

# SEMANTIC TABLEAUX (Beth)

$$1. \quad \frac{T \neg X}{F X}$$

$$\frac{F \neg X}{T X}$$

$$2. \quad \frac{T X \wedge Y}{T X \quad T Y}$$

$$\frac{F X \wedge Y}{F X \quad | \quad F Y}$$

$$3. \quad \frac{T (X \vee Y)}{T X \quad | \quad T Y}$$

$$\frac{F (X \vee Y)}{F X \quad F Y}$$

$$4. \quad \frac{T (X \Rightarrow Y)}{F X \quad | \quad T Y}$$

$$\frac{F (X \Rightarrow Y)}{T X \quad F Y}$$

$$5. \quad \frac{T (X \leftrightarrow Y)}{T X \quad | \quad F X \quad T Y \quad | \quad F Y}$$

$$\frac{F (X \leftrightarrow Y)}{T X \quad | \quad F X \quad F Y \quad | \quad T Y}$$

$$6. \quad \frac{T (\forall x) A}{T A[x:=a]}$$

$$\frac{F (\forall x) A}{F A[x:=a]} \bullet \text{ a new!}$$

$$7. \quad \frac{T (\exists x) A}{T A[x:=a]} \bullet \text{ a new!}$$

$$\frac{F (\exists x) A}{F A[x:=a]}$$