



Nyāya for iPad

Interactive Environment with BoolTool

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What is BoolTool?

Manipulation and evaluation
of formulae in propositional logic

- BoolTool is powerful
- But it is not for beginners.

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 - ▶ It calculates satisfiability, tautologies and contradictions

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BoolTool

Web interface

BoolTool

cl-informatik.uibk.ac.at/software/booltool/source/php/convert_sol.php?PHPSESSID=

BoolTool Computational Logic

Convert Info Sokrates

Formula(s) ?

$!(x | ((x > y) \& y))$

File ?

Durchsuchen...

Workspace

Textarea: $!(x + ((x > y) \& y))$

Comment ?

Output

☐ cnf ☐ dot
☐ pdf ☐ png
☐ zip

Bdd

☐ unreduced

Order of Variables

x
y

Bdd Truthtable Solution Output

Formula: $!(x + ((x > y) \& y))$

CNF: $!x \& ((x + !y) \& !y)$

DNF: $!x \& ((x + !y) \& !y)$

Satisfiable: $!x \& ((x + !y) \& !y)$

Tautology: $!x \& ((x + !y) \& !y)$

Contradiction: $!x \& ((x + !y) \& !y)$

Start Delete

Project Aim

Allow the user to learn

- Formalism of propositional logic
- Separation of syntax and semantics
- Normal forms (NNF, CNF, DNF)
- Standard transformations of Boolean functions
- Coherence of different representations

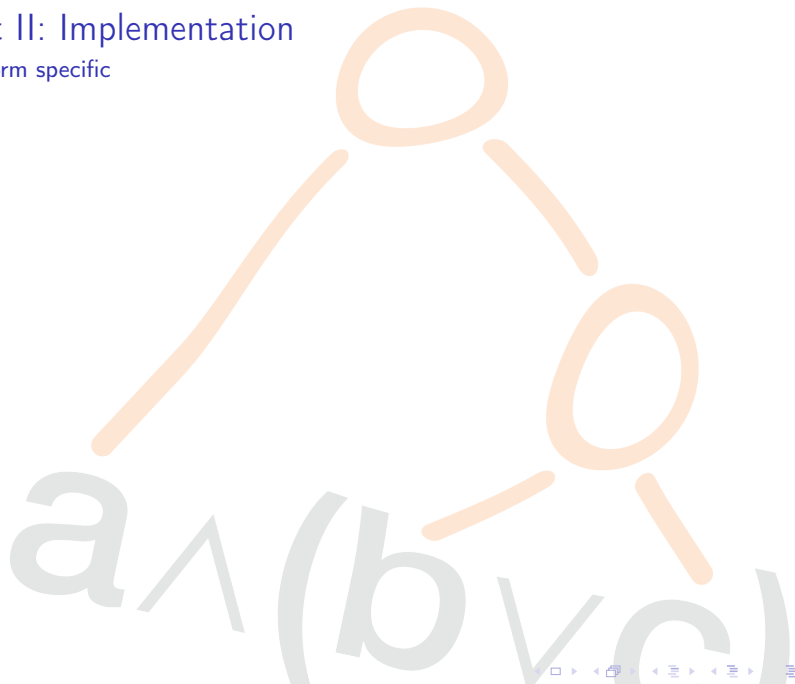
Part I: Concept

Platform agnostic

- Self-explanatory environment
- Tutorials for general concepts and definitions
- Exercises to consolidate the learned concepts and definitions
- Glossary of technical terms
- Playgrounds to build and transform formulas

Part II: Implementation

Platform specific



Sources

- Barwise, Etchemendy und Barker Plummer, **Tarski's World**
- Middeldorp, **Logic**, Lecture
- Huth and Ryan, **Logic in Computer Science**
- Apple iOS Developer Documentation