

# Worlds, Possible and Impossible

Martin Vacek, Institute of Philosophy SAS, v. v. i., Bratislava, Slovakia

© 2024 Elsevier Ltd. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

Introduction	1
Modality	1
Applications of Possible Worlds	2
What are Possible Worlds?	2
Impossible Worlds	3
Conclusion	4
References	4

## Key Points

- actuality
- possibility
- analysis of non-modal claims
- analysis of modal claims
- impossibility

## Abstract

Modal phenomena in general, and modal claims in particular, present a problem for contemporary philosophers. The truth conditions of modal claims differ from those of non-modal claims. I discuss a widely accepted strategy that posits possible and impossible worlds in order to analyze modal claims and thus systematize our intuitions about modal reality.

## Introduction

This world contains many things and happens to be a certain way. Some claims are true of it, while their negations are false of it. Other claims are true and others false, although it can be argued that neither they nor their negations describe the way the world is in the same way. Instead, they address how the world could, must or could not be. Given the nature of these so-called modal claims, explaining their truth-aptness requires going beyond just this world and its current state. In this article, I discuss an approach aimed at explaining these claims.

## Modality

Modal claims are claims that typically contain terms “possibly,” “could,” “might” and so on., or simply begin with the clauses “It is possible that ...,” “It is necessary that ...” or “It is impossible that...” These claims address ways the world could be or must be. To systematize these ideas and provide a framework for understanding such claims many philosophers identify these alternative ways with *possible worlds*. Briefly, what is possibly true or false in our world is considered true or false in these possible worlds, respectively. Here is a simple example:

(1) The Sun is in the center of the solar system.

We learn from textbooks that (1) is true (or almost true, given that the exact center is a point very close to it, namely the barycenter. But for the sake of simplicity, let’s stick with this example). However, it is imaginable that (1) is false. Speculations about alternatives to the solar system abound, and its possibilities are open to both scientific and imaginative exploration. We investigate and speculate these possibilities and it seems intuitive not to deny the possibility that the center position could be occupied by a different object, such as Earth. In such a scenario, the claim:

(2) It is possible that Earth is in the center of the solar system

is true. Yet, the truth of (2) cannot be explained in the same manner as (1) is, because (1) is true based on the way the world is, while (2) pertains to how the world *could* be: or how a *possible world* is (Divers, 2002).

The idea of possible worlds can be traced to Leibniz and has been renewed in contemporary modal metaphysics. For instance, David Lewis writes:

I believe, and so do you, that things could have been different in countless ways. But what does this mean? Ordinary language permits the paraphrase: there are many ways things could have been besides the way they actually are. I believe that things could have been different in countless ways; I believe permissible paraphrases of what I believe; taking the paraphrase at its face value, I therefore believe in the existence of entities that might be called 'ways things could have been.' I prefer to call them 'possible worlds'.

(Lewis, 1973, p. 84)

Possible worlds are ways the world could be. They help us to better understand, analyze and evaluate modal claims. One of these worlds, known as the actual world, accurately reflects the way the world truly is, while other possible worlds serve as alternatives to our actual world. Returning to claim (2) and bearing the presence of possible worlds in mind, the claim receives the following interpretation:

(2\*) It is possible that Earth is in the center of the solar system *if and only if* there is a possible world, *w*, such that at *w*, Earth is in the center of the solar system.

In addition to analyzing possibility, possible worlds are also employed to analyze "it is necessary that ..." and "it is impossible that ..." claims. For this purpose, the phrase "there is a possible world" in (2\*) is substituted for "every possible world" and "no possible world," respectively.

It is important to note that "possible world" and "the actual world" are theoretical concepts. To engage meaningfully in the debate surrounding these concepts, one must first define them. For, the controversy surrounding the possible world framework does not solely rest on the use of these notions but rather on their philosophical interpretation. But before delving into the philosophical issues arising from possible worlds, I will outline several other applications of this notion.

