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Reliability Connections Between Conceivability and Inconceivability

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ABSTRACT

Conceivability is an important source of our beliefs about what is possible; inconceivability is an important source of our beliefs about what is impossible. What are the connections between the reliability of these sources? If one is reliable, does it follow that the other is also reliable? The central contention of this paper is that suitably qualified the reliability of inconceivability implies the reliability of conceivability, but the reliability of conceivability fails to imply the reliability of inconceivability.

If conceivability is a reliable guide to possibility, does it follow that inconceivability is a reliable guide to impossibility?[1] Conversely, if inconceivability is a reliable guide to impossibility, does it follow that conceivability is a reliable guide to possibility?

Three positions are available. One answers both questions in the affirmative, thereby insisting on a two-way reliability connection. If this is correct, the processes stand, or fall, together, and a case for the reliability (or unreliability) of one suffices to establish the reliability (or unreliability) of the other. A second position answers one question in the affirmative, and the other in the negative. Such a position asserts a one-way connection: one process can be reliable even if the other is not; but the second cannot be reliable unless the first is. On such a position, a case for the reliability of one process can serve as a case for the reliability of the other process, but not vice-versa. The third position answers both questions in the negative, denying that either reliability connection holds.

Here I argue that the truth lies close to the one-way view that says the reliability of inconceivability implies the reliability of conceivability, while the reliability of conceivability fails to imply the reliability of inconceivability. After covering some preliminaries in Sections 1–2, I argue in Section 3 for the claim that the reliability of conceivability does not imply the reliability of inconceivability. Then, in Section 5, I argue against the claim that if inconceivability is

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[1] For the classic statement of reliabilism, see Goldman 1986; for an overview of the main issues in modal epistemology, see Gendler and Hawthorne 2002; for a recent survey, see McLeod 2005.

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reliable, then conceivability is as well. However, findings from Sections 4–5 reveal that with the addition of a highly plausible assumption, the reliability of inconceivability does entail the reliability of conceivability. For this reason, the truth lies very close to this one-way connection views.

1. Accounts of the processes

Our focus is global reliability, a species of reliability had by belief-forming processes. I will follow Alvin Goldman in taking the global reliability of a process to be determined by the ratio of true to false beliefs that the process produces across all its actual, as well as nearby counterfactual, uses. It is controversial what positive epistemic status (e.g. warrant, justification, or some species of rationality) is conferred on a belief that is produced by a reliable process.[2] Still, being produced by such a process confers *some* positive epistemic status on a belief. The debate between reliabilists and their opponents is over whether that status is a central one, like justification, or a marginal one. However that debate can be set aside when investigating reliability connections between processes.

One reason someone might be attracted to the idea that there are reliability connections between conceivability and inconceivability is that on the two leading accounts of conceivability and inconceivability, these processes make use of the same cognitive resources. One account is empiricist.[3] It makes imagination central to conceivability and inconceivability. On one version of this account, a person finds it conceivable that Gore wins the presidential election in 2008 when she believes that it is possible that Gore wins, and she does so as a result of imagining something like the following: that Gore lives to 2008, runs in the 2008 presidential election, wins the most seats in the Electoral College, and is sworn in as president.[4] Thought of this way, conceivability is a two-step cognitive process: a cognizer imagines a situation (or situations) that she takes to verify p; and this causes her to believe that it is possible that p. These same elements can be used to forge an empiricist account of inconceivability, one on which inconceivability is also a two-step cognitive process: the cognizer attempts, but fails, to imagine a situation that she takes to verify p; then, on this basis, she forms the belief that it is impossible that p. Since conceivability and inconceivability employ the same resources (namely, imagination and the same verifying procedure), if these resources make one process reliable, then they must make the other process reliable too.

[2] Goldman (1986, chapter 3) defends global reliability as a condition on knowledge. He (1986, 107–109) defends global reliability in so-called normal worlds, i.e. worlds similar to the presumed actual world, as sufficient for (defeasible) justification. In later work (Goldman 1988), he argues that global reliability in the actual world suffices for (defeasible) strong justification.

[3] Representatives include Hume 1978 and Sidelle 1989.

[4] As Wittgenstein (1965, 39) pointed out, imagining something consists in more than just having a certain image.

