Smith's actions conditional on the ship's being seaworthy are as follows:

1. Bet seaworthy
2. Bet not seaworthy

The order of the Smith's actual rankings do not differ from his rankings conditional on the ship's being seaworthy. Thus, the gap for the Smith makes no practical difference, and accordingly, Smith's strength of epistemic position with respect to the ship's being seaworthy is *practically adequate*.

With this understanding of practical adequacy we can repeat with greater clarity the version of pragmatic encroachment with which we'll work. If one knows that p , then one's epistemic position with respect to p is practically adequate. Notice that if this is right, then Smith knows that the ship is seaworthy while the sea captain does not---even though they have the same rational credence in the same proposition and both of their beliefs are true and ungettiered. Thus, if practical adequacy is a necessary condition for knowledge, then pragmatic encroachment is true. Fallibilism is required for this point to go through, and the practical adequacy version of pragmatic encroachment plausibly entails fallibilism, assuming that practical adequacy is supposed to be a non-trivial necessary condition on knowledge. For suppose fallibilism is false. Then, if S knows that p , then S's rational credence with respect to p must be 1. But then S's epistemic position with respect to p is guaranteed to be practically adequate. Accordingly it would be impossible to construct a pair of cases such that in the first case S knows that p and in the second case S doesn't know that p merely because S's belief is practically inadequate. Thus the practical

adequacy version of pragmatic encroachment would be false.⁷ We, therefore, assume fallibilism for the remainder of the paper.

Others characterize pragmatic encroachment using practical adequacy. Here again are Anderson and Hawthorne (forthcoming): “This [the distinction between practically adequate and practically inadequate epistemic positions] can be turned into a test on knowledge: one knows *p* only if one’s strength of epistemic position is practically adequate” (p. 4). And here are Fantl and McGrath (2002), in the first systematic defense of pragmatic encroachment in the recent literature: “*S* is justified in believing that *p* only if, for all acts *A*, *S* is rational to do *A*, given *p*, iff *S* is rational to do *A*, in fact” (p. 78).⁸ We take our development of this view to be the same as these versions, at least with respect to the features that matter for our purposes.

At this point, we hope we have made clear what the practical adequacy version of pragmatic encroachment *is*. But one is left wondering whether it’s worth taking seriously. So the time has come to (very briefly!) motivate the view. Some pragmatic encroachers appeal directly to intuitions about cases like those articulated above. They ask one to consider directly whether the sea captain knows that the ship is seaworthy, and whether the passerby knows that ship is seaworthy. The idea is to get a difference in intuition in these cases, and then point out that the only difference has to do with one’s practical setting. This, of course, doesn’t get one all the way to the practical adequacy version of pragmatic encroachment, but it would get one to pragmatic encroachment more generally.

However, there are also more theoretical routes. Here is one.⁹ Suppose there is a practical adequacy constraint on rational action. That is, suppose that if one can rationally act on one’s belief that *p*, then one’s epistemic position with respect to *p* is practically adequate. If the appropriate action conditional on *p* is different than the appropriate action given one’s actual credence, then one cannot rightly act on one’s belief that *p*. If that is right, then the sea captain cannot rightly act on her belief that the ship is seaworthy, for the reasons noted above. The passerby, however, can go ahead with that bet. Further, though,

⁷ Cf. Anderson and Hawthorne, p. 5.

⁸ See also Fantl and McGrath (ms.) p. 2. Stanley (2005) defends a similar type of pragmatic encroachment.

⁹ For another, see chapter one of Fantl and McGrath (2009).

many epistemologists are attracted to the thought that there is an intimate connection between knowledge and rational action. To ease the discussion, we'll stick with the most straightforward such connection, the idea that if one knows that p , then one can rationally act on one's belief that p .¹⁰ Coupled with a knowledge-action principle like this, the practical adequacy constraint on rational action (together with fallibilism), entails that if one knows that p , then one's epistemic position with respect to p is practically adequate. The examples above, then, display that it's possible for one person to know that p while another does not, even if the only difference between them is their practical situation. In the sea captain-passerby case, for example, the passerby knows that the ship is seaworthy while the sea captain does not. Importantly, even if you deny that *these* cases are examples of this phenomena, it is still true that the *structure* of these cases is enough to display the possibility, under the relevant assumptions. Committing to such possibilities is just committing to the practical adequacy version of pragmatic encroachment.¹¹

