

Phil/LPS 31 Introduction to Inductive Logic

Lecture 6

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April 26th 2023

Topics

- ▶ Ampliative Inference vs. Non-ampliative Inference
- ▶ Necessary Propositions vs. Contingent Propositions
- ▶ Apriori knowledge vs. Aposteriori knowledge
- ▶ Deductive inference vs. Inductive inference

Recap of Deductive Logic

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 4. If the conclusion is false, at least one of the premises is false.

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- ▶ One can **plausibly** argue that the rules of inference in deductive logic are truth-preserving **because they are non-ampliative**. In fact the English word “tautology” is from the Greek “tautologos”, which means “repeating what is said.”

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- ▶ But in every case of inductive reasoning, as in the second set of examples, the inference is not **necessarily** truth preserving because the conclusion “goes beyond” what is in the contents of the concepts involved.

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- ▶ Let us say that a proposition is a description of a **possible world**. A possible world is “a way the world is or could have been.”

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- ▶ A proposition p is **contingent** if it is true in **some** possible world. What a contingent proposition describes “could have been otherwise.”

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- ▶ Some philosophers go further and say that if p is necessary, then $\neg p$ is **contradictory**. The thought here is that since a contradictory formula is unsatisfiable (false in every possible world), its negation must be true in every possible world. (Use Truth Tables to check this. A row in a truth table is a possible world.)

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- ▶ The best examples of propositions that are contingent are **all** the propositions that are **neither tautologies nor contradictory**. This is a **very very** big class of propositions.
- ▶ Can you think of actual propositions that are contingent?

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- ▶ Can you think of any knowledge claims K that are known apriori? How about those that are known aposteriori?

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- ▶ Exercise: are there aposteriori necessary propositions?

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- ▶ Are these distinctions related? And how do they help us understand the difference between inductive and deductive inference? Here's how.

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- ▶ See **Homework 5** for the distinction between monotonic and non-monotonic inference. We shall study the relation of conditional probability later.