STEP :

$$\frac{\models \varphi \rightarrow \bigvee_{\varphi_l \Rightarrow^\exists \varphi_r \,\in\, \mathcal{S}} \exists FreeVars(\varphi_l).\varphi_l \qquad \models ((\varphi \wedge \varphi_l) \neq \bot_{Cfg}) \wedge \varphi_r \rightarrow \varphi' \quad \text{for each } \varphi_l \Rightarrow^\exists \varphi_r \in \mathcal{S}}{\mathcal{S}, \mathcal{A} \vdash_C \varphi \Rightarrow^\forall \varphi'}$$

AXIOM :

$$\frac{\varphi \Rightarrow^Q \varphi' \in \mathcal{S} \cup \mathcal{A} \qquad \psi \text{ is FOL formula (logical frame)}}{\mathcal{S}, \mathcal{A} \vdash_C \varphi \wedge \psi \Rightarrow^Q \varphi' \wedge \psi}$$

REFLEXIVITY :

$$\frac{\cdot}{\mathcal{S}, \mathcal{A} \vdash \varphi \Rightarrow^Q \varphi}$$

TRANSITIVITY :

$$\frac{\mathcal{S}, \mathcal{A} \vdash_C \varphi_1 \Rightarrow^Q \varphi_2 \qquad \mathcal{S}, \mathcal{A} \cup C \vdash \varphi_2 \Rightarrow^Q \varphi_3}{\mathcal{S}, \mathcal{A} \vdash_C \varphi_1 \Rightarrow^Q \varphi_3}$$

CONSEQUENCE :

$$\frac{\models \varphi_1 \rightarrow \varphi_1' \qquad \mathcal{S}, \mathcal{A} \vdash_C \varphi_1' \Rightarrow^Q \varphi_2' \qquad \models \varphi_2' \rightarrow \varphi_2}{\mathcal{S}, \mathcal{A} \vdash_C \varphi_1 \Rightarrow^Q \varphi_2}$$

CASE ANALYSIS :

$$\frac{\mathcal{S}, \mathcal{A} \vdash_C \varphi_1 \Rightarrow^Q \varphi \qquad \mathcal{S}, \mathcal{A} \vdash_C \varphi_2 \Rightarrow^Q \varphi}{\mathcal{S}, \mathcal{A} \vdash_C \varphi_1 \vee \varphi_2 \Rightarrow^Q \varphi}$$

ABSTRACTION :

$$\frac{\mathcal{S}, \mathcal{A} \vdash_C \varphi \Rightarrow^Q \varphi' \qquad X \cap FreeVars(\varphi') = \emptyset}{\mathcal{S}, \mathcal{A} \vdash_C \exists \mathsf{X}\, \varphi \Rightarrow^Q \varphi'}$$

CIRCULARITY :

$$\frac{\mathcal{S}, \mathcal{A} \vdash_{C \cup \{\varphi \Rightarrow^Q \varphi'\}} \varphi \Rightarrow^Q \varphi'}{\mathcal{S}, \mathcal{A} \vdash_C \varphi \Rightarrow^Q \varphi'}$$