com.1 Canonical Models

The canonical model for a modal system $\Sigma$ is a specific model $\mathfrak{M}^\Sigma$ in which the worlds are all complete $\Sigma$-consistent sets. Its accessibility relation $R^\Sigma$ and valuation $V^\Sigma$ are defined so as to guarantee that the formulas true at a world $\Delta$ are exactly the formulas making up $\Delta$.

Definition com.1. Let $\Sigma$ be a normal modal logic. The canonical model for $\Sigma$ is $\mathfrak{M}^\Sigma = (W^\Sigma, R^\Sigma, V^\Sigma)$, where:

1. $W^\Sigma = \{ \Delta : \Delta$ is complete $\Sigma$-consistent $\}$.  
2. $R^\Sigma \Delta \Delta'$ holds if and only if $\Box^{-1} \Delta \subseteq \Delta'$.  
3. $V^\Sigma(p) = \{ \Delta : p \in \Delta \}$.

Photo Credits

Bibliography