Omar Alkendi
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Quiz #2

①

				①	②	C	P_1	P_2
p	q	r	~r	p∧~r	p∨r	p→r	p→1	q→2
T	T	T	F	F	T	T	F	T
T	T	F	T	T	T	F	T	T
T	F	T	F	F	T	T	F	T
T	F	F	T	T	T	Ⓕ	T	T
F	T	T	F	F	T	T	T	T
F	T	F	T	F	F	T	T	F
F	F	T	F	F	T	T	T	T
F	F	F	T	F	F	T	T	T

∴ ∃ case in which both true premises result in
   fake conclusion
∴ The argument is <u>invalid</u> ∎

② Modus Ponens: p→q   Modus Tollens: p→q
                     p   ~q
                  ∴ q   ∴ ~p

③ Converse: p→q   Inverse: p→q
                  q   ~p
               ∴ p   ∴ ~q

④   1st : ~
     2nd : ∧ & ∨
     3rd : → & ↔

⑤ $p \leftrightarrow q \equiv (p \rightarrow q) \wedge (q \rightarrow p)$

p	q	① $p \rightarrow q$	② $q \rightarrow p$	①∧②	$p \leftrightarrow q$
T	T	T	T	T	T
T	F	F	T	F	F
F	T	T	F	F	F
F	F	T	T	T	T

∵ All value of $p \leftrightarrow q$ are equivalent to $(p \rightarrow q) \wedge (q \rightarrow p)$

∴ $p \leftrightarrow q \equiv (p \rightarrow q) \wedge (q \rightarrow p)$ ∎