PA koji prihvaća praznim stogom ->
PA koji prihvaća prihvatljivim stanjem

$M_1 = (\{q_1, q_2\}, \{0, 1\}, \{N, J, K\}, S, q_1, \varepsilon, \varnothing)$

1) $S(q_1, 0, K) = \{(q_1, NK)\}$
2) $S(q_1, 1, K) = \{(q_1, JK)\}$
3) $S(q_1, 0, N) = \{(q_1, NN), (q_2, \varepsilon)\}$
4) $(q_1, 1, N) = (q_1, JN)$
5) $(q_1, 0, J) = (q_1, NJ)$
6) $(q_1, 1, J) = (q_1, JJ), (q_2, \varepsilon)$
7) $(q_2, 0, N) = (q_2, \varepsilon)$
8) $(q_2, 1, J) = (q_2, \varepsilon)$
9) $(q_1, \varepsilon, K) = (q_2, \varepsilon)$
10) $(q_2, \varepsilon, K) = (q_2, \varepsilon)$

$M_1 = (\{q_1, q_2\}, \{0, 1\}, \{N, J, K\}, \delta, q_1, K, \emptyset)$

1) $\delta(q_1, 0, K) = \{(q_1, NK)\}$
2) $\delta(q_1, 1, K) = \{(q_1, JK)\}$
3) $\delta(q_1, 0, N) = \{(q_1, NN), (q_2, \varepsilon)\}$
4) $(q_1, 1, N) = (q_1, JN)$
5) $(q_1, 0, J) = (q_1, NJ)$
6) $(q_1, 1, J) = (q_1, JJ), (q_2, \varepsilon)$
7) $(q_2, 0, N) = (q_2, \varepsilon)$
8) $(q_2, 1, J) = (q_2, \varepsilon)$
9) $(q_1, \varepsilon, K) = (q_2, \varepsilon)$
10) $(q_2, \varepsilon, K) = (q_2, \varepsilon)$

$Q \cup \{q_0, q_f\}$ $\quad \Gamma \cup \{X_0\}$

$M_2 = (\{q_1, q_2, q_0, q_f\}, \{0, 1\}, \{N, J, K, X_0\}, \delta', q_0, X_0, \{q_f\})$

$M_1 = (\{q_1, q_2\}, \{0, 1\}, \{N, J, K\}, \delta, q_1, \bot, \emptyset)$

1) $\delta(q_1, 0, K) = \{(q_1, NK)\}$
2) $\delta(q_1, 1, K) = \{(q_1, JK)\}$
3) $\delta(q_1, 0, N) = \{(q_1, NN), (q_2, \varepsilon)\}$
4) $(q_1, 1, N) = (q_1, JN)$
5) $(q_1, 0, J) = (q_1, NJ)$
6) $(q_1, 1, J) = (q_1, JJ), (q_2, \varepsilon)$
7) $(q_2, 0, N) = (q_2, \varepsilon)$
8) $(q_2, 1, J) = (q_2, \varepsilon)$
9) $(q_1, \varepsilon, K) = (q_2, \varepsilon)$
10) $(q_2, \varepsilon, K) = (q_2, \varepsilon)$

$Q \cup \{q_0', q_f\}$ $\quad \Gamma \cup \{X_0\}$

$M_2 = (\{q_1, q_2, q_0', q_f\}, \{0, 1\}, \{N, J, K, X_0\}, \delta', q_0', X_0, \{q_f\})$

1)
2)
⋮
10)

$M_1 = (\{q_1, q_2\}, \{0, 1\}, \{N, J, K\}, \delta, q_1, \bot, \emptyset)$

1) $\delta(q_1, 0, \bot) = \{(q_1, N\bot)\}$
2) $\delta(q_1, 1, \bot) = \{(q_1, J\bot)\}$
3) $\delta(q_1, 0, N) = \{(q_1, NN), (q_2, \varepsilon)\}$
4) $(q_1, 1, N) = (q_1, JN)$
5) $(q_1, 0, J) = (q_1, NJ)$
6) $(q_1, 1, J) = (q_1, JJ), (q_2, \varepsilon)$
7) $(q_2, 0, N) = (q_2, \varepsilon)$
8) $(q_2, 1, J) = (q_2, \varepsilon)$
9) $(q_1, \varepsilon, \bot) = (q_2, \varepsilon)$
10) $(q_2, \varepsilon, \bot) = (q_2, \varepsilon)$

