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NPTEL ONLINE COURSE
Discrete Mathematics
Logic
Double negation - Part 2
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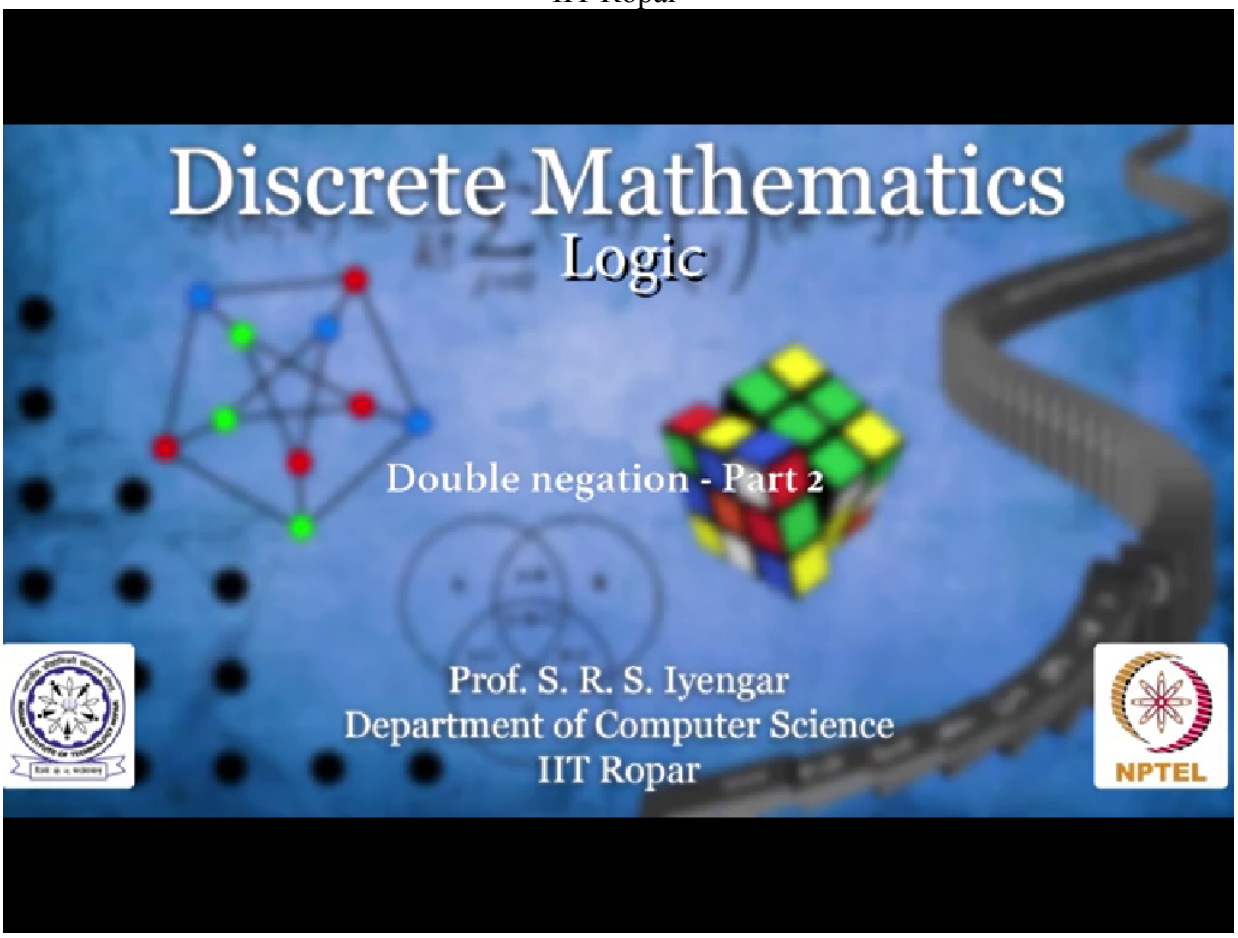
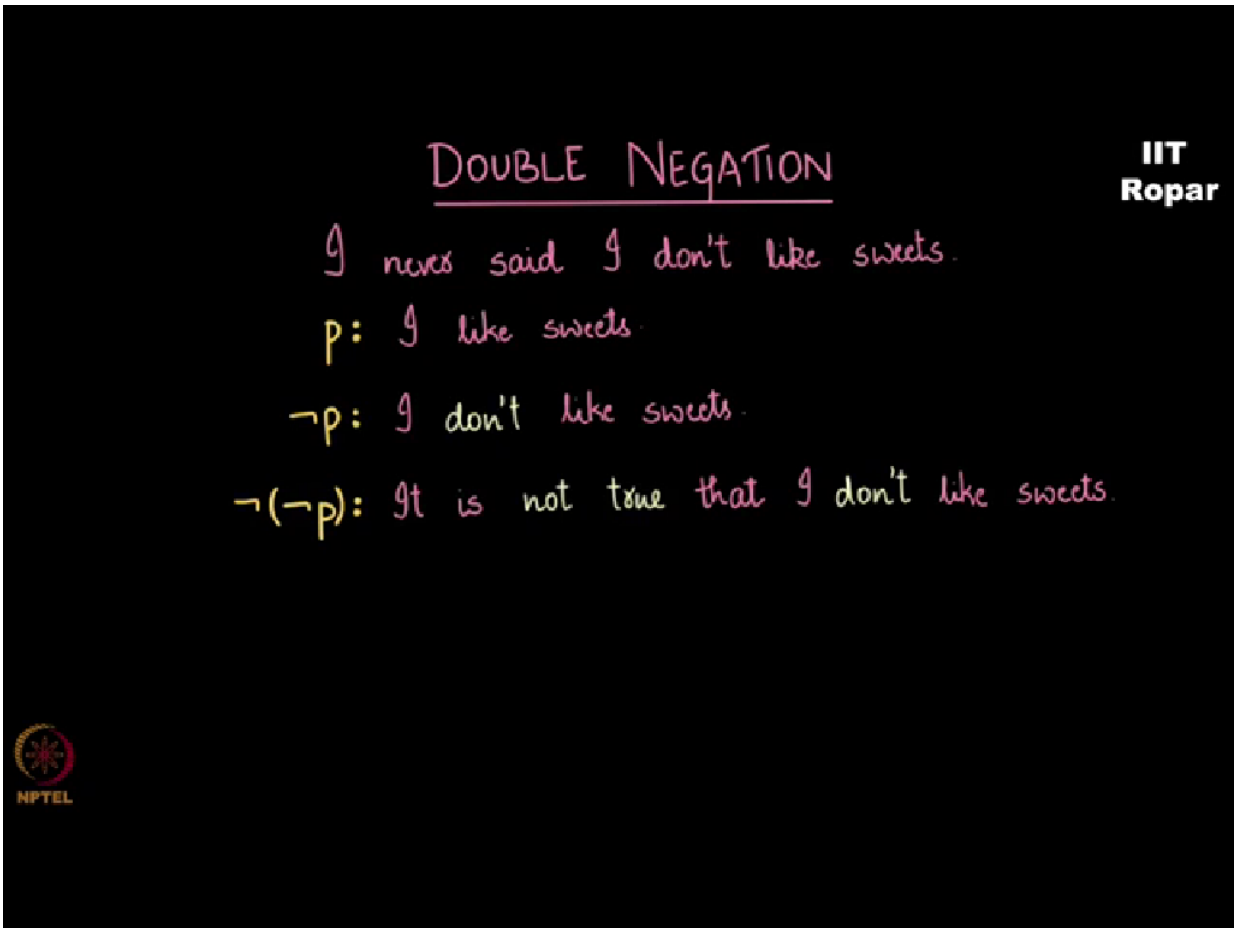
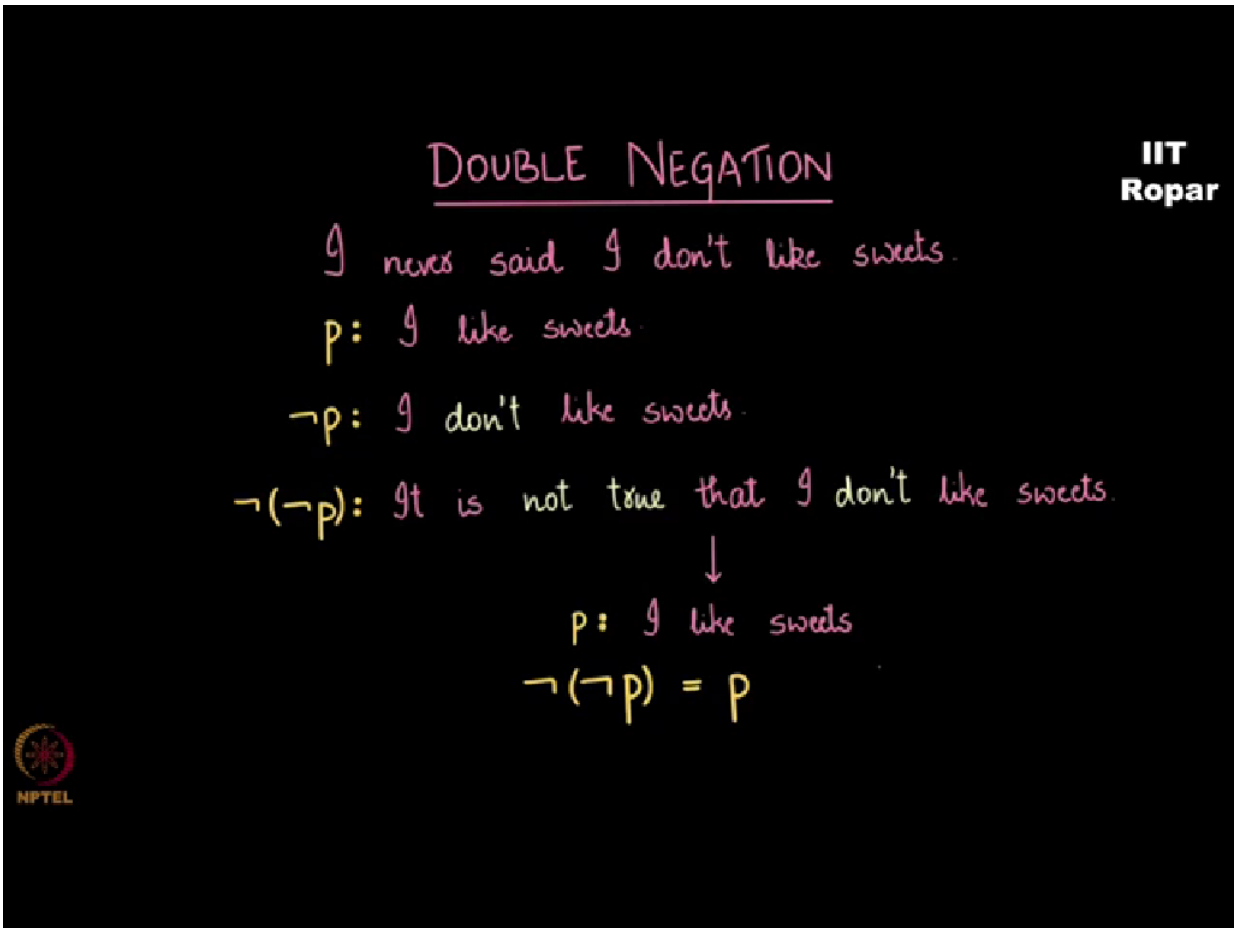


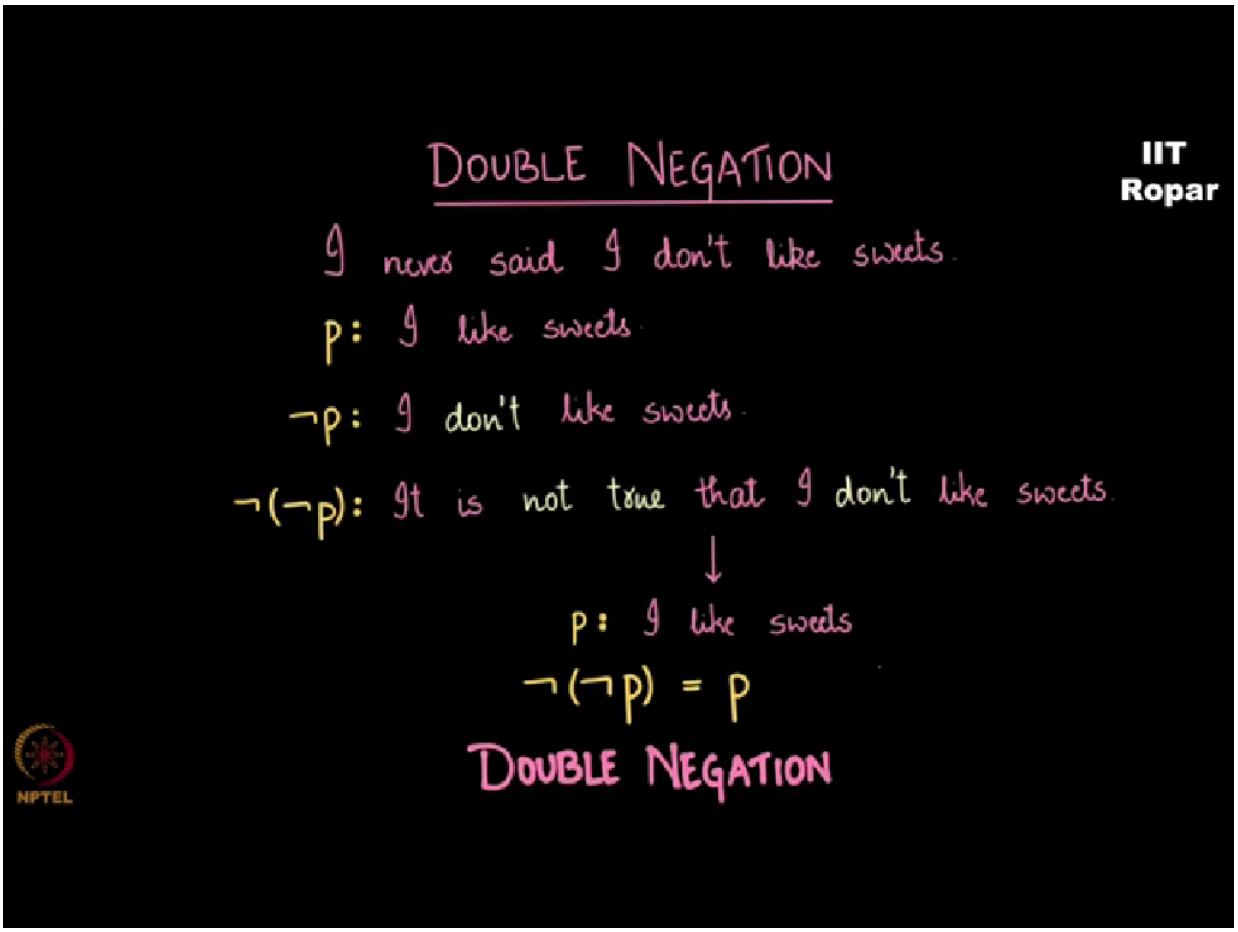
Here goes some interesting examples of what I just said, the double negation.
Look at this statement. I never said I don't like sweets. What do I mean by this? If the statement P is I like sweets, P complement will be I don't like sweets, and the complement of this would be it is not true that I don't like sweets.