3. Wagering on Pragmatic Encroachment

Suppose the practical adequacy version of pragmatic encroachment is true. We believe that there is an important consequence of this view for religious epistemology, namely, it is more difficult to know that atheism is true (if it is) than it is to know that God exists (if God does exist). To see this, consider the decision table below, which we can use to represent what one's faced with when one considers Pascal's Wager:

	God exists	atheism is true
believe God exists	Infinite Goodies	Minimal Baddies
believe atheism is true	Infinite Baddies	Significant Goodies

Before we start, it's worth noting that there are a number of problems with this set-up of the decision table, and we'll discuss some of those below. We've deployed this set-up only to illustrate the underlying point we're driving toward. We'll make that point more cautiously as we repair the decision table.

¹⁰ For discussion, see e.g. Anderson (forthcoming), Hawthorne and Stanley (2008), and Williamson (2000).

¹¹ For a very different variety, see Schroeder (2012) and Ross and Schroeder (forthcoming).

Throughout, our decision tables have ‘believe God exists’ as one of the relevant actions. By ‘believe God exists’ we mean believe in that way that classical Christianity has supposed is necessary and sufficient for (though not the ground of!) one’s salvation. You might think that belief is not an act that can be undertaken, so that the possible actions in our set-up are inappropriate. Peterson (2009), for example, says that appropriate actions should be “alternatives”, and,

the set A is an *alternative-set* if and only if every member of A is a particular act, A has at least two different members, and the members of A are agent-identical, time-identical, performable, incompatible in pairs and jointly exhaustive. (p. 29, emphasis in original)

Believing that such-and-such is, according to popular epistemological lore, not “performable”, in that what we believe is not up to us. Further, it is likely the case that we can have inconsistent beliefs, and so believing that God exists and believing that atheism is true may not be incompatible. Neither are those believings jointly exhaustive, as we’ve noted above. If all this is right, then using ‘believe that God exists’ and ‘believe that atheism is true’ as the alternative actions is an inappropriate way to set up the table.

Suppose all that’s right. We still think our argument succeeds, for there are actions characteristic of God-believing that can serve as one of a pair that forms the right sort of alternative-set. For example, consider the act of repenting of one’s sin, or of being baptized in the name of the Father, Son, and Holy Spirit, or of worshipping the Triune God. The set {repent, do not repent} are an alternative-set, in Peterson’s sense. Consider the decision table so constructed. (Since there are a great many sub-cases of not repenting, not being baptized, &c., how to fill in certain cells, once the bells and whistles are added, will be a complicated matter.) Faced with such a decision, and attaching all the bells and whistles developed in response to the other worries developed below, it still takes stronger evidence to have practically adequate belief that God does not exist than it does to have practically adequate belief that God exists, if there is pragmatic encroachment. Using the alternative set {believe God exists, believe atheism is true}, however, is easier to understand, so we will stick with that set-up in the sequel.

With those preliminaries in mind, consider what it would take to have a practically adequate belief in atheism: it would take certainty that atheism is

true. Why? First, because the costs of error, the costs of falsely believing that atheism is true, are grave indeed: Infinite Baddies. In the calculation of the expected utility of believing that atheism is true, therefore, any chance that God exists is multiplied by an infinite value, and will therefore swamp the potential for getting the Significant Goodies that come with truly believing that atheism is true. Second, because you'll lose out on Infinite Goodies by not believing that God exists, if God does. Therefore, in the calculation of the expected utility of believing that God exists, any chance that God exists will be multiplied by an infinite value, and will swamp the potential for getting the Minimal Baddies that come with falsely believing that God exists. Which is to say, unless you are certain that atheism is true, the expected utility of believing that God exists is guaranteed to be greater than the expected utility of believing that atheism is true. Therefore, only certainty that atheism is true can be practically adequate. For the same reason, any non-zero credence that God exists is sufficient for a practically adequate epistemic position for God exists. No doubt one would be irrational for believing that exists if one's evidence warrants a rational credence of only, say, 0.000001. But if one wound up believing with such slender evidential warrant, one's epistemic position would nonetheless be practically adequate.

