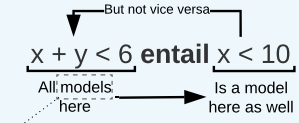
ENTAILMENT AND PROPOSITIONAL LOGIC

Entailment in Arithmetic Formulas



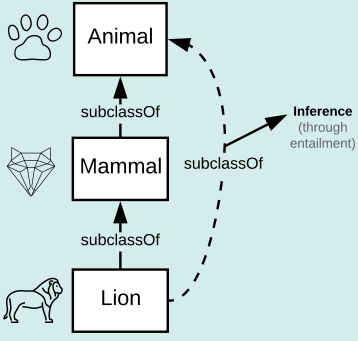
Model: An instance (i.e., value-assigned version) of a formula that is true.

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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