## Applications of Possible Worlds

In addition to serving as the truth—conditions for modal claims, possible worlds have other applications as well. For instance, there are philosophers who prefer the differentiation of properties and propositions by identifying them with the sets of their instances (as representative examples, see (Lewis, 1986; Quine, 1960)). Consider the properties of "being a unicorn" and "being a talking donkey." Since neither unicorns nor talking donkeys exist in the actual world, these two properties have no instances in the world. Consequently, if we were to identify them with the set of their actual instances, they would be one and the same property: the empty set. Possible worlds offer a solution to this issue by providing resources that allow us to assert the possibility that there are unicorns without talking donkeys. Consequently, the property of "being a unicorn" can be distinguished from the property of "being a talking donkey." By identifying propositions with sets of possible worlds, the same strategy can be applied to differentiate distinct propositions that, in the actual world, are conflated.

Another use for possible worlds is in the analysis of counterfactuals. Briefly, counterfactuals are claims that discuss what would have happened under different circumstances. Theories of counterfactuals vary, but what they often share is the use of possible worlds. Since possible worlds represent merely possible situations, they enable us to ponder and further analyze what would and would not be the case if some non—actual situations were to occur.

Also, many of us engage with fictional stories. Such stories do not actually happen, but their content prompts us to think about them, empathize with the characters, imagine how the story continues, and so on. These "truths in fiction" (Lewis, 1976) are easy to grasp intuitively but can be challenging to understand systematically. However, by adopting the possible worlds strategy, many theoretical problems about fiction can be clarified.

Moreover, problems in the philosophy of mind such as subjective probability (Skyrms, 2000); in linguistics (Hintikka, 1969), in philosophy of science (Bigelow & Pargetter, 1990); in epistemology (Stalnaker, 1987), or in ethics (Sinnott-Armstrong et al., 1995) can be better understood through thinking about possible worlds. This can be done either by performing thought experiments as sources of modal knowledge (Williamson, 2007), by stipulating possible scenarios (Kripke, 1980), or by modeling truth conditions in general. Such a widespread utilization of possible worlds across these various fields is indicative of the theoretical usefulness of the notion.

Nonetheless, nothing in philosophy comes without its challenges, and alongside its applications come theoretical problems that possible worlds introduce. One such problem is the problem of their identity represented by the question "what are possible worlds?" I will discuss several answers in the next section.

## What are Possible Worlds?

Recall that we began the discussion by identifying possible worlds with ways the world could be. Although such an identification sheds some light on the notion of a possible world, it is not hard to detect a circularity in this definition. It is therefore not surprising that philosophers have come up with more elaborate theories.

In general, we can say that the discourse on possible worlds is meaningful if possible worlds exist. Existence, however, is understood in a very broad sense and the possible worlds discourse makes sense even if possible worlds do not really exist. Realist about possible worlds believe that possible worlds exist in the proper sense of the word, while antirealists consider their existence in a less committing sense, viewing them as a useful fiction. For the rest of this article, I will primarily focus on realism about possible worlds.

To better understand the crux of the philosophical disagreement, we can stipulate two principles that will guide us through this section: *the egalitarian principle* and *the privilege principle*. The egalitarian principle, as an ontic principle, posits that if possible worlds exist, they are of the same kind as the actual world, and there is no difference in ontological categories between the actual world and other possible worlds. On the other hand, the privilege principle asserts that the actual world is somehow special and, in contrast to other possible worlds, enjoys a privileged philosophical status.

At first glance, these two principles appear to be contraries in the sense that adhering to one necessitates rejecting the other. Moreover, these principles seem to provide substantial insights into the nature of possible worlds, assuming we accept certain intuitions about the actual world. However, a closer examination of the various positions in the philosophical landscape reveals that each principle can be held independently of the other. Furthermore, proponents and critics of possible worlds can simultaneously adhere to or reject these principles.

Let's start with the assumption that possible worlds exist. Also, for the sake of simplicity, let's assume that the distinction between "concrete" and "abstract" exclusively categorizes reality into concrete beings and abstract beings. Consequently, possible worlds are either concrete or abstract entities.