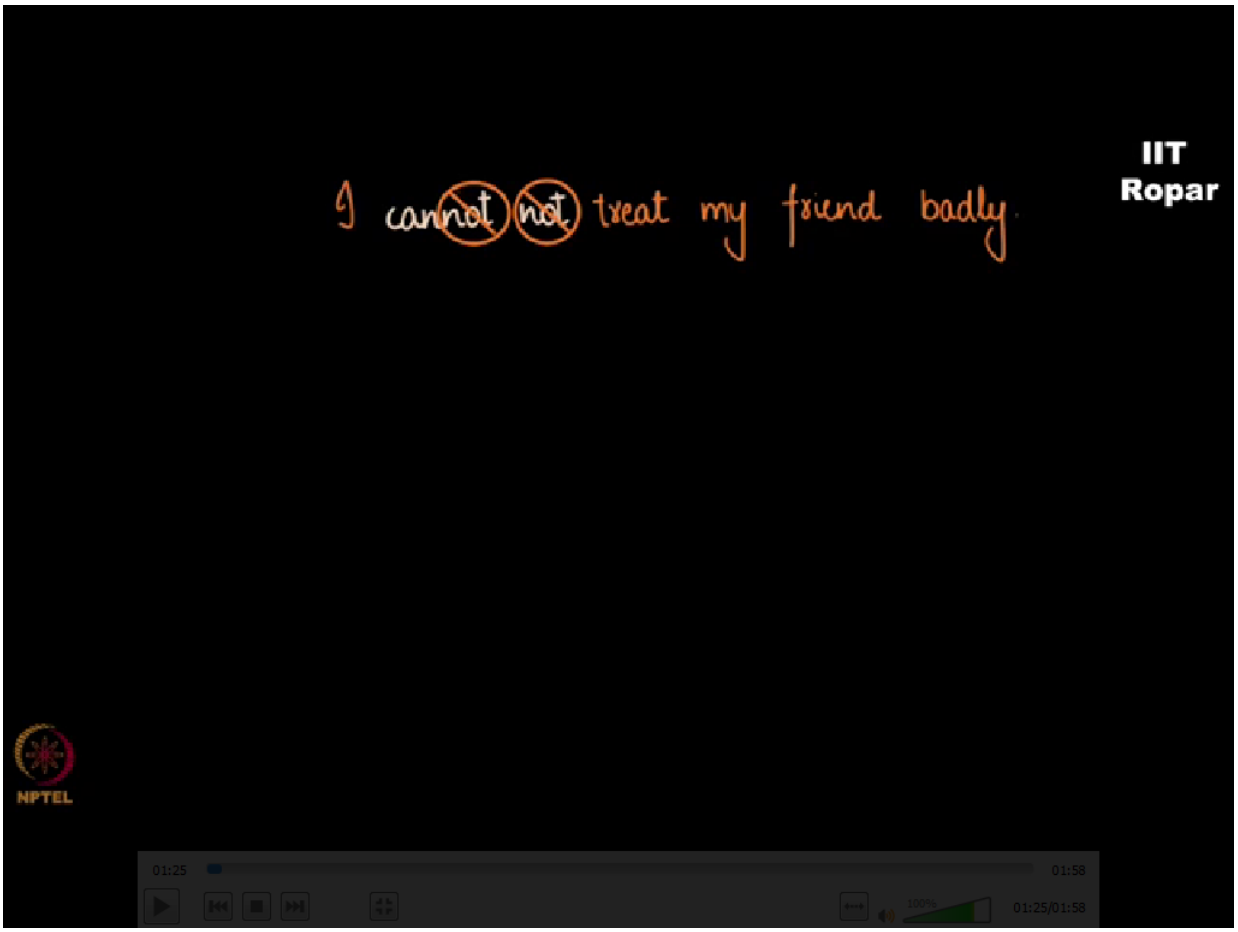
Correct? So it is not true that I don't like sweets implies that I like sweets which is your statement P. So complement of a statement and its complement will give you back the statement.



