

Naravna dedukcija IV

Vaja A: Z naravno dedukcijo dokaži veljavnost argumenta.

$$\langle 1 \rangle p \vee \neg q, r \supset \neg p, \neg\neg q \vee \neg s, \therefore \neg s \vee \neg r$$

$$\langle 2 \rangle p \equiv q, \therefore \neg((p \supset q) \supset \neg(q \supset p))$$

$$\langle 3 \rangle (\neg p \supset q) \wedge (\neg p \supset r), \therefore \neg p \supset (q \wedge r)$$

$$\langle 4 \rangle p \wedge q, \therefore p \supset q$$

$$\langle 5 \rangle (\neg p \wedge q) \supset \neg r, r, q, \therefore p$$

$$\langle 6 \rangle p \equiv (q \wedge r), \neg\neg q, \therefore r \supset p$$

Vaja B: Z naravno dedukcijo dokaži da je dana formula logični zakon stavčne logike.

$$\langle 7 \rangle \vdash p \supset \neg(\neg p \wedge q)$$

$$\langle 8 \rangle \vdash (p \supset q) \wedge (p \vee q) \supset q$$

$$\langle 9 \rangle \vdash (p \supset q) \supset (\neg q \supset \neg p)$$

$$\langle 10 \rangle \vdash ((p \supset q) \wedge \neg q) \supset \neg p$$

$$\langle 11 \rangle \vdash p \supset ((p \supset q) \supset q)$$

$$\langle 12 \rangle \vdash \neg(p \supset q) \equiv (p \wedge \neg q)$$

$$\langle 13 \rangle \vdash (p \wedge q) \equiv \neg(p \supset \neg q)$$

$$\langle 14 \rangle \vdash (p \equiv q) \equiv \neg(\neg p \wedge q) \vee (p \wedge \neg q)$$