

Università degli Studi di Milano

Language and Logic

Introduction

Sandro Zucchi

2022-23

Philosophers and sages



Philosophers, unlike sages, must argue for what they think. Here are some words of the philosopher P. T. Geach on this topic:

The philosophers most studied are not sages who come out with unargued dicta, but thinkers who argue for what they think. I am not saying philosophers ought to ignore the sages; one cannot say in advance what will turn out to be philosophically interesting and important. But if we do study the dicta of some sage, we may find difficulty in accepting them; in particular, they may seem to be mutually inconsistent. The sage himself may be unwilling to engage in argument about our difficulties, and he may be right in not wanting to; but if we are to go on taking him seriously, as least his disciples ought to be ready to hear our difficulties and give reasoned answers.
(P. T. Geach 1975, *Reason and argument*, Oxford, p.1)

What is an argument

*Arguments are always quite different from statements; this is recognised in the familiar saying 'I'm not arguing, I'm telling you!'. In presenting an argument, we present certain reasons, set forth in sentences, for deriving a stated conclusion; the verbal formulations of the reasons are called the premises of the argument, and the transition from premises to conclusion is expressed by such words as 'and so', 'hence', 'therefore', 'consequently', 'it follows that', or (in logic books) the Latin word 'ergo'.
(P. T. Geach, *Reason and Argument*, Oxford, p.17)*

How to challenge an argument

*Statements are true or false; to refuse to accept a statement is to assert or suggest that the statement is false. Arguments are not statements, and cannot themselves be true or false; but the premises of an argument may be called in question as false or as not known to be true. That is one way of challenging an argument; another way is to deny or doubt the soundness of the inference from premises to conclusion – 'That's not a good reason', 'I don't see that follows'. These are the only two possible ways of casting doubt upon an argument: to challenge the assertion of the premises, or to dispute whether the conclusion follows from them.
P. T. Geach, *Reason and Argument*, p. 18*

Valid arguments

- ▶ In a valid argument, the conclusion is a necessary consequence of the premises.
- ▶ An argument is *valid (in English)* if and only if it is impossible that the premises are true and the conclusion false (in English).

Sound arguments

- ▶ An argument is *sound (in English)* if and only if it is valid and its premises are true.

Necessity and validity

- ▶ We defined validity by saying that in a valid argument, the conclusion is a necessary consequence of the premises, namely an argument is valid if and only if it is impossible that the premises are true and the conclusion false.
- ▶ Thus, we defined validity by using the notions of necessity and possibility.
- ▶ However, words like “necessary” and “possible” are polysemous. There is a sense in which it is impossible for me to swim across the ocean. However, if I imagine a situation in which I have superpowers, it may be possible for me to swim across the ocean.
- ▶ Which sense of “necessity” is the relevant one to define validity?
- ▶ The relevant sense is what Plantinga (1974) calls *broadly logical necessity*, also called *metaphysical necessity* by some authors.

Broadly logical necessity

But what exactly do these words – ‘necessary’ and ‘contingent’ – mean? What distinction do they mark? Just what is supposed to be the difference between necessary and contingent truths? We can hardly explain that p is necessary if and only if its denial is impossible; this is true but insufficiently enlightening. It would be a peculiar philosopher who had the relevant concept of impossibility well in hand but lacked that of necessity. Instead, we must give examples and hope for the best. In the first place, truths of logic – truths of propositional logic and first order quantification theory, let us say – are necessary in the sense in question. Such truths are logically necessary in the narrow sense; (3) ... would be an example.

(3) *If all men are mortal and Socrates is a man, then Socrates is mortal*

But the sense of necessity in question – call it ‘broadly logical necessity’ is wider than this.

(A. Plantinga, *The Nature of Necessity*, Oxford, p.1-2)

Broadly logical necessity (cont.)

Truths of set theory, arithmetic and mathematics generally are necessary in this sense, as are a host of homelier items such as

*No one is taller than himself
Red is a colour
If a thing is red, then it is coloured
No numbers are human beings*

and

No prime minister is a prime number.

... So the sense of necessity in question is wider than that captured in first order logic.

*(A. Plantinga, *The Nature of Necessity*, Oxford, p. 2)*

Broadly logical necessity (cont.)

On the other hand, it is narrower than that of causal or natural necessity.

Voltaire once swam the Atlantic

for example, is surely implausible. Indeed, there is a clear sense in which it is impossible. Eighteenth-century intellectuals (as distinguished from dolphins) simply lacked the physical equipment for this kind of feat. Unlike Superman, furthermore, the rest of us are incapable of leaping tall buildings at a single bound, or (without auxiliary power of some kind) travelling faster than a speeding bullet. These things are impossible for us; but not in the broadly logical sense. Again, it may be necessary – causally necessary – that any two material objects attract each other with a force proportional to their mass and inversely proportional to the square of the distance between them; it is not necessary in the sense in question.

*(A. Plantinga, *The Nature of Necessity*, Oxford, p. 2)*

How to make sure

- ▶ How can we make sure that an argument is valid? How can we make sure that the conclusion is a necessary consequence of the premises?
- ▶ Aristotle comes to help.

Aristotle's idea

If starting from truth we are led into falsehood, we know our conclusion has been drawn by an invalid process. Contrariwise, it is sometimes obvious in a particular instance that a conclusion follows from premises – we need not know whether conclusion and premises were true or not. We can satisfy ourselves that a conclusion follows from premises, when this is not obvious, by constructing a chain from premises to conclusion of little links, every one obvious. 'One step enough for me'!

In a rough and ready way we can test an argument for validity/invalidity, when in doubt, by observing that it is 'on all fours with' an argument patently invalid. 'You might as well say... ' But this is a very hit-or-miss procedure. The only method we can rely on is to devise a way of showing the logical form common to arguments that are 'on all fours with' each other. This was Aristotle's achievement; nobody, as far as we know, had thought of such a thing before; we still use his term 'schema' (plural 'schemata') for the way of setting out an abstract logical pattern. Logical schemata are the very backbone of logic...

*P. T. Geach, *Reason and Argument*, p. 32*

Language and logic: logically valid arguments

- ▶ In other words, the idea is that **some arguments are valid *in virtue of their form***.
- ▶ The arguments that are valid in virtue of their form are called **logically valid arguments**.