Immodesty and Permissivism

Marc-Kevin Daoust, École de technologie supérieure
David Montminy, Université de Montréal

Abstract. What is the relationship between Immodesty and Permissivism? For permissivists, epistemically rational agents are sometimes permitted to take incompatible doxastic attitudes towards P (relative to the same evidence). Immodesty is a requirement governing our estimations or beliefs about our own credences and standards. If agents believe that their standards and credences are not among the most truth-conducive ones available to them, they are not immodest. Some philosophers think that Immodesty is incompatible with Intrapersonal Permissivism (Horowitz 2014; 2019). Others think that Immodesty can be used to respond to some objections against Interpersonal Permissivism (Schoenfield 2014). In this paper, we argue that Immodesty neither supports nor disproves Permissivism.

Keywords: rationality, Permissivism, Immodesty, Maximin, uniqueness

1 Introduction

Can rational agents sometimes have different credences in P relative to the same body of evidence? Is there more than one rational credence function towards any proposition P (relative to a body of evidence)? Impermissivists say no. Permissivists say yes. Whether Permissivism is true has implications for various theories of epistemic rationality, such as conservatism, subjective Bayesianism, and coherentism.[1]

The debate on Permissivism has met a number of forks in the road over the past few years, including the problem of arbitrary belief formation,[2] the possibility of objectivism about evidential support,[3] the issue of propositions whose truth value is mind dependent,[4] the relationship between accuracy and epistemic rationality,[5] the relationship between epistemic conservatism and epistemic ra-

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[1] See Kopec and Titelbaum (2016) for an overview of the debate and its implications.

[2] See White (2005, 2014) and Simpson (2017) on Permissivism and arbitrariness.

[3] See Meacham (2014), Hedden (2015), Schoenfield (2014), Smithson (2017), and White (2009) on Permissivism and objectivism about evidential support.

[4] See Kopec (2015) and Raleigh (2015) on Permissivism and cases in which P's truth is mind dependent.

[5] See Daoust (2019), Meacham (2014), and Titelbaum and Kopec (2019) on Permissivism and accuracy.

tionality,[6] the relationship between first- and higher-order rational beliefs,[7] the possibility of epistemic supererogation,[8] the putative existence of diachronic requirements of rationality,[9] the implications of deference principles and other shared epistemic practices,[10] and so forth. Here, we focus on one aspect of the debate—namely, the relationship between Immodesty and Permissivism.

Immodest agents believe that their credences and epistemic standards are among the most truth-conducive ones available to them. At first sight, Immodesty seems epistemically required of agents. If one thinks that one's standards are suboptimal, it seems that one is in a problematic state of incoherence or self-distrust.[11]

Some philosophers have argued that Immodesty is incompatible with some types of Permissivism (Horowitz 2014; 2019). Others think that Immodesty can be used to respond to some objections against Permissivism (Schoenfield 2014). In this paper, we argue that both positions are implausible.[12] Immodesty neither supports nor disproves Permissivism. In section 2, we present arguments for and against Permissivism that rely on Immodesty. In section 3, we argue that such arguments are problematic. They presuppose that a strong type of Immodesty is true (i.e., Strict Immodesty), and we have reason to think that this interpretation of Immodesty is incorrect. In section 4, we argue that, even if Strict Immodesty were true, it would not support Impermissivism. In section 5, we argue that Strict Immodesty does not block some objections against Permissivism. In light of this, it is unclear that Immodesty lends support for or against Permissivism.

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[6] See Jung (2016) and Daoust and Montminy (2017) on conservatism and Permissivism.

[7] See Jung (2017), Schultheis (2018), and Levinstein (2017) on higher-order beliefs and Permissivism.

[8] See Jackson (2021), Podgorski (2016), and Li (2017, 2019) on Permissivism and epistemic supererogation.

[9] See Podgorski (2016, 2017) and Hedden (2015) on diachronic requirements of rationality and Permissivism.

[10] See Greco and Hedden (2016), Dogramaci and Horowitz (2016), Levinstein (2017a), Meacham (2019), and Thorstad (2019) on deference principles, shared epistemic practices, and Permissivism.

[11] Lewis (1971, 56) and Elga (2010) argue that modesty raises issues of self-trust. That is, for them, modest methods or standards cannot be completely trusted. See Hedden (2015, 720–21) for a discussion of the relationship between Immodesty and the fundamental facts about evidential support. See Christensen (2013) on Immodesty and conflicts between various epistemic ideals (e.g., ideals of coherence, good reasoning, and evidence-responsiveness). Relatedly, see DiPaolo (2018) on immodesty and second-best problems in epistemology. See also Belot (2013) and Weatherson (2015). See Mayo-Wilson and Wheeler (2016) on immodesty for imprecise credences.

[12] See also Palmira (2021) for a complementary objection concerning the relationship between Immodesty and Permissivism. For Palmira, Horowitz's argument does not generalize well to some types of belief-forming methods, like the ones based on dominance reasoning. These belief-forming methods are compatible with a permissivist explanation of the connection between accuracy and rationality.

2   Immodest Agents and Permissivism

2.1   Getting Clearer on Immodesty and Permissivism

This paper is about the relationship between Immodesty and Permissivism. We will start by clarifying these notions. Here is a rough, initial definition of Immodesty:

Immodesty (initial). Relative to a body of evidence E, rational agents believe that their own attitudes and standards maximize expected accuracy.

However, there are many other formulations of Immodesty in print. First, Immodesty is sometimes defined in terms of estimation or credence, as in the following:[13]

Immodesty (estimation). Relative to a body of evidence E, rational agents estimate that their own attitudes and standards maximize expected accuracy.

Immodesty (credence). Relative to a body of evidence E, rational agents are highly confident or certain that their own attitudes and standards maximize expected accuracy.

Here, we will stick to the initial definition, expressed in terms of belief. However, the points we make can generalize to other formulations of Immodesty, expressed in terms of estimation or credence.

Second, the expression "maximize expected accuracy" is sometimes replaced with something more general, like "are rational" (under the assumption that "rational" means "maximize expected accuracy"), "have the highest prospects for accuracy," or "are the most truth-conducive ones available to them."[14] We will use these different formulations liberally. For the most part, these are different, contextual ways to say something like "maximize expected accuracy."

Finally, we can make a distinction between Strict and Non-strict Immodesty, as in the following.

