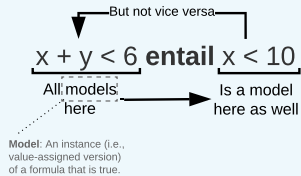


# ENTAILMENT AND PROPOSITIONAL LOGIC

Sheet 1

## Entailment in Arithmetic Formulas



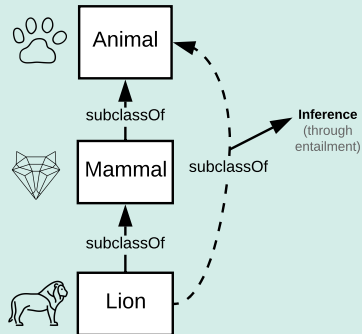
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## Entailment in Concept Hierarchies

Concept: An abstraction or generalization arrived through experiences or transformation of existing ideas.

### Lion subclassOf Mammals

Everything that is true for mammals must be true for all lions, but not everything true for lions is true for all mammals.



### Universe:

{object1, object2, object3, ...}

### Knowledge base:

{axiom1, axiom2, axiom3, ...}

### Axiom:

Lion subclassOf Mammal

This statement becomes a *model* of the *axiom* only if the model is true.

### Model:

lionNamedX subclassOf Mammals

### Not a model (and not a counterexample):

snakeNamedY subclassOf Mammals

This statement is not true; therefore, it is not a model. If it was true, then it would have been a counterexample (but it is not).

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