Beyond Impossibility

Abstract

Impossible worlds have become a useful tool for philosophers in dealing with a number of philosophically troublesome topics. Some philosophers, however, warn against the use of impossible worlds. Timothy Williamson, for example, argues that impossible worlds should not be used in an analysis of conditionals because they do not provide a compositional semantics. In this paper, we set out to clean up the discussion on impossible worlds and thereby resolve some of the potential problems associated with them. Graham Priest provides two directives for an account of impossible worlds. We argue that Priest's directives and thus the traditional view on impossibility overextends the class of impossible worlds. We argue that all worlds, possible or impossible, are describable, and that nonsense cannot play a role in a proper description. So, putative worlds that include nonsense are not worlds at all, possible or impossible. The possibility of nonsense sentences undermines Priest's two directives, but by separating nonsense from impossibility, we can resolve many of the worries about the use of impossible worlds.

1 | Introduction

The use of possible worlds as theoretical tools revolutionized the way that philosophy is done. In recent years there has been a push to add impossible worlds to the mix and reap additional theoretical benefits. Impossible worlds can help us to analyze counterpossibles and countermetalogicals, to resolve problems in epistemic logics, and to analyze hyperintensional concepts.[1] Despite the usefulness of impossible worlds, there are some who warn against their use. Timothy Williamson, for example, claims that impossible worlds undermine compositionality when used to analyze conditionals. Similarly, he argues that they trivialize the hyperintensional concepts they are meant to analyze. Even if we divorce impossible worlds from any metaphysical strangeness by treating them as linguistic entities, they still appear to be too strange. It is traditionally thought that every sentence is true in at least one impossible world. If this view is correct, then the strangeness of impossible worlds may undermine their theoretical benefits. In this paper, we push back on this idea. Impossible worlds are not without restrictions, and these restrictions exclude the weirdest of potential worlds. Our argument goes as follows: (i) possible and impossible worlds are tightly linked with linguistic descriptions of states of affairs, (ii) nonsense sentences fail to describe states of affairs, (iii) and so putative worlds containing nonsense aren't worlds at all—either possible or impossible. Finally, since (iv) the commonly accepted view of impossible worlds allows them to contain examples of nonsense, (v) the commonly accepted view is mistaken.

[1] For counterpossibles, see Nolan 1997, Brogaard and Salerno 2013, and Kment 2014 for examples. For an impossible worlds account of epistemic logic, see Berto and Jago 2019 chapter 5. For accounts of hyperintentionality, see Nolan 2014.

In section 2, we will support (i) by arguing that regardless of what kind of metaphysical entity worlds are, they are tightly linked with descriptions of complex states of affairs. In section 3, we describe the difference between possible and impossible worlds. In section 4, we provide the arguments for (ii) and (iii), evidence for (iv), and draw the line between impossible worlds and nonsense. Sections 5 and 6, then describe some upshots of our view of impossible worlds.

2 | What is a 'World?'

Given that our overall argument concerns issues in the metaphysics of worlds, we should briefly take some space before we get started, to address the elephant in the room: What is a "world?" Famously, David Lewis held that all possible worlds (including the actual world) are real, concrete, existing worlds that are inaccessible from one another. His view, called modal realism, can be seen to offer three distinct, explicit theses about the metaphysical nature of (possible) worlds – they are *real* entities, they *exist* in much the same way as does the actual world, and the objects in these worlds are properly real and existing objects.[2] Interestingly, Lewis argues that we should accept that possible worlds are this way on largely practical grounds—arguing, generally, that some of our most basic ontological commitments also commit us to modal realism.

While our aim for the present argument isn't to answer the question "Is Modal Realism correct?", it *is* to answer the more general question "What is a world?", among other related questions. While Lewis's argument famously applies to both the actual world and all other possible worlds, you might wonder "Are those the only two types of worlds?" Or, in other words, you might wonder whether Lewis's argument regarding possible worlds can tell us anything about the nature of worlds *per se*. The short answer is: If there are more worlds than just the possible ones, then no, Lewis's arguments don't necessarily make any explicit claims about worlds in general.

But, this doesn't mean that a realist theory about worlds (i.e., a theory that posits that *all* worlds are real in the same sense as the actual world) couldn't apply to worlds in general. Some folks argue that we ought to extend Lewis's account to *impossible worlds*. For example, in Takashi Yagisawa's "Beyond Possible Worlds," he argues for a view he calls "extended modal realism." In his paper, Yagisawa claims that, if Lewis's argument for modal realism succeeds, then we should also believe that *impossible* worlds exist in the same ways for the same reasons. It's worth noting that Yagisawa leaves it open to the reader to decide "whether this conditional should be used as the first premise of the *modus ponens*, or the first premise of the *modus tollens*."[3]

Aside from the common objections to concrete possible worlds, there is an additional problem posed by concrete impossible worlds. Concrete worlds obey a principle called "exportation."

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[2] For his entire set of arguments toward this conclusion, see Lewis 1986.
[3] Yagisawa 2018, p.204.