Non-strict Immodesty. Relative to a body of evidence E, agents do not believe that their epistemic standards and credences are suboptimal responses to E.

Strict Immodesty. Relative to a body of evidence E, agents believe that their epistemic standards and credences are *the* most truth-conducive response to E available to them.

Those who think that there is a connection between Immodesty and (Im)permissivism have *Strict* Immodesty in mind. We will come back to the distinction between Strict and Non-strict Immodesty in the next section.

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[13] See, e.g., Lewis (1971), Schoenfield (2014, 202), Horowitz (2014, 43), and Carr (2020).

[14] See Carr (2020), Horowitz (2014; 2019), Mayo-Wilson and Wheeler (2016, 5), and Schoenfield (2014, 202).

Let's now turn to Permissivism. Earlier, we introduced an informal definition of Permissivism. However, philosophers often make a distinction between intrapersonal and interpersonal permissive situations. Here is how we can define Intrapersonal and Interpersonal Permissivism:

Intrapersonal Permissivism. Relative to a body of evidence, *one* epistemically rational agent at a particular time is permitted to take distinct incompatible epistemic standards or credences towards P.

Interpersonal Permissivism. Relative to a body of evidence, *two or more* epistemically rational agents at a particular time can hold incompatible epistemic standards or credences towards P.[15]

Sophie Horowitz argues that Immodesty is incompatible with Intrapersonal Permissivism. Miriam Schoenfield uses Immodesty to respond to an objection against Interpersonal Permissivism. In the remainder of this section, we present their arguments.

2.2   Immodesty As A Reason to Reject Intrapersonal Permissivism

For Horowitz, epistemic rationality is valuable. Epistemic rationality makes agents epistemically better off (Horowitz 2014, 41). But why is that? What is the special feature of rational beliefs that makes them epistemically superior? Horowitz argues that, if we accept Impermissivism and Immodesty, we can explain the value of epistemic rationality. Her argument goes as follows:

(1) Impermissivism: If C is any rationally permissible response to E, then a rational agent's epistemic rule will recommend C, given E (ibid., 46).

(2) Immodesty: If a rational agent's epistemic rule recommends C, given E, then C is the most truth-conducive response to E.

(C) So, if C is any rationally permissible response to E, then C is the most truth-conducive response to E.

In other words, combining Immodesty and Impermissivism allows us to explain what is special about epistemic rationality. By way of contrast, Horowitz argues that permissivists have a harder time explaining why epistemic rationality is valuable. For instance, consider coherentism about rationality, the view that ties epistemic rationality with mere coherence. Coherentism is an extreme type of Permissivism. If coherentism about epistemic rationality is true, the connection between accuracy and rationality is less obvious. This is so, because some coherent combinations of credences are maximally inaccurate (ibid., 45).[16]

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[15] See Kelly (2014) on this distinction.

[16] Specifically, Horowitz argues that extreme permissivists can explain why epistemic rationality is valuable (in virtue of Immodesty (pp. 43–45) or in virtue of dominance arguments (p. 44n6)), but they also face the challenge of coherent but entirely inaccurate doxastic states (p. 45). So they *can* give a partial explanation of why

Horowitz also argues that, if other, less stringent types of Permissivism are true, it is still unclear why we value epistemic rationality (ibid., 47–54).

In sum, Horowitz gives roughly the following argument in favour of Intrapersonal Impermissivism (some slightly different formulations of her argument are discussed in section 4):

(1) Epistemic rationality is valuable.

(2) If Intrapersonal Impermissivism is true, there is a good reason to think that epistemic rationality is valuable, namely:

(2.1) If C is any rationally permissible response to E, then a rational agent's epistemic rule will recommend C, given E.

(2.2) Immodesty: If a rational agent's epistemic rule recommends C, given E, then C is the most truth-conducive response to E.

(2.3) So, if C is any rationally permissible response to E, then C is the most truth-conducive response to E.

(3) If Intrapersonal Permissivism is true, it is unclear why epistemic rationality is valuable.[17]

(C) So, Intrapersonal Impermissivism is our best explanation of (1).

2.3   Immodesty as a Response to the Arbitrariness Objection

Miriam Schoenfield is interested in the relationship between Immodesty and *Interpersonal* Permissivism. To understand her view, we first need to present an objection against Permissivism put forth by Roger White. According to White, permissivists face what he calls an "arbitrariness" objection. The objection goes as follows: If Permissivism were true, there would be cases in which one could make an arbitrary decision between believing P and disbelieving P (or between distinct credences in P). But this doesn't seem right. He says:

> I take lots of these pills, arbitrarily forming hundreds of beliefs on matters about which I had no clue beforehand. If I retain the resulting beliefs then I will have to conclude that by some extraordinary coincidence I managed to pick a Truth pill each time. And if this were reasonable, then it should make no difference if the pills were selected from a collection 99% of which were Falsity Pills. Surely instead the only reasonable response to reflection on my pill popping is to slip back into agnosticism about Smith's guilt. (White 2005, 448)

In light of this arbitrariness problem, White rejects Permissivism.

Schoenfield thinks that Immodesty can be used to respond to White's objection. She argues that rational agents with distinct incompatible epistemic standards can entertain distinct credences in P (Schoenfield 2014, 199). Epistemic

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epistemic rationality is valuable, but it faces a serious objection. See Palmira (2021) for a reply.

[17] Again, see the previous footnote.

standards are functions mapping an agent's evidence onto doxastic attitudes towards P. However, this doesn't mean that agents can arbitrarily change their credences in P. First, rational epistemic standards do not warrant distinct incompatible credences in P. That is, for $X \neq Y$, an agent's rational epistemic standards never warrant assigning a credence of X and a credence of Y in P simultaneously (ibid., 200). Second, immodest agents will assume that their epistemic standards are more accurate or truth conducive than the others. According to Schoenfield:

> Sally thinks that she is more likely to end up with a true belief by using her own standards of reasoning. (Recall that part of what it is to have standards of reasoning is to take them to be truth conducive.) So Sally will not regard her atheism as arbitrary at all. Atheism is the belief warranted by Sally's standards, which she takes to be more truth conducive than standards which warrant belief in theism, or agnosticism. (ibid., 201)

Rational agents like Sally will think that arbitrarily changing their rational credence in P is suboptimal, because their standards warrant the epistemically optimal credence in P. So, in accordance with Immodesty, Schoenfield provides a permissivist solution to White's objection. Her argument can be summarized as follows:

(1) Agents ought to be immodest. So, if an agent's epistemic rule recommends C, given E, then he or she estimates that C is the most truth-conducive response to E.

