ΑΣΚ (ΠΑΣ)

Να κατασκευαστεί ΠΑΣ που αποδέχεται τη γλώσσα $L = \{\alpha^n \beta^n / n > 0\}$ ($n \geq 1$ ίδιο)

Απάντηση

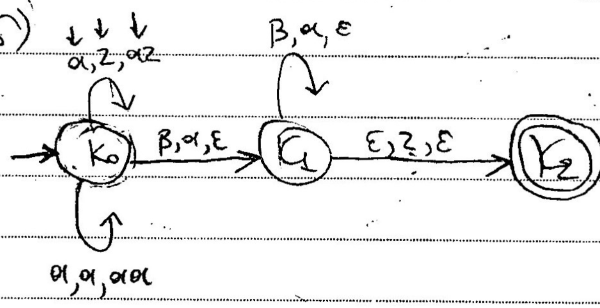
1) $\Pi = (K, \Sigma, \Gamma, \vdash, K_0, Z, T)$, $Z \in \Gamma$

2) $(K_0, \alpha\alpha\alpha\beta\beta\beta, Z) \vdash (K_0, \alpha\alpha\beta\beta\beta, \alpha Z)$
$\vdash (K_0, \alpha\beta\beta\beta, \alpha\alpha Z)$
$\vdash (K_0, \beta\beta\beta, \alpha\alpha\alpha Z)$
$\vdash (K_1, \beta\beta, \alpha\alpha Z)$
$\vdash (K_1, \beta, \alpha Z)$
$\vdash (K_1, \varepsilon, Z)$
$\vdash (K_2, \varepsilon, \varepsilon)$

3) $(K_0, \alpha\beta\beta, Z) \vdash (K_0, \beta\beta, \alpha Z)$ ΔΕΝ ΕΙΝΑΙ ΑΠΟΔΕΚΤΗ
$\vdash (K_1, \beta, Z)$

4) $K = \{K_0, K_1, K_2\}$, $\Sigma = \{\alpha, \beta\}$, $\Gamma = \{\alpha, Z\}$, $T = \{K_2\}$

5) $\vdash(K_0, \alpha, Z) = \{(K_0, \alpha Z)\}$
$\vdash(K_0, \alpha, \alpha) = \{(K_0, \alpha\alpha)\}$
$\vdash(K_0, \beta, \alpha) = \{(K_1, \varepsilon)\}$
$\vdash(K_1, \beta, \overset{(\text{ή } \alpha Z)}{\alpha}) = \{(K_1, \varepsilon)\}$
$\vdash(K_1, \varepsilon, Z) = \{(K_2, \varepsilon)\}$

6)


Άσκ 2

Να κατασκευάσεις ... $L=\{\alpha^n\beta^n \mid n\geq 0\}$

Λύση

1) $\Pi=(K, \Sigma, \Gamma, \vdash, K_0, Z, T)$

2) $(K_0, \alpha\alpha\alpha\beta\beta\beta, Z) \vdash (K_1, \alpha\alpha\beta\beta\beta, \alpha Z)$

$\vdash (K_1, \alpha\beta\beta\beta, \alpha\alpha Z)$

$\vdash (K_1, \beta\beta\beta, \alpha\alpha\alpha Z)$

$\vdash (K_2, \beta\beta, \alpha\alpha Z)$

$\vdash (K_2, \beta, \alpha Z)$

$\vdash (K_2, \varepsilon, Z)$

$\vdash (K_2, \varepsilon, \varepsilon)$

$\vdash (K_0, \varepsilon, \varepsilon)$

3) $(K_1, \alpha\beta\beta, Z) \vdash (K_1, \beta\beta, \alpha Z)$ ΔΕΝ ΕΙΝΑΙ ΑΠΟΔΕΚΤΗ

$\vdash (K_2, \beta, Z)$

4) $K=\{K_0, K_1, K_2\}$, $\Sigma=\{\alpha,\beta\}$, $\Gamma=\{\alpha, Z\}$, $T=\{K_0\}$

5) $\mu(K_0, \alpha, Z) = \{(K_1, \alpha Z)\}$

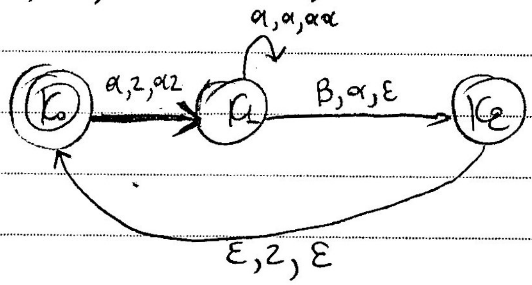
$\mu(K_1, \alpha, \alpha) = \{(K_1, \alpha\alpha)\}$