If all that is right, our conclusion follows: if practical adequacy is a necessary condition for knowledge, then one needs better evidence to know that atheism is true than one needs to know that God exists. On this setup, for one's epistemic position to be practically adequate with respect to the proposition that atheism is true, one's evidence must make it rational for one to be certain that atheism is true. On the other hand, one's evidence needn't warrant anything nearby certainty that God exists in order for one's epistemic position for God exists to be practically adequate.

Two worries: First, you might think that infinite utilities are problematic, especially in decision theoretic contexts. Second, you might think our decision table is missing columns. As will emerge, these worries warrant mild revisions in the conditional we're defending, but none will impact the fundamental point.

Before getting to those worries, we want to comment on the connection between our claim and Pascal's Wager. We're doing this because, given that we're appealing to Pascal's Wager, it's natural to think that all the problems for Pascal's Wager, of which there are legion, will be a problem for our thesis. This connection might be thought to be supported by the fact that the two worries we claim we'll deal with are equally worries for Pascal's Wager. But it's false

that any problem for Pascal's Wager is a problem for our claim. In order to see this, it's helpful to consider (roughly) what the conclusion of Pascal's Wager is, and how it purports to secure this conclusion. The conclusion: one ought to believe in God, or at least set about doing things that will bring about such belief. The path to this conclusion: belief in God is practically rational, and if something is practically rational then one ought to believe it. Notice that our thesis says nothing about what one ought to believe about God, so if Pascal's Wager fails on account of its conclusion this spells no trouble for our thesis. Second, the consequent of our thesis doesn't entail that belief in God is practically rational---it only entails that it is *easier* for belief in God to be practically rational than it is for belief in atheism to be practically rational. Our claim is, for these two reasons, weaker than Pascal's Wager. So the problems for Pascal's Wager that have to do with these two points are not problems for our claim. We will, therefore, focus only on problems for Pascal's Wager that have to do with setting up the decision table. This is where the respective problem classes overlap.

First Worry: Infinite Utilities are Problematic. In the literature on Pascal's Wager, one finds arguments to the effect that invoking infinite utilities in the set-up of the Wager is problematic.¹² And in the literature on decision theory, one finds arguments to the effect that invoking infinite utilities are problematic in every decision theoretic context.¹³ We think it's right that infinite utilities are problematic. Thus, we need to rewrite the table. We might do like this:

	God exists	atheism is true
believe God exists	Super-Great Goodies	Minimal Baddies
believe atheism is true	Super-Terrible Baddies	Significant Goodies

Even set up this way, it is still the case that one needs better evidence to know

¹² Cf. Jeffrey (1983) and McClennen (1994).

¹³ Infinite utilities are in conflict with the continuity axiom, an axiom that is normally taken as part of basic decision theory, and thus it's common for decision theorists to deny that there are infinite utilities. Furthermore, denying that there are infinite utilities offers an attractive resolution of the St. Petersburg paradox. Lastly, even if there are infinite utilities it's implausible that finite humans are the sort of beings that could ever secure them, so infinite utilities should be effectively ignored for human decision problems. Thus, there are some general reasons to doubt that there are infinite utilities, at all, or at least for humans.

that atheism is true than one needs to know that God exists. This is the case because one still needs better evidence to have a practically adequate epistemic position with respect to the proposition that atheism is true than one does to have a practically adequate epistemic position with respect to the proposition that God exists. The reason is similar to that given above, only that certainty is no longer required in order to be in a practically adequate epistemic position with respect to the proposition that atheism is true.

