Mathematical Tools for Economists

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All models are wrong, but some are useful.

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- $\neg P$ ("not P") means "P is false".
- $P \wedge Q$ ("P and Q") means "P is true and Q is true."
- $P \vee Q$ ("P or Q") means "P is true or Q is true (or possibly both)."
- $\neg P \wedge Q$ means $(\neg P) \wedge Q$; $\neg P \vee Q$ means $(\neg P) \vee Q$.
- $P \Rightarrow Q$ ("P implies Q") means "whenever P is satisfied, Q is also satisfied."

Statement: Formally, $P \Rightarrow Q$ is equivalent to $\neg P \vee Q$.

Definition 1.1 (Contrapositive)

The *contrapositive* of the statement $P \Rightarrow Q$ is the statement $\neg Q \Rightarrow \neg P$. ♣

Theorem 1.1 (Prove Contrapositive Insead)

$P \Rightarrow Q$ is true if and only if $\neg Q \Rightarrow \neg P$ is true. ♡