(2) If agents are immodest, then it is false that they make an arbitrary choice between distinct incompatible credences or epistemic standards—they take their own response to the evidence to be uniquely optimal.

(3) If agents are not permitted to make arbitrary choices between doxastic options, then Interpersonal Permissivism does not face the arbitrariness objection.

(C) So, Interpersonal Permissivism does not face the arbitrariness objection.

To be clear, we think it is an open question whether permissivists face the arbitrariness objection. Perhaps there is nothing wrong with making arbitrary choices between distinct credence assignments. However, Schoenfield thinks that the objection is serious, and she uses Immodesty to solve it.

Thus, for Horowitz and Schoenfield, Immodesty tells us two things about Permissivism. First, Immodesty is incompatible with Intrapersonal Permissivism. Second, Immodesty can be used to block a putative objection against Interpersonal Permissivism.

3   A Problem with How Immodesty Is Understood

The above arguments presuppose that a specific type of Immodesty is correct. As we saw earlier, there are Strict and Nonstrict formulations of Immodesty.

Strict Immodesty goes as follows:

Strict Immodesty. Relative to a body of evidence E, agents believe that their epistemic standards and credences are *the* most truth-conducive response to E available to them.

Horowitz and Schoenfield take Immodesty to be strict. However, there are reasons to doubt that Immodesty is strict. The putative reasons offered in favour of Immodesty merely support the nonstrict version. Here is why.

3.1   Why Strict Immodesty Is Too Strong

The view that agents ought to be immodest comes from David Lewis (1971). Variations of his argument can be found in Joyce (2009) and Elga (2010). These authors understand Immodesty as a synonym of non-modesty. Lewis, for instance, gives the following argument against modesty:

Suppose you did trust some non-immodest method. By definition, it estimates some competing method to be more accurate than itself. So if you really did trust your original method, you should take its advice and transfer your trust to one of the competing methods it recommends. It is as if Consumer Bulletin were to advise you that Consumer Reports was a best buy whereas Consumer Bulletin itself was not acceptable; you could not possibly trust Consumer Bulletin completely thereafter. (Lewis 1971, 56)

In a similar vein, Elga states:

Self-undermining inductive methods are incoherent. That is best illustrated by the following example. The magazine Consumer Reports rates appliances, and gives recommendations on which ones to buy. But pretend that in addition to rating appliances, Consumer Reports also rates and recommends consumer ratings magazines. Then it cannot coherently recommend a competing magazine over itself. (Elga 2010, 6)

And Joyce writes:

Someone with modest credences is committed to expecting that she could do better, in epistemic terms, by holding opinions other than the ones she holds. Modest credences, it can be argued, are epistemically defective because they undermine their own adoption and use. (Joyce 2009, 277)

The gist of the argument for Immodesty thus goes as follows: it would be *incoherent*, or *self-undermining*, to hold some standards and credences while also believing that they are suboptimal. However, note that this argument against modesty merely entails that agents ought to be nonstrictly immodest. That is, it would be wrong for you to take your standards to be less truth conducive

than other ones. Yet this is compatible with thinking that your standards are not uniquely optimal. There can be more than one optimal option available to agents.[18]

Interestingly, Lewis's formal definition of Immodesty is not even strict. His mathematical definition says roughly this: a method C is immodest if it estimates that its expected accuracy is *greater than or equal to* the expected accuracy of other available methods.[19] This definition is compatible with the existence of two methods that are on a par in terms of expected accuracy. So, his formal account of Immodesty is not strict.

In the practical realm, Strict Immodesty would be too strong. Compare: Buridan's ass is facing two equally good water fountains (and he knows they are equally good). Standard Left says, "Choose the water fountain on the left," while Standard Right says, "Choose the water fountain on the right." Suppose he is practically immodest—that is, he thinks that his practical decisions and standards are among the best ones available to him. Yet Buridan's ass could easily think that other standards are equally optimal. For example, he can entertain Standard Left while thinking that Standard Right is equally good. After all, Buridan's ass knows that Left and Right are equally optimal. Thus, in the practical realm, the right interpretation of Immodesty should be compatible with thinking that other standards or decisions are also optimal.

Epistemic analogues to the above case are possible. Think of Titelbaum and Kopec's Reasoning Room:

> You are standing in a room with nine other people. Over time the group will be given a sequence of hypotheses to evaluate. Each person in the room currently possesses the same total evidence relevant to those hypotheses. But each person has a different method of reasoning about that evidence. When you are given a hypothesis, you will apply your methods to reason about it in light of your evidence, and your reasoning will suggest either that the evidence supports belief in the hypothesis, or that the evidence supports belief in its negation.... For each hypothesis, 9 people reach the same conclusion about which belief the evidence supports, while the remaining person concludes the opposite.... Despite this precise coordination, it's unpredictable who will be the odd person out for any given hypothesis. (Titelbaum and Kopec 2019, 220)

Suppose agents in the Reasoning Room know that nine other standards are as reliable as theirs (e.g., the ones entertained by the other reasoners). Then, agents in the Reasoning Room could be nonstrictly immodest, in the sense that they could take their standards to be among the most truth-conducive ones available to them. They have no reason to assume that their standards are uniquely

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[18] See, e.g., Pettigrew (2009).

[19] Formally: Method C is immodest in M, under A, on e, iff $E_c(A(C)|e) \geq E_c(A(C')|e)$ for any method C' in M (Lewis 1971, 55). The key point here is that Lewis uses the symbol $\geq$.

optimal. In fact, they have reason to disbelieve that their standards are uniquely optimal.[20]

Or think of Lockean consequentialism about rational belief. Lockean consequentialists think that rationally believing P is a matter of expected accuracy optimization.[21] That is, rational agents believe P only if believing P maximizes expected accuracy. However, in certain contexts, believing P and neither believing nor disbelieving P can have the same (highest) expected accuracy.[22] In these situations, a rational agent could think: "I believe P, but someone else with the same evidence could decide to withhold judgment on whether P, and we would both maximize expected accuracy."[23] Here, the agent is not *strictly* immodest, since he or she thinks that other doxastic options are equally optimal (in terms of expected accuracy). Yet, for Lockean consequentialists, the agent can nevertheless be rational.

