

Recap

Lexical analyzer → Parser → Sem → op. → m.c

↓
words

↓
syn

↓
type
scope

add r1 r2 mov r1 r2

CPU

1) machine
eff

2) mem.

3) fast

optimization

1) MLAT

2) IOT

$\left. \begin{array}{l} z = y * 0 \\ z = x + 4 \end{array} \right\} \Rightarrow$

$\begin{array}{l} z = 0 + 4 \\ z = 4 \end{array}$

LEX ^ ANAL.

This is a sentence.

↓
Pron.

↓
verb

↓
art.

↓
noun.

Identify

words

↓

tokens → id.
→ keyword
→ opert.

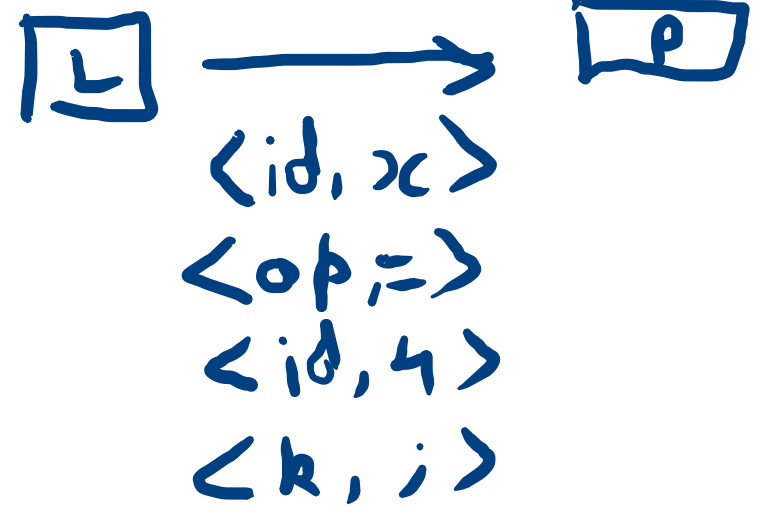
```

int x = 4;
if (x > 4) {
    x = x + 10;
    y = y + 10;
} else {
    x = x + 5;
}

```

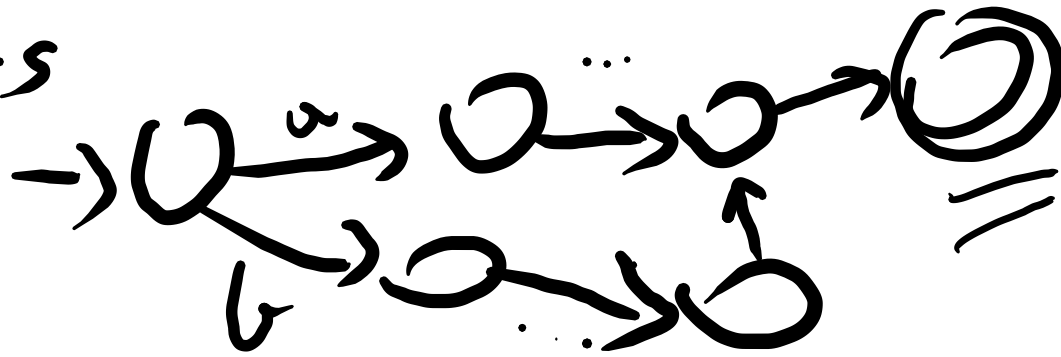
id	keyw.	ops.
x	if	=
4	else	()
		>

error y not def

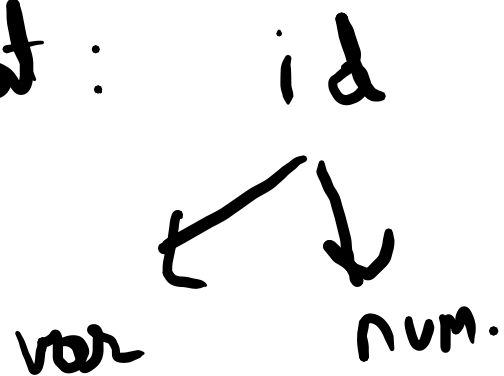


How do ident. words

R.Ls / F.A.s



3 cat:



key.

op.

R.E.s

$$\underline{A} \ A/N = RE$$

$$[A+B+C \dots 2+ \\ a+b \dots + \delta]$$

$$[A+B \dots \delta+0+1 \dots \\ \dots 9]^*$$

+ . * +
a* a+

digit = 0 + 1 + 2 ... + 9

letter = a + b + ... + z + A + B + ... + Z

var = letter (l+d)*

num = digit+

k.w = "if" + "else" + "for"
list out

op = '+' + '-' + '<'

openp = ()
closep =)

LEX / FLEX

RE

$x[1]=6;$ \rightarrow $x[0]=6;$
 $x[1]$ $x[0]$

int $x[1], x[0];$ \rightarrow $x;$

$x[1]=5;$ ✓
 $x[0]=6;$

$\langle id, x[1] \rangle$

- 1) k.w
- 2) op
- 3) id

id

$x[1]$

maximal match

\rightarrow no match \rightarrow error

$x[2]=4$

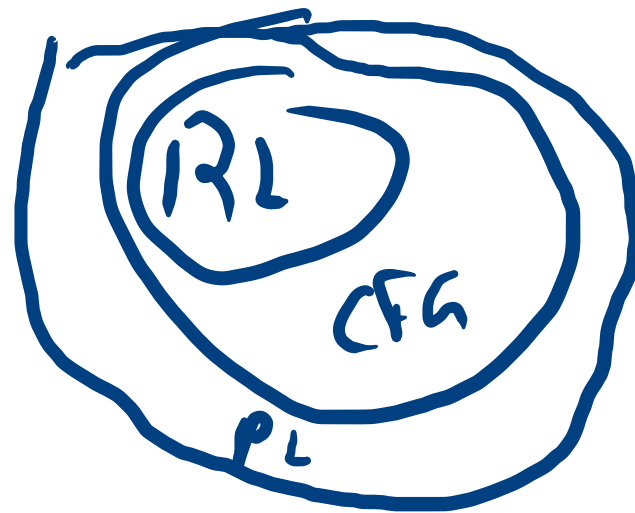
PL

a^*

CFGs

$a^n b^n$

= n is abt.



1) Term

2) N.T.s

3) St. sy

4) Probs.

These are a sent.

$x + i$

$((()))$

S → a S b | ab

(+) (*)

$S \rightarrow E$

$E \rightarrow E + E \mid E * E \mid (E) \mid id$ }

$(5 + (4 + (2 * 3))) \leftrightarrow$