

Possible in Philosophy

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Definition

Within philosophy, the word ‘possible’ is generally used to speak about either of the following. 1. *Possibility*: the notion that is expressed by sentences such as ‘It is possible that there are green cats’, ‘She may become the best surgeon in the city’ and ‘Our team can win the race’. Among the features of possibility, three are of particular interest to philosophers: it is closely related with necessity, contingency and actuality; it is not unified, but comes in multiple varieties; it is intuitively linked to conceivability. 2. *The possible*: the target of sentences expressing a possibility, i.e. whatever is possible. Philosophical inquiry is notably interested in the existence and the nature of possible things. For those who think possible things exist, the challenge is to say how and where. For those who think possible things do not exist, the challenge is to say how sentences stating a possibility can be true.

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When speaking of possible in philosophy, one must be careful to distinguish between three closely related notions: possibility, possibility-statements and the possible. Consider the following sentences: ‘It is possible that there are green cats’, ‘Space elevators are possible’, ‘She may become the best surgeon in the city’, ‘Our team can win the race’. Lexically and grammatically, it is clear that these sentences differ from each other. However, these superficial differences cannot hide a deeper unity. There is a single notion behind each of these sentences, namely *possibility*. Thus, while these sentences vary greatly in their grammatical form, they all have the following logical form:

It is possible that p

(Here and in what follows, ‘p’ stands for some affirmative sentence; ‘it is possible that’ is an operator ranging over this sentence.) Let us call a sentence of this form a *possibility-statement*. With possibility and possibility-statements introduced, a third notion emerges naturally: *the possible* is the target of possibility-statements, it is what sentences expressing a possibility are about; in short, it is whatever is possible.

While this entry discusses questions that occupy philosophers working on the subject of possibility, it is not written as an introduction to the philosophy of modality. Rather, the goal is to familiarize the reader with the notion of possibility as it is used within philosophy *in general*. Philosophy of modality itself is quite limited in scope. But many areas of philosophy use modal notions. Talks of possibility and necessity are extremely frequent in *metaphysics*. For example, these notions are central in the debate about essences, the structure of reality, the laws of nature, causality, etc. (Historically, the importance of modality for metaphysics was greater still: in the second half of the 20th century, metaphysical debates tended to be laid in terms of possibility — with David Lewis [1973, 1986] being the most famous and enthusiastic supporter of this method. However, the turn of the millennia has seen a rise of defiance in this approach [see e.g. Fine, 1994]). Outside metaphysics, possibility is an important notion too. It is sometimes used in philosophy of action to define *abilities* (Brown, 1988). The inquiry about *permissibility* in deontic logic and metaethics has been crucially influenced by the study of possibility (the classical paper here is von Wright, 1951). Moreover, possibility is at the center of at least two conceptual tools that are used throughout philosophy: *supervenience* and arguments from possibility/conceivability.

The first section of this entry places possibility on the ‘map of modality’, among impossibility, necessity, contingency and actuality. The second section highlights the important fact that there are multiple kinds of possibility. The third section asks ‘what exactly is the possible?’ and presents the major metaphysical debate that stems from this question. The fourth and final section discusses the relation between the possible and the conceivable.

1. Possibility and other modal notions

What other modal notions are related to possibility? And how exactly are they related to possibility?

First, and most importantly, possibility is related to *necessity*. One can express that something is not possible by pointing to the necessity of its negation: ‘it is necessary that bachelors are unmarried’ is logically equivalent to ‘it is not possible that bachelors are married’.

And ‘it is not necessary that green cats do not exist’ means that green cats are possible. More formally, necessity and possibility are interdefined in the following way (here and in what follows, ‘iff’ abbreviates ‘if and only if’):

It is necessary that p iff it is not possible that non-p
 It is possible that p iff it is not necessary that non-p

Since possibility and necessity are thus interdefinable, many philosophical discussions that appear to be solely about necessity are in fact relevant to the study of possibility and the possible. Philosophical investigations of possibility are more often than not studies of modality in general.