> **Exportation:** If world w represents something as being F, then something is F (simpliciter).[4]

Since extended modal realism treats concrete worlds as genuine parts of reality, their components are also part of reality. So, if there is a concrete impossible world that contains a contradictory object, and therefore represents an object as having contradictory properties, then something *really* does have contradictory properties. Some may find the introduction of such objects into our ontology problematic. Exportation is already a reason one may wish to reject modal realism. The problem posed by exportation is exacerbated by extending modal realism to include impossible worlds.

For our purposes in this paper, we need not determine whether or not Lewis or Yagisawa are successful in their arguments above. But, we do need to leave open the possibility that such arguments are successful. That is, in order to avoid committing ourselves to a view that unduly rules out plausible views in the conversation of worlds, we should make sure that our theory is, at least, consistent with realism about worlds (both possible and impossible).

On the other hand, we should also be careful to make sure our theory is consistent with the other type of view of worlds—ersatzism about worlds. In *Impossible Worlds,* Francesco Berto and Mark Jago explain that unlike realist worlds (which are such because they represent an object's existence by having that object as a part), ersatz worlds "represent the existence of [an object] some other way. We are using 'ersatz world' as a catch-all term, to cover worlds which represent such-and-such not in the way genuine worlds do."[5] Following Berto and Jago, we'll understand ersatz worlds in this way.

Ersatz worlds can take many forms, with each explicit answer to the question "How do these worlds represent?" giving rise to a new kind of ersatz world. For example, one might give the answer that these worlds represent their objects, parts, and events by describing them in terms of some linguistic entity – call this "linguistic ersatzism." There are several ways in which one might hold a belief in this type of world, these being determined by the relevant linguistic entities that are meant to describe the world and its parts. For example, one might have a natural-language linguistic ersatzism, or a world-making-language linguistic ersatzism, etc. Many linguistic ersatzists describe possible worlds as maximally consistent sets of sentences. Of course, when extended to impossible worlds, the maximal and consistent requirements may be dropped. Impossible worlds may be inconsistent, and they may not assign a truth-value to every sentence.

Though there are other forms of ersatzism than linguistic ersatzism, throughout this paper we treat linguistic ersatzism as the leading contender among the various theories. This is for two reasons. First, in his discussions of impossible worlds Williamson treats impossible worlds as sets of sentences. Much of the upshot of what we will say applies directly to Williamson's rejections of impossible worlds. Second, many of the points we will make will work just as well under the most reasonable ersatzist theories.

We do not take a position here on the metaphysical status of worlds. For our purposes, it is enough to note that worlds, concrete or ersatz, are describable. If linguistic ersatzism is the

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[4] This version of the principle can be found in Berto and Jago 2019 along with a discussion of the problem posed by exportation.
[5] Berto and Jago 2019, p.55.

correct theory of worlds, then each world can be linked to a description, namely the world itself. Since the world is composed of a set of statements, the world is just a description of a complex state of affairs. Modal realists take things one step further. They say that each of these descriptions is a description of a concrete object that really exists. Either way, worlds are linked with descriptions. They either are descriptions or a description of the world can be made by listing off every fact about a concrete object.

3 | From Possible to Impossible

Possible worlds are linked to descriptions of ways the world can be. Impossible worlds, then, are linked with descriptions of ways the world cannot be. But, what does it mean for something to be a description of a way the world cannot be? Let's start by looking at how we often use the word 'impossible.'

(1) It's impossible for a sentence to be both true and false in the same way.
(2) It's impossible to travel faster than the speed of light.
(3) It's impossible for that drug addict to get their life together.

All three of these are examples of things we might say are impossible, but they are not all the same. (1) seems more impossible than the others. For some, it may be easier to imagine a world where people can move faster than the speed of light than it is to imagine a sentence that is both true and false. Science fiction authors describe scenarios like those in (2) all of the time. It is even easier to imagine that a drug addict might get their life together, even though this may be so unlikely that we have given up hope for them. One may be tempted to say that (3) does not even present a genuine case of impossibility. If that intuition is correct, then there is some line between possibility and impossibility that needs to be drawn.

Philosophers often talk of different kinds of possibility. Logical, metaphysical, and physical are the most commonly described kinds, but we may also speak of epistemic possibilities or psychological ones. The list above exemplifies these different understandings of possibility. (1) is logically impossible.[6] (2) is physically impossible. Finally, (3) is an example of a psychological impossibility (relative to the psychology of the particular drug addict). But, what is the absolute sense of "possible?" Determining what sense of "possible" is the absolute sense involves considerations of inclusivity. Absolute or unqualified possibility is the most inclusive possibility; When we add qualifiers like "physical" or "psychological" to the idea of possibility, we exclude some worlds. Some philosophers[7] treat metaphysical possibility as absolute possibility, claiming that metaphysical possibility is "the most inclusive alethic, non-epistemic, non-deontic notion of possibility which validates the Necessity of Identity and Distinctness."[8] Williamson, for example, is concerned with defining and defending a concept of objective necessity, which excludes epistemic and deontic versions of the concept. He argues that the conjunction of all

[6] Assuming for the moment that the logic of the actual world does not allow true contradictions.
[7] See Stalnaker (2003) and Williamson (2016) for recent versions of this view.
[8] Clarke-Doane 2021, p. 1865.

objective necessity operators will result in the most inclusive objective necessity operator, which he claims corresponds to metaphysical necessity.[9]

Justin Clarke-Doane[10] argues against this identification of metaphysical with absolute possibility. One can, for example, start with logical possibility and add restrictions in such a way that we capture whatever metaphysical condition we want to preserve. The resulting sense of "possibility" will either be more inclusive than metaphysical possibility or it will just *be* metaphysical possibility. But, then we must ask why these metaphysical conditions are required for the real sense of "possible." Couldn't we form a more inclusive concept by dropping one or more of the metaphysical conditions? We will have more to say about absolute possibility at the end of this section, but we will first consider the demarcation of possibility and impossibility as it appears in the literature on impossible worlds.

