

Learning λ Prolog for fun and profit

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The purpose of this talk

Show you that people^{*} use logic programming in real life[†].

^{*}in academia

[†]in research

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Show you how to get started with Rocq metaprogramming.

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Show you that people^{*} use logic programming in real life[†].

Show you how to get started with Rocq metaprogramming.

Show you how λ Prolog and HOAS mix well (I'll explain).

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Rocq project setup

1. `nix-shell $RNT --arg do-nothing true --run generateNixDefault`
2. `... --run 'initNixConfig meetup-demo'`
3. edit `.nix/config.nix` to choose versions
4. `... --run 'createOverlay meetup-demo'`
5. edit `.nix/rocq-overlays/meetup-demo/default.nix` to add `rocq-elpi`
6. `echo 'use nix' > .envrc && direnv allow`
7. `mkdir theories`
8. `printf '-Q theories Demo\ntheories/Demo.v' > _CoqProject`
9. `printf 'From elpi Require Import elpi.' > theories/Demo.v`
10. `rocq makefile -o Makefile && make`

Demo

Where to go next

1001 Representations of Syntax with Binding: <https://jesper.sikanda.be/posts/1001-syntax-representations.html>

Elpi tutorial: https://lpcic.github.io/coq-elpi/tutorial_elpi_lang.html

Rocq-elpi: <https://github.com/LPCIC/coq-elpi>

Command tutorial: https://lpcic.github.io/coq-elpi/tutorial_coq_elpi_command.html

Rocq builtins: <https://github.com/LPCIC/coq-elpi/blob/master/builtin-doc/coq-builtin.elpi>

Term helpers: <https://github.com/LPCIC/coq-elpi/blob/master/elpi/coq-lib.elpi>

Vernacular commands: <https://github.com/LPCIC/coq-elpi/blob/master/README.md#vernacular-commands>

A Logic Programming Approach to Manipulating Formulas and Programs: https://www.researchgate.net/publication/2780447_A_Logic_Programming_Approach_To_Manipulating_Formulas_And_Programs