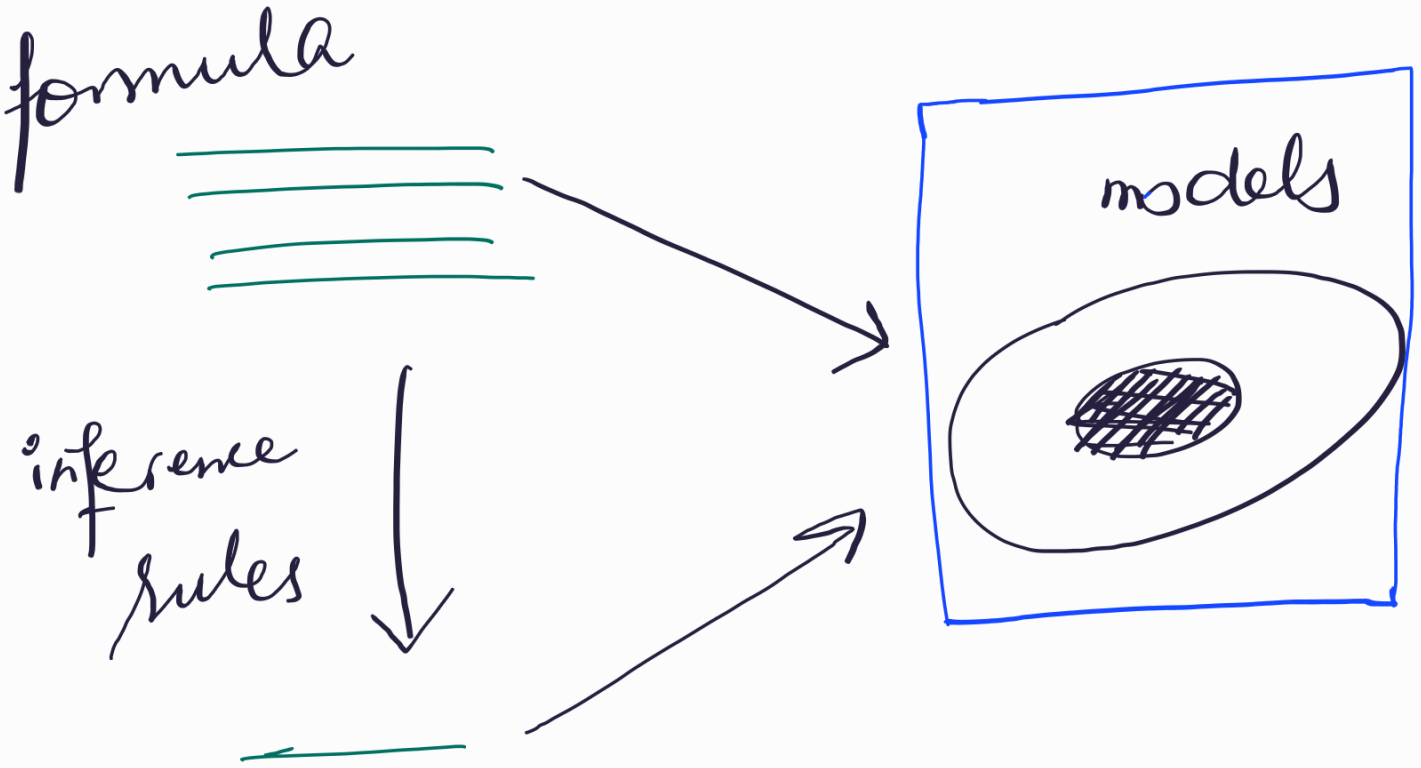
AI Theory

Propositional Logic:

Syntax

Semantics



Propositional logic entails making new formulas from existing ones.

Interpretation Function

$f \longrightarrow$ formula

$w \longrightarrow$ model

$I(f, w)$ returns:

true, w satisfies f

false, otherwise

$I(f, w)$ is basically a fancy name of truth table

Formula represents a

$\Rightarrow$ set of models.

$M(f) \rightarrow$ set of models

where $I(f, w) = 1$

Knowledge base:

Set of formulas

representing their intersection

$$M(KB) = \bigcap_{f \in KB} M(f)$$

Intuition: KB = Constraints in the real world. Interpretation means those constraints are less in amount.

$KB = \{ Rain \vee Snow, traffic \}$