Basic Argument Forms

Name	Equivalence	Description
Modus Ponens	$(p \rightarrow q)$ p $\therefore\ q$	if p then q; p; therefore q
Modus Tollens	$(p \rightarrow q)$ $\neg q$ $\therefore\ \neg p$	if p then q; not q; therefore not p
Hypothetical Syllogism	$(p \rightarrow q)$ $(q \rightarrow r)$ $\therefore\ (p \rightarrow r)$	if p then q; if q then r; therefore, if p then r
Disjunctive Syllogism	$(p \vee q)$ $\neg p$ $\therefore\ q$	Either p or q; not p; therefore, q
Constructive Dilemma	$(p \rightarrow q)$ $(r \rightarrow s)$ $(p \vee r)$ $\therefore\ (q \vee s)$	if p then q; and if r then s; but either p or r; therefore either q or s
Destructive Dilemma	$(p \rightarrow q)$ $(r \rightarrow s)$ $(\neg q \vee \neg s)$ $\therefore\ (\neg p \vee \neg r)$	if p then q; and if r then s; but either not q or not s; therefore either not p or not r
Simplification	$(p \wedge q)$ $\therefore\ p$	p and q are true; therefore p is true
Conjunction	p, q $\therefore\ (p \wedge q)$	p and q are true separately; therefore they are true conjointly
Addition	p $\therefore\ (p \vee q)$	p is true; therefore the disjunction (p or q) is true
Composition	$(p \rightarrow q)$ $(p \rightarrow r)$ $\therefore\ (p \rightarrow (q \wedge r))$	if p then q; and if p then r; therefore if p is true then q and r are true
De Morgan's Theorem (1)	$\neg(p \wedge q)$ $\therefore\ (\neg p \vee \neg q)$	The negation of (p and q) is equiv. to (not p or not q)

De Morgan's Theorem (2)	$\neg(p \vee q)$ $\therefore\ (\neg p \wedge \neg q)$	The negation of (p or q) is equiv. to (not p and not q)
Commutation (1)	$(p \vee q)$ $\therefore\ (q \vee p)$	(p or q) is equiv. to (q or p)
Commutation (2)	$(p \wedge q)$ $\therefore\ (q \wedge p)$	(p and q) is equiv. to (q and p)
Association (1)	$(p \vee (q \vee r))$ $\therefore\ ((p \vee q) \vee r)$	p or (q or r) is equiv. to (p or q) or r
Association (2)	$(p \wedge (q \wedge r))$ $\therefore\ ((p \wedge q) \wedge r)$	p and (q and r) is equiv. to (p and q) and r
Distribution (1)	$(p \wedge (q \vee r))$ $\therefore\ ((p \wedge q) \vee (p \wedge r))$	p and (q or r) is equiv. to (p and q) or (p and r)
Distribution (2)	$(p \vee (q \wedge r))$ $\therefore\ ((p \vee q) \wedge (p \vee r))$	p or (q and r) is equiv. to (p or q) and (p or r)
Double Negation	p $\therefore\ \neg\neg p$	p is equivalent to the negation of not p
Transposition	$(p \rightarrow q)$ $\therefore\ (\neg q \rightarrow \neg p)$	if p then q is equiv. to if not q then not p
Material Implication	$(p \rightarrow q)$ $\therefore\ (\neg p \vee q)$	if p then q is equiv. to not p or q
Exportation	$((p \wedge q) \rightarrow r)$ $\therefore\ (p \rightarrow (q \rightarrow r))$	from (if p and q are true then r is true) we can prove (if q is true then r is true, if p is true)
Importation	$(p \rightarrow (q \rightarrow r))$ $\therefore\ ((p \wedge q) \rightarrow r)$	
Tautology (1)	p $\therefore\ (p \vee p)$	p is true is equiv. to p is true or p is true
Tautology (2)	p $\therefore\ (p \wedge p)$	p is true is equiv. to p is true and p is true
Tertium non datur (Law of Excluded Middle)	$\therefore\ (p \vee \neg p)$	p or not p is true

Source: `http://en.wikipedia.org/wiki/Propositional_logic`