The arguments in favour of Immodesty stress that there is a kind of self-distrust, or internal failure, involved with taking your standards to be suboptimal. But if the motivation in favour of Immodesty is to avoid internal conflicts, then there is no reason why Immodesty should be strict. If I believe that my standards are among the optimal ones available to me, I am not in a state of self-distrust. Strict Immodesty goes beyond the incoherence problem discussed by Lewis, Joyce, Elga, and others.

Horowitz and Schoenfield both assume that Strict Immodesty is correct (see step 2.2 of Horowitz's argument and steps 1 and 2 of Schoenfield's argument). Yet Immodesty could be Nonstrict, and this matters for both of their arguments. Consider Schoenfield's argument. She thinks that, since agents are immodest, they will not make arbitrary choices between distinct incompatible credences or epistemic standards. However, suppose agents are nonstrictly immodest and think that other standards or credences are among the most truth-conducive responses to E. Then, it is unclear why agents are prohibited from making an arbitrary choice between (i) their own credences and standards and (ii) other equally truth-conducive credences and standards.

3.2 Non-strict Immodesty Is Too Weak to Make a Difference in the Debate on Permissivism

The right interpretation of Immodesty should not be strict. However, if agents merely ought to be nonstrictly immodest, it is hard to see how this requirement can be used in arguments for or against Permissivism. The requirement would merely say: Don't take your own credences and standards to be suboptimal. So, agents can satisfy Non-strict Immodesty by *refraining* from believing anything about the truth-conduciveness of their own standards and credences. It's hard

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[20] See Daoust (2021).

[21] See, e.g., Dorst (2019).

[22] See Dorst (2019, sect. 4.1, corollary 2).

[23] Suspending judgment is not identical to neither believing nor disbelieving P. But in order to suspend judgment, agents neither believe nor disbelieve P.

to see how the absence of certain higher-order beliefs can be used for or against
Permissivism. The requirement would be too weak to make a difference in the
debate on Permissivism.

In sum, there doesn't seem to be a clear connection between Immodesty and
Permissivism. The argument that agents ought not to be modest does not entail
Strict Immodesty. Moreover, if agents merely ought to be nonstrictly immodest,
the requirement seems too weak to carry weight in the debate on Permissivism.

3.3   An Objection: Strict Immodesty and Legitimate Scoring Systems for Credences

Here is an objection against our argument. Authors like Horowitz and Schoenfield
consider impermissivism in the context of scoring rules for credences. That is,
in credence functions, we operationalize the requirement of Immodesty with
strictly proper scoring rules. By way of contrast, Non-strict Immodesty would
correspond to the use of a merely proper scoring rule. Measuring accuracy with
merely proper scoring rules raises well-known concerns (Campbell-Moore and
Levinstein 2021). This suggests that Strict Immodesty makes sense after all (at
least if we focus on how we operationalize this putative requirement in scoring
rules for credences).

We have a couple of reactions to this suggestion. First, we agree that there
are plausible arguments against merely proper scoring rules (at least for sharp
credences—more on this point below). However, we believe that the justification
of strictly proper scoring does not stand and fall with the justification of Strict
Immodesty. That is, we can doubt that rational agents should always estimate
that their credences maximize expected accuracy *and* endorse strictly proper
scoring rules. Many justifications of strictly proper scoring rules are neutral
on whether Strict Immodesty is correct. Think of D'Agostino and Sinigaglia's
(2009) argument from Order Sensitivity, Pettigrew's (2016, §4.3) argument from
Calibration, or Levinstein's (2017b) pragmatic vindication. These justifications
are not premised on the contentious assumption that rational agents should
always believe that their own attitudes uniquely maximize expected accuracy.

Relatedly, many authors (like Carr 2021) have proposed a "modest" episte-
mology that relies on strictly proper scoring rules. For Carr (2021), we can think
that accuracy should be measured with strictly proper scoring rules while also
thinking that agents should sometimes doubt that their credences and standards
are rational (or uniquely maximize expected accuracy). So, we can measure ac-
curacy with strictly proper scoring rules without endorsing Strict Immodesty.
Modest epistemology is not conceptually confused. It simply distinguishes facts
about rationality (like facts about an agent's epistemic score) from what rational
agents believe about their own rationality.

Second, Non-strict Immodesty can be used, in part, to justify strictly proper
score rules (for sharp credences). We just need to combine Non-strict Immod-
esty with other principles. This is what Campbell-Moore and Levinstein (2021)
do. They accept Non-strict Immodesty, but supplement this requirement with

two other principles.[24] This allows them to justify strictly proper scoring rules. Thus, Non-strict Immodesty can be used to get strict propriety. There is no dilemma of the form "either you accept Strict Immodesty, or else you have to deny strictly proper scoring rules for credences." We can endorse a plausible version of Immodesty, based on what is truly incoherent in modest states, and vindicate strictly proper scoring rules with additional principles.

Third, there are limits to choosing scoring systems that operationalize a requirement of Strict Immodesty (even if we focus solely on scoring systems for credences).[25] As Mayo-Wilson and Wheeler (2016) have argued, scoring systems for imprecise credences call for something weaker than Strict Immodesty. So, even if the objector is correct, it's not clear that we are always in a position to operationalize Strict Immodesty in scoring systems for credences. There are situations in which we can't do this.[26]

4   The Value-of-Rationality Argument

Perhaps you are not fully convinced by our argument. You resist rejecting Strict Immodesty. Still, should you think that (Strict) Immodesty makes a real difference in the debate on Permissivism?

We will now argue that, even if Strict Immodesty were correct, there would still be other problems with the arguments put forth by Horowitz and Schoenfield. Ultimately, this will lead us to conclude that there is no clear connection between Immodesty and Permissivism.

We begin by analyzing Horowitz's argument. We discuss three versions of the argument and argue that they do not lend support to a clear connection linking Immodesty, Intrapersonal Impermissivism, and the value of epistemic rationality. The first version of the argument entails, at best, that rational agents *believe* that epistemic rationality is valuable. In the second version of the argument, Immodesty makes no real difference to the search for a connection between Impermissivism and the value of rationality. The third version of the argument merely suggests that there is a connection between Immodesty and *belief* in Intrapersonal Impermissivism.

4.1   Impermissivism and the Value of Rationality

According to Horowitz, impermissivists can explain why epistemic rationality is valuable. Her argument goes roughly as follows:

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[24] These additional principles are strict truth-directedness and additivity. See Campbell-Moore and Levinstein (2021).

