1 Truth assignment

S is the set of sentence symbols. A truth assignment is a function

$$\Sigma : S \to \{T, F\}$$

Given sets A, B, then B^A is the set of functions

$$f : A \to B$$

so we may write

$$\{T, F\}^S$$

for the sett of truth assignments.

We identify $\{F, T\}$ with $\{0, 1\}$, and we often identify $\{0, 1\}$ with 2, so we may write 2^S for the set of truth assignment.

If there are n sentence symbols, there are 2^n truth assignments.

We can identify a truth assignment with the set $\{P \in S : \Sigma(P) = T\}$. Identify a subset $X \subseteq S$ with the truth assignment

$$\Sigma(P) = \begin{cases} T & P \in X \\ F & P \notin X \end{cases}$$

S is the set of sentence symbols. Fix a truth assignment

$$\Sigma :\to \{T, F\}$$

Extend Σ to a function $\bar{\Sigma}$ from the set of wff's to $\{T, F\}$.