To be fair, the move away from infinite utilities exposes a gap in the argument, but one that can be filled with independently plausible premises. Here is the gap. Suppose one thought, independently of pragmatic encroachment, that there was a “floor” rational credence for knowledge: a rational credence such that, no matter what is going on in one’s practical situation, one must have evidence sufficient to warrant a credence above the floor for one to be in a position to know. It is possible, if there is such a floor, that the rational credence required for a practically adequate epistemic position to be below the floor for certain propositions. In such cases, it might still be that the strength of evidence required for a practically adequate epistemic position might be asymmetric. And if that is so, then the fact that one needs better evidence to be in a practically adequate epistemic position with respect to one proposition than one needs to be in a practically adequate epistemic position with respect to another proposition *does not* entail that one needs better evidence to be in a position to know the former than one needs to be in a position to know the latter. Let’s run through a toy example. Say the knowledge floor is .8, and consider again our friend Smith, considering whether to bet that the ship is seaworthy, but with the following slightly modified decision table:¹⁴

	ship is seaworthy	ship is not seaworthy
bet on ship is seaworthy	+10	-5
bet on ship is not seaworthy	-5	+5

In this case, for Smith to be in a practically adequate epistemic position with respect to the ship’s being seaworthy, $C(\text{seaworthy}) > .4$. On the other hand, for Smith to be in a practically adequate epistemic position with respect to the

¹⁴ We invite the reader to fill in the details of the story in order to make the utilities come out this way.

ship's not being seaworthy, $C(\text{not seaworthy}) > .6$. In this case, better evidence is required for Smith to be in a practically adequate epistemic position with respect to the ship's being seaworthy than is required for her to be in a practically adequate epistemic position with respect to the ship's not being seaworthy. But, we are assuming, the floor rational credence needed for knowledge is .8. Therefore, if Smith is to be in a position to know either of these propositions, she needs a rational credence of .8. If she had that, she would be guaranteed to have a practically adequate epistemic position. The practical adequacy constraint, in such a case, adds no further demand. Therefore, it is true that one needs better evidence to practically adequate in such a case, but not better evidence to be in a position to know.

We can fill this gap in the case with which we're concerned. The filling comes in two stages. First, the decision table involved with the Wager can be filled in with fairly modest values and still exact a heavy price with respect to the demands it places on being in a practically adequate epistemic position with respect to the proposition that theism is false. For example, consider this set-up:

	God exists	atheism is true
believe God exists	+500	-5
believe atheism is true	-200	+50

Here, the assumptions are that it's ten times as good to get an eternal heavenly life than it is to live a finite atheistic life in conformity to the atheistic truth, that it's two and half times as good to go to heaven as it is bad to go to hell, and that it's ten times better to live a finite atheistic life in conformity to the atheistic truth than it is to live a finite theistic life and be wrong that theism is true. This seems to stack the deck *against* the practical rationality of believing God exists. Nonetheless, in such a case, $C(\text{atheism}) > .93$ in order to have a practically adequate epistemic position with respect to atheism's truth. (One gets this by using an inequality similar to the one we used for the sea captain case, above in section 2.) If one were to fuss with the ratios noted above in order to make them more favorable to believing God exists, then the rational credence needed for practical adequacy goes even higher. For example, suppose one changed the top left box to +5,000, which would be to insist that, for example, an eternal heavenly life is but 100 times better than a finite atheistic life lived in conformity to the atheistic truth, then practical adequacy for atheism's truth

requires $C(\text{atheism}) > .99$, which is well-nigh certainty. In our view, that is still a conservative set-up. It can only get harder to have a practically adequate epistemic position that atheism is true.

Now for the second stage in the gap-filling process. It is plausible that the floor rational credence required for knowledge will be lower than what it takes to have a practically adequate epistemic position with respect to the proposition that atheism is true. For there seem to be a number of propositions that we know for which there is nowhere near certainty. Consider, for example, Smith's knowledge that the ship is seaworthy. The floor there seems fairly easy to reach, evidentially speaking. Further, pragmatic encroachers, if they want their pragmatic encroachment to actually matter, ought to go in for a fairly low floor. For the higher the floor, the less space there is for practical adequacy to be a serious necessary condition on knowledge. The closer to certainty the floor becomes, the more the practical adequacy condition becomes trivial. Now, we take no stand on what, exactly, a plausible floor is. Again, though, even with the conservative set-ups above, the demands for being in a practically adequate epistemic position with respect to the proposition that atheism is true are *very* high, higher we think than a plausible floor credence for knowledge.