Following the egalitarian principle, the actual world is a concrete entity, and possible worlds are concrete entities as well. Proponents of possible worlds who adhere to this view commit to an extravagant ontology of concrete possible worlds. This position is called modal concretism (Lewis, 1986). A counterpart to modal concretism is modal abstractionism, which argues that the modal space conceived in the concretists' fashion is implausible. According to this position, possible worlds should merely represent possibility rather than instantiate it in a full-blooded sense (Plantinga, 1974). In this view, the privilege principle is preferred because the actual world is a real, concrete, and causally interrelated complex, while possible worlds are mere abstract representations.

The disagreement between concretism and abstractionism can be analyzed in terms of acceptance of the egalitarian principle and the privilege principle, respectively. However, these positions can be further articulated to align with the opposing principles as well. For instance, in the concretists' framework, the appearance of the privileged status of the actual world compared to other worlds is explained by "our" special relation to the actual world. The term "actual" is understood indexically, indicating that this world is the privileged world for us because it is the only world we are part of and interact within. Other possible worlds are distant from us, although their worlds are "equally" privileged for "them."

On the other hand, the egalitarian principle is also justified by the abstractionist camp. In fact, abstractionists concede that the actual world is one of the possible worlds, namely the one which represents reality correctly. A hidden assumption among abstractionists is that the term "world" denotes two fundamentally distinct entities (van Inwagen, 1986). It refers to 'the actual world' understood as an abstract representation of the concrete reality around us, or the concrete reality itself. In other worlds, abstractionists can use the term "world" as referring to the concrete mass as well referring to whatever plays the theoretical role of "world." Such an ambiguity allows for the fulfillment of the egalitarian principle while also accounting for the privileged status of the actual world: it represents reality correctly.

Interestingly, the debate about the nature of possible worlds hinges on the nature we attribute to our world. Without an agreement about what our world is really like, it seems that discussions about its possible alternatives cannot even get off the ground. In other words, adhering to the two principles requires us to establish a common understanding of our world and, based on these principles, proceed with the investigation into possible worlds.

## Impossible Worlds

Soon after formalizing the concepts of possibility and necessity through the introduction of possible worlds, philosophers recognized that the realm of possibility alone does not encompass the entire discourse about reality. The underlying idea is that alongside the ways the world could be, there are numerous ways the world could not be: impossible worlds (Vacek, 2023). The modified argument from ways goes as follows:

It is also uncontroversially true that some things might *not* have been otherwise than they are. The chair that is in fact blue could not have been both blue and red in the same respect and at the same time. I believe, and so do you, that things could not have been different in countless ways. But ordinary language permits the paraphrase: there are many ways things could *not* have been besides the way that they actually are. On the face of it, this sentence is also an existential quantification. It says that there exist many entities of a certain description, *viz.*, 'ways things could *not* have been'. I believe permissible paraphrases of what I believe. Taking the paraphrase at face value, I therefore believe in the existence of entities which might be called 'ways things could not have been.' I call them *impossible worlds*.

(Naylor, 1986, p. 29, italics in original).

Significantly, in addition to elucidating the concept of impossibility, impossible worlds have emerged as explanatory tools, much like their possible counterparts. Instances such as properties that cannot be instantiated, propositions that cannot be true,

fictional narratives with inconsistent scenarios that could not happen, or our reasoning from counterpossible situations suggest a shared commonality between possibility and impossibility. This implies that if the nuances of possibility can be articulated using the framework of possible worlds, then the discourse on impossibility can similarly benefit from its conceptualization in terms of impossible worlds.

Interpreting impossibility through the lens of ways the world cannot be, aligning these ways with impossible worlds, and acknowledging the utility of impossible worlds in philosophical analysis elevate their standing to that of possible worlds. It should be added, however, that while many recognize their value, not everyone accepts the argument from analogy (Perszyk, 1993).

What about the identity of impossible worlds? Unsurprisingly, several alternatives exist, contingent upon one's position regarding the egalitarian principle and the privilege principle concerning the nature of the world, complemented now by two competing views regarding the possibility/impossibility duality.

