

Lógica Computacional

LEI, 2010/2011

FCT UNL

Aula Prática 8

Dedução natural em lógica proposicional: provas de consequência semântica.

Prove as afirmações seguintes.

1. $\{\neg\varphi \vee \psi\} \vdash \varphi \rightarrow \psi$
2. $\{\varphi \rightarrow \psi\} \vdash \neg\varphi \vee \psi$
3. $\{\neg(\varphi \wedge \psi)\} \vdash (\neg\varphi \vee \neg\psi)$
4. $\{\neg\varphi \vee \neg\psi\} \vdash \neg(\varphi \wedge \psi)$
5. $\{\neg(\varphi \vee \psi)\} \vdash \neg\varphi \wedge \neg\psi$
6. $\{\neg\varphi \wedge \neg\psi\} \vdash \neg(\varphi \vee \psi)$
7. $\{\varphi \vee (\psi \wedge \delta)\} \vdash (\varphi \vee \psi) \wedge (\varphi \vee \delta)$
8. $\{(\varphi \vee \psi) \wedge (\varphi \vee \delta)\} \vdash \varphi \vee (\psi \wedge \delta)$
9. $\{\varphi \wedge (\psi \vee \delta)\} \vdash (\varphi \wedge \psi) \vee (\varphi \wedge \delta)$
10. $\{(\varphi \wedge \psi) \vee (\varphi \wedge \delta)\} \vdash \varphi \wedge (\psi \vee \delta)$
11. $\{\varphi \leftrightarrow \psi\} \vdash (\varphi \wedge \delta) \leftrightarrow (\psi \wedge \delta)$