Second, possibility is related to **contingency**. In English, ‘possible’ is somewhat ambiguous. Taken in a broad sense, it is simply the opposite of impossible. In that sense, it is used merely to say something can be the case, without indicating in any way whether this thing is necessary or not. Thus, it is not only possible that all bachelors are named Sam, it is also possible (as well as necessary) that all bachelors are unmarried. But ‘possible’ has a more restricted meaning which excludes not only impossibility, but necessity too. This is the sense at play in sentences such as ‘You can watch the TV if you want’ or ‘It is possible that the valley will be flooded’.

Within philosophy, ‘possible’ is generally used in the broader sense. Still, there is a philosophical notion that accounts for the restricted sense: contingency. It is defined from possibility in the following way:

It is contingent that p iff it is possible that p and it is possible that non-p

In other words: contingency is possibility without necessity. As is the case with the two meanings of ‘possible’ in English, there is an asymmetry between possibility and contingency: all contingent truths are possible, but not all possible truths are contingent (since some possible

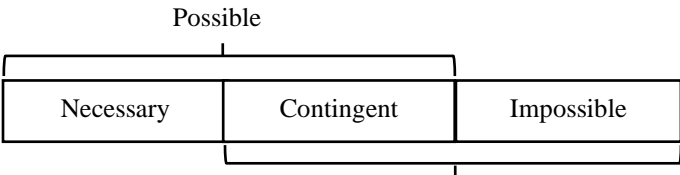


Figure 1 — Possibility, necessity and contingency

truths are also necessary). This link between possibility, necessity and contingency is summarized in Figure 1.

Actuality is another notion found alongside possibility. In that context, to be actual is to be the case, to exist ‘in our world’. Thus, Barack Obama, grey cats and the property of being red are actual. On the contrary, Sherlock Holmes, green cats and the property of being a square circle are not. (Of course, since actuality is existence in our world, what exactly one takes to be actual depends on what one takes to exist in the first place.)

The philosophical notion of possibility is neutral about actuality. Thus, ‘it is possible that there are grey cats’ is a true possibility-statement and is no more problematic than ‘it is possible that there are green cats’. However, in English, ‘possible’ is sometimes used to say that something can be the case *and that it is not, in fact, the case*. For example, consider ‘It is possible that she becomes the best surgeon’ and ‘We could be at home right now’. What is expressed by those sentences is a *mere possibility*, defined as a non-actual possibility:

It is merely possible that p iff (i) p is possible and (ii) p is not actual

The link between actuality, possibility and mere possibility is summarized in Figure 2.

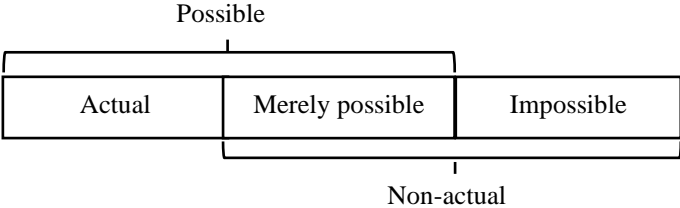


Figure 2 — Possibility and actuality

2. Varieties of possibilities

Consider the following possibility-statement: ‘it is possible to fly from Earth to Mars in one month.’ Is it true? No: there is not a single ship that will allow you to do that. Yes: it is fully compatible with the laws of nature governing space travel. Or consider: ‘you may eat with your hands.’ Is it true? Yes, if the statement is to be interpreted as saying something about our anatomy; no (let’s assume) if it is taken to inform us about cultural permissibility.

Examples of possibility-statements which seem both true and false are easy to come by. Should we then abandon all talks of possibility as hopelessly confused or obscure? Of course

not. Rather, such examples show a single possibility-statement can be interpreted in a multitude of ways. And these various readings suggest there are various kinds of possibility. Figure 3 presents some of those kinds that are of particular philosophical interest. (This is not by any means an exhaustive list; there are many other kinds of possibility: mathematical, biological, technological, sociological, historical, etc.)

