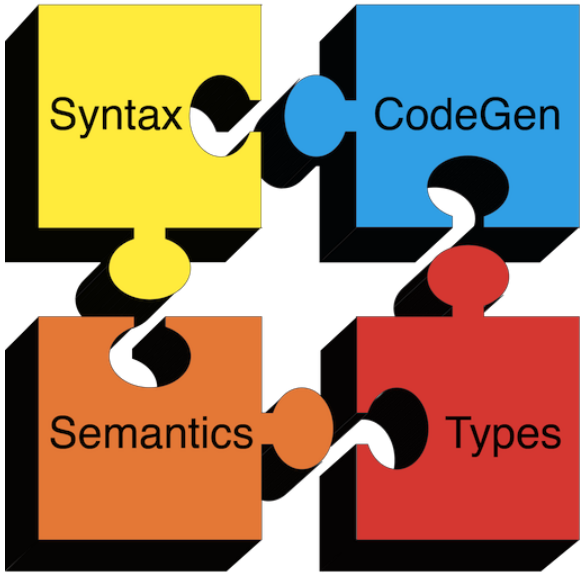


Compilers

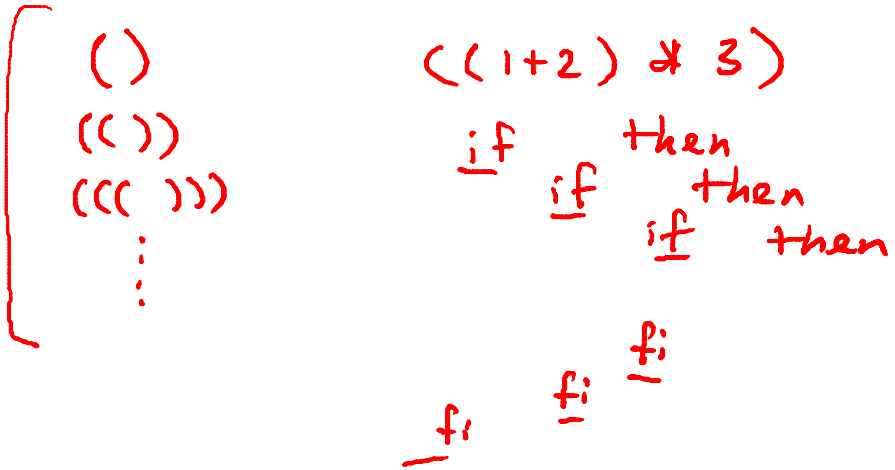
Introduction to Parsing

Alex Aiken

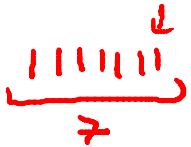
- Regular languages
  - The weakest formal languages widely used
  - Many applications

Consider the language:

$$\{(^i)^i \mid i \geq 0\}$$



What can regular languages express?



count % mod k

$(^{i}\ )^{i}$

Intro to Parsing

- **Input:** sequence of tokens from lexer
- **Output:** parse tree of the program

Intro to Parsing

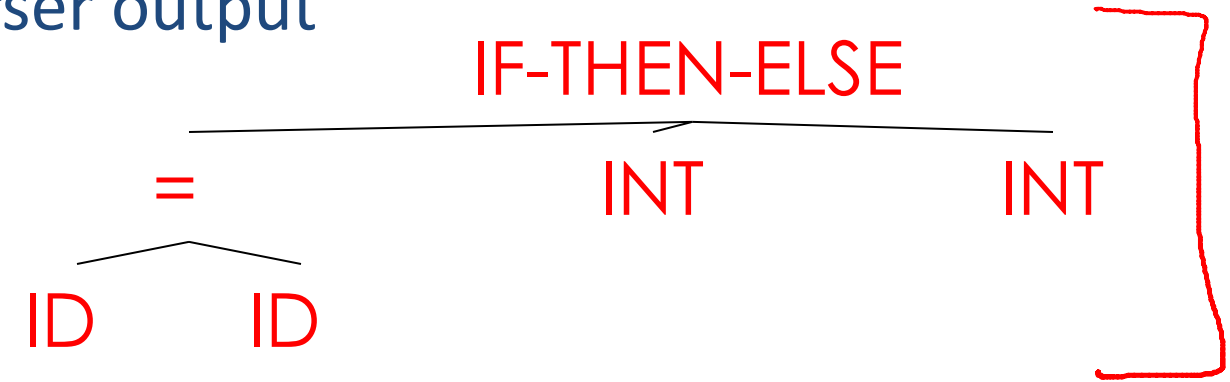
- Cool

  if x = y then 1 else 2 fi

- Parser input

  IF ID = ID THEN INT ELSE INT FI

- Parser output



Intro to Parsing

Phase	*Input*	*Output*
Lexer	String of characters	String of tokens
Parser	String of tokens	Parse tree (may be implicit)