The other leading account is rationalist.[5] On it, conceivability and inconceivability do not involve any images or sensory-like states. Instead, they involve contradiction detection. On this picture, someone conceives that Gore will win in 2008 when they entertain the proposition, *Gore will win in 2008*, detect no contradiction in it, and on this basis believe that it is possible that Gore will win in 2008. This suggests that finding p inconceivable involves detecting a contradiction in p, and subsequently believing that p is impossible. And, once again, perhaps because conceivability and inconceivability employ the same mental resources, there are reliability connections. For, if those resources make one process perform reliably, then perhaps they must do the same for the other process.

The arguments I will give go through on either picture. If they succeed, there is news for both the empiricist camp and the rationalist camp: the initial thought that shared cognitive resources buys reliability connections is, at best, half-right. The reliability of inconceivability implies the reliability of conceivability, but the converse is false.

In addition, my arguments are meant to cover all varieties of modality, from logical, conceptual, metaphysical, nomological, to normative varieties. For any variety of modality, the question is: does it follows, on the assumption that one of the processes is reliable with respect to that variety of modality, that the other process is also reliable with respect to that modality?[6]

2. *Charting the decidables*

Since one cognizer might find a proposition conceivable (or inconceivable) while another cognizer does not and since one cognizer's process of conceivability (or inconceivability) might be reliable while another cognizer's is not, various claims need to be relativized to an individual cognizer. The propositions that bear on the reliability of some cognizer's processes are propositions that their processes can deliver modal beliefs about. Call these propositions 'decidables.' Explicitly, p is decidable for S just in case if S were to perform a conceivability test on p and S were to perform an inconceivability test on p, then either S would believe that p is possible or (where this is an exclusive 'or') S would believe that p is impossible.[7] Since this analysis appeals to two kinds of tests, we need analyses of the tests: S performs a conceivability test on p if and only if S tries to find p

[5] Representatives include Descartes 1996, VII 71–72 and Bealer 2002.

[6] In some cases, the assumption is quite implausible – for example, when it comes to what is nomologically possible and impossible.

[7] Since the consequent of the subjunctive takes the form of a disjunction with an exclusive 'or', deviant cases in which performing both tests would result in both the belief that p is possible and the belief that p is impossible are not decidable. This result helps to ensure that the four kinds of decidables listed below are mutually exclusive. Thanks to an anonymous referee for help here.

conceivable; and S performs an inconceivability test on p if and only if S tries to find p inconceivable.

The decidables include propositions that either S would believe to be possible or S would believe to be impossible *if* S were to perform conceivability and inconceivability tests on them.[8] This is crucial since it is not enough for a positive reliabilist evaluation that a process performs well across the history of its actual uses – this could be nothing but a lucky streak. To count as reliable, a process must also produce more true beliefs than false beliefs across a range of possible, but non-actual, uses.[9]

We can now chart the decidable propositions:

	Possible Propositions	Impossible Propositions
Conceivables (bear on the reliability of conceivability)	possible-conceivables (strengthen reliability)	impossible-conceivables (impugn reliability)
Inconceivables (bear on the reliability of inconceivability)	possible-inconceivables (impugn reliability)	impossible-inconceivables (strengthen reliability)

The propositions in the two upper cells bear on the reliability of conceivability. These are propositions that S has found, or would find, conceivable. In the upper-left cell are propositions that are possible. These count in favor of the reliability of conceivability, since performing conceivability tests on them results in correct beliefs that they are possible. In the upper-right cell are propositions that are impossible. These count against the reliability of conceivability, since performing conceivability tests on them produce false beliefs that they are possible.

The propositions in the bottom two cells bear on the reliability of inconceivability. These are propositions that S has found, or would find upon performing an inconceivability test, inconceivable. In the lower-right cell are propositions that are impossible. These count towards the reliability of inconceivability, since performing inconceivability tests on them would result in correct beliefs that they are impossible. In the lower-left cell are propositions that are possible. These count against the reliability of inconceivability, since performing inconceivability tests on them results in false beliefs that they are impossible.

Repeatedly, I will rely on the claim that the four kinds of decidables are mutually exclusive. One piece of support for this claim comes from standard modal logics, according to which no proposition that is possible is also impossible.

[8] Again, the 'or' in the consequent is exclusive. Also, the following are relativized to times: *p is decidable for S*, *S performs a conceivability test on p*, *S tries to find p conceivable*, and *were S to perform a conceivability and inconceivability test on p*. I suppress these for ease of exposition.

[9] Probably most propositions are not decidable. The fact that some are not shows that failing to find p conceivable does not entail finding p inconceivable.

