

L1

Operation semantics, Typing rules. Progress and Type preservation lemma.

- [y2013p6q9](#)
- [y2021p4q8](#)
 - stack
- [y2015p6q9](#)
 - print(e) effect
- [y2020p4q8](#)
- [y2022p4q9](#)
 - Evaluation context, anomaly
 - LISP dynamic scoping vs static
- [y2023p6q9](#)
 - set

L2 (Function)

- [y2009p6q9](#)
- [y2018p4q8](#)

L3

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Exception

- [y2012p6q9](#)
- [y2017p6q9](#)
 - dynamic memory

Other Effects

Effects other than store, including IO, print, etc.

- [y2018p4q9](#)
 - {R,W}, Effect System formally covered in Part II Compiler Opt Lecture 13
- [y2023p6q10](#)
 - print(e) effect, one possible implementation see [y2015p6q9](#)

Subtype

- [y2003p6q12](#)
- [y2020p4q9](#)

- [y2022p4q8](#)
 - reflexivity or transitivity, structural induction

Concurrent

- [y2007p6q10](#)

Semantic Equivalence

- [y2021p4q9](#)