Kind of possibility	It is possible...	Given...
Conceptual	that George Sand is not Amantine Dupin	<i>the concepts</i> of George Sand and Amantine Dupin
Metaphysical	that Venus is the planet closest to the Sun	<i>the nature</i> of Venus
Nomological	for a ship to reach Alpha Centauri in less than five years	<i>the laws</i> of the universe
Normative	for you to walk on the lawn	<i>the norms</i>
Epistemic	that Sam is the murderer	<i>the evidences</i> available to the agent

Figure 3 — The third column indicates the type of truths relevant to determine the kind of possibility.

The kind of possibility expressed by a possibility-statement is determined by the set of truths compatible with this statement. For example, while the set of truths about the nature of Venus plausibly contain ‘Venus is a celestial body’, ‘Venus is a terrestrial planet’ and many others, it does *not* contain ‘Venus is the second planet closest to the Sun’. (The nature of Venus would not change should Mercury disappear.) Thus, ‘it is possible that Venus is the planet closest to the Sun’ is compatible with truths about the nature of Venus and expresses a metaphysical possibility.

How are the various kinds of possibility related to each other? To answer, notice first that at least some possibility-statements express more than one kind of possibility. In other words, some possibilities belong to more than one kind. For example, not only is it a metaphysical possibility that Venus is the planet closest to the Sun, it is also a conceptual one: the **concept** of Venus does contain the concept of the second planet closest to the Sun. (By contrast, notice how the concept of bachelor seems to contain the concept of unmarried.)

From this observation, one is naturally led to wonder about the *hierarchical structure* of these kinds. Are some kinds of possibility merely species of other kinds, in the sense that any statement expressing a possibility of the first kind also expresses a possibility of the second kind (but not vice versa)? For example, are all nomological possibilities also metaphysical possibilities? And further: is there a fundamental kind of possibility? Is there a single (philosophically interesting) kind of possibility, in terms of which all the others can be defined?

In many instances, the **reduction** of one kind of possibility to another is problematic. Take for example the metaphysical/conceptual case. As Kripke (1980) famously argued, some conceptual possibilities are not metaphysical. While ‘George Sand is not Amantine Dupin’ is a conceptual possibility, it is not a metaphysical one: indeed, the names ‘George Sand’ and ‘Amantine Dupin’ denote one and the same thing and it is metaphysically impossible that something is different from itself. And there are also metaphysical possibilities that are not conceptual ones. Let ‘HiTo’ be the name of the highest tower on Earth. This stipulation makes it such that the concept of HiTo contains the concept of the highest tower on Earth. So, it is conceptually impossible that HiTo is not the highest tower on Earth. However, it seems to be a metaphysical possibility: it is not in the nature of the object currently denoted by ‘HiTo’ (the Burj Khalifa in Dubai) to be the highest tower on Earth. Thus, while the set of conceptual possibilities and the set of metaphysical possibilities overlap, neither is a subset of the other.

To say that reduction of one kind of possibility to another is problematic is not to say that it cannot be achieved. For example, there are no major difficulties in reducing nomological possibilities to metaphysical possibilities. (Interestingly, the reduction of nomological *necessities* — laws of nature — to metaphysical necessities is much more controversial. See e.g. Ellis, 1999; Shoemaker, 1998) But the general reduction of all varieties of possibility to a single fundamental kind seems seriously compromised.

3. Target of possibility: truths and objects

The possible is the target of possibility-statements; it is the thing such a statement is about, the thing it ascribes possibility to. What is this thing, then?

A first suggestion: possible things are affirmative sentences. Thus, ‘it is possible that there are green cats’ says the sentence ‘there are green cats’ is possible. This suggestion has the advantage to strictly follow the logical form of possibility-statements. As we saw, the operator ‘it is possible that’ ranges over *p*, an affirmative sentence. However, it is not very clear what it means for an affirmative sentence to be possible. Clearly, it does not mean it is possible the

sentence *exists*. The sentence ‘There are married bachelors’ exists, but it is obviously impossible that there are married bachelors.