Some still might object that heaven is simply not only not better than this-worldly goodies, but would actually be a bad thing, were one to get in. If heaven turns out to be more baddies than goodies, then it is clear that our conditional is false. But we don't think this is right. It may be that this objection assumes that one couldn't be wrong about what is good for one. On the classical Christian conception, after all, heaven is meant to be the best possible life, lived for eternity. Whatever that best life is, that sounds pretty great. And no matter what one's theory of the good life is, so long as it doesn't beg the question against heaven being good, we can simply stipulate that in heaven one has that sort of life for a really, really long time. So, whatever makes for this-worldly goodies, in heaven, either you'll just have more of those goodies for longer, or you'll get even better goodies for longer. Either way, getting heaven is getting Super-Great Goodies.

Second Worry: The Decision Table is Missing Columns. You might think that it's not so obvious that one is guaranteed minimal baddies by believing falsely that God exists. For example, maybe Islam is true. Or maybe there's a Deviant Deity (hence, DD), a deity that punishes believers to the exact extent that the classical God punishes non-believers and rewards non-believers to the exact extent that a classical God rewards believers. These possibilities

force us to add columns to our decision table, and correspondingly alters the expected utility calculations. We'll first dwell on the DD case in detail, then the Islam case, and then we'll say something more general.

Adding the DD possibility, the decision table might look like so:

	God exists	atheism is true	a Deviant Deity exists
believe God exists	+500	-5	-200
believe atheism is true	-200	+50	+500

To see the impact that this added column has on our thesis, let's suppose $C(\text{God}) = C(\text{DD}) = .1$; thus, $C(\text{atheism}) = .8$. Accordingly, $EU(\text{believe God}) = 26$, while $EU(\text{believe atheism}) = 34$. The rankings of actions on these credences is, therefore:

1. Believe that atheism is true
2. Believe that God exists

Indeed, given that conditional on atheism, $EU(\text{believe God}) < EU(\text{believe atheism})$ ---that is, given that the value in the first row-second column cell is less than the value in the second row-second column cell---whenever $C(\text{God}) = C(\text{DD})$, one's actual rankings of these actions will be the same as one's rankings of these actions conditional on God's not existing, unless $C(\text{atheism}) = 0$. Putting this together, if $C(\text{God}) = C(\text{DD})$, then one's strength of epistemic position for the proposition that atheism is true is almost trivially practically adequate. All one needs is $C(\text{atheism}) > 0$.

However, things change quickly if $C(\text{God}) > C(\text{DD})$. For example, suppose $C(\text{God}) = .14$ and $C(\text{DD}) = .06$; $C(\text{atheism}) = .8$ in this case as well. Then $EU(\text{believe God}) = 54$, while $EU(\text{believe atheism}) = 42$. When $C(\text{God})$ is greater than $C(\text{DD})$ by this small margin, $EU(\text{believe God}) > EU(\text{believe atheism})$. Thus, when the credences are fixed in this way, $C(\text{atheism}) = .8$ is *not* practically adequate. Also, when the rational credences are fixed in this way, $C(\text{God}) = .14$ is practically adequate for God's existence. Thus, if one's credences were the same as those in the above example, then the smallest rational credence that makes the proposition that God doesn't exist practically

adequate is much higher than the smallest rational credence that makes the proposition that God exists practically adequate.¹⁵

It is here we stick our necks out a little: evidence that God exists is stronger, indeed we think it's quite a bit stronger, than the evidence that a DD exists. Why think this? The only reason to think that a DD exists is that it's not impossible for a DD to exist. While God's existence is also not impossible, there are many other reasons to think that God exists: historical reasons, empirical reasons, a priori reasons, and so on. This is not the place to inventory these reasons in detail, but we find that they make the probability that God exists significantly higher than the probability that a DD exists, and that this difference is significant enough to make the practical adequacy constraint non-trivial for the atheist. We doubt we're alone in this evaluation. Accordingly, a DD poses no threat to our thesis, even if the probability that God exists and the probability of that a DD exists are both very low.