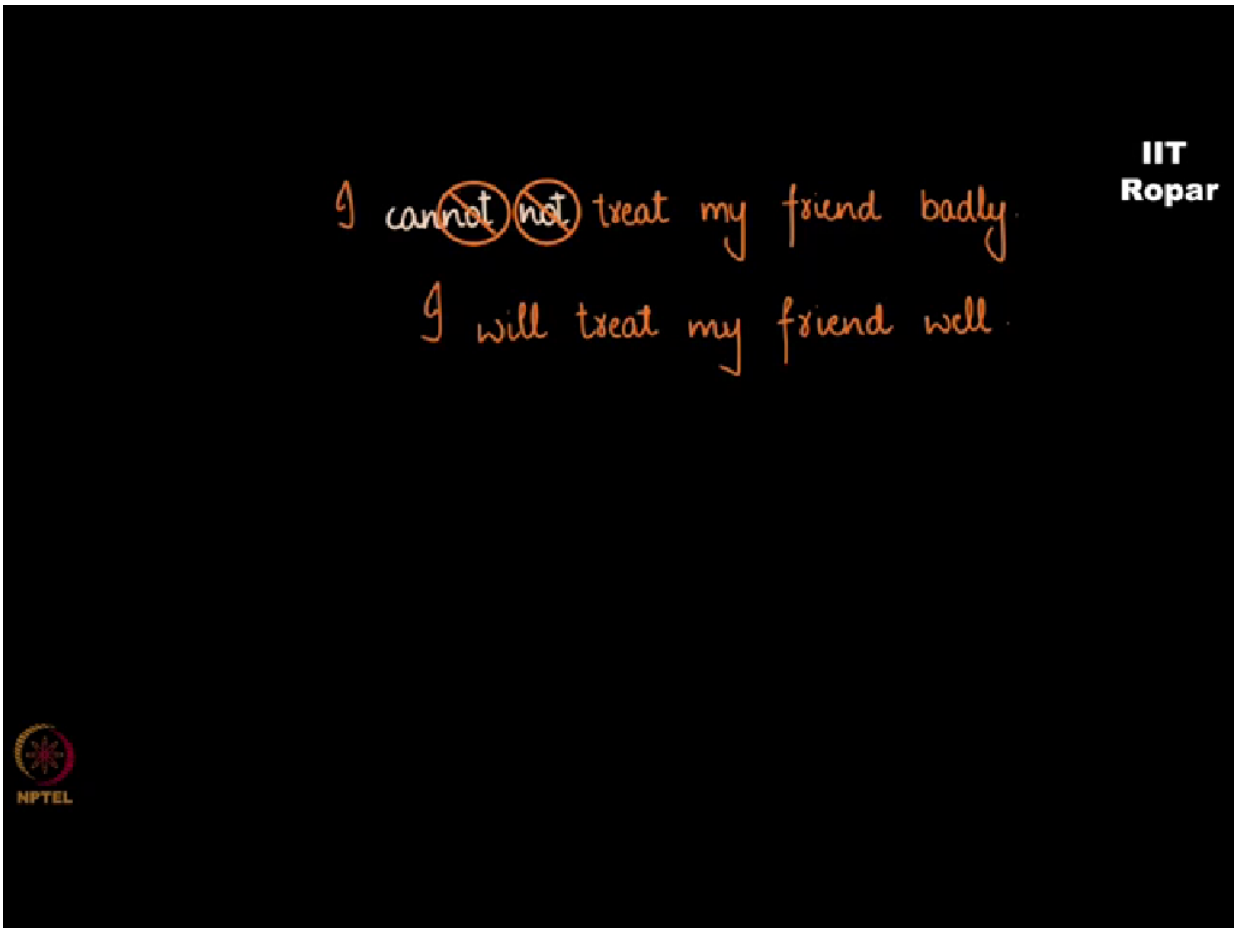
Now this is like straightforward and commonsensical. Talk to anyone who understands basic language. They will say, “What is so great about it?” Right? But then this goes by the name double negation. Not of not is the same.



