

Principi programskih jezikov

Aritmetični izrazi

Cela števila: + x spremenljivke

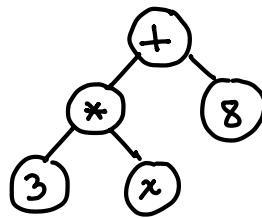
x ima vrednost 7

$$3 * x + 8 \rightsquigarrow 29$$

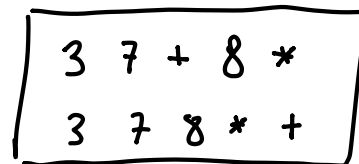
Sintaksa

Konkretna: "3 * x + 8" niz znakov

Abstraktna: drevo

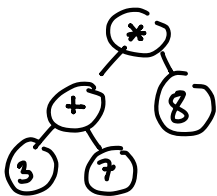


Konkretna RPN

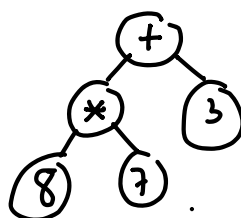
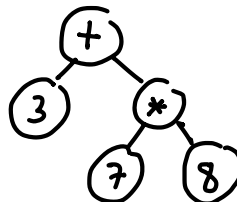


$$3 + 7 * 8$$

↓
 $(3 + 7) * 8$

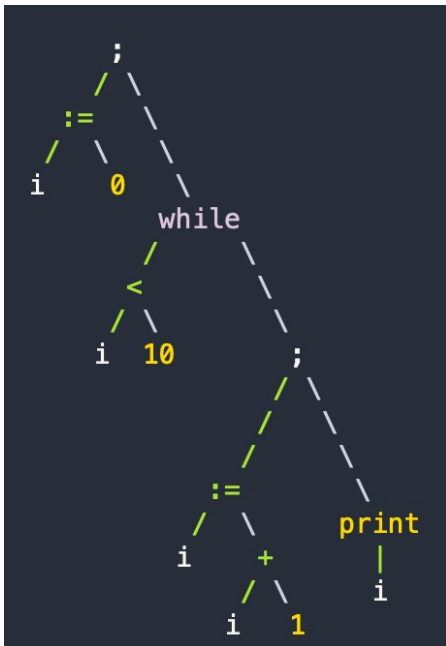


→ $3 + (7 * 8)$



"8 * 7 + 3"

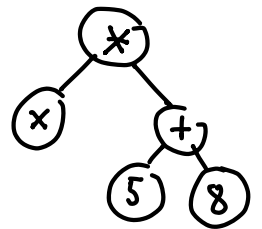
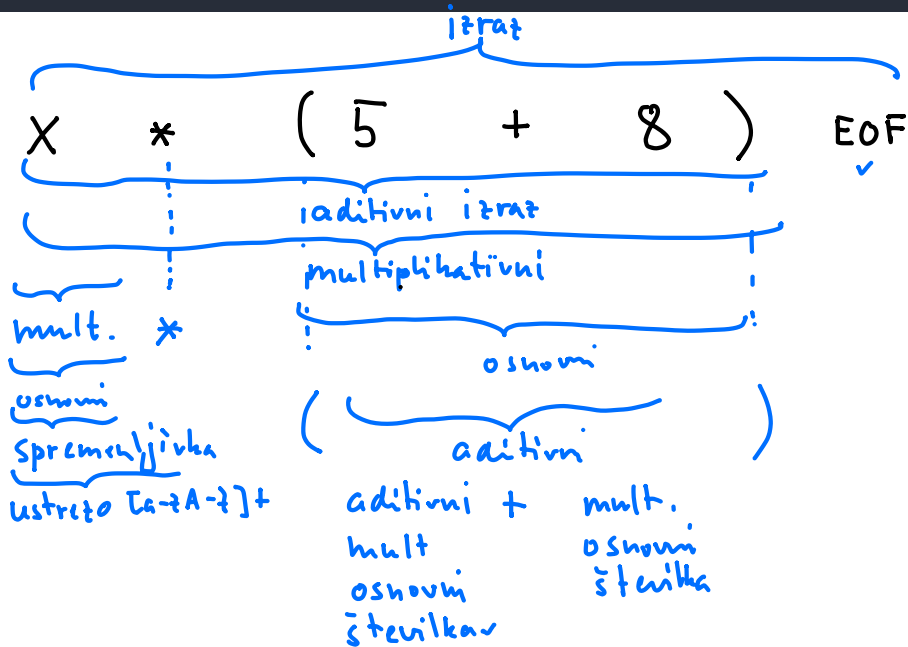
"59"



```
i := 0 ;
while i < 10:
    i := i + 1 ;
    print i
```

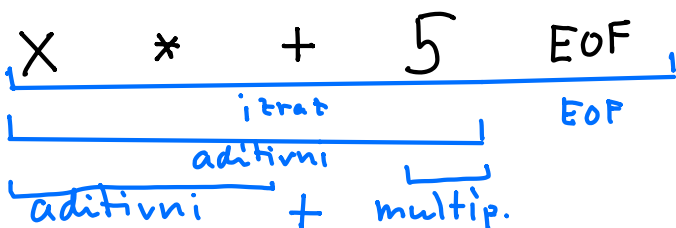
```
i = 0 ;
while (i < 10) {
    i = i + 1 ;
    System.out.println(i);
}
```

```
(izraz) ::= (aditivni-izraz) EOF
(aditivni-izraz) ::= (multiplikativni-izraz) | (aditivni-izraz) + (multiplikativni-izraz)
(multiplikativni-izraz) ::= (osnovni-izraz) | (multiplikativni-izraz) * (osnovni-izraz)
(osnovni-izraz) ::= (spremenljivka) | (številka) | ( (aditivni-izraz) )
(spremenljivka) ::= [a-zA-Z]+
(številka) ::= -? [0-9]+
```