You might think the foregoing argument is too fast, that indeed there is as much evidence to think that a DD exists as there is reason to think that God exists. In fact, you might think that every bit of evidence there is for God's existence is equally good evidence for a DD, since a DD is the kind of God that would set things up to make people think God exists. Insofar as one takes there to be evidence for God, then, one must also think there is evidence for a DD. This is not so. Here is an analogy: suppose one is married. If the foregoing were true, then every bit of evidence that one has a non-temporally gappy spouse is equally good evidence that one has a spouse who ceases to exist whenever he sleeps, to be replaced by a robot simulacra that behaves just like a non-temporally gappy spouse would behave in his sleep. But that is crazy. The evidence you have does not equally support these two theories. And it is clear which theory the evidence supports. The general idea is this: if you think that any evidence you have for God's existence is equally evidence for the existence of a DD, then you're a skeptic. If skepticism is true, then this paper is unsuccessful. But this, of course, is a problem for everyone who isn't a skeptic.¹⁶

¹⁵ More generally, with the decision table set up this way, if $C(\text{God exists}) = 2(C(\text{DD exists}))$, then practically adequate atheistic belief requires $C(\text{atheism is true}) > .81$; and if $C(\text{God}) = 3(C(\text{DD}))$, then practical adequacy requires $C(\text{atheism}) > .86$. Practically adequate belief in God comes at much smaller credences. See below for insights into how we calculated these values.

¹⁶ Thanks to David Sosa for conversation here.

Matters are different when it comes to more serious alternatives to God's existence than a DD. For example, Islam, universalist versions of Christianity, and so on pose a more serious challenge. Let's consider the Islam case. We'll need another row in our decision table, since unlike with a DD, believing that the God of Christianity (hereafter, 'C-God') does not exist is not enough to guarantee the goodies or the baddies if Islam is true.¹⁷ Assuming the same utilities as before, and assuming that the heavenly goodies and hellish baddies for Islam and Christianity are equivalent in magnitude, the decision table looks like this:

	C-God exists	atheism is true	I-God exists
believe C-God exists	+500	-5	-200
believe atheism is true	-200	+50	-200
believe I-God exists	-200	-5	+500

In such a set-up, things are much worse for the atheist if $C(\text{C-God}) = C(\text{I-God})$, compared to the DD case. In the DD case, we noted that any non-zero credence in the truth of atheism was sufficient for practical adequacy so long as $C(\text{C-God}) = C(\text{DD})$. When $C(\text{C-God}) = C(\text{I-God})$, the minimally strong epistemic position needed for practically adequate atheistic belief is $C(\text{atheism}) > .86$. Here's how we get that value. What we need is the smallest value of $C(\text{atheism})$ such that $EU(\text{believe atheism}) > EU(\text{believe I-God})$ and $EU(\text{believe atheism}) > EU(\text{believe C-God})$. Let $x = C(\text{I-God}) + C(\text{C-God}) = 2(C(\text{I-God})) = 2(C(\text{C-God}))$. Then $C(\text{atheism}) = 1 - x$. On the above table, we can now see that $EU(\text{believe atheism}) = (x/2)(-200) + (1 - x)(+50) + (x/2)(-200) = 50 - 250x$. $EU(\text{believe I-God}) = EU(\text{believe C-God}) = (x/2)(+500) + (1 - x)(-5) + (x/2)(-200) = 145x - 5$. So, for practically adequate atheistic belief, one must determine the value of x in $50 - 250x > 145x - 5$; this yields $x < 55/395$, or (roughly) $x < .14$. Since $C(\text{atheism}) = 1 - x$, practically adequate atheistic belief requires $C(\text{atheism is true}) > .86$.

