

Mathematical Logics

Propositional Logic *

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Reference(s):

- Francesco Berto,
Logica da zero a
Gödel, Laterza, 2018
(capitolo 1)

**Originally by Luciano Serafini and Chiara Ghidini
Modified by Fausto Giunchiglia and Mattia Fumagalli*

1. Intuition

2. Language

3. Satisfiability

4. Validity and unsatisfiability

5. Logical consequence and equivalence

6. Axioms and theories

Propositional logic - Intuition

- A proposition is a statement about what is the case in the world (e.g., “to day it is raining”)
- A proposition can be **true** or **false**
- The same proposition can be expressed in different ways
 - “B. Obama is drinking a bier”
 - “The U.S.A. president is drinking a bier”,
 - “B. Obama si sta facendo una birra”
- The language of propositional logic allows us to express propositions.
- Propositions are the simplest (atomic) language element of Propositional Logic
- Propositional logic is the logic of **propositions**

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