In other words, no proposition shows up in both a left cell and a right cell. The other piece of support comes from the claim that no proposition is both conceivable and inconceivable; in other words, no proposition shows up in both left cells and no proposition shows up in both right cells. This claim follows once we introduce a relativization to times. This relativization is needed anyway to capture the fact that a cognizer may find a proposition conceivable at one time, but not at another. Moreover, it aids us in determining the reliability of a process at a time, something that is important since the reliability of a process need not be stable over time. With this and the earlier relativization to a cognizer, it follows that no proposition is both conceivable and inconceivable. For the empiricist, this is because a cognizer cannot imagine some situation and take it to verify a proposition (as finding p conceivable requires), and at the same time imagine no situation that she takes to verify that same proposition (as finding p inconceivable requires). For the rationalist, it is because a cognizer cannot entertain a proposition and believe that it is not contradictory (as finding p conceivable requires), and at the same time entertain that same proposition and believe that it is contradictory (as finding p inconceivable requires).

3. *From conceivability to inconceivability*

We can now turn to the connections. At first, I will work under the assumption that a process is reliable if it simply produces more true beliefs than false beliefs (across actual and non-actual uses). Though this is probably not *sufficient* for reliability, it will help us simplify things. Later I will drop this assumption. For now, it allows us to proceed using the following two standards. Conceivability will count as reliable just in case there are more possible-conceivables than impossible-conceivables. And, inconceivability will count as reliable just in case there are more impossible-inconceivables than possible-inconceivables.[10]

Does the reliability of conceivability imply the reliability of inconceivability? Conditionally assuming the former is equivalent to assuming that there are more possible-conceivables than impossible-conceivables. From this does it follow that inconceivability is reliable? In other words, does it follow that there are more impossible-inconceivables than possible-inconceivables? To answer this question, we need to examine each of the relationships that might hold between the decidables that are impossible and the decidables that are possible. Since only decidables matter in what follows, I will drop the 'decidable' qualification, understanding that all possibles and impossibles mentioned are decidables. There

[10] Since all four kinds of propositions mentioned here are *decidables*, these biconditionals in effect demand that the processes be disposed to bring about more true beliefs than false beliefs.

are three relationships between the impossibles and the possibles that need to be investigated: either there are more impossibles than possibles, or they are equal in number, or there are more possibles than impossibles.

Suppose, first, that there are more impossible than possibles. If we add this claim to the conditional assumption that there are more possible-conceivables than impossible-conceivables, it follows that there are more impossible-inconceivables than possible-inconceivables. The chart helps us visualize this. To assume that there are more impossibles than possibles is to assume that there are more propositions on the right side of the chart than the left side. And to assume that there are more possible-conceivables than impossible-conceivables is to assume that there are more propositions in the upper-left cell than the upper-right cell. But if the upper-left has more propositions than the upper-right, and the two right cells have more total propositions than the two left cells, then there must be more propositions in the lower-right than the lower-left. That is, there must be more impossible-inconceivables than possible-inconceivables. In other words, it follows that inconceivability is reliable.

What if there are the same number of impossibles and possibles? From this plus our assumption that there are more possible-conceivables than impossible-conceivables, does it follow that there are more impossible-inconceivables than possible-inconceivables? The first assumption is that the number of propositions on the right side is equal to the number on the left side. The second assumption is that there are more propositions in the upper-left cell than the upper-right cell. From these, it follows that there are more propositions in the lower-right than the lower-left. So again it follows that inconceivability is reliable.

It is the remaining relationship that causes trouble. On the assumption that there are more possibles than impossibles plus the assumption that there are more possible-conceivables than impossible-conceivables, nothing follows about whether there are more impossible-inconceivables than possible-inconceivables. Return to the chart. The first assumption says there are more propositions on the left side than the right. The second says there are more propositions in the upper-left than the upper-right. From these two assumptions, nothing follows about whether there are more propositions in the lower-right than the lower-left.

Noticing this obstacle, one might point out that as long as *in fact* the number of impossibles is greater than, or equal to, the number of possibles, the relevant reliability connection holds. Unfortunately, there is good reason to think that this is not in fact the case, and that instead the possibles outnumber the impossibles.

The supporting argument surveys the cases. We can begin with pairs of propositions, each consisting of a proposition, p and its negation, not-p, where both p and not-p are decidable. These pairs fit one of two patterns. Pattern I cases consist in pairs where both p and not-p are possible. Pattern II cases are ones where both are decidable and, since p is impossible, not-p is (by standard modal logic) possible.[11] It follows that *pairs* of decidables fit either Pattern I or Pattern II. But for Pattern I and II cases, we can say this: across these cases, for every impossible, there is a possible (due to Pattern II cases), but it is not true that for every possible, there is an impossible (due to Pattern I cases). So, as far as Patterns I and II go, the possibles outnumber the impossibles.