A better suggestion: a possibility-statement ‘it is possible that p’ is not concerned about whether p exists, but about whether p is true. Thus, ‘Possibly, there are green cats’ does not mean it is possible that the sentence ‘there are green cats’ exists. Rather, it means the sentence is possibly true. According to this view, the target of a possibility-statement ‘it is possible that p’ is *the truth value* of p. If it is possible that p is true, then the possibility-statement itself is true. If it is not possible that p is true (for example if p is self-contradictory, such as ‘there are married bachelors’), then the possibility-statement itself is false.

However, this answer raises two worries. First, one can legitimately wonder what it is exactly for a sentence to be possibly true. ‘Some bachelors live on Mars’ is false. So is ‘some bachelors are married’. But the former is (metaphysically) possibly true, while the latter is not. How comes? What is the criterion for deciding whether it is possible that p is true? Second, possibility-statements are not merely about the possible truth value of sentences. Intuitively, ‘it is possible to reach Mars in one year’ says something about how the world is, about the current technology or the laws of nature. Thus, possibility-statements are not (solely) about possible truths, but about possible things in the world, about possible *objects*.

This last point leads to a third suggestion: the target of a possibility-statement ‘it is possible that p’ is not (merely) the truth value of p, but whatever object is picked out by p. ‘Possibly there are green cats’ does not merely say that ‘there are green cats’ is a possible truth. It says that green cats are possible objects. This suggestion also helps with the other problem raised by the previous account. Indeed, we now have a simple criterion for determining whether an affirmative sentence is possibly true: p is possibly true iff there is a possible object corresponding to p. ‘There are green cats’ is possibly true iff green cats are *possible objects*. ‘Venus is the planet closest to the Sun’ is possibly true iff it is a *possible fact* that Venus is the planet closest to the Sun. This has the advantage to mirror the standard criterion for truth in general: p is true iff there is an object corresponding to p. ‘There are grey cats’ is true iff there are grey cats. ‘Mercury is the planet closest to the Sun’ is true iff it is a fact that Mercury is closest to the Sun. Thus, possible truths are only a species of truths in general and require no special treatment.

Since possibility is neutral about actuality (see section 1), at least some possibly true sentences are also actually true. For those, there is no particular problems with the criterion just

suggested. ‘There are grey cats’ is possibly true iff there are possible objects that are grey cats. And surely enough, there *are* such possible objects: the *actual* grey cats.

But what about *mere* possibilities, possible truths that are not actual truths? Given the above criterion, since ‘there are green cats’ is possibly true, there are (possible) green cats. But obviously, no actual object is a green cat. Where do we go from there, then? How to save the suggested criterion for determining which sentences are possibly true? This is one of the main questions in the philosophy of modality.

In the contemporary literature, there are two main views about merely possible objects. On one side, we have **possibilism**, the thesis that merely possible objects are real, in exactly the same way that actual objects are. According to this view, there *are* green cats as well as grey ones. Only, the formers do not exist in the same ‘modal space’ as the latters: they do not exist in our world, but in another possible world.

The most famous version of possibilism is Lewis’ modal realism (1986). Lewis thinks of **possible worlds** as maximally inclusive region of space-time, i.e. spatiotemporal wholes. In his view (1970), ‘actual’ is nothing more than an indexical term useful to speak of our possible world, as ‘here’ is useful to speak of the location we are at. And as there is nothing special about the location denoted by ‘here’, there is nothing special about the actual world.

For general sentences such as ‘there are green cats’, modal realism allows to keep the criterion suggested above untouched. The sentence is possibly true iff some possible worlds include green cats. (And the sentence is *actually* true iff one of these worlds is the actual one.)

However, for singular sentences — i.e. sentences about a specific individual, such as ‘Venus is the planet closest to its star’ — more need to be said. Indeed, ‘Venus’ denotes an object in *our* world, not an object in another possible world. Thus, there is no world where it is a fact that Venus is the planet closest to its star. And so, modal realism cannot account for the sentence being possibly true. To answer this problem, Lewis develop a counterpart theory (1968). While only the actual world includes Venus, some other possible worlds include *counterparts* of Venus, i.e. objects qualitatively similar to Venus, objects sharing some properties with Venus (for example, the property of *being a terrestrial planet*, of *having a periapsis of .7 AU*, etc.). The possibility-statement ‘Possibly, Venus is the planet closest to its star’ is then analysed as ‘there is some *couterpart* of Venus such that this counterpart is the planet closest to its star’.