The egalitarian principle posits that impossible worlds are of the same kind as possible worlds. In practice, the egalitarian concretists about possible worlds accept concrete impossible worlds, whereas abstractionists approach the realm of possibility and necessity from an abstract perspective. Conversely, the privilege principle suggests that possibility holds a privileged status over impossibility. However, this presupposes a clear distinction between possibility and impossibility. One approach to establishing this distinction is the seemingly intuitive but contentious *Strangeness of Impossibility Condition* (Nolan, 1997). Roughly, this principle asserts that any possible world should be closer to any other possible world than any impossible world.

Another option is to challenge one of these principles. In a sense, the abstractionist has already paved the way by acknowledging two ways of understanding the world: as the tangible reality around us on one hand, its precise representation on the other. By rejecting the egalitarian principle, one can posit possible worlds as concrete entities and impossible worlds as abstract entities (Berto, 2010). Alternatively, one could dismiss the privilege principle, analyzing impossibility as a form of possibility by relativizing the relationships between worlds and eliminating the absolute distinction between possibility and impossibility (Yagisawa, 2010).

Indeed, each of these alternatives presents its own set of concerns and merits further exploration. But what would we expect? Initially, possible worlds were highly controversial, and it took some time to establish their role in philosophy. Impossible worlds and the issues they raise are controversial as well. Following the trajectory of possible worlds, it is only to be expected they find their stable place in philosophy.

## Conclusion

At first glance, possible and impossible worlds may seem like exotic inventions of philosophers. However, upon closer examination, these worlds reveal a range of fruitful applications that extend beyond theoretical philosophy. Despite some controversy surrounding them, possible and impossible worlds have revolutionized our understanding of reality. Given the profound issues they address, it is not surprising that they both attract significant attention and elicit incredulous reactions. Fortunately, these aspects are fundamental to the nature of philosophy, securing possible and impossible worlds their rightful place in the field.

## References

- Berto, F. (2010). Impossible worlds and propositions: Against the parity thesis. *Philosophical Quarterly*, 60, 471–486.
- Bigelow, J., & Pargetter, R. (1990). *Science and necessity*. Cambridge University Press.
- Divers, J. (2002). *Possible worlds*. Routledge.
- Hintikka, J. (1969). *Models for modalities*. Reidel.
- Kripke, S. (1980). *Naming and necessity*. Harvard University Press.
- Lewis, D. (1973). *Counterfactuals*. Harvard University Press.
- Lewis, D. (1976). Truth in fiction. *American Philosophical Quarterly*, 15, 37–46.
- Lewis, D. (1986). *On the plurality of worlds*. Blackwell.
- Naylor, M. B. (1986). A note on David Lewis's realism about possible worlds. *Analysis*, 46, 28–29.
- Nolan, D. (1997). Impossible worlds: A modest approach. *Notre Dame Journal of Formal Logic*, 38, 535–752.
- Perszyk, K. (1993). Against extended modal realism. *Journal of Philosophical Logic*, 22, 205–214.
- Plantinga, A. (1974). *The nature of necessity*. Clarendon.
- Quine, W. V. (1960). *Word and object*. M.I.T. Press.
- Sinnott-Armstrong, W., Raffman, D., & Asher, N. (Eds.). (1995). *Modality, morality and belief*. Cambridge University Press.
- Skyrms, B. (2000). *Choice and chance: An introduction to inductive logic*. Wadsworth.
- Stalnaker, R. (1987). *Inquiry*. Bradford Books, MIT Press.
- Vacek, M. (2023). Impossible worlds. *The internet encyclopedia of philosophy (IEP)*. <https://iep.utm.edu/impossible-worlds/>.
- van Inwagen, P. (1986). Two concepts of possible worlds. *Midwest Studies in Philosophy*, 11, 185–213.
- Williamson, T. (2007). *The philosophy of philosophy*. Blackwell.
- Yagisawa, T. (2010). *Worlds and individuals, possible and otherwise*. Oxford University Press.