Other propositions do not figure into such pairs: while they are decidable, their negations are not. Again, there are two patterns. In Pattern III, p is decidable and possible, but not-p is not decidable. For example, consider cases in which S finds p conceivable, but S is agnostic about whether p is merely possible or necessary since S is agnostic about the possibility of not-p. Across these cases, the possibles outnumber the impossibles.[12]

The only way for the impossibles to catch up with the possibles is by fitting Pattern IV. In these cases, p is impossible and decidable, but not-p is not decidable. Here, p falls into the impossibles, but not-p does not show up anywhere on the chart.[13] We can expect these cases to be relatively uncommon, though, since they are cases in which S finds p inconceivable and thereby believes that p is impossible; yet S is not even disposed upon performing a conceivability test to find not-p possible.[14] In principle, there is room for such cases. But they will surely be outnumbered by the combined cases fitting Patterns I and III. If so, the possibles outnumber the impossibles.

This gets us two results. First, the following connection claim is *false*: from the mere claim that conceivability is reliable it follows that inconceivability is reliable. Second, even when we add the highly likely claim that the possibles outnumber the impossibles to the assumption that conceivability is reliable, it still does not follow that inconceivability is reliable.

These results remain if we drop the assumption that producing more true beliefs than false beliefs is sufficient for reliability. This is because the arguments covering each of the three cases employed a form of dominance reasoning. To see this, reconsider the last case, where the possibles outnumbered the impossibles. For conditional proof, we started with the claim that conceivability is reliable. Call whatever ratio of true to false beliefs is needed for conceivability to be reliable, r. From the claim that conceivability produces at least an r ratio of true to false beliefs plus the claim that the possibles outnumber the impossibles, it does not follow that inconceivability produces at least an r ratio of true to false beliefs.

[11] There are not any pairs, p and not-p, which are both impossible: for if one is impossible, then by standard modal logic, the other is possible.

[12] Thanks to an anonymous referee for help here.

[13] Finding p inconceivable and thereby believing that p is impossible does not require finding not-p conceivable and thereby believing that not-p is possible. In Section 4, I consider a rule that instructs someone to do this.

[14] Since conceivability would not even deliver a belief, and an assumption of reliability requires that (true) beliefs be delivered, I am not here assuming the reliability of conceivability.

The same goes for what remains: since the same kind of reasoning is employed in all the arguments, the results will be unaffected by adjustments to the standard on reliability.

4. Local connections

We have seen there is no general connection that runs from conceivability to inconceivability. However, adding a plausible assumption allows us to get at some significant local connections. The assumption is that the reliability of processes must be assessed relative to a subject-matter.[15] This is plausible, since in normal epistemic evaluations, we do not take the unreliability that a process displays in dealing with one subject-matter to impugn its reliability in dealing with some other, quite different, subject-matter. A person with unreliable color vision, for example, is not automatically taken to have vision that is unreliable at detecting shapes.

Now suppose mathematics constitutes a subject-matter relative to which belief forming processes like conceivability and inconceivability can be evaluated. If the mathematical propositions that show up as decidable divide into equal sets of possible and impossible propositions, then as we will see in a moment this implies some significant results. But do they divide in this way?

To answer, return to our earlier division of decidables into four patterns. Recall that Pattern I cases are ones where p and not-p are both decidable and possible. Setting aside broad modalities like logical modalities, no mathematical proposition figures into such a pair. This is because for any of the remaining varieties of modality, all mathematical propositions are modally invariant in this sense: for any mathematical proposition and its denial, one is necessarily true and therefore among the possibles, and the other is necessarily false and therefore among the impossibles. As for Pattern II cases, recall that across these cases, the possibles and impossibles keep pace with one another. That leaves Patterns III and IV. Recall that these are cases in which p is decidable, but not-p is not. If it should turn out that the number of Pattern III and Pattern IV mathematical propositions are not equal, then the overall number of decidable mathematical propositions will not divide equally into possibles and impossibles. However, for anyone who follows a certain rule, the division *is* equal. This is *the tadem rule*. It instructs one to deploy conceivability and inconceivability in tandem, so that one finds a mathematical proposition conceivable if and only if one finds its denial inconceivable. This is a good rule to follow when dealing with modally invariant subject-matters, since it provides an extra check on one's work. Knowing the subject-matter is modally invariant, one knows that if one finds p conceivable and therefore believes

