

NPTEL
NPTEL ONLINE COURSE

Discrete Mathematics Logic

Negation - Explanation

Prof. S. R. S. Iyengar
Department of Computer Science
IIT Ropar



Discrete Mathematics
Logic
Negation - Explanation
Prof. S.R.S Iyengar
Department of Computer Science
IIT Ropar

Considering that statement it rained in my location today where do we insert not. As you can see this is a straightforward English question. So the negation of this statement is going to be. It did not rain in my location today. Now that is called your P compliment. This is a notation for P compliment. So this means the statement P did not happen.

Statement : It rained in my location today.

NOT ?

Negation : It did not rain in my location today.

$\neg p$

Statement P did not happen.



Similarly for statement Q which as I said is yesterday was a full moon day. How do you write the negation of it? You see the word negation could be quite new to you. All that we mean by negation is that the given statement you should write the opposite of it. What is opposite of this? By opposite I mean what is the negation of this is going to be yesterday wasn't a full moon day. Wasn't is actually was not full moon day. And this was your statement Q and so this statement will become not Q. So negation is a very straightforward concept. Given any statement let's say I will give you another statement R right now. Statement R is going to be my weight is less than 70 kgs. What is the negation of this? Not R is going to be my weight of course is not less than 70 kgs. More polished way to say that is greater than or equal to. You see that's the negation of less than 70. Less than doesn't not include 70. So the negation of this that is going to be my weight is greater than or equal to 70 kgs. Please take note simply putting not here will also make it not R but we are just being very precise and polished and we say that my weight is greater than or equal to 70 kgs which is the negation of my weight is less than 70 kgs.

IIT MADRAS PRODUCTION
Founded by
Department of Higher Education
Ministry of Human Resource Development
Government of India
www.nptel.iitm.ac.in
Copyrights Reserved