$TS = (S, \rightarrow, AP, I, L : S \rightarrow 2^{AP})$

$Sat(true) = S$ $\quad$ $Sat(false) = \emptyset$

$Sat(a) = \{ s \in S \mid a \in L(s) \}$

$Sat(\Phi \wedge \Psi) = Sat(\Phi) \cap Sat(\Psi)$

$Sat(\Phi \vee \Psi) = Sat(\Phi) \cup Sat(\Psi)$

$Sat(\neg \Phi) = S - Sat(\Phi)$

$Sat(\exists \bigcirc \Phi) = \{ s \in S \mid \exists s' \in Sat(\Phi) . s \rightarrow s' \}$

$Sat(\forall \bigcirc \Phi) = \{ s \in S \mid \forall s' : (s \rightarrow s' \Rightarrow s' \in Sat(\Phi)) \}$

$Sat(\exists \Phi \cup \Psi)$: smallest set T

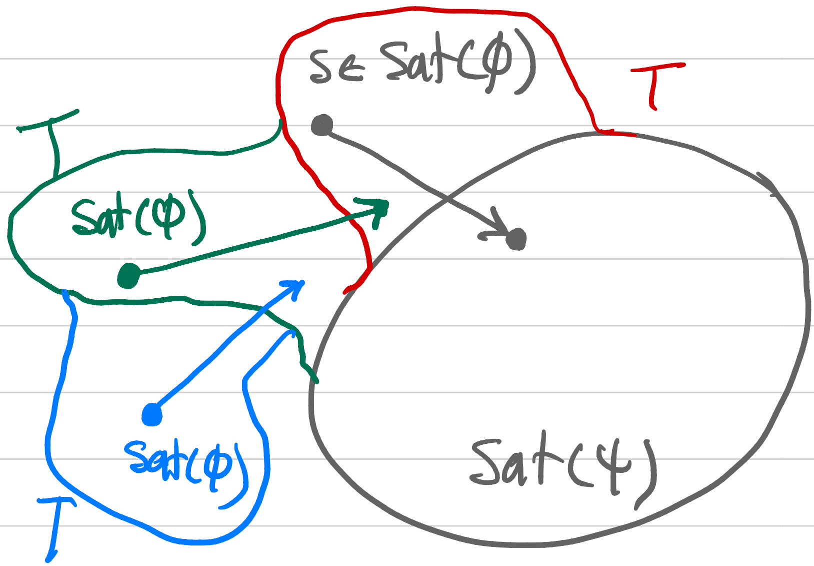
$T = \{ s \in S \mid s \in Sat(\Psi) \vee (s \in Sat(\Phi) \wedge \exists s' : s \rightarrow s' \wedge s' \in T \}$

smallest fixpoints

$Sat(\exists \Phi \, U \, \Psi)$: smallest set T

$$T = \{ s \in S \mid s \in Sat(\Psi) \lor (s \in Sat(\Phi) \land \exists s' : s \to s' \land s' \in T \}$$

smallest fixpoints



$$Sat(\Psi) \subseteq Sat(\exists \Phi \, U \, \Psi)$$

$Sat(\forall \phi U \psi)$: smallest T

$T = \{ s \in S \mid s \in Sat(\psi) \lor (s \in Sat(\phi) \land$
$\forall s' : s \to s' \Rightarrow s' \in T \}$