[25] Plausible scoring systems for *belief* could allow agents to be nonstrictly immodest (i.e., allow agents to think that other belief-type attitudes maximize expected accuracy). See footnotes 21–22.

[26] We thank a referee for inviting us to address this objection.

(1) Intrapersonal Impermissivism: If C is any rationally permissible response to E, then a rational agent's epistemic rule will recommend C, given E.

(2) Immodesty: If a rational agent's epistemic rule recommends C, given E, then C is the most truth-conducive response to E.

(C) So, if C is any rationally permissible response to E, then C is the most truth-conducive response to E.

But what role does Strict Immodesty play in this argument, exactly? Strict Immodesty governs what agents *believe* about their own credences and standards. So, (2) is a belief held by an agent. That is, (2) can be reformulated as follows:

(2)* Immodesty: If an agent's epistemic rule recommends C, given E, then he or she *believes* that C is the most truth-conducive response to E.

Naturally, this clarification also affects (C), which can be reformulated as follows:

(C)* So, rational agents *believe* that, if C is any rationally permissible response to E, then C is the most truth-conducive response to E.

Thus, her argument entails that rational agents *believe* that rationality is valuable. But this is compatible with the possibility that epistemic rationality is not valuable. After all, there can be false rational beliefs.

The target claim is that epistemic rationality is valuable, not that rational agents believe that epistemic rationality is valuable. So, even if Strict Immodesty is true, this merely supports the idea that rational agents think they have the most truth-conducive credences and standards. This does not get us to the stronger conclusion that rationality provides the most truth-conducive response to the evidence. In other words, the problem with Strict Immodesty is that it delivers *beliefs* about rationality, not *facts* about rationality.

4.2 Impermissivism and Knowledge of the Value of Rationality

There are other ways to formulate Horowitz's argument. Her view is sometimes stated in terms of knowledge rather than mere belief (and she doubts that there can be false rational beliefs concerning rationality (2014, 51n20)). This could make a difference to our argument: if the connection between rationality and truth-conduciveness is known, then it's a fact that rationality is truth conducive.

Suppose the truth-conduciveness of rationality is known. Then, the argument works in virtue of the *fact* that rationality is truth conducive, not because rational agents ought to be immodest. In other words, the central part of her argument could be reformulated in a way that doesn't refer to Immodesty, as in the following:

(1) Intrapersonal Impermissivism: If C is any rationally permissible response to E, then a rational agent's epistemic rule will recommend C, given E.

(2.a) Fact about rationality: If a rational agent's epistemic rule recommends C, given E, then C is the most truth-conducive response to E.

(2.b) Immodesty: If a rational agent's epistemic rule recommends C, given E, then he or she believes that C is the most truth-conducive response to E.

(C) So, if C is any rationally permissible response to E, then C is the most truth-conducive response to E.

The problem here is that (C) is entailed by (1) and (2.a). There is no need to refer to Immodesty to reach this conclusion. In other words, (2.b) doesn't play any role in reaching the conclusion. Again, Immodesty doesn't make Impermissivism more plausible (e.g., it doesn't really play a role in the argument).

4.3   Impermissivism and Belief in the Value of Rationality

Instead of trying to explain why rationality is valuable, perhaps Horowitz could try to explain why agents believe that rationality is valuable. Perhaps the type of value Horowitz has in mind is first-personal. Rationality could be valuable because it allows rational agents to believe that they are forming beliefs in a truth-conducive way. If we focus on beliefs about the value of rationality, we might be able to find an interesting connection between Strict Immodesty and Impermissivism.

Suppose the revised argument goes as follows:

(1)* Rational agents believe that epistemic rationality is valuable.

(2)* If Intrapersonal Impermissivism is true, there is a good reason to believe that epistemic rationality is valuable, namely:

(2.1) Intrapersonal Impermissivism: If C is any rationally permissible response to E, then a rational agent's epistemic rule will recommend C, given E.

(2.2)* Immodesty: If a rational agent's epistemic rule recommends C, given E, then he or she believes that C is the most truth-conducive response to E.

(2.3)* So, rational agents believe that, if C is any rationally permissible response to E, then C is the most truth-conducive response to E.

(3)* If Intrapersonal Permissivism is true, it is unclear why rational agents believe that epistemic rationality is valuable.

(C)* So, Intrapersonal Impermissivism is our best explanation of (1)*.

There is still a problem with this argument. To see this, first note that (2.1) states a putative fact about rationality—namely, that Intrapersonal Impermissivism is true. However, rational agents do not believe all the facts concerning rationality. So, perhaps it's a fact that epistemic rationality is impermissive, but this doesn't mean that rational agents believe such a fact.

This observation matters. (2.3)* says that rational agents believe that, if C is any rationally permissible response to E, then C is the most truth-conducive

response to E. The claim in (2.3)* would follow from belief in Intrapersonal Impermissivism and Immodesty. But if agents do not believe Intrapersonal Impermissivism, they might not reach this conclusion.

So, at most, the above argument establishes that rational agents who *believe* in Intrapersonal Impermissivism can justify why they believe that rationality is valuable. But this is not the conclusion we were after. We wanted to find a connection between Impermissivism and belief in the value of rationality, not between belief in Impermissivism and belief in the value of rationality.

5   Immodesty and Arbitrariness

Let's now turn to Schoenfield's (2014) argument. According to her, there are distinct incompatible epistemic standards available to rational agents. Agents are immodest regarding their own standards. In order to respond to Roger White's objection, Schoenfield assumes that such standards are impermissive, in the sense that they prohibit an agent from arbitrarily taking distinct incompatible credences in P. Still, she argues that Permissivism is true, since two agents with distinct rational standards can have incompatible credences in P.

We argue that this argument does not generalize well to the case of rational ignorant agents (or, specifically, to the case of decision rules that determine a rational ignorant agent's prior credences). An ignorant agent is someone who has not acquired evidence pertaining to a specific issue.

Why focus on ignorant agents and their decision rules? Or, why is this specific case important? It is because prior credences are an important case in point in the debate on Permissivism. As argued in Aumann (1976) and noted in Kelly (2005, 176), rational agents with the same evidence and the same prior credence function can't come to entertain distinct incompatible credences in P. Accordingly, if two rational ignorant agents satisfy the same impermissive decision rule at the beginning of their credal lives and later acquire the same evidence, they can't come to entertain distinct incompatible credences in P. So, if Permissivism is true, there have to be permissive situations at the beginning of an agent's credal life. This is why focusing on ignorant agents and their decision rules is relevant. Good arguments for Permissivism should generalize well to the case of rational ignorant agents (and the decision rules for choosing their prior credences).