Another case: if $C(\text{C-God}) = 2(C(\text{I-God}))$, then the minimally strong epistemic

¹⁷ We use 'believe I-God exists' rather than 'keep the 5 pillars' or some such. Compare the discussion at the beginning of section 3.

position needed for practically adequate atheistic belief is $C(\text{atheism}) > .895$. The set-up is as in the previous paragraph, except that instead of $x/2$ in the expected utility calculations, one must use $2x/3$ for $C(\text{C-God})$ and $x/3$ for $C(\text{I-God})$. This is because, under the current assumption, $x = C(\text{I-God}) + C(\text{C-God}) = C(\text{I-God}) + 2(C(\text{I-God})) = 3(C(\text{I-God}))$. Since $EU(\text{believe C-God}) > EU(\text{believe I-God})$ when $C(\text{C-God}) > C(\text{I-God})$, determine the needed value of x by solving for x in $EU(\text{believe atheism}) > EU(\text{believe C-God})$. Using the values from the above table, (roughly) one needs $x < .105$. Thus, practically adequate atheistic belief requires $C(\text{atheism}) > .895$. The situation when $C(\text{I-God}) = 2(C(\text{C-God}))$ is symmetrical to this one. In the limiting case, in which either $C(\text{I-God})$ or $C(\text{C-God})$ goes to zero while the other remains non-zero, the situation reduces to the original two-column table above. So the minimally strong epistemic position needed for practically adequate atheistic belief is $C(\text{atheism}) > .93$.¹⁸ The most it can take, on the other hand, to have practically adequate belief that the C-God exists is $C(\text{C-God}) > .5$ because that is the most it takes to guarantee that $EU(\text{believe C-God}) > EU(\text{believe I-God})$. If $C(\text{C-God}) > .5$, $EU(\text{believe C-God}) > EU(\text{believe atheism})$ no matter how much of one's non-C-God possibility space is occupied by atheism. That .5 number decreases as $C(\text{atheism})$ increases relative to $C(\text{I-God})$. Putting all this together, so long as the floor rational credence required for knowledge is set fairly low, our conditional looks promising. Importantly, this is true as well when one formulates the conditional using 'I-God' rather than 'C-God'. The most it can take to have practically adequate belief that the I-God exists is $C(\text{I-God}) > .5$, and that number decreases as $C(\text{atheism})$ increases relative to $C(\text{C-God})$. The cases, so long as the heavenly goodies and hellish baddies are symmetrical, are equivalent.

The foregoing, as we hope we've made clear, assumes a particular way of filling out the decision tables associated with Pascal's Wager. And generalizing these

¹⁸ These points together flag a problematic consequence of the practical adequacy version of pragmatic encroachment: sometimes, one can go from not knowing p to knowing p by getting evidence *against* p . For example, the atheist might come to satisfy the practical adequacy constraint, and thereby come to know that atheism is true, by getting some evidence that I-God exists. To see this, consider a subject who has the following rational credences: $C(\text{atheism}) = .9$, $C(\text{C-God}) = .1$, and $C(\text{I-God}) = 0$. Since this is just a two column case, s 's .9 credence in atheism is under the .93 practical adequacy threshold, and is practically inadequate. Now suppose that s gets some evidence that leaves her with the following set of credences: $C(\text{atheism}) = .88$, $C(\text{C-God}) = .6$, and $C(\text{I-God}) = .6$. Now s is in a 3 column case such that $C(\text{C-God}) = C(\text{I-God})$, and in such a case s 's epistemic position with respect to atheism is practically adequate since s 's credence in atheism is $> .86$. See Eaton and Pickavance (forthcoming).

points to different ways of filling out the decision table isn't so easy, since there are so many variables. However, we believe we have stacked the deck in favor of the atheist, and that can be revealed by making two observations. First, we've assumed a modest view of the magnitude of the heavenly goodies and hellish baddies relative to the magnitudes of the goodies and baddies of a this-worldly life. Moving to less modest such views makes it even more difficult to be in a position to know that atheism is true (other things being equal). Second, we've assumed a smallish gap between the heavenly goodies and hellish baddies. The smaller that gap, the less difficult it is to be in a position to know that atheism is true (other things being equal). Alternatively, the larger that gap, the more difficult it is to be in a position to know that atheism is true. We think a more realistic decision table will be less favorable to the atheist on both of these dimensions.