The discussion in the impossible worlds literature focuses almost exclusively on logical possibility. After all, most of the benefits of introducing impossible worlds have to do with analyzing situations where the rules of logic are different. Berto and Jago review a number of the potential options for this demarcation:

Contradiction Realizers (CR): a world is impossible iff it contains a contradiction
Classical Logic Violators (CLV): a world is impossible iff it contains a violation of the laws of classical logic.
Logic Violators (LV): a world, *w*, is impossible with respect to world *u* iff *w* contains a violation of the logical laws of *u*.[11]

In addition to these three, we might add a fourth that also appears in the literature.

Logically Different Worlds (LDW): a world, *w*, is impossible with respect to world *u* iff *w* has different logical laws than *u*.

(CR) can be discarded immediately. It undergenerates impossible worlds by a significant degree. Proponents of classical logic believe that the law of excluded middle is necessarily true. There are ways of rejecting the law of excluded middle that do not entail a contradiction. For example, one may accept an indeterminate value such that φ, ~φ, and φ ∨ ~φ are all indeterminate in value. By the lights of the classical logician, such a situation is impossible. If classical logic is the correct logic, then (CR) fails to capture a significant set of intuitively impossible worlds.

(LV) is a generalized version of (CLV). We may have reason to consider what is possible or impossible from the perspective of a non-classical world. For example, we may have a conditional like "If the logic of paradox were correct, then it would be possible to possess a contradictory object." In trying to analyze this conditional with impossible worlds, we may worry about what is possible or impossible from the perspective of a world where the logic of paradox is correct. If the possible worlds from the perspective of a logic of paradox world do not contain violations of classical logic, then we get an intuitively incorrect evaluation of the conditional.

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[9] Williamson 2016, p. 459.
[10] Clarke-Doane 2021.
[11] Berto and Jago 2019, pp. 31 - 32.

Presumably, if the logic of paradox were correct, then stories like Priest's "Sylvan's Box"[12] would be descriptions of possible scenarios. The generalized (LV), then, would be more suitable than (CLV).

Graham Priest accepts a version of (LDW), stating:

> One might wonder, therefore, what makes a world impossible. Answer: an impossible world is one where the laws of logic are different from those of the actual world (in the way that a physically impossible world is a world where the laws of physics are different from those of the actual world).[13]

In recent work in this area, Alexander Sandgren and Koji Tanaka[14] have argued that there are two senses of 'impossible.' One sense corresponds to (LV) and the other to (LDW). To justify this conclusion they provide examples of pairs of worlds that have the same logical laws but where one of those worlds contains a violation of those laws. For example, in some relevance logics, $\varphi \supset \varphi$ is a logical truth, but $\varphi \supset \varphi$ can fail to be true in a world governed by that logic.

In addition to Sandgren and Tanaka, we can find motivation for the two senses of 'impossible' in the work of Nathan Salmon who argues that the accessibility relation of metaphysical possibility is not transitive. Salmon sets out to provide a counterexample to the S4 axiom: $\Box\varphi \supset \Box\Box\varphi$. Consider a table named "Woody." Woody "could have originated from matter slightly different from its actual original matter *m** … but not from entirely different matter."[15] Let *m′* represent the material that Woody could have originated from and *m* represent material from which Woody could not have originated. We have three worlds at play here: the actual world where Woody originated from *m**, *w′* where he originated from *m′*, and *w* where he originated from *m*. *w′* is possible and *w* is impossible. From the perspective of individuals in *w′*, however, *w* could be possible, since *m* may not be so different from *m′*. So, *w′* is possible with respect to the actual world and *w* is possible with respect to *w′*, but *w* is not possible from the perspective of the actual world. In the actual world it is necessarily true that Woody did not originate from *m*, but this is not necessarily necessary. The antecedent of S4 is true and the consequent is false.

For our purposes here, Salmon gives us worlds that have the same metaphysical laws but contain violations of each other's laws. The metaphysical law in this case may be put thusly: "objects cannot originate from materials that are significantly different from the materials from which they actually originated." 'Actually,' being an indexical, picks out a different world in each step in Salmon's chain. So, the metaphysical laws are the same but one world can contain a violation of another world's laws—law violators without legal differences. One could potentially do the same for any classification of possibility or impossibility. Simply create a law that contains an indexical for worlds. The law stays the same from world to world but the specific applications of the law change.

Rather than focusing on logical possibility or metaphysical possibility as privileged senses of the concept 'possible,' we accept a unified approach to the possible/impossible distinction.

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[12] Priest 1997.
[13] Priest 2014, p. xxiii.
[14] See Sandgren and Tanaka (2020) and also Tanaka (2018).
[15] Salmon 1989, p. 5.

