Contents

1 Sylogismes

1.1 Modus Ponens

$$\dfrac{\dfrac{}{(p \to q), p \vdash (p \to q)}\,\text{ax} \qquad \dfrac{}{(p \to q), p \vdash p}\,\text{ax}}{(p \to q), p \vdash q}\,{\to_e}$$

1.2 Modus Tollens

$$\dfrac{\dfrac{\dfrac{}{\text{Modus Ponens}}\,\text{ax}}{p, (p \to q), \neg q \vdash q} \qquad \dfrac{}{p, (p \to q), \neg q \vdash \neg q}\,\text{ax}}{\dfrac{p, (p \to q), \neg q \vdash \bot}{(p \to q), \neg q \vdash \neg p}\,{\neg_i}}\,{\neg_e}$$

1.3 Syllogisme disjonctif

$$\dfrac{\dfrac{}{(p \vee q), \neg p \vdash (p \vee q)}\,\text{ax} \qquad \dfrac{\dfrac{}{\neg q, p, (p \vee q), \neg p \vdash \neg p}\,\text{ax} \qquad \dfrac{}{\neg q, p, (p \vee q), \neg p \vdash p}\,\text{ax}}{\dfrac{\neg q, p, (p \vee q), \neg p \vdash \bot}{p, (p \vee q), \neg p \vdash q}\,{\bot}}\,{\neg_e} \qquad \dfrac{}{q, (p \vee q), \neg p \vdash q}\,\text{ax}}{(p \vee q), \neg p \vdash q}\,{\vee_e}$$

1.4 Syllogisme barbara

$$\dfrac{\dfrac{}{p, (p \to q), (q \to r) \vdash (q \to r)}\,\text{ax} \qquad \dfrac{\dfrac{}{\text{Modus Ponens}}\,\text{ax}}{p, (p \to q), (q \to r) \vdash q}}{\dfrac{p, (p \to q), (q \to r) \vdash r}{(p \to q), (q \to r) \vdash (p \to r)}\,{\to_i}}\,{\to_e}$$

1.5 Syllogisme Festino

$$\dfrac{\dfrac{\dfrac{}{\text{Modus Ponens}}\,\text{ax}}{p,(p\to\neg q),q\vdash\neg q}\qquad\dfrac{}{p,(p\to\neg q),q\vdash q}\,\text{ax}}{\dfrac{p,(p\to\neg q),q\vdash\bot}{(p\to\neg q),q\vdash\neg p}\,\neg_i}\,\neg_e$$

1.6 Syllogisme Cesare

$$\dfrac{\dfrac{\dfrac{}{\text{Modus Ponens}}\,\text{ax}}{p,r,(p\to\neg q),(r\to q)\vdash\neg q}\qquad\dfrac{\dfrac{}{\text{Modus Ponens}}\,\text{ax}}{p,r,(p\to\neg q),(r\to q)\vdash q}}{\dfrac{\dfrac{p,r,(p\to\neg q),(r\to q)\vdash\bot}{r,(p\to\neg q),(r\to q)\vdash\neg p}\,\neg_i}{(p\to\neg q),(r\to q)\vdash(r\to\neg p)}\,\to_i}\,\neg_e$$