How things work out for our conditional will be a function of how, exactly, goodies and baddies are distributed, and how, exactly, the probability space is filled. Given the number of variables, there is little hope to say much that is both helpful and general in the context of a paper like this. At the end of the day, we leave it to individual readers to test our claim for their particular decision tables. However, three observations are in order, each contingent on the plausible assumption that there are no humanly achievable goodies greater than those of heaven and no humanly achievable baddies worse than those of hell. First, the most it can take to have practically adequate belief that C/I-God exists is $C(\text{C/I-God}) > .5$. And second, for the atheist to be in a practically adequate position with respect to the truth of atheism, either $C(\text{atheism})$ must be very high, well above .5, or she must take possibilities like a DD to be nearly as likely as the classical religions. We suspect such probability spaces are unusual.¹⁹

Thus concludes our defense of the claim that if there is pragmatic encroachment, then it is more difficult to be in a position to know that atheism is true than it is to be in a position to know that God exists. For this conditional to be true, there must be no infinite utilities, there must be a lowish "floor"

¹⁹ If you disagree with us about whether there are infinite utilities, the worry about missing columns becomes much more difficult to deal with. We're very confident we can still respond to the problem posed by a DD if there are infinite utilities. We believe, though are less confident, that we can respond to the problem posed by other monotheistic religions. Since we believe infinite utilities are problematic, and since developing our responses in decision theoretic contexts with infinite utilities would take a great deal of space, we will not discuss these matters here.

rational credence for knowledge, and it must be rational to have a higher credence in a monotheistic God than in a Deviant Deity. These constraints are substantive, but they are very plausible, and can be motivated independently of a desire to defend this conditional. Infinite utilities lead to paradox. Fallibilists, especially pragmatic encroachers, should want a lowish floor rational credence. And thinking that one has as much evidence for a Deviant Deity as one does for a monotheistic God is at best tantamount to skepticism.

One final point. That this conditional is true is important. It is often assumed that theism is an extraordinary claim, and that extraordinary claims require extraordinary evidence; thus, one needs extraordinary evidence to know that a monotheistic God exists.²⁰ One sees this picture embodied in principles like Anthony Flew's (1976) "presumption of atheism". More recently, Stephen Law (2011) argues, on the basis of these kinds of claims about evidence, that one ought not believe that Jesus of Nazareth even existed. In a similar vein, Paul Kurtz (1986) writes that, "Extraordinary claims thus require extra degrees of evidence. Thus, before we can invoke miraculous or occult explanations that overturn well established laws and regularities of experience and nature, we would need very strong evidence" (p. 50).

It's plausible that Hume is expressing a similar thought in Section X, Of Miracles, in his *Entreaty Concerning Human Understanding*. He argues that whenever one is given the choice between two miraculous options, one rationally ought to believe in the lesser miracle. Thus, when someone tells you some mundane fact, you are faced with a choice: you can believe the mundane fact or you can believe that the testifier in question hasn't spoken truly. Mundane facts aren't at all miraculous. Someone ruining their credibility as a testifier by lying about a mundane fact is very unusual or quite miraculous. Thus, according to Hume's view, one should believe the mundane fact, and not that the testifier in question is lying (or that they have been lied to). When it comes to miraculous facts, however, much stronger testimony is required, that is, "no testimony is sufficient to establish a miracle, unless the testimony be of such a kind, that its falsehood would be more miraculous, than the fact, which it endeavors to establish..." (EHU 10.13) Thus, greater testimonial evidence is required to establish a miraculous fact than is required to establish a mundane fact. Now suppose that the following is true: the monotheisms make loads of miraculous claims that are only supported by testimony, and that atheism

²⁰ The principle that extraordinary claims require extraordinary evidence is commonly associated with Carl Sagan.

makes no miraculous claims.²¹ It follows from this and Hume's view that it takes much greater testimonial evidence to establish any of the monotheisms than it does to establish atheism.

What we have shown is that, if the practical adequacy version of pragmatic encroachment is true, then the usual set-up has the situation exactly backwards. Atheism requires more extraordinary evidence than the monotheisms.

We take no stand here as to whether one ought affirm the antecedent or deny the consequent of the conditional we defend. Maybe it's the case that there's an asymmetry between what it takes to be in a position to know that atheism is true and what it takes to be in a position to know that God exists. But maybe pragmatic encroachment is false.

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²¹ We don't think this is true, but this supposition makes it easier to draw out the contrast between Hume's view and ours.

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