

$$\begin{array}{c}
(\phi \wedge \psi)_{\mathbb{T}} \\
| \\
\phi_{\mathbb{T}} \\
| \\
\psi_{\mathbb{T}}
\end{array}
\qquad
\begin{array}{c}
(\phi \wedge \psi)_{\mathbb{F}} \\
\swarrow \quad \searrow \\
\phi_{\mathbb{F}} \quad \psi_{\mathbb{F}}
\end{array}$$

$$\begin{array}{c}
(\phi \vee \psi)_{\mathbb{T}} \\
\swarrow \quad \searrow \\
\phi_{\mathbb{T}} \quad \psi_{\mathbb{T}}
\end{array}
\qquad
\begin{array}{c}
(\phi \vee \psi)_{\mathbb{F}} \\
| \\
\phi_{\mathbb{F}} \\
| \\
\psi_{\mathbb{F}}
\end{array}$$

$$\begin{array}{c}
(\neg \phi)_{\mathbb{T}} \\
| \\
\phi_{\mathbb{F}}
\end{array}
\qquad
\begin{array}{c}
(\neg \phi)_{\mathbb{F}} \\
| \\
\phi_{\mathbb{T}}
\end{array}$$

$$\begin{array}{c}
(\forall x.\phi(x))_{\mathbb{T}} \\
| \\
\phi(n)_{\mathbb{T}}
\end{array}
\qquad
\begin{array}{c}
(\exists x.\phi(x))_{\mathbb{F}} \\
| \\
\phi(n)_{\mathbb{F}}
\end{array}$$

$$\begin{array}{c}
(\forall x.\phi(x))_{\mathbb{F}} \\
| \\
\phi(n_{\text{fresh}})_{\mathbb{F}}
\end{array}
\qquad
\begin{array}{c}
(\exists x.\phi(x))_{\mathbb{T}} \\
| \\
\phi(n_{\text{fresh}})_{\mathbb{T}}
\end{array}$$

$$\begin{array}{c}
(\forall x.\neg P(x) \vee (\exists y.P(y)))_{\mathbb{F}} \\
| \\
(\neg P(n_1) \vee (\exists y.P(y)))_{\mathbb{F}} \\
| \\
(\neg P(n_1))_{\mathbb{F}} \\
| \\
(\exists y.P(y))_{\mathbb{F}} \\
| \\
P(n_1)_{\mathbb{T}} \\
| \\
P(n_1)_{\mathbb{F}} \\
| \\
\times
\end{array}$$