$\vdash(K_1, \beta, \alpha) = \{(K_2, \varepsilon)\}$

$\vdash(K_2, \beta, \alpha) = \{(K_2, \varepsilon)\}$

$\vdash(K_2, \varepsilon, Z) = \{(K_0, \varepsilon)\}$

6)



Άσκ3

$n>0$

Να κατασκευασθεί ... $L = \{0^n 1^n \mid n \geq 1\}$

Λύση

1) $\Pi = (K, \Sigma, \Gamma, h, k_0, z, T)$

2) $(k_0, 000111, z) \vdash (k_0, 00111, 0z)$

$\vdash (k_0, 0111, 00z)$

$\vdash (k_0, 111, 000z)$

$\vdash (k_1, 11, 00z)$

$\vdash (k_1, 1, 0z)$

$\vdash (k_1, \varepsilon, z)$

$\vdash (k_2, \varepsilon, \varepsilon)$

3) $K = \{k_0, k_1, k_2\}$, $\Sigma = \{0, 1\}$, $\Gamma = \{0, 1\}$, $T = \{k_2$

4) $h(k_0, 0, z) = \{(k_0, 0z)\}$

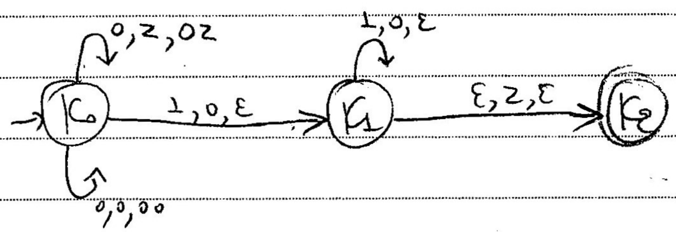
$h(k_0, 0, 0) = \{(k_0, 00)\}$

$h(k_0, 1, 0) = \{(k_1, \varepsilon)\}$

$h(k_1, 1, 0) = \{(k_1, \varepsilon)\}$

$h(k_1, \varepsilon, z) = \{(k_2, \varepsilon)\}$

5)



Ασκ

$L=\{ww^R \mid w\in\{\alpha,\beta\}^+\}$ → λύνω Σ

Λύση

Θεωρούμε $w=\alpha\alpha\beta$, $w^R=\beta\alpha\alpha \} \Rightarrow ww^R$ $\alpha\alpha\beta\beta\alpha\alpha$

1) $\Pi=(K,\Sigma,\Gamma,\vdash,K_0,Z,T)$

2) $\vdash(K_0,\alpha,Z)=\{(K_0,\alpha Z)\}$

$\vdash(K_0,\beta,Z)=\{(K_0,\beta Z)\}$

$\vdash(K_0,\alpha,\alpha)=\{(K_0,\alpha\alpha),(K_1,\varepsilon)\}$

$\vdash(K_0,\beta,\beta)=\{(K_0,\beta\beta),(K_1,\varepsilon)\}$

$\vdash(K_0,\alpha,\beta)=\{(K_0,\alpha\beta)\}$

$\vdash(K_0,\beta,\alpha)=\{(K_0,\beta\alpha)\}$

$\vdash(K_1,\alpha,\alpha)=\{(K_1,\varepsilon)\}$

$\vdash(K_1,\beta,\beta)=\{(K_1,\varepsilon)\}$

$\vdash(K_1,\beta,\beta)=\{(K_1,\varepsilon)\}$ ΕΦΑΡΜΟΓΗ: αββββα

$\vdash(K_1,\varepsilon,Z)$ $\{(K_2,\varepsilon)\}$

3) $\Sigma=\{\alpha,\beta\}$, $K=\{K_0,K_1,K_2\}$, $\Gamma=\{Z,\alpha,\beta\}$, $T=\{K_2\}$

1ος τρόπος — 2ος τρόπος

$(K_0,\alpha\beta\beta\beta\beta\alpha,Z)\vdash(K_0,\beta\beta\beta\beta\alpha,\alpha Z)$

$\vdash(K_0,\beta\beta\beta\alpha,\beta\alpha Z)$

$\vdash(K_0,\beta\beta\alpha,\beta\beta\alpha Z)$ — $\vdash(K_0,\beta\alpha,\beta\beta\beta\alpha Z)$

$\vdash(K_1,\beta\alpha,\beta\alpha Z)$ — $\vdash(K_0,\alpha,\beta\beta\beta\beta\alpha Z)$

$\vdash(K_1,\alpha,\alpha Z)$ — $\vdash(K_0,\varepsilon,\alpha\beta\beta\beta\beta\alpha Z)$

$\vdash(K_1,\varepsilon,Z)$

$\vdash(K_2,\varepsilon,\varepsilon)$