$$\vdash (\varphi \to \psi) \to ((\psi \to \chi) \to (\varphi \to \chi)) \tag{1}$$

$$\vdash (\varphi \to (\psi \to \chi)) \to (\psi \to (\varphi \to \chi)) \tag{2}$$

$$\vdash \varphi \to (\neg\varphi \to \psi) \tag{3}$$

$$\vdash \neg\varphi \to (\varphi \to \psi) \tag{4}$$

$$\vdash \neg\neg\varphi \to \varphi \tag{5}$$

$$\vdash (\varphi \to \psi) \to (\neg\psi \to \neg\varphi) \tag{6}$$

$$\vdash \varphi \to \neg\neg\varphi \tag{7}$$

$$\vdash (\varphi \to \neg\varphi) \to \neg\varphi \tag{8}$$

$$\vdash \varphi \to (\neg\psi \to \neg(\varphi \to \psi)) \tag{9}$$

$$\vdash \varphi \to (\varphi \lor \psi) \tag{10}$$

$$\vdash \psi \to (\varphi \lor \psi) \tag{11}$$

$$\vdash (\varphi \to \chi) \to [(\psi \to \chi) \to ((\varphi \lor \psi) \to \chi)] \tag{12}$$

$$\vdash (\varphi \land \psi) \to \varphi \tag{13}$$

$$\vdash (\varphi \land \psi) \to \psi \tag{14}$$

$$\vdash (\chi \to \varphi) \to [(\chi \to \psi) \to (\chi \to (\varphi \land \psi))] \tag{15}$$

$$\vdash (\varphi \land \psi) \to (\psi \land \varphi) \tag{16}$$

$$\vdash \varphi \to (\psi \to (\varphi \land \psi)) \tag{17}$$

$$\vdash [(\varphi \land \chi) \lor (\psi \lor \chi)] \to ((\varphi \lor \psi) \land \chi) \tag{18}$$

$$\vdash (\chi \to \theta) \to [(\varphi \to (\psi \to \chi)) \to (\varphi \to (\psi \to \theta))] \tag{19}$$

$$\vdash (\varphi \land (\psi \to \chi)) \to ((\varphi \land \psi) \to \chi) \tag{20}$$

$$\vdash [(\varphi \land \psi) \to \chi] \to [\varphi \to (\psi \to \chi)] \tag{21}$$

$$\vdash (\varphi \lor \psi) \to (\chi \to [(\varphi \land \chi) \lor (\psi \land \chi)] \tag{22}$$

$$\vdash [(\varphi \lor \psi) \land \chi] \to [(\varphi \land \chi) \lor (\psi \land \chi)] \tag{23}$$

$$\vdash (\varphi \land \neg\varphi) \to \psi \tag{24}$$

$$\vdash \psi \to (\varphi \lor \neg\varphi) \tag{25}$$