Here is an objection to how we are framing the issue: Schoenfield seems to be concerned with agents who already have priors (2014, p. 199). Perhaps, as she briefly mentions, priors are something inherited, at least in part, from one's family, community, and so forth. In other words, priors are not rationally selected with a decision rule (ibid.). Perhaps her view isn't intended to apply to prior selection. So, in considering decision rules for selecting priors, our argument could miss the target. Response: perhaps Schoenfield is not primarily concerned with the case of epistemic standards for choosing prior credences, *but she should not neglect these standards*. She wants to respond to White's arbitrariness objection. White's worry can very well extend to the choice of priors. So, she has to address

this case (at least, her argument must generalize well to this case). Otherwise, the way in which agents acquire their prior credences would be a blind spot in her argument.

5.1   A Bit of Terminology

We begin by clarifying some of the concepts we will use in our argument—namely, scoring rules and decision rules.

A scoring rule is a function. It measures the inaccuracy of a prediction. The less accurate an agent's prediction is, the worse his or her score is. A common scoring rule is the Brier score, a quadratic scoring rule.[27] When an agent assigns a credence X in P, the Brier score is measured by the following:

1. If P is true, then the agent's score is $(1 - X)^2$.
2. If P is false, then the agent's score is $(0 - X)^2$.

Note that, with the Brier scoring rule, agents want to minimize their score. The lower an agent's total score is, the more accurate his or her credence assignments are.

Scoring rules are used for measuring epistemic disutility. But should an agent maximize expected utility, maximize best-case utility, minimize worst-case disutility, or merely avoid dominated combinations of credences? Decision rules answer these questions.

A decision rule is a function mapping information, preferences, or other factors onto appropriate decisions. Decision rules are decidable (e.g., there exists a known effective method for determining which decisions are warranted by a decision rule). Here is a nonexhaustive list of such decision rules:

1. *Nondominance*: Rational agents ought to avoid strongly dominated combinations of credences (e.g., combinations of credences that have greater epistemic disutility than other combinations at every possible world).
2. *Maximax*: Rational ignorant agents ought to maximize best-case epistemic utility (as measured by scoring rules).
3. *Maximin*: Rational ignorant agents ought to minimize worst-case epistemic disutility (as measured by scoring rules).[28]

Decision rules are part of an agent's epistemic standards. Recall that epistemic standards act as functions mapping evidence onto doxastic attitudes towards P, which is exactly what the above decision rules do.[29]

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[27] See Brier (1950). A quick clarification here: we do not presuppose that the Brier score is the only acceptable scoring rule for rational agents. We just say that agents use a scoring rule, and we refer to the Brier score for illustrative purposes. But as we will see, the argument works for a given scoring rule, not the Brier score specifically.

[28] In this literature, Maximin is sometimes called Minimax. See Pettigrew (2016a; 2016b).

[29] Objection: This is not what Schoenfield means by epistemic standards. For Bayesians, epistemic standards are encoded in priors. Accordingly, the claim that

Some decision rules are permissive and others are not. For illustrative purposes, suppose that Pria is a perfectly rational ignorant agent (or an agent who hasn't acquired evidence on a specific issue).[30] She bought a coin from *Mystery Coin Factory*. The objective probability that her coin will land heads is kept secret. Now, suppose that Pria is about to toss a coin from *Mystery Coin Factory*. She assigns a rational credence to the propositions "the coin will land on heads" and "it is false that the coin will land on heads." Following Maximax, her decision rule would recommend assigning a credence of either 0 or 1 to "the coin will land on heads" and a credence of either 0 or 1 to "it is false that the coin will land on heads" (as long as the sum of both credence assignments is 1). Only such credence assignments maximize best-case epistemic utility. By way of contrast, Maximin recommends assigning a credence of 0.5 to "the coin will land on heads" and a credence of 0.5 to "it is false that the coin will land on heads."

As we can see in the above example, Maximax is satisfied by more than one credence assignment. In accordance with Maximax, Pria could assign a credence of 1 to "the coin will land on heads" and a credence of 0 to "it is false that the coin will land on heads." However, she could also assign a credence of 0 to "the coin will land on heads" and a credence of 1 to "it is false that the coin will land on heads". This means that Maximax is a permissive decision rule: distinct incompatible credence assignments satisfy it. By way of contrast, only one credence assignment satisfies Maximin.

Decision rules such as Maximax allow agents to make arbitrary choices between distinct credence assignments, since distinct incompatible credence assignments satisfy Maximax. By way of contrast, a decision rule like Maximin leaves no room for arbitrariness. Only one credence assignment satisfies Maximin, so there is no room for arbitrariness.

If Schoenfield's argument generalized well to rational ignorant agents, there would be many distinct decision rules like Maximin. Each of such decision rules would leave no room for arbitrariness (unlike Maximax, for instance). Since agents are immodest, they would take their own rule to be optimal.

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there are standards for choosing priors does not make sense. Response: We here assume, in accordance with Schoenfield, that "we can just think of a set of standards as a function from bodies of evidence to doxastic states" (Schoenfield 2014, 199). This functional account of epistemic standards is compatible with thinking that decision rules are standards. Decision rules for ignorant agents map an empty body of evidence onto doxastic attitudes towards *P*. Now, perhaps the functional account of epistemic standards is not restrictive enough. Or perhaps Schoenfield has something logically stronger in mind when she thinks of epistemic standards. But then, we will have learned something interesting about this debate. That is, we will have learned that permissivists who reject the arbitrariness objection need to refine their understanding of what epistemic standards are. We thank a referee for inviting us to discuss this point.

[30] See Schoenfield (2015, 640) on this example.

5.2 Maximin Is the Only Impermissive Decision Rule for Rational Ignorant Agents

In order to argue that Schoenfield's argument does not generalize well to rational ignorant agents, we first need to explain why Maximin is the only probabilistic, risk-based, impermissive decision rule for ignorant agents (or, at least, if there are other risk-based impermissive decision rules, they are coextensive with Maximin).[31] Here is the gist of the argument (see the appendix for more details).[32]

First, it is unclear what it means for rational ignorant agents to believe that their own standards are the most truth-conducive ones available to them. This can't mean, for instance, that they take their standards to maximize expected accuracy or to minimize expected disutility. Ignorant agents without priors are not in a position to calculate expected disutility. One cannot calculate a rule's expected disutility before having priors and acquiring evidence.

