

Building Compilers in Pharo

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Illustrations

Part I

A Stack Machine

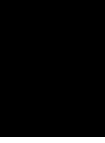


A stack based language (and the stack)

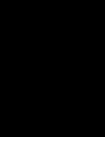
CHAPTER 2

Compiling AST to stack code

CHAPTER 3

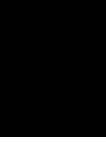


A stack based interpreter



Calling conventions, stack management (FP, SP...)

CHAPTER 5



Control flow (if)

5.1 Basic Block



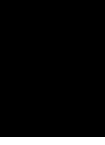
Loops: Back Jump

Part II

A Register Machine



Assembly Overview (maybe our own simple assembly?)



Compiling AST to register code - first version



Compiling Stack Code to Register code



Calling convention revisited

Part III

Static Single Assignment

CHAPTER

11



SSA

CHAPTER

12



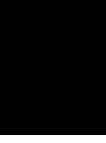
Building SSA from AST



Building SSA from stack code

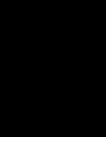
Part IV

Code Transformations



Fixed Point algorithms

CHAPTER 15



Optimization a

CHAPTER

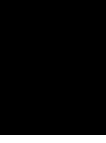
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Optimization b

CHAPTER

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Register Allocation

Bibliography

