

Phil/LPS 31 Introduction to Inductive Logic

Lecture 5

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Topics

- ▶ Inference in Quantified Relational Logic
- ▶ Models and Counterexamples

Inference in Quantified Relational Logic

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 - 4 $\forall x \forall y (Lxy \rightarrow \exists z (Lxz \wedge Lzy))$

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 - ▶ From $\exists x\mathcal{F}$, infer $\mathcal{F}(a)$, where $\mathcal{F}(a)$ is the result of uniformly replacing every free occurrence of x in \mathcal{F} with a constant a . This rule is known as **Existential Exploitation**.
- ▶ These are the only truth-preserving rules of inference that we will avail for ourselves in quantified relational logic.

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- ▶ Since the operator \exists is not truth-functional, in order to say why **Existential Introduction** is a truth-preserving rule of inference, we need to discuss the semantics, interpretation or meaning of **sentences** in quantified relational logic.
- ▶ This will require a tool which we will call a **model** or **intended interpretation** of some sentences in quantified relational logic.

Models and Counterexamples