

Templates of slides for P2

A very brief refresher of your problem

Describe in English

- what artifacts (programs, etc) you wish to synthesize,
- from what specs, and
- why these programs are hard to write manually.

This defines your goals.

[30 seconds]

Your Language (YL): definition and rationale

What data types and operations are in your language?

- use a [grammar](#) and/or
- tutorial examples (eg Racket Guide [Chapter 3](#))
- show just the key constructs

Why are these operations sufficient

Convince YL is expressive given goals from previous slide.

Notably, which types and operations are not in YL?

Brag how you simplified YL without losing expressiveness.

Example program in YL

Show us an example of a typical program in YL

- must be more than hello world
- if too big show a descriptive code fragment

Walk us through the code

- make sure we can all follow the code logic
- a figure may be worth 2^{10} words

Implementation

How are you implementing YL?

- do you have an internal representation (IR) such as an AST that is traversed by the interpreter?
- or do you map YL constructs to semantics methods?
- or do you generate code that is executed to evaluate the source YL program?

A figure or key fragments of the interpreter

- brainf*dge is a good example of highlighting key ideas

Screenshot of a demo

- you should have a skeleton of the interpreter running

Questions you should have some answer to:

How will you make *YL* programs partial?

adding holes will define a candidate space of programs

How will you search the candidate space

translation to formulas and constraint solving?

Notes

Recall that we will develop the project in these steps

- design a language (and write some programs)
- build an interpreter (run these programs)
- introduce holes to language (write some sketches)
- write translator to a formula (synthesize programs)
- write a code generator (run on target machine/API)

Why synthesize in YL and not in, say, C?

C is harder to compile to formulas; formulas are bigger; the candidate space is bigger. It's easier to codegen C code from YL if you need the C code.