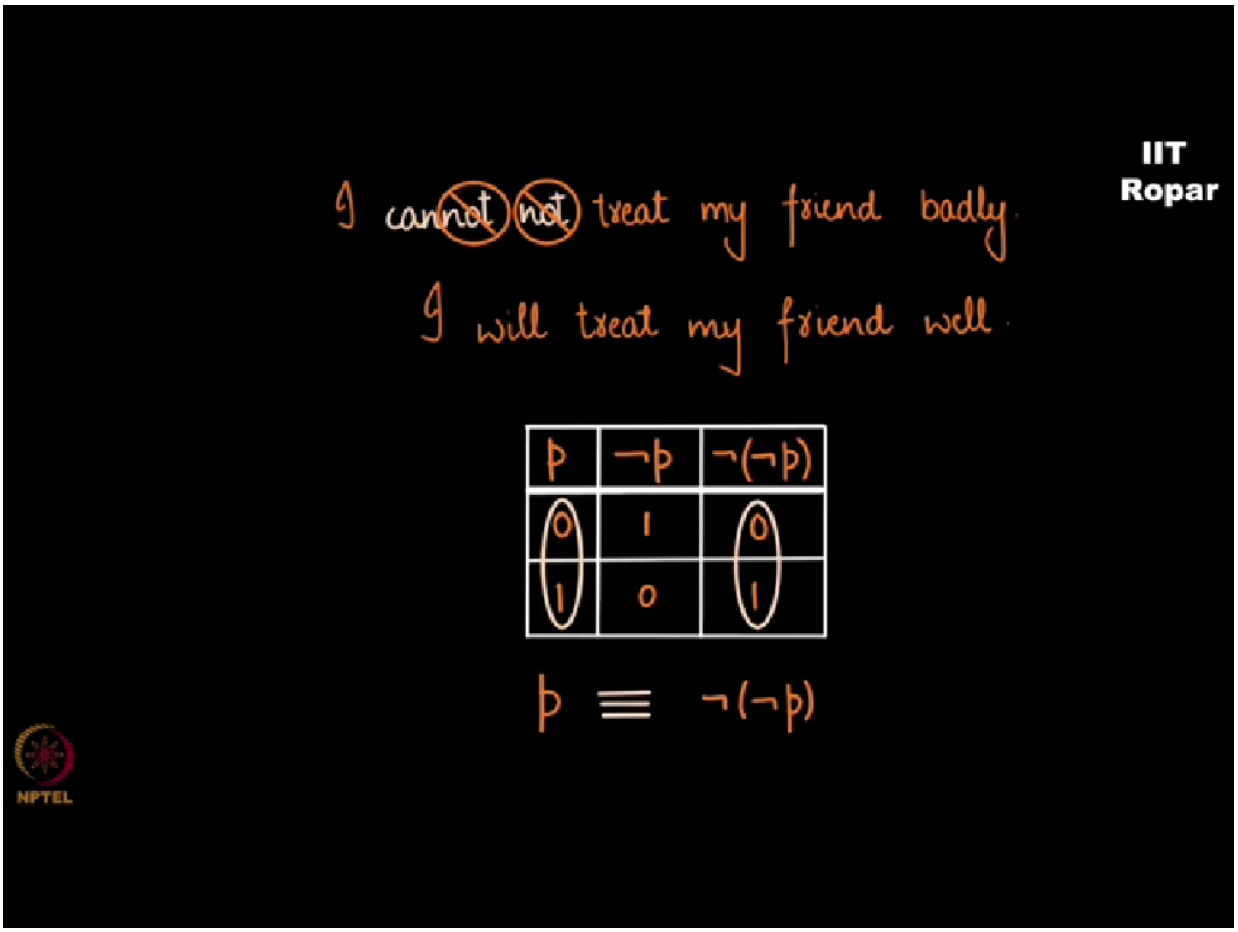
I'll give you another example. There is this very popular way of stating something in a funny way. You see I can't not treat my friend badly. What do you mean by that? I cannot not treat my friend badly.



You see there is a double negation here as well. The not not gets cancelled. All you are trying to say is that you will treat your friend well.



Let's now look at the truth table of this. There is only one variable P, which can take the value 0 or 1. P complement will simply be complement of 0 is 1, complement of 1 is 0. And the complement of this will be complement of 1 is 0, complement of 0 is 1. You see the entries of P and P double negation is the same and hence P and P double negation are equivalent.



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