

Contents

| | | |
|----------|---------------------------------|----------|
| 1 | Sylogismes | 1 |
| 1.1 | Modus Ponens | 1 |
| 1.2 | Modus Tollens | 1 |
| 1.3 | Syllogisme disjonctif | 1 |
| 1.4 | Syllogisme barbara | 1 |
| 1.5 | Syllogisme Festino | 1 |
| 1.6 | Syllogisme Cesare | 2 |

1 Sylogismes

1.1 Modus Ponens

$$\frac{\frac{(p \rightarrow q), p \vdash (p \rightarrow q)}{\text{ax}} \quad \frac{(p \rightarrow q), p \vdash p}{\text{ax}}}{(p \rightarrow q), p \vdash q} \rightarrow_e p$$

1.2 Modus Tollens

$$\frac{\frac{\text{(Modus Ponens)}}{(p \rightarrow q), \neg q, p \vdash q} \quad \frac{(p \rightarrow q), \neg q, p \vdash \neg q}{\text{ax}}}{(p \rightarrow q), \neg q, p \vdash \perp} \neg_e q$$

$$\frac{(p \rightarrow q), \neg q, p \vdash \perp}{(p \rightarrow q), \neg q \vdash \neg p} \neg_i$$

1.3 Syllogisme disjonctif

$$\frac{\frac{\frac{(p \vee q), \neg p, p, \neg q \vdash \neg p}{\text{ax}} \quad \frac{(p \vee q), \neg p, p, \neg q \vdash p}{\text{ax}}}{(p \vee q), \neg p, p, \neg q \vdash \perp} \neg_e p}{\frac{(p \vee q), \neg p, p \vdash q}{\text{ax}} \quad \frac{(p \vee q), \neg p, p \vdash \perp}{\perp}} \vee_e p, q$$

$$\frac{(p \vee q), \neg p \vdash (p \vee q)}{\text{ax}} \quad \frac{(p \vee q), \neg p, p \vdash q}{\text{ax}} \quad \frac{(p \vee q), \neg p, q \vdash q}{\text{ax}} \vee_e p, q$$

1.4 Syllogisme barbara

$$\frac{\frac{(p \rightarrow q), (q \rightarrow r), p \vdash (q \rightarrow r)}{\text{ax}} \quad \frac{\text{(Modus Ponens)}}{(p \rightarrow q), (q \rightarrow r), p \vdash q}}{(p \rightarrow q), (q \rightarrow r), p \vdash r} \rightarrow_e q$$

$$\frac{(p \rightarrow q), (q \rightarrow r), p \vdash r}{(p \rightarrow q), (q \rightarrow r) \vdash (p \rightarrow r)} \rightarrow_i$$

1.5 Syllogisme Festino

$$\frac{\frac{(\text{Modus Ponens})}{(p \rightarrow \neg q), q, p \vdash \neg q} \quad \frac{(\text{Modus Ponens})}{(p \rightarrow \neg q), q, p \vdash q} \text{ ax}}{\frac{(p \rightarrow \neg q), q, p \vdash \perp}{(p \rightarrow \neg q), q \vdash \neg p} \neg_i} \neg_e q$$

1.6 Syllogisme Cesare

$$\frac{\frac{(\text{Modus Ponens})}{(p \rightarrow \neg q), (r \rightarrow q), r, p \vdash \neg q} \quad \frac{(\text{Modus Ponens})}{(p \rightarrow \neg q), (r \rightarrow q), r, p \vdash q}}{\frac{(p \rightarrow \neg q), (r \rightarrow q), r, p \vdash \perp}{(p \rightarrow \neg q), (r \rightarrow q), r \vdash \neg p} \neg_i} \neg_e q$$

$$\frac{(p \rightarrow \neg q), (r \rightarrow q), r \vdash \neg p}{(p \rightarrow \neg q), (r \rightarrow q) \vdash (r \rightarrow \neg p)} \rightarrow_i$$