S- and I-Rules Explained

S-RULES

1) $\underline{(P \cdot Q)}$
P, Q

From a ***conjunction*** *you can infer either conjunct.* Examples:

$\underline{(S \cdot R)}$
R

$\underline{(\sim(P \supset Q) \cdot (P \vee T))}$
$\sim(P \supset Q)$

2) $\underline{\sim(P \vee Q)}$
$\sim P, \sim Q$

From the ***negation of a disjunction*** *you can the* ***negation*** *of either disjunct.* Examples:

$\underline{\sim(S \vee R)}$
$\sim S$

$\underline{\sim((P \cdot Q) \vee \sim(P \vee Q))}$
$(P \vee Q)$

3) $\underline{\sim(P \supset Q)}$
$P, \sim Q$

From the ***negation of a conditional*** *you can infer either the antecedent or the* ***negation*** *of the consequent.* Examples:

$\underline{\sim(\sim P \supset \sim Q)}$
Q

$\underline{\sim(P \supset (Q \supset \sim P))}$
P

4) $\underline{(P \equiv Q)}$
$(P \supset Q), (Q \supset P)$

From a biconditional you can infer the conditionals going in both "directions."

5) $\underline{\sim(P \equiv Q)}$
$(P \vee Q), \sim(P \cdot Q)$

From the negation of a biconditional, you can infer the disjunction of the two components of the negated biconditional, and also the negation of the conjunction of the two components of the biconditional.

I-RULES

1)

$\sim(P \cdot Q)$	$\sim(P \cdot Q)$
$\underline{P}$	$\underline{Q}$
$\sim Q$	$\sim P$

*From the **negation of a conjunction and the truth of one of its conjuncts** you can infer the **negation** of the other conjunct.* Examples:

$\sim(\sim P \cdot \sim Q)$	$\sim((P \vee Q) \cdot (R \supset S))$
$\underline{\sim P}$	$\underline{(P \vee Q)}$
Q	$\sim(R \supset S)$

2)

$(P \vee Q)$	$(P \vee Q)$
$\underline{\sim P}$	$\underline{\sim Q}$
Q	P

*From **a disjunction and the negation of one of the disjuncts** you can infer the truth of the other disjunct.* Examples:

$(S \vee \sim Q)$	$((P \equiv Q) \vee (R \supset S))$
$\underline{Q}$	$\underline{\sim(P \equiv Q)}$
S	$(R \supset S)$

3)

$(P \supset Q)$	$(P \supset Q)$
$\underline{P}$	$\underline{\sim Q}$
Q	$\sim P$

*From a **conditional and the truth of its antecedent** you can infer the truth of its consequent. From a **conditional and the negation of its consequent** you can infer the **negation** of its antecedent.* Examples:

$(\sim R \supset \sim S)$	$((P \vee Q) \supset \sim S)$
$\underline{\sim R}$	$\underline{S}$
$\sim S$	$\sim(P \vee Q)$