> **Legal Consistency (LC):** A world is possible with respect to a set of fixed laws iff it is consistent with those laws.

For a world to be consistent with a set of laws it must (i) not have laws contrary to the set and (ii) not contain violations of any laws in the set. The first condition captures the intuitions behind (LDW) and the second captures the intuitions in favor of (LV). Note, however, that it does not restrict the conversation to just logical possibilities. There is a good reason against restricting the discussion to just logical possibility/impossibility. What counts as a logical truth is not so clear-cut. William Lycan, for example, provides a proto-sorites series of inferences that start as merely analytic inferences and end as clearly logical inferences. So, drawing a clear line between the logical and the non-logical may be impossible.[16]

The approach we take here is essentially a rejection of an objective line between possible and impossible—the kind of objective modality Williamson argues for. In this respect, we agree with the character, Louis, in Stalnaker's dialogue about impossibility. Louis, acting in part as the voice of Stalnaker, argues that there are no impossible worlds—there are just possible worlds.

> 'Possible world', as I understand it, is otherwise just a redundancy, like 'existent entity'. So what I mean by 'possible world' is what you impossibilists mean by 'world'. You distinguish a proper subset of the set of worlds that you call 'possible'. What I need to be told before I understand your impossibilist thesis is what it is that distinguishes this subset from the rest of the worlds.[17]

When pushed on this point, Louis mentions that he is open to more possibilities than one may traditionally count as possible.

> Now I am an open-minded person who does not want to be dogmatic about the limits of logical space. I am prepared to learn that I was wrong to think that the properties round and square are incompatible. For all I know, logical space is richer and more flexible than I am capable of imagining, allowing for a possibility that I would recognize (if only I could understand it) as including things that are both round and square at the same time.[18]

Though Louis is open to a broader set of possible worlds, our view may be seen as completely open to any describable state of affairs. This includes, for example, worlds with radically different logical laws.

In defining absolute possibility, Williamson adds restrictions to logical possibility in order to preserve certain metaphysical conditions. But, if we can make a more inclusive sense of possible by removing these restrictions, then why shouldn't we? What makes it less objectively possible? We can describe situations where metaphysical laws fail, and we think that these descriptions can make sense. These descriptions would not be descriptions of ways the world can be when the metaphysical laws are kept fixed, but they are descriptions of ways the world can be when the metaphysical laws vary. But, if we can do this with metaphysics, then what

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[16] See also Hacking 1979, Arazim 2017, and Garrett 2023.
[17] Stalnaker 2003, p. 57.
[18] Stalnaker 2003, p. 62.

stops us from doing it with logic? The literature on non-classical logics is rife with descriptions of different logical laws that seem perfectly sensible.

The *unqualified* sense of "possible" makes no restrictions on the way the world can be. Any description, then, is a way the world could have been. We carve up the space of unqualified possibilities by keeping certain laws fixed. If one wants the set of logically possible worlds, simply keep fixed the logical laws. If one wants the physically possible worlds, then keep fixed the physical laws.[19] (LC) makes no claim of primacy for any particular set of laws. One could even keep no laws fixed and talk about the most inclusive sense of possibility, or keep every law fixed and treat the actual world as the only possible world. To modify the motivational expression one might hear from supportive parents, "Anything is possible when you put your mind to it," can become "Anything is possible when you keep nothing fixed."

Van Inwagen notes the importance of unqualified possibility.

> Take physical possibility, possibility given the laws of nature. A proposition is physically possible if its conjunction with the laws of nature is ... well, possible. Possible tout court. Possible simpliciter. Possible period. Explanations come to an end somewhere. I can say only that by possibility I mean possibility without qualification. If there were no such thing as modality without qualification, there could be no qualified modalities like physical and biological possibility and necessity.[20]

Unqualified possibility is what underlies qualified versions of possibility. The same holds for logical possibility as it does for physical possibility. To say that something is logically possible is to say that it in conjunction with the laws of logic is "... well, possible." To say that something is possible *tout court* is, in essence, to say that it can be described. But, not all attempts at descriptions succeed. In the next section, we argue that there is a constraint on unqualified possibility.

Returning to Louis, he is correct that there is no principled distinction between the possible and impossible worlds. We carve them up according to our needs. All of them are possible in the broadest sense, but context may restrict what laws are allowed to vary. Of course, Louis does not treat the set of possible worlds as broadly as we do, a point that we will return to in the next section. By expanding the set of absolutely possible worlds to include the worlds that are traditionally thought to be impossible, we can still reap the benefits of having impossible worlds as theoretical tools.

4 | From Impossible to Nonsense

Some are reluctant to make use of impossible worlds. They worry that because anything can be true in an impossible world, they are less useful theoretical tools than they at first appear. In this section, we argue that many of the worlds that philosophers discuss as impossible worlds are, in fact, nonsense, and that the class of impossible worlds is much more restricted than traditionally thought. Note that because any world can be possible in the unqualified sense—if no laws are kept fixed—our claim here amounts to saying that unqualified

[19] Generally, we often also keep fixed the logical and metaphysical laws when we talk of physically possible worlds.
[20] Van Inwagen 1997, p. 72.

possibility is also limited. Restricting impossibility in this way removes the central worries with impossible worlds expressed by those like Williamson.