However, ignorant agents are in a position to determine best-, second-best-, ..., and worst-case disutility scenarios. They can consider the range of outcomes (in terms of disutility) of their credence assignments. So, perhaps agents can be immodest with respect to the possible outcomes of their credence assignments. In other words, perhaps agents can think that the possible outcomes of their credence assignments are optimal.

Could this interpretation of Immodesty be plausible? Suppose Pria does not satisfy Maximin (or a decision rule that is coextensive with Maximin). Imagine that her decision rule is more risk seeking than Maximin, but less risk seeking than Maximax. With respect to a partition of two propositions (say, H and T), her decision rule warrants assigning a credence of 0.6 to one and of 0.4 to the other. This means she has at most two options, namely:

(1) Assign a credence of 0.6 to T and a credence of 0.4 to H.
(2) Assign a credence of 0.4 to T and a credence of 0.6 to H.

The best scenario for credence assignment (1), in terms of epistemic disutility, is that T is true and H is false. The distance between the ideal and the actual credence is 0.4 (for T and for H). The worst scenario for assignment (1) is that H is true and T is false. The distance between the ideal and the actual credence is 0.6 (for T and for H). As for (2), the best scenario is that H is true and T is false, and the worst scenario is that T is true and H is false. For these two scenarios, the distances between the ideal and the actual credences are respectively 0.4 and 0.6.

Suppose $s(\tau, C)$ denotes an agent's score measured by the distance between a credence C and a truth value τ. Relative to a scoring rule, the best- and the

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[31] For instance, Maximin is coextensive with the rule that says: relative to a partition of n propositions, assign a credence of $\frac{1}{n}$ to each proposition. See Pettigrew 2016b. While such rules are different, they warrant the same credence assignments (if the relevant partition is held fixed).

[32] An earlier, tentative proof of this point is also available in Daoust and Montminy (2017).

worst-case disutility of assignments (1) and (2) are:

(1) Best case: $s(1, 0.6) + s(0, 0.4)$. Worst case: $s(1, 0.4) + s(0, 0.6)$.
(2) Best case: $s(1, 0.6) + s(0, 0.4)$. Worst case: $s(1, 0.4) + s(0, 0.6)$.

As we can see, (1) and (2) are identical in terms of best- and worst-case scenarios. This means that Pria's decision rule can't discriminate between (1) and (2) in virtue of a difference in terms of epistemic risk. Given her decision rule, both options involve the same sort of risk. So, insofar as her decision rule is decidable and warrants credences assignments in virtue of the best-, second-best-, ..., and worst-case scenarios of such assignments, Pria's decision rule is permissive.

Maximin is the only decision rule that doesn't allow for distinct incompatible permutations. Since Maximin warrants credence assignments that are equal (relative to a partition), there cannot be permutations.[33] Consider a partition of two propositions (say, H and T). Maximin says: minimize worst-case disutility, and thus assign a credence of 0.5 to H and a credence of 0.5 to T. Since the credence assignments in H and T are identical, no permutation is possible.[34] Only nonprobabilistic decision rules would also have this feature. For instance, suppose your decision rule says: assign a credence of 0.6 in H and a credence of 0.6 in T. Then, no permutation is possible. However, nonprobabilistic decision rules are dominated.[35] Rational agents do not entertain dominated decision rules.

Hence, if Pria satisfies a probabilistic, risk-based, and impermissive decision rule, she satisfies Maximin (or a decision rule that warrants the exact same credence assignments as Maximin).[36]

5.3   Schoenfield's Argument Does Not Generalize Well to Rational Ignorant Agents

The fact that Maximin is the only impermissive decision rule for rational ignorant agents raises a problem for Schoenfield's argument. Here is why.

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[33] Except, of course, the identity permutation. We are interested in permutations that would result in other credence assignments.

[34] Again, see the previous footnote.

[35] See Joyce (1998) and Pettigrew (2016) on probabilism and dominance.

[36] An anonymous referee suggested that, given some other scoring rules that reflect the varying importance of different propositions, we could imagine other impermissive decision rules for rational ignorant agents. Suppose that Pria cares more about T than H, and John cares more about H than T. Then, perhaps Pria's decision rule recommends a unique credence in T (say, 0.4), while John's decision rule recommends a different, unique credence in T (say, 0.6). In response to this suggestion, we could make the following additional assumption: agents assign credences to H and to $\neg H$. Having an accurate credence in H is as important as having an accurate credence in $\neg H$.

At the beginning of Pria's credal life, either her decision rule for choosing her priors is permissive or it is impermissive. If the decision rule is permissive, distinct incompatible credences in P are rationally permitted. However, this is incompatible with antiarbitrariness, since Pria could then make an arbitrary choice between different priors. So, Pria's decision rule can't be permissive. At least, since Schoenfield rejects White's arbitrariness objection and argues that agents believe that their credence assignments are the most truth-conducive ones available to them, she has to accept this conclusion.

Now, assume that Pria's decision rule is impermissive. Maximin is the only impermissive decision rule for rational ignorant agents. So, if antiarbitrariness is correct, agents at the beginning of their credal lives follow the same decision rule (i.e., Maximin). This raises a problem for Schoenfield. According to her, distinct incompatible decision rules that satisfy Strict Immodesty are rationally permitted. But, for rational ignorant agents, there is not a plurality of impermissive decision rules. There is only *one*.

Let's not forget why we paid attention to the case of rational ignorant agents. In the debate on Permissivism, the rationality of prior credences is an important case in point (Kelly 2005, 176). Arguments for Permissivism should generalize well to the rationality of priors (or the rationality of decision rules for choosing priors). However, Schoenfield's argument doesn't generalize well to this case.

To be sure, one could still think that Strict Immodesty explains why agents should not change their epistemic standards and credences arbitrarily in the course of their epistemic lives. Yet if Permissivism is true, there has to be *some* degree of arbitrariness at the beginning of an agent's credal life. Thus, appeals to Strict Immodesty might *limit* or *mitigate* the degree of arbitrariness involved in Permissivism, but cannot *remove* arbitrariness entirely.