Another version of possibilism is modal dimensionalism (Yagisawa, 2010; see also Graham, 2015). Rather than accepting multiple spatio-temporally extended world, modal dimensionalism accept only one world that is both spatio-temporally and modally extended. My cat is playing at some place (i.e. at some spatial index) and eating at another. My cat is asleep at some instant (i.e. at some temporal index) and awake at another. Similarly, my cat is grey at some modal index and green at another. Contrary to lewisian realism, modal dimensionalism do not require a counterpart theory. ‘It is possible that my cat is green’ is not made true by some green *counterpart* of my cat living in a different possible world; rather, it is made true by the existence of *my* cat at the modal indices where it is green.

The other (and much more popular) view about merely possible object is **actualism**, the thesis that everything — in particular every possible object — is actual. According to actualism, then, merely possible objects such as green cats do not exist. While actualism does not come with the heavy ontological cost of possibilism, it must face the problem of providing a criterion for merely possible truths such as ‘there are green cats’.

One answer to this problem is given by ersatzism. In lieu of merely possible objects, ersatzists admit only actual **representations** of such objects. Green cats do not exist but some actual representations of green cats do. The various ersatzists views differ on what exactly these representations are taken to be. Notable suggestions include sentences (Carnap, 1947, esp. sec. 2) and meanings of sentences, i.e. propositions (Adams, 1974). A possible world can then be defined as a maximally consistent set of representations: a set of representations whose members would all be correct were the represented objects to exist and to which no member can be added without creating a pair of contradictory representations. From there, the following account of possible truths is given: ‘there are green cats’ is possibly true iff there is a possible world which contains a representation of green cat. Two points are worth mentioning here. First, ersatzism is not a reductive theory of possibility. Indeed, as introduced here, consistency is a modal notion. Second, according to ersatzism, the criterion for merely possible truths do not mirror the standard criterion for truths in general.

Beside ersatzism, there are other ways one can provide a criterion for merely possible truths without committing themselves to the existence of non-actual objects. One can argue green cats and the fact that Venus is the planet closest to the Sun *are* actual objects, although not concrete ones. This view is known as new actualism (Linsky & Zalta, 1994; Williamson, 1998). As for possibilism, it has the advantage to straightforwardly preserve the criterion for

possible truth. It must, however, face the suspicion that the difference between actual non-concrete objects and merely possible objects is a difference in name only.

An actualist may also go with necessitism, the thesis that necessarily, all truths are necessary, i.e. necessarily, there are no mere possible truths. On this form, the view has no contemporary supporters (but see Williamson, 2013 for a discussion). While it avoids postulating possible or mysterious non-concrete objects, it has at least two major issues: first, it is very implausible that *all* possibility-statements are false; second, it is unable to account for the intuitive distinction in truth value between sentences that are possibly true and sentences that are not possibly true (e.g. ‘there are some married bachelors’). Still, necessitism is a real alternative for the actualist and maybe a working theory can be extracted from it.

4. Possibility and conceivability

Intuitively, possibility and possible objects are related to *fictions*, *make-believe*, *imagination* and the like. In philosophy, this intuition is most often laid in terms of the link between possibility and *conceivability*.

Defining conceivability is obviously the major issue in this debate. Here, the following characterization of what it is for something to be *conceivable* will suffice. A concept is broadly understood as a mental *representation*: my concept of Mars represents Mars in the same way as the word ‘Mars’ and a picture of Mars do. To conceive something is to have (or to form) the concept of this thing. ‘To conceive’ is thus a generic term denoting a variety of activities such as to entertain the thought of, to imagine, to hypothesize, etc. (Gendler & Hawthorne, 2002, p. 7 discuss other examples.) Something is then said to be conceivable iff it can be conceived, iff it is possible to have a concept of it.