Priest provides two directives for our understanding of impossible worlds:

Primary Directive (PD): Everything holds at some worlds and everything fails at some worlds.

Secondary Directive (SD): If *A* and *B* are distinct formulas, there are worlds where *A* holds and *B* fails.[21]

Support for these directives can be found outside of Priest. Williamson, for example, voices support for (SD) as follows, "if we want to take impossibilities seriously, why exclude the impossibility in which A but not B is true, where those sentences are in fact synonymous?"[22]

These two directives give an incredibly broad understanding of impossibility. They allow for worlds where every sentence and its negation is true, or where all of them are false. The directives allow for synonymous sentences to have different truth-values. In effect, they allow for any assignment of truth-values to sentences. Of course, one would be tempted to think of impossible worlds as strange when anything goes in them. But, Priest's directives overgenerate impossible worlds. Not all assignments of truth-values to sentences will result in a world, and an answer can be given to Williamson's question.

Remember that worlds are tightly linked with descriptions. According to linguistic ersatzism, they just are descriptions of complex states of affairs. Some syntactically correct declarative sentences are not successful descriptions. Consider the following list of sentences:

(4) Goodness is hexagonal.
(5) Julius Caesar was a prime number.
(6) Colorless green ideas sleep furiously.

"Goodness" can be the subject of a sentence and "hexagonal" can be the predicate. The sentence "Goodness is hexagonal," however, fails to describe a state of affairs. There is a category mistake that renders the sentence nonsense. The same applies to the other two sentences. A set of sentences that includes any of these three will fail to describe a state of affairs, and therefore fails to be either a possible world or an impossible world.

Nonsense isn't restricted to just category mistakes. Annette Baier lays out a sixfold classification of nonsense. Of interest to us here are Baier's nonsense categories 1, 3, and 5, listed below.

> 1. What someone says on a particular occasion may be said to be nonsense if it is obviously false, if it flies in the face of the facts.
> 3. Sentences involving category errors will be nonsense of another sort.

[21] Priest 2016.
[22] Williamson 2020, p. 344.

> 5. In the fifth category we have nonsense of the sort you can produce by taking a respectable sentence and replacing one or more words (but not too many) by nonsense words.[23]

Cora Diamond calls the view described by Baier's list the natural view and contrasts it with the Frege-Wittgenstein view. Importantly, both the natural view and the Frege-Wittgenstein view hold that nonsense of kinds 3 and 5 do not collapse into nonsense of kind 1. The examples listed above are nonsense of kind 3—nonsense involving category errors. Some may contend that sentences involving category errors are not proper sentences. Noam Chomsky, for example, originally thought that "Colorless green ideas sleep furiously." was grammatically correct but meaningless.[24] His view changed over time, with him later viewing the sentence as containing a syntax error.[25] This result is fine, because by virtue of not showing up in the sets of sentences composing worlds, the set of impossible worlds does not contain absurdities like Julius Caesar's being a prime number. Our goal, after all, is to clean up the set of impossible worlds. If one wishes to save Priest's directives by treating nonsense sentences of kind 3 as syntactically incorrect sentences, that is acceptable.

Nonsense can also arise from failures to follow through with analytic entailments. An analytic entailment is an inference where the conclusion follows from the premises merely by virtue of the meanings of the words. Consider the following inference:

> Winston is a bachelor. ∴ Winston is unmarried.

Of course, being unmarried is a necessary condition for being a bachelor, but it is even more than just a necessary condition. Being unmarried is constitutive of what it means to be a bachelor. Suppose that someone genuinely asserted that Winston is a bachelor and that he is married. Such a person speaks nonsense. This could be nonsense of kind 1, but it would be more charitable to treat them as either using a different meaning for one or more of the words in the sentence or speaking nonsense of kind 5 where one of the words lacks sufficient meaning. We lose nonsense of kind 1 when we consider the sentences that constitute worlds rather than sentences uttered by speakers. Consider a putative world where "Winston is a bachelor" is true and "Winston is married" is true. This is definitely not nonsense of kind 1 because by stipulation the sentences are true in the putative world. We also cannot assume that the words mean something different than they actually mean because there is no speaker, and hence, no speaker meaning to appeal to. So, that leaves us with nonsense of kind 5. Either "bachelor" or "married" is rendered meaningless. A putative world that is not closed under analytic entailments like the one above contains nonsense. A set of sentences, then, that is not closed under analytic entailment fails as a description. It is neither a description of a way the world could have been nor a way that it couldn't have been—it's neither a possible nor an impossible world.

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[23] The particular versions of the kinds of nonsense written here are Diamond's paraphrases of Baier's list. Diamond 1981, p. 5. For the originals, see Baier 1967, pp. 520-521.
[24] Chomsky 1957, p. 15.
[25] Chomsky 1965, p. 149.

Unlike nonsense of kind 3, failures of analytic entailments cannot easily be discarded to save Priest's directives. Taken alone the sentence "Winston is a bachelor" is fine, and the same is true of "Winston is married." It is their conjunction that engenders nonsense. We now have a sentence that is not true in any world, namely the conjunction "Winston is a bachelor and married." This undermines Priest's first directive. The second directive is also undermined by the sentences "Winston is a bachelor" and "Winston is an unmarried man." The former and latter are distinct formulas that must have the same truth-value. If either of them has a different truth-value, then there is a failure of an analytic entailment, and therefore nonsense.