6   Conclusion

Let's take stock. Some arguments for Intrapersonal Impermissivism and Interpersonal Permissivism rely on Immodesty. These arguments assume that *Strict* Immodesty is true. However, we have argued that Strict Immodesty is too strong. Some intuitive cases suggest that Immodesty is not always strict. This leaves us with Non-strict Immodesty. The problem is that Non-strict Immodesty is a weak requirement. It is not informative enough to make a difference in the debate on Permissivism.

Then, we argued that, even if it were true that agents ought to be strictly immodest, it is unclear what this would entail in the debate on Permissivism. The existing arguments for (Im)Permissivism based on Strict Immodesty have limits.

This leads us to conclude that there is no clear connection between Immodesty and Permissivism. Plausibly, Immodesty neither supports nor disproves Permissivism.

7   Appendix

Definitions and Assumptions:

(i) Ignorance: an agent is ignorant when he or she has no background knowledge about the world. His or her body of evidence is maximally uninformative.

(ii) Risk Factor: For any credence distribution $(C_1, C_2, ..., C_n)$, DR specifies whether $(C_1, C_2, ..., C_n)$ is a rationally permissible distribution over partition $(L_1, L_2, ..., L_n)$. Let u_1 be the best-case disutility of $(C_1, C_2, ..., C_n)$,; let u_2 be the second-best case disutility of $(C_1, C_2, ..., C_n)$; ... and let u_n be the worst-case disutility of $(C_1, C_2, ..., C_n)$. Then, $< u_1, u_2, ..., u_n >$ is the "risk factor" of DR over $(C_1, C_2, ..., C_n)$.

(iii) Maximin is an impermissive decision rule minimizing worst-case disutility. It has a risk factor of $< u_1, u_2, ..., u_n >$ such that $u_1 = u_2 = ...u_n$.

(iv) Maximin and Indifference: as argued in Pettigrew (2016a; 2016b), when ignorant agents assign credences $(C_1, C_2, ..., C_n)$, Maximin is satisfied if and only if $C_1 = C_2, ..., = C_n = \frac{1}{n}$.

(v) Risk-based decision rule: DR is a risk-based decision rule if the credence assignments it warrants are a function of its risk factor. For example, Maximin warrants some credence assignments that minimize worst-case disutility.

(vi) Permissive decision rule: a decision rule is permissive if and only if distinct incompatible credence assignments satisfy the rule. For example, with respect to the partition (L_1, L_2), if DR warrants credence assignments (C_1, C_2) and (C_2, C_1) while $C_2 \neq C_1$, then DR is permissive.

Theorem:

Necessarily, if DR *is a probabilistic, impermissive, risk-based decision rule for an ignorant agent, then* DR *is Maximin (or* DR *is coextensive with Maximin).*

Proof:

(1) Assume for *reductio*: DR is not coextensive with Maximin and DR is a probabilistic, risk-based and impermissive decision rule for an ignorant agent entertaining a partition $(L_1, L_2, ..., L_n)$ and credences $(C_1, C_2, ..., C_n)$.

(2) Given (iv), (v) and (1), DR is not coextensive with Maximin, which means that, relative to the partition $(L_1, L_2, ..., L_n)$ and the credence assignments $(C_1, C_2, ..., C_n)$, there is a smallest credence assignment C_i and a greatest credence assignment C_j such that $C_i \neq C_j$.

(3) Given (ii) and (2), since $C_i \neq C_j$, DR is based on a risk factor $< u_1, u_2, ..., u_n >$ that is different from Maximin (e.g., is it false that $u_1 = u_2 = ...u_n$).

(4) Consider a partition of two elements. Relative to such a partition, DR warrants either (C_i, C_j) or (C_j, C_i), where $C_i \neq C_j$.

(5) First possibility: DR warrants (C_i, C_j). Assume that $s(w, c)$ is an inaccuracy measure.[37] Then, since C_i is the smallest credence assignment and C_j the greatest credence assignment, this means that $u_1 = s(1, C_j) + s(0, C_i)$ and $u_2 = s(1, C_i) + s(0, C_j)$.

(6) Second possibility: DR warrants (C_j, C_i). Since C_i is the smallest credence assignment and C_j the greatest credence assignment, this means that $u_1 = s(1, C_j) + s(0, C_i)$ and $u_2 = s(1, C_i) + s(0, C_j)$.

(7) So given (4), (5) and (6), $u_1 = s(1, C_j) + s(0, C_i)$ and $u_2 = s(1, C_i) + s(0, C_j)$, regardless of which credence assignment is warranted by DR. The permutations have the same risk profile.

(8) Given (3) and (7), for DR and a partition containing two elements, an agent cannot determine if DR warrants (C_j, C_i) or (C_i, C_j) by making a risk-based distinction (since the permutations have the same risk profile).[38]

(9) Following (vi), if DR warrants (C_i, C_j) **and** (C_j, C_i), then DR is permissive.

(10) However, given (1), DR is impermissive.

(11) So, DR does not warrant (C_i, C_j) **and** (C_j, C_i). One of them is not warranted by DR.

(12) Given (8), we cannot explain why DR does not warrant (C_i, C_j) **and** (C_j, C_i) based on risk (the permutations have the same risk profile).

(13) Decision rules are decidable. If DR is decidable, the agent has an effective method for determining if DR warrants (C_i, C_j) or (C_j, C_i).

(14) However, given (1) and (12), the agent is ignorant and both credence assignments have the same risk profile. So, the agent has no effective method for determining if DR warrants (C_i, C_j) or (C_j, C_i).

(15) Given (14), DR is not decidable.

(16) By *reductio* from (1), (13) and (15), necessarily, if DR is a probabilistic, risk-based and impermissive decision rule other than Maximin, then there is at least one counterexample to DR.

(17) Given (iii) and (iv), Maximin is a probabilistic, risk-based and impermissive decision rule.

(18) Given (16) and (17), necessarily, if DR is a probabilistic, impermissive, risk-based decision rule for an ignorant agent, then DR is Maximin (or is coextensive with Maximin).

$\square$

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[37] For instance, if $s(w, c)$ is the Brier score, P is true and C is the credence in P, $s(1, C) = (1 - C)^2$.

[38] We could easily generalize the argument in (4)-(7) to partitions containing n elements. Relative to the partition $(L_1, L_2, ..., L_n)$ and the credence assignments $(C_1, C_2, ..., C_n)$, any permutation of credence assignments will have the same risk profile. But for present purposes, the case $n = 2$ suffices.

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