

$$p \frac{-}{\mathcal{M}, s \vdash_{[]} p} p \in L(s) \qquad \neg p \frac{-}{\mathcal{M}, s \vdash_{[]} \neg p} p \notin L(s)$$

$$\wedge \frac{\mathcal{M}, s \vdash_{[]} \phi \quad \mathcal{M}, s \vdash_{[]} \psi}{\mathcal{M}, s \vdash_{[]} \phi \wedge \psi}$$

$$\vee_1 \frac{\mathcal{M}, s \vdash_{[]} \phi}{\mathcal{M}, s \vdash_{[]} \phi \vee \psi}$$

$$\vee_2 \frac{\mathcal{M}, s \vdash_{[]} \psi}{\mathcal{M}, s \vdash_{[]} \phi \vee \psi}$$

$$\text{AX} \frac{\mathcal{M}, s_1 \vdash_{[]} \phi \quad \dots \quad \mathcal{M}, s_n \vdash_{[]} \phi}{\mathcal{M}, s \vdash_{[]} \text{AX } \phi}$$

$$\text{AG}_1 \frac{-}{\mathcal{M}, s \vdash_U \text{AG } \phi} s \in U$$

$$\text{AF}_1 \frac{\mathcal{M}, s \vdash_{[]} \phi}{\mathcal{M}, s \vdash_U \text{AF } \phi} s \notin U$$

$$\text{AG}_2 \frac{\mathcal{M}, s \vdash_{[]} \phi \quad \mathcal{M}, s_1 \vdash_{U,s} \text{AG } \phi \quad \dots \quad \mathcal{M}, s_n \vdash_{U,s} \text{AG } \phi}{\mathcal{M}, s \vdash_U \text{AG } \phi} s \notin U$$

$$\text{AF}_2 \frac{\mathcal{M}, s_1 \vdash_{U,s} \text{AF } \phi \quad \dots \quad \mathcal{M}, s_n \vdash_{U,s} \text{AF } \phi}{\mathcal{M}, s \vdash_U \text{AF } \phi} s \notin U$$

$$\text{EX} \frac{\mathcal{M}, s' \vdash_{[]} \phi}{\mathcal{M}, s \vdash_{[]} \text{EX } \phi}$$

$$\text{EG}_1 \frac{-}{\mathcal{M}, s \vdash_U \text{EG } \phi} s \in U$$

$$\text{EG}_2 \frac{\mathcal{M}, s \vdash_{[]} \phi \quad \mathcal{M}, s' \vdash_{U,s} \text{EG } \phi}{\mathcal{M}, s \vdash_U \text{EG } \phi} s \notin U$$

$$\text{EF}_1 \frac{\mathcal{M}, s \vdash_{[]} \phi}{\mathcal{M}, s \vdash_U \text{EF } \phi} s \notin U$$

$$\text{EF}_2 \frac{\mathcal{M}, s' \vdash_{U,s} \text{EF } \phi}{\mathcal{M}, s \vdash_U \text{EF } \phi} s \notin U$$