We have to be careful here. There are some impossibilities that can arise from someone being a married bachelor. For example, suppose that Winston is both a bachelor and not a bachelor and that he is both married and unmarried. Such a situation, though not possible, is not clearly nonsense. If a world is governed by the laws of the logic of paradox, then a person may be able to be a paradoxical bachelor. In such a scenario, the premise of the above inference is both true and false. If the conclusion is true, then the inference is preserved, but in the logic of paradox there are two ways for a sentence to be true. It can be true-only or it can be both true and false. So, the inference from Winston's bachelorhood to his marital status is preserved when both premise and conclusion are paradoxical. In such an impossible situation, we do not have a failure of an analytic entailment because both sides have a designated truth-value.[26]

Note that, in the literature on worlds, there is already a concept of an "open world." Generally, open worlds are taken to be a kind of impossible world—ones where the truth-values of any one sentence comprising the world may be set independently of the truth-values of any other sentence. Our point in this section is that some arrangements of truth-values for sentences result in nonsense, and therefore do not result in worlds. This excludes many of the worlds others may call "open worlds." One could assign truth-values randomly to sentences and end up with a world (possible or impossible), but one could also end up with a set of sentences containing nonsense. As such, the set of open worlds is not a subset of the set of impossible worlds. So, since open worlds and impossible worlds are distinct—only partially overlapping—sets, merely appealing to open worlds to solve some of the potential problems with impossible worlds will be unsuccessful.

Impossibility is constrained by language. A situation is neither possible nor impossible if it doesn't make sense to begin with. So, the line between impossibility and nonsense is drawn by which states of affairs can be sensibly described. A state of affairs where it's true-only that Winston is a bachelor and true-only that he is married is no state of affairs at all. Note, however, that not all impossibilities will be nonsense. Presumably the many proponents of non-classical logics are not speaking nonsense when they describe their views. So, alternative sets of logical laws can be described, and hence worlds with different logical laws are impossible but not nonsense.

The line, however, between impossible and nonsense, though more determinately placed than the context-sensitive line between possible and impossible, is difficult to find. This is because the meanings of our words are unclear. Does the meaning of "water" clearly exclude

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[26] In the logic of paradox, an inference is truth-preserving so long as the conclusion is not false-only when the premises are all either true or paradoxical. So, the designated truth-values of the logic of paradox are true and the paradoxical value of both true and false.

XYZ as Putnam argues?[27] Can the predicate “is true” be truly applied to propositions that are also false, as Priest argues that it can?[28] If not, then the state of affairs (potentially) described earlier of a paradoxically married bachelor is actually a load of nonsense. Personally, we do not feel that Priest’s dialetheism is nonsense, but our task here is not to defend the logic of paradox. If one argues that the line between impossible and nonsense is elsewhere than we have drawn it, then so be it. Our goal is merely to show that impossibility is constrained by nonsense. The more one includes in the category of nonsense, the fewer impossible worlds there are. The less, the more.

We will return now to Louis from Stalnaker’s dialogue. Louis argues that there are no impossible worlds because such worlds cannot be successfully described.

> But whether your concept of impossibility is based on restricted or unrestricted quantification, it seems to me hard to escape the conclusion that at least some impossible statements will come by their impossibility by being true in no world at all, possible or impossible. For you surely will agree that a proper semantics explains truth-conditions in terms of compositional rules, and that whatever possibilities and impossibilities are available for semantics to appeal to in its explanations of the content of a complex statement as a function of the meanings of its component parts, there might be statements that are true in no possible or impossible world.[29]

Louis is half right. Impossible worlds are not nonsense, since they are just worlds that are inconsistent with the contextually fixed laws. So, we can have impossible worlds and the theoretical benefits that come with their use. That being said, “worlds” that contain nonsense are not worlds at all.

Stalnaker, not speaking through the voice of Louis, argues that conceptual possibility collapses into metaphysical possibility, which he treats as absolute possibility. Notably, the example he gives of a conceptual possibility is one that, were it false, would engender nonsense. It is not just that conceptual possibility collapses into metaphysical possibility, but rather that all possibilities must be conceptual possibilities, otherwise they are nonsense.[30]

5 | Compositionality

One particularly clear advantage of separating nonsense from impossibility is the preservation of compositionality. Timothy Williamson, notably, rejects the use of impossible worlds in the semantics for conditionals with necessarily true consequents or necessarily false antecedents, such as (7):

(7) If the universe were not either finite or not finite, the universe would be either finite or not finite.[31]

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[27] Putnam 1974.
[28] Priest 1979.
[29] Stalnaker 2003, p. 64.
[30] Stalnaker 2003 chapter 11.
[31] Labeled (1) in Williamson 2020, p. 243.

One could use impossible worlds to analyze this sentence as sometimes false (rather than vacuously true) because many sets of sentences will include the antecedent and exclude the consequent. Williamson, however, rejects this potential analysis of conditionals on the grounds that the resulting semantics would not be compositional.[32] The use of impossible worlds, Williamson claims, looks only at whether or not a sentence is a member of a set and not the meaning of the sentence. Williamson here agrees with Priest's second directive. Impossible worlds, on his account, can contain two synonymous sentences that receive different truth-values.

