//Matthew McMillian
// $\equiv \neg \wedge \vee \rightarrow$

1.6.18. Given the statement that "For Every Person, there is a person x that is shorter than person y", it is impossible to have a person be short than him/herself. To correctly use this statement, you must add that S(x,y) x != y

1.6.24. The statement is invalid because the state says "For every value x, there is a value P(x) or Q(x) that is true", however the 2nd statement says For every value of P(x) or for every value of every value of Q(x); The statemts are not equal
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1.6.28. $\forall x(p(x) \vee q(x)) \equiv \forall x((\neg P(x) \wedge Q(x) \rightarrow R(x))$
$p(x) \vee q(x)$
$\neg p(x)$
$q(x)$
$t \wedge t \rightarrow R(x)$
$r(x)$
$(\neg P(x) \wedge Q(x) \rightarrow R(x)$
$\forall x((\neg P(x) \wedge Q(x) \rightarrow R(x))$
//

1.7.16. If M & N are Ints, and MN is even, then M or N are even.
// Let m and n be integers
// let k be an even number
$\exists k(x=2k)$, where x is even if and only if there is an int k such that x = 2k
$(m = 2k) \vee (n = 2k) \rightarrow (MN = 2k)$
$m = 5$
$n = 4$
$T \rightarrow T = T$

1.7.20.
Counterargument::
n^2 >= n,
p(1) -> (1)^2 >= 1
P(1) is a integer
P(n) is a integer
n is a integer
The argument is not true because n is an odd integer and it sastifies the same statement.
Proof:: Counterargument