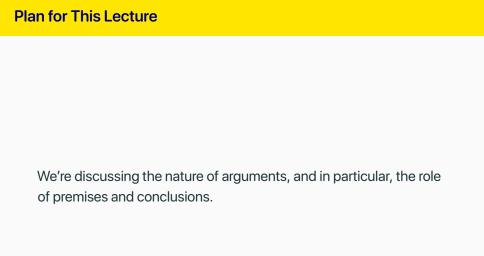
305 Lecture 1.2 - Arguments

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forall x, chapter 1, "Arguments".

Arguments

Logic studies certain properties of arguments.

An argument, in the sense we're interested in, has two parts:

- 1. Premises
- 2. Conclusion

Example

All kangaroos are wise. Skippy is a kangaroo. ∴ Skippy is wise.

Read : as 'therefore'.

Premises

All kangaroos are wise. Skippy is a kangaroo.

- .: Skippy is wise.
- The premises are the reasons that are given.
- · In this argument there are two.

Conclusion

All kangaroos are wise.

Skippy is a kangaroo.

:. Skippy is wise.

The conclusion is what comes after 'therefore' and is supported by the premises.

Ordinary English

- In ordinary English, the order of the premises and conclusion is not as fixed as it is here.
- The textbook has examples where the conclusion comes after the premises, as in our presentations, before the premises, and between the premises.
- The general rule is that it is introduced by a word like 'so', or 'therefore', or, if you're really old school, 'hence'.

The Premise Set

All kangaroos are wise. Skippy is a kangaroo.

:. Skippy is wise.

There can be zero, one or multiple premises. Formally, we'll say there is a set of premises.



Here's my formal representation of (part of) the opening sentence of the Declaration of Independence.



:. All men are created equal.

One Premise

The cinema is closed.

.. We shouldn't go to the cinema.

Conclusion

All kangaroos are wise. Skippy is a kangaroo.

.: Skippy is wise.

But we don't allow this flexibility to conclusions; arguments have a single conclusion.

Chained Arguments

- Sometimes a conclusion of one argument will go to be a premise in another argument.
- We will use this fact when we are doing proofs in a few weeks.
- But any given argument aims to prove just one thing.

Representation

All kangaroos are wise. Skippy is a kangaroo.

.: Skippy is wise.

When I write arguments like this, I'm merely presenting them, not asserting that they have any nice features.



We'll start talking about these nice features.