Williamson considers a modification to the use of impossible worlds to preserve compositionality:

> One could impose by hand the constraint that if an impossible world contains a sentence, it also contains any synonymous sentence. But that is unsatisfying. It is ad hoc, merely stipulating something which standard semantic theories explain.[33]

Our account, however, does not stipulate that impossible worlds must contain pairs of synonymous sentences—we argue for this conclusion. Worlds are tightly linked with descriptions, which cannot contain nonsense. The kinds of failures of analytic entailments that would allow for pairs of synonymous sentences to receive different truth-values in a world result in nonsense. So, there are no impossible worlds that would contain violations of compositionality. Williamson's central worry with the use of impossible worlds to analyze counterpossibles and conditionals with necessarily true consequents is no worry at all. We can still use the impossible worlds that do not contain nonsense to analyze these conditionals. As for conditionals where either the antecedent or the consequent contains nonsense, there is no need to evaluate them for truth.

Note that Williamson expresses a similar worry with impossible worlds in his discussion of the sameness of content between sentences. If we say that two sentences have the same content iff they are true at the same worlds, and we countenance both possible and impossible worlds, then the only sentence that has the same content as "There is a god." is itself. This is because, Williamson argues, there is a set containing only the sentence "There is a god." If that set is a world, then there is a world where the only thing that is true is that there is a god. The singleton set {"There is a god."}, however, is not a world. After all, it is not closed under analytic entailment. The sentence "There is a deity" is not true in that world. Since this singleton set is not closed under analytic entailment, it is neither a possible nor an impossible world.

We can return to Williamson's question from the beginning of the last section. Why should we exclude impossible worlds where synonymous sentences get different truth-values? Because such worlds are neither possible nor impossible—they're nonsense.

One final point to note: how fine-grained or coarse-grained our meanings are will affect the border between impossibility and nonsense. Williamson accepts a particularly coarse-grained understanding of meaning such that many pairs of words count as synonyms. Combining coarse-grainedness about meaning and our view on impossibility, we get a much more restricted set of impossible worlds. Using a more fine-grained understanding of the

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[32] See also Williamson 2018.
[33] Williamson 2020, p. 244.

meanings of words will result in a broader set of impossible worlds. This is because a more fine-grained understanding decreases the instances of analytic entailments. One could, for example, treat “god” and “deity” as non-synonymous. As such, the inference from “There is a god.” to “There is a deity,” may not be an analytic entailment. Of course, if there is even one instance of a pair of synonymous words, then Williamson’s objection to the use of impossible worlds would still pose a problem, albeit a problem one can resolve by separating nonsense from impossibility.

6 | Nonsense and Reasoning

While the theoretical benefits of including a formal nonsense category are numerous, generally, there are also many independent benefits to such a category. These benefits, we argue, weigh in favor of a view that incorporates such a category.

In many areas of philosophy, the modeling of human behavior or mental states ties the discipline to the usefulness of having theories concerning reasons and rationality. In metaethics, there exist rich, deep discussions about what the nature of rationality is.[34] There are also interesting and highly debated discussions regarding the nature of reasoning and reasons.[35] Given that theories of reason and rationality are centrally concerned with the ability to model the belief and motivational structures of actual agents[36], they should have something to say about whether (or how) an agent is rational, irrational, reasonable, etc., when they consider (or even believe!) nonsense.

But, you might wonder, “What does this have to do with nonsense? Why is it important for such theories to handle cases of nonsense?” For example, consider Manish Oza’s two examples of potential reasoning processes (from (8) to (9), and from (10) to (11)).

(8) 1 is false. ∴ (9) “1 is false” is false.

(10) Goodness is hexagonal. ∴ (11) Something is hexagonal.

Let’s assume both (8) and (10) are “nonsense,” in the relevant sense. If someone were to make an inference from (8) to (9), it seems as though they are reasoning poorly; Even if they are somewhat epistemically culpable for forming a nonsense belief in the first place, it seems that there is some *further* problem when making this sort of inference. But, the same cannot be said for the person who makes the inference from (10) to (11). Again, they may be somewhat epistemically irresponsible for forming a nonsense belief, but they *don’t* seem to be making an additional mistake as a result of making this inference. As such, it seems plausible to contend that theories of rationality and reasons would be concerned with modeling the differences

[34] That is, what makes a given belief, intention, etc., rational or irrational, whether or not rationality is normative, to what extent objective facts determine whether or not a given agent is rational, etc..
[35]That is, what sorts of reasons exist, which processes of reasoning are “good reasoning,” and to what extent subjective and objective reasons are related to one another.
[36] In order to, for example, determine whether or not someone is rational, or whether or not someone has a reason to perform some action.

between these two cases (as the process of making inferences typically involves theories of both types).