$(X * (5 + 8))$
 $X * (5 + 8)$

```
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(številka) ::= -? [0-9]+
```



multipl.
osnovni
· ?!

osnovni
števila
✓

if (pogoj)
 <ukati> ?!
 <ukati>
else

Dinamična semantika

$\alpha \beta \gamma \delta \lambda$
 $\theta \downarrow \{ \xi \xi$
↑ ↑ ↑
theta zeta ksi

$$x + 3 * (y + 8)$$

Vrednosti spremenljivk:

$$\eta = [x \mapsto 2, y \mapsto 10] \quad \text{okolje} \quad [x \mapsto 2, z \mapsto 10]$$

↑ eta

$$\eta(x) = 2$$

$$\eta(y) = 10$$

$$\eta(z) \quad ?!$$

"v okolju η
se izraz e
evalvira / ovrednoti v
število n "

Relacija:

$$\eta \mid e \hookrightarrow n$$

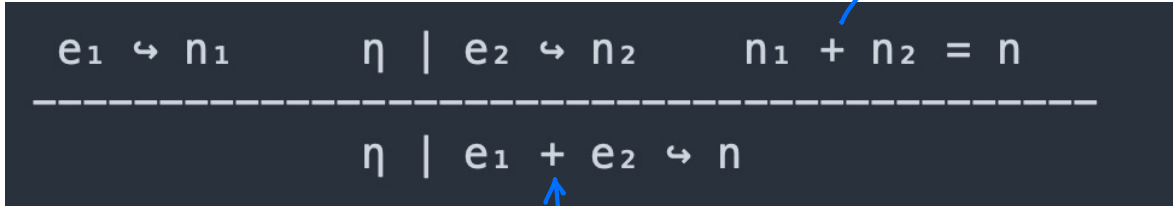
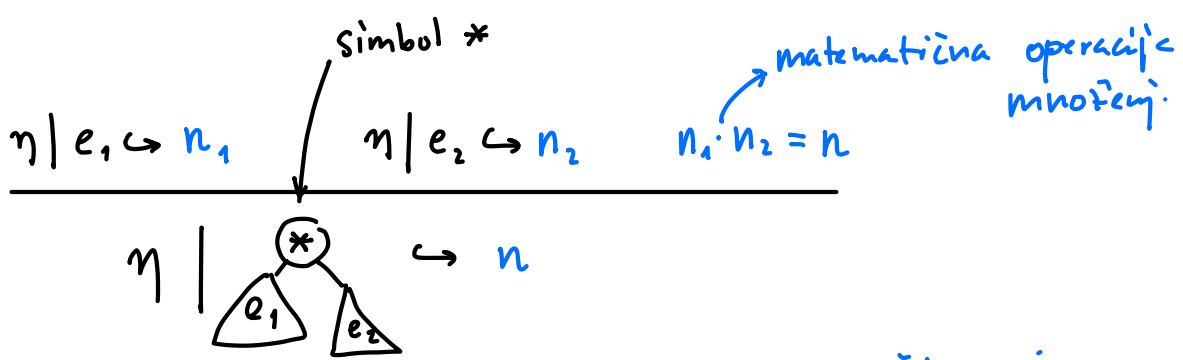
↑ okolje ↑ izraz ↑ vrednost

$$[x \mapsto 3, y \mapsto 5] \mid 3 + x \hookrightarrow 6 \quad \checkmark$$

$$[x \mapsto 3] \mid 3 + x \hookrightarrow 17 \quad \times$$

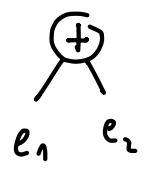
$$[] \mid 3 + 8 \hookrightarrow 22 \quad \times$$

$$[x \mapsto 3] \mid 3 + z \hookrightarrow 17 \quad \times$$

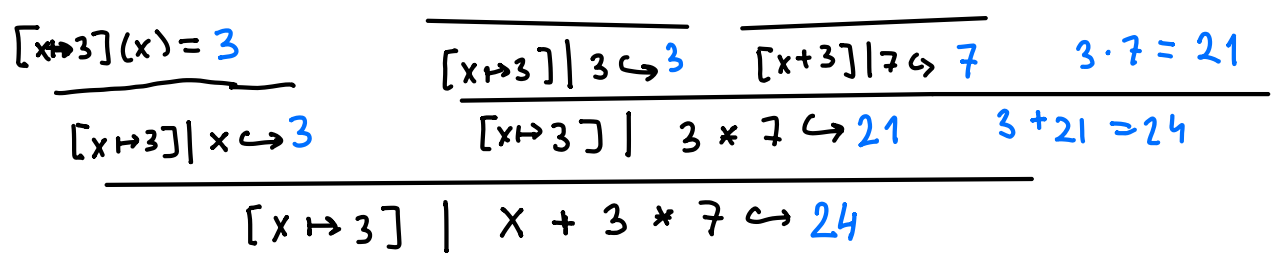


sestevanje

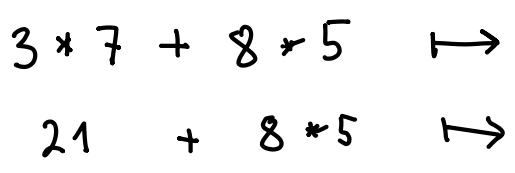
simbol



izpeljava



Semantika malih korakov:



$$24 + 40 \mapsto$$

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