Definitions

Terms, terms, terms; Seems to be clear that there is a vernacular necessary to understand slides & rosette itself.

- **Interpretation** I, for propositional formula, F, maps every variable in F to truth value.
- I is a **satisfying interpretation** of F, written $I \models F$, if F evaluates to true under I.
- I is a **falsifying interpretation** of F, written as $I \not\models F$, if F evaluates to false under I.
- A **model** is a satisfying interpretation

Base Cases	Inductive
$I \models \top$	$I \models \neg F$ iff $I \not\models F$
$I \not\models \bot$	$\wedge$
$I \models P$ iff $I[P] = \text{true}$	$\vee$
$I \not\models P$ iff $I[P] = \text{false}$	$I \models F_1 \rightarrow F_2$ iff $I \not\models F_1$ or $I \models F_2$
	$I \models F_1 \leftrightarrow F_2$ iff $I \models F_1$ and $I \models F_2$ or $I \not\models F_1$ and $I \not\models F_2$

Example: $F: (p \wedge q) \rightarrow (p \vee \neg q)$

$I: \{p \mapsto \text{true}, q \mapsto \text{false}\}$

evaluates to true so $I \models F$

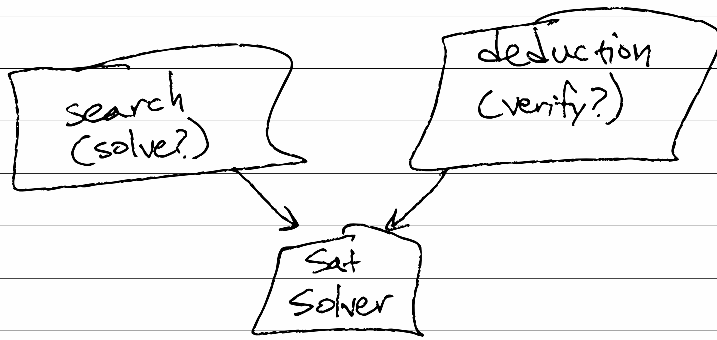
F is **satisfiable** iff $I \models F$ for some I

F is **valid** iff $I \models F$ for all I

Duality of satisfiability and validity:

F is valid iff $\neg F$ is unsatisfiable

This is important for HW #1



Formulas F_1 and F_2 are **equivalent** written $F_1 \Leftrightarrow F_2$ iff $F_1 \leftrightarrow F_2$ is valid.

Formulas F_1 **implies** F_2 written $F_1 \Rightarrow F_2$ iff $F_1 \rightarrow F_2$ is valid

Thoughts before normal forms:

Wow terminology & definitions help me so much.

Now to normal forms...

Probably should've read these before HW...