

Logic 1

3rd April 2021

Week 1

So, this week we will try to cover Propositional Logic.

Propositional Logic is a Language in which we can express logic. It acts like a framework. Read the material given to better understand Propositional Logic.

Assignment

1. Read Reading1.pdf and Reading2.pdf . You can skip the crossed over topics
2. Reading2.pdf Exercise 0.2 (Self assignment)
3. Reading2.pdf Proposition 0.1 (Self Assessment)
4. Reading2.pdf Proposition 2.1 (Write this down and submit. The proof must be sufficiently rigorous.)

Hints

Use these hints at your own stake.

1. Task Number 2 can be done from definitions simply.
2. Task Number 3 requires Task Number 2 sub questions (ii) and (vi). Also, a tricky part of the proof can be done by employing proof by Contradiction.
3. Task Number 4 will be done using Compactness Theorem and Task Number 3. Further Hint is given in the pdf (It is a major spoiler :/), so ignore it if you want to.

With this the Semantic Part of Propositional Logic will be Complete. Now, hopefully you can understand what writing a sentence in Propositional Logic means. Next week we will cover the Axiomatisation of Propositional Logic and look at concepts like Soundness, Completeness etc. In case of any doubts and queries you can ask us on the discord server at any time.