When investigating the link between conceivability and possibility, it is important to specify which *kind* of possibility is at play (section 2). For example, it is obvious that nomological or normative possibility is neither identical to nor entailed by conceivability. On the contrary, it seems to follow from the definition of being conceivable that it is identical to being conceptually possible. Arguably, ‘it is possible to have the concept of Venus as the planet closest to the Sun’ is synonymous with ‘it is possible that Venus is the planet closest to the Sun *given the concept of Venus*’. Here, the discussion will focus on *metaphysical* possibility. Indeed, the link between conceivability and metaphysical possibility is generally the one that attracts the most interest from philosophers. A reason for that is that one would like to use so-called arguments from conceivability: to support claims about the nature of things from claims about

what things are conceivable (see e.g. Chalmers, 2003, p. 106). Such arguments require the relation between conceivability and metaphysical possibility be one of two kinds: identity or entailment.

Is conceivability *identical to* metaphysical possibility? Is being conceivable the same as being metaphysically possible? No. To see why, note first that conceivability is a modal notion: being possible figures in the definition of being conceivable. Conceivability-statements can thus be transformed into possibility-statements. ‘It is conceivable that Venus is the planet closest to the Sun’ is equivalent to ‘it is possible to have the concept of Venus as the planet closest to the Sun’. But the possibility behind that last statement is clearly not the same as the possibility behind ‘It is possible that Venus is the planet closest to the Sun given the nature of Venus’. The latter statement is about the nature of Venus while the former is about the nature of the *concept* of Venus (and maybe the nature of the entity having the concept). Also, while the second statement expresses a mere possibility, the possibility expressed by the first statement is actual.

Does conceivability *entails* metaphysical possibility? Are all conceivable things metaphysically possible? Here too, the answer seems to be negative. In section 2, we saw that at least some conceptual possibilities (‘Amantine Dupin is not George Sand’) were metaphysical impossibilities. If we add the plausible assumption that conceivability just is conceptual possibility, we get the consequence that some conceivable things (the state of affairs *Amantine Dupin being different from George Sand*) are not metaphysically possible.

Another often cited counterexample to the thesis that conceivability entails metaphysical possibility builds on the unproven mathematical affirmation known as the Goldbach conjecture: ‘every even integer greater than 2 can be expressed as the sum of two primes’. It is conceivable the conjecture is false and it is conceivable the negation of the conjecture is false. But mathematical affirmations such as the conjecture and its negation are widely taken to be necessarily true if true at all. Thus, whether the conjecture is true or its negation is true, we have conceivability without possibility.

There is however various proposals in order to avoid these counterexamples. The main strategy consists in showing there is a better definition of conceivability, one under which the counterexamples are not in fact cases of conceivability. Building on Descartes’ argument for dualism, Van Cleve (1983, p. 37) defines what he calls *strong conceivability*: something is conceivable for a subject iff that subject sees (perceives clearly and distinctly in his mind) that p is possible. This definition avoid the counterexample just mentioned, since there is no such

clear and distinct perception in those cases. Yablo (1993, sec. X) makes a similar suggestion: it is conceivable that p if I can imagine a world (or situation) in which p is true. Thus, it is not the case that ‘Amantine Dupin is not George Sand’ is conceivable, since the names ‘Amantine Dupin’ and ‘George Sand’ denotes one and the same person. (A similar proposal is made by Chalmers, 2002) Whether these solutions really succeed in establishing the entailment from conceivability to metaphysical possibility is yet to be determined.

Conclusion

While possibility and possible objects have been thoroughly explored by philosophers, these notions are still the target of philosophical inquiry. This is not to say that there is no consensual views about them. In particular, the link between possibility and the other modal notions of necessity, contingency and actuality is largely admitted in the philosophical literature. But important points for the philosophy of modality are still debated, notably the nature of possible object and the link between the varieties of possibility. These being distinctly philosophical questions, it is not clear if and how the special sciences can help here. Whatever is the case, it is worth keeping these problems in mind. Indeed, modal notions are so fundamental and so common that one will undoubtedly meet and used them — especially if one is interested by counterfactual beliefs, imagination, pretense and the like.

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