

Collapsing Heterogeneous Towers of Interpreters

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Overview

Towers of Interpreters

Heterogeneity

Project Aims

Background

Collapsing a Tower

Experimental Tower

Summary

Table of Contents

Towers of Interpreters

Heterogeneity

Project Aims

Background

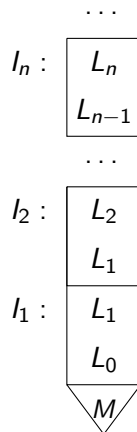
Collapsing a Tower

Experimental Tower

Summary

What are they?

- ▶ Reflective Towers
- ▶ E.g.: 3-LISP, Brown, Blond
- ▶ n-fold interpretative overhead



Black/Pink

Collapsing towers

Motivating Example

- ▶ Python on x86 JavaScript emulator
- ▶ Different internal structure to reflective towers e.g. bytecode
- ▶ Need some way of expressing this *generalization*

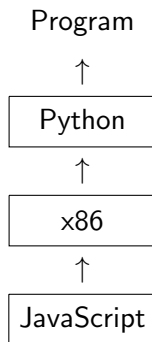


Table of Contents

Towers of Interpreters

Heterogeneity

Project Aims

Background

Collapsing a Tower

Experimental Tower

Summary

Heterogeneous Towers

- ▶ Can be non-meta-circular
- ▶ Can have semantic gap

Table of Contents

Towers of Interpreters

Heterogeneity

Project Aims

Background

Collapsing a Tower

Experimental Tower

Summary

Aims

- ▶ Construct and collapse heterogeneous towers of interpreters
- ▶ Explore effects of heterogeneity on collapse procedure

Methodology

- ▶ Construct a tower resembling PYTHON-X86-JS DIAGRAM
- ▶ Similar to motivating example, internal structure is different to those of reflective towers

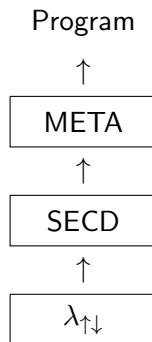


Table of Contents

Towers of Interpreters

Heterogeneity

Project Aims

Background

Collapsing a Tower

Experimental Tower

Summary

Type-Directed Partial Evaluation



Table of Contents

Towers of Interpreters

Heterogeneity

Project Aims

Background

Collapsing a Tower

Experimental Tower

Summary

Ingredients

- ▶ Multi-level Language
- ▶ Stage Polymorphism
- ▶ TDPE-style Lift

Table of Contents

Towers of Interpreters

Heterogeneity

Project Aims

Background

Collapsing a Tower

Experimental Tower

Summary

Table of Contents

Towers of Interpreters

Heterogeneity

Project Aims

Background

Collapsing a Tower

Experimental Tower

Summary

Conclusions

Future Work

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