

Einstaklingsverkefni

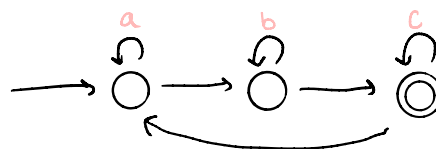
1. Hverjar af eftirfarandi fullyrðingum eru réttar?

B) Öll regluleg mál eru samhengisfrjals

2. Íhugið eftirfarandi mállýsingar. Tiltakið hverjar af mállýsingunum lýsa reglulega mál. Fyrir sérhverja slíka mállýsingu sýnið endanlega stöðuvél og reglulega segð fyrir sama mál.

a) $\langle x \rangle ::= a\langle x \rangle \mid \langle y \rangle, \langle y \rangle ::= b\langle y \rangle \mid \langle z \rangle, \langle z \rangle ::= c\langle z \rangle \mid \langle x \rangle \mid \varepsilon$

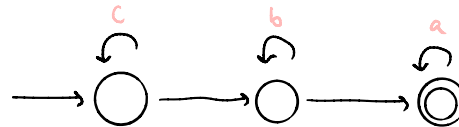
Reglulegt mál



$\{(a^*b^*c^*)^+\}$

b) $\langle x \rangle ::= \langle x \rangle a \mid \langle y \rangle, \langle y \rangle ::= \langle y \rangle b \mid \langle z \rangle, \langle z \rangle ::= \langle z \rangle c \mid \varepsilon$

Reglulegt mál



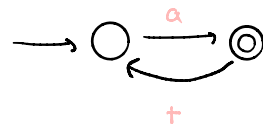
$\{c^*b^*a^*\}$

c) $\langle x \rangle ::= \langle x \rangle + \langle x \rangle \mid (\langle x \rangle) \mid a$

Ekki reglulegt mál

d) $\langle x \rangle ::= \langle x \rangle + \langle x \rangle \mid a$

Reglulegt mál



$\{a(+ a)^*\}$

e) $\langle x \rangle ::= (\langle x \rangle)\langle x \rangle \mid \varepsilon$

Ekki reglulegt

f) $\langle x \rangle ::= \langle x \rangle \langle x \rangle + \mid a$

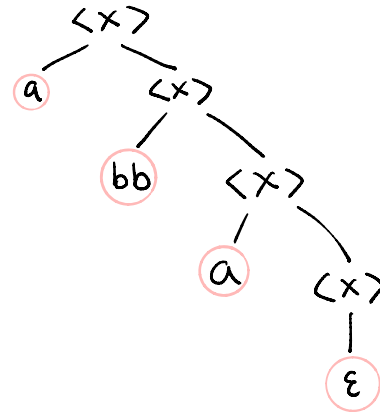
Ekki reglulegt.

3. Sýmið BNF, endanlega stöðuvél og reglulega segð fyrir mál þeirra strengja yfir stahrófið $\{a, b\}$ þar sem fjöldi b er stétt tala. Sýnið útleiðslu tré fyrir strenginn $abba$.

BNF

$\langle x \rangle ::= a \langle x \rangle$
 $\quad \mid b b \langle x \rangle$
 $\quad \mid b \langle x \rangle b \langle x \rangle$
 $\quad \mid \epsilon$

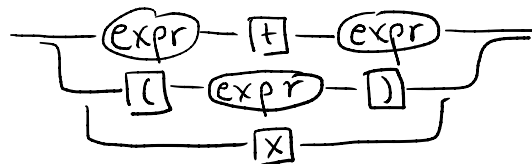
útleiðsla



4. BNF

$\langle \text{expr} \rangle ::= x$
 $\quad \mid \langle \text{expr} \rangle + \langle \text{expr} \rangle$
 $\quad \mid (\langle \text{expr} \rangle)$

Málrit



EBNF

$\text{var} = 'x';$
 $\text{plus} = '+';$
 $\text{obr} = '(';$
 $\text{cbr} = ')';$
 $\text{expr} = \text{var}$
 $\quad \mid \text{expr plus expr}$
 $\quad \mid \text{obr expr cbr};$