It might be suggested that when considering reasoning processes, rational entailments, the coherence of attitudes, etc., we might not have to consider nonsense in the same ways we consider non-nonsense attitudes; You might think we should just treat these sorts of reasoning processes as vacuously rational, irrational, unreasonable, incoherent, etc. But, if we were to give all reasoning processes from nonsense premises the same value, we lose the ability to describe that someone reasoning from (8) to (9) is reasoning badly while someone reasoning from (9) to (10) is reasoning well—they both have premises composed of nonsense beliefs, and would, thereby, both be vacuously rational, irrational, unreasonable, incoherent, etc., because of this. Also, there's a related phenomenon to be explained that supports the need for such theories to include concepts of both impossibility and nonsense into their central modeling schemes—reasoning and rationality processes that operate on non-nonsense unknowns. Imagine a case similar to the one above, but instead of having (8) and (10) contain nonsense, they contain non-nonsense beliefs about things the agent does not know. For example, imagine that some agent, Bob, doesn't know what the words and phrases "Orc" or "Goldbach's Conjecture" mean. Then, assume he makes the following two inferences (from (12) to (13), and from (14) to (11)).

(12) Goldbach's Conjecture is false. ∴ (13) "Goldbach's Conjecture is false" is false.

(14) An orc is hexagonal. ∴ (11) Something is hexagonal.

Given that (12) and (14) are not nonsense sentences, it seems that we have the resources to say that Bob is reasoning poorly when reasoning from (12) to (13), but reasoning well when reasoning from (14) to (11). But, note that, as far as the reasoning processes themselves are concerned, they are identical, *mutatis mutandis*, to those used in the nonsense cases. If we can model these second cases, it seems we should be able to model the first ones as well.

It's worth considering how folks might model some of these sorts of processes, in general, in order to see why "nonsense worlds" might be helpful in doing so.[37] To do this, we should briefly lay out some of the most popular, plausible theories of good reasoning. In this area, there are a few approaches currently on offer: You might think

a. Good reasoning processes are those that preserve truth-values from premises to conclusion[38]
b. Good reasoning processes are those that preserve the fittingness of attitudes from the premises to the conclusion[39]
c. Good reasoning processes are those that could never lower the truth-value from the premises to the conclusion

[37] Importantly, we're not arguing that you *must* model these processes in such ways; we're merely arguing that if one were to use worlds to do so, one would need to make use of nonsense worlds.
[38] While being found in many places, one of the clearest discussions of the matters relevant to this type of theory is found in McHugh and Way 2016 (especially when considering the fittingness of beliefs (which are fitting only if true)).
[39] For more, see McHugh and Way 2016.

d. Good reasoning processes are those that lead you to do what there is most reason to do[40]
e. Good reasoning processes are those that lead you to be rational[41]

All of these accounts rely on one of three things: the content of a given attitude (and how it connects to the conclusion of the reasoning process), the truth-value of a given attitude (and how it connects to the conclusion of the reasoning process), or the connection between the premise attitudes and their coherence with the conclusion attitude. Often, when modeling such types of theories, it strikes folks that they should use worlds to do so. In non-nonsense cases, the idea is that for whatever your preferred version of reasoning, you consider what a world would look like if the premise attitudes were true. Then, you ask whether this world is the way your chosen theory predicts it would (or should) be—for *a*, you ask whether or not in all of the resulting worlds, the truth value of the conclusion would be preserved; for *b*, you ask whether or not the conclusion attitude is fitting in all of the resulting worlds; for *c*, you ask whether any of the worlds has a lower truth-value when the conclusion is present; For *d*, you ask whether in these worlds the agent has most reason to perform the action associated with the conclusion; for *e*, you ask whether the agent is rational in all of the resulting worlds.

This sort of modeling might work fine with attitudes whose contents are unknown, such as (12) and (14). In these cases, you can still generate worlds (possible or impossible) where these things are true, or, if need be, where all descriptions would fit the agent's general ideas concerning the unknown terms. But, with attitudes involving nonsense, by stipulation, these attitudes *lack* content, truth-values, or coherence conditions, and if one does not have a separate category of "nonsense worlds" with which to construct models, one cannot model these sorts of processes using worlds at all. So, in short, accepting a theory that includes a category for nonsense, like ours, opens a popular modeling technique to these important areas of philosophy.

7 | Concluding Remarks

Impossible worlds, like possible worlds, are important and useful theoretical tools. Many philosophers have overestimated the broadness of the category of impossible worlds. Priest's directives, for example, overgenerate the set of impossible worlds The arguments provided in section 4, demonstrate that Priest's directives are incorrect. Not only do they capture the set of impossible worlds, but they include sets of sentences that have nonsense as members. We have argued firstly that the distinction between possible and impossible is context-sensitive and determined by which laws one wishes to keep fixed, but the set of possible and impossible worlds is constrained by what can be sensibly described. The upshot of this theory of impossible worlds is that it separates nonsense from impossibility. Many of the potential problems with using impossible worlds, then, are resolved, as was shown in section 5. Finally, just as some philosophers have argued that we can use impossible worlds to analyze epistemic and deontic

[40] While explicit arguments for this position are difficult to find, general sympathies or intuitions toward such a view can be found in Horty 2012 and Dancy 2014.
[41] For more, see Broome 2013 (especially chapters 12-16).

concepts when agents have impossible beliefs, we can also make use of nonsense "worlds"—sets containing nonsense sentences—to analyze the nonsense beliefs of agents.

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