

- *Law of excluded middle*: $p \vee \neg p$ is a tautology. Abbreviation: **LEM**
- *Law of non-contradiction*: $\neg(p \wedge \neg p)$ is a tautology. Abbreviation: **LNC**
- *The law of double-negation*: p is equivalent to $\neg\neg p$. Abbreviation: **DN**
- *Law of commutativity for conjunction*: $p \wedge q$ is equivalent to $q \wedge p$. Abbreviation: **LCC**
- *Law of commutativity for disjunction*: $p \vee q$ is equivalent to $q \vee p$. Abbreviation: **LCD** .
- *Law of associativity for conjunction*: $(p \wedge q) \wedge r$ is equivalent to $p \wedge (q \wedge r)$. Abbreviation: **LAC**
- *Law of associativity for disjunction*: $(p \vee q) \vee r$ is equivalent to $p \vee (q \vee r)$. Abbreviation: **LAD**
- *Law of distribution, part 1*: $p \wedge (q \vee r)$ is equivalent to $(p \wedge q) \vee (p \wedge r)$. Abbreviation: **LDC** (where the final "C" is short for the initial conjunction)
- *Law of distribution, part 2*: $p \vee (q \wedge r)$ is equivalent to $(p \vee q) \wedge (p \vee r)$. Abbreviation: **LDD** (where the final "D" is short for the initial disjunction)
- *DeMorgan Law, part 1*: $\neg(p \wedge q)$ is equivalent to $\neg p \vee \neg q$. Abbreviation: **DMOR** (since it ends in an or statement)
- *DeMorgan Law, part 2*: $\neg(p \vee q)$ is equivalent to $\neg p \wedge \neg q$. Abbreviation: **DMAND** (since it ends in an and statement)

- *Modus ponens*. $p \rightarrow q, p \vdash q$. Abbreviation: **E→**
- *Modus tollens*. $p \rightarrow q, \neg q \vdash \neg p$. Abbreviation: **MT**
- *Disjunctive syllogism*. $p \vee q, \neg p \vdash q$. Abbreviation: **PDS** (for positive disjunctive syllogism, since it starts with an initial unnegated "positive" disjunction).
- *Disjunctive syllogism*. $\neg(p \wedge q), p \vdash \neg q$. Abbreviation: **NDS** (for negative disjunctive syllogism, since it starts with a negated conjunction).
- *Reasoning by cases*. $p \vee q, p \rightarrow r, q \rightarrow r \vdash r$. Abbreviation: **E**