[15] See Sosa 1991, 131–145.

that p is possible, one should be able to run an inconceivability test on not-p and find not-p inconceivable – after all, if p is possible, then due to the modally invariant nature of the subject-matter, p must be impossible. Similarly, one knows that if one finds p inconceivable and thereby comes to believe that p is impossible, one should be able to run a conceivability test on not-p and find not-p conceivable. This allows us to make the qualified claim that for anyone who obeys the tandem rule, mathematical decidables will divide into an equal number of possibles and impossibles. But, recall, when this relationship holds, if conceivability is reliable, then so too is inconceivability. So when it comes to mathematics, the following holds for those who obey the tandem rule: if conceivability is reliable, inconceivability also is.

Moreover, for those who obey the tandem rule, the connection that runs in the opposite direction also holds. That is, if inconceivability is reliable with respect to some modally invariant subject-matter, conceivability is too. To see this, consider the claim that inconceivability is reliable. This is equivalent to: there are more impossible-inconceivables than possible-inconceivables. Now add the claim that holds for those who obey the tandem rule: the possibles and the impossibles are equal in number. From these claims, it follows that there are more possible-conceivables than impossible-conceivables. Using the chart: from there being more propositions in the lower-right cell than the lower-left cell, and there being the same number of propositions on the left and right sides, it follows that there are more propositions in the upper-left cell than the upper-right cell.

So for modally invariant subject-matters handled by cognizers who obey the tandem rule, there is a two-way reliability connection: relative to these subjects, the reliability (or unreliability) of either process entails the reliability (or unreliability) of the other process. This is a significant finding, since it generalizes to all modally invariant subject-matters. Given the widespread view that mathematics, logic, and many branches of philosophy deal in propositions that are modally invariant (at least relative to most standard varieties of modality), this means that for these subject-matters, obeying the tandem rule earns one a two-way reliability connection.

5. *From inconceivability to conceivability*

Is it true for *all* subject-matters that the reliability of inconceivability implies the reliability of conceivability? We have seen a limited claim: that for those who obey the tandem rule, there is this connection. Let's look at what happens when the possibles and impossibles are not equal.

Suppose, first, that there are more impossibles than possibles. If to this we add that the impossible-inconceivables outnumber the possible-inconceivables to capture the reliability of inconceivability, we are unable to infer anything about the relationship between the possible-conceivables and the impossible-conceivables. On the chart, the first assumption says that there are more propositions on the right side than on the left. The second says that there are more propositions in the lower-right cell than the lower-left cell. This leaves entirely open the relationship between the number of propositions in the upper-left cell and the number of propositions in the upper-right cell. Hence, from the assumption that inconceivability is a reliable guide to impossibility, it does not follow that conceivability is a reliable guide to possibility.

But maybe this last finding is not significant. The following argument aims to show that there is, in fact, no subject-matter for which there are more impossibles than possibles. One fork of the argument reminds us that for modally invariant subject-matters, the possibles and impossibles are equal. A second fork reminds us that for modally variant subject-matters, the possibles outnumber the impossibles. It follows by the exhaustiveness of the modally invariant and variant categories that for no subject-matter do the impossibles outnumber the possibles.

We can complete our investigation by determining whether the reliability of inconceivability implies the reliability of conceivability when there are more possibles than impossibles. If this connection holds, then for what appears to be all subject-matters, there is a reliability connection that runs from inconceivability to conceivability. In fact, it does hold. From the claim that the impossible-inconceivables outnumber the possible-inconceivables plus the claim that the possibles outnumber the impossibles, it follows that the possible-conceivables outnumber the impossible-conceivables. Returning to the chart, the first claim is that there are more propositions in the lower-right cell than the lower-left cell. And the second is that there are more propositions on the left side than the right. It follows, then, that there are more propositions in the upper-left cell than the upper-right cell. In other words, it follows that conceivability is a reliable guide to possibility.[16] This plus the finding from the end of Section IV yields the positive claim that I set out to defend: for all subject-matters (regardless of whether there are more possibles than impossibles, or they are equal in number), the reliability of inconceivability implies the reliability of conceivability.*

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[16] On the remaining relationship, the one on which the possibles and the impossibles are equal, it follows that if inconceivability is reliable then conceivability is too.

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