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proof that contrapositive statement is  
logically equivalent to original statement

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You can see that the contrapositive of an implication is true by considering the following:

The statement  $p \Rightarrow q$  is logically equivalent to  $\neg p \vee q$  which can also be written as  $\bar{p} \vee q$ .

By the same token, the contrapositive statement  $\bar{q} \Rightarrow \bar{p}$  is logically equivalent to  $\neg \bar{q} \vee \bar{p}$  which, using double negation on  $q$ , becomes  $q \vee \bar{p}$ .

This, of course, is the same logical statement.