

## tab.1 Tableaux for Intuitionistic Logic

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sec

**Example tab.1.** We give a closed tableau that shows  $(\varphi \wedge \psi) \rightarrow \chi \vdash \varphi \rightarrow (\psi \rightarrow \chi)$ .

1.	1 $\mathbb{T}$ $(\varphi \wedge \psi) \rightarrow \chi$	Assumption
2.	1 $\mathbb{F}$ $\varphi \rightarrow (\psi \rightarrow \chi)$	Assumption
3.	1.1 $\mathbb{T}$ $\varphi$	$\rightarrow \mathbb{F}$ 2
4.	1.1 $\mathbb{F}$ $\psi \rightarrow \chi$	$\rightarrow \mathbb{F}$ 2
5.	1.1.1 $\mathbb{T}$ $\psi$	$\rightarrow \mathbb{F}$ 4
6.	1.1.1 $\mathbb{F}$ $\chi$	$\rightarrow \mathbb{F}$ 4
7.	1.1.1 $\mathbb{F}$ $\varphi \wedge \psi$ 1.1.1 $\mathbb{T}$ $\chi$	$\rightarrow \mathbb{T}$ 1
		⊗
8.	1.1.1 $\mathbb{F}$ $\varphi$ 1.1.1 $\mathbb{F}$ $\psi$	$\wedge \mathbb{F}$ 4
		⊗      ⊗

**Problem tab.1.** Find closed intuitionistic **tableaux** to show the following:

1.  $\vdash \varphi \rightarrow (\psi \rightarrow \varphi)$
2.  $\vdash \neg(\varphi \wedge \neg\varphi)$
3.  $\varphi \rightarrow (\psi \rightarrow \chi) \vdash (\varphi \wedge \psi) \rightarrow \chi$
4.  $\neg\varphi \vee \neg\psi \vdash \neg(\varphi \wedge \psi)$

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## Bibliography