$Q \cup \{q_0', q_f\}$ $\quad \Gamma \cup \{X_0\}$

$M_2 = (\{q_1, q_2, q_0', q_f\}, \{0, 1\}, \{N, J, \bot, X_0\}, \delta', q_0', X_0, \{q_f\})$

0) $\delta'(q_0', \varepsilon, X_0) = \{(q_1, \bot X_0)\}$

1)
2)
⋮
10)

$M_1 = (\{q_1, q_2\}, \{0, 1\}, \{N, J, K\}, \delta, q_1, K, \emptyset)$

1) $\delta(q_1, 0, K) = \{(q_1, NK)\}$
2) $\delta(q_1, 1, K) = \{(q_1, JK)\}$
3) $\delta(q_1, 0, N) = \{(q_1, NN), (q_2, \varepsilon)\}$
4) $(q_1, 1, N) = (q_1, JN)$
5) $(q_1, 0, J) = (q_1, NJ)$
6) $(q_1, 1, J) = (q_1, JJ), (q_2, \varepsilon)$
7) $(q_2, 0, N) = (q_2, \varepsilon)$
8) $(q_2, 1, J) = (q_2, \varepsilon)$
9) $(q_1, \varepsilon, K) = (q_2, \varepsilon)$
10) $(q_2, \varepsilon, K) = (q_2, \varepsilon)$

$Q \cup \{q_0', q_f\}$ $\quad \Gamma \cup \{X_0\}$

$M_2 = (\{q_1, q_2, q_0', q_f\}, \{0, 1\}, \{N, J, K, X_0\}, \delta', q_0', X_0, \{q_f\})$

0) $\delta'(q_0', \varepsilon, X_0) = \{(q_1, KX_0)\}$

1)
2)
⋮
10)

11) $\delta'(q_1, \varepsilon, X_0) = \{(q_f, \varepsilon)\}$
12) $\delta'(q_2, \varepsilon, X_0) = \{(q_f, \varepsilon)\}$

Kontekstno neovisna gramatika
-> PA koji prihvaća praznim stogom

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{Q\}, \{a, b\}, \{S, A\}, \delta, Q, S, \emptyset)$

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{2\}, \{a, b\}, \{S, A\}, \delta, 2, S, \emptyset)$

$\delta(2, a, S) = \{(2, AA)\}$ 1)

$\delta(2, a, A) = \{(2, S), (2, \varepsilon)\}$ 2) 4)

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)
$\delta(q, a, A) = \{(q, S), (q, \varepsilon)\}$ 2) 4)
$\delta(q, b, A) = \{(q, S)\}$ 3)

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)
$\delta(q, a, A) = \{(q, S), (q, \varepsilon)\}$ 2) 4)
$\delta(q, b, A) = \{(q, S)\}$ 3)

a	b	a	a	a	a

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)
$\delta(q, a, A) = \{(q, S), (q, \varepsilon)\}$ 2) 4)
$\delta(q, b, A) = \{(q, S)\}$ 3)

abaaaa

S

$(q, abaaaa, S)$

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)
$\delta(q, a, A) = \{(q, S), (q, \varepsilon)\}$ 2) 4)
$\delta(q, b, A) = \{(q, S)\}$ 3)

abaaaa

1)
$S \Rightarrow aAA$

$(q, abaaaa, S) \vdash (q, baaaa, AA)$

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)
$\delta(q, a, A) = \{(q, S), (q, \varepsilon)\}$ 2) 4)
$\delta(q, b, A) = \{(q, S)\}$ 3)

abaaaa

$S \overset{1)}{\Rightarrow} aAA \overset{3)}{\Rightarrow} abSA$

$(q, abaaaa, S) \vdash (q, baaaa, AA) \vdash (q, aaaa, SA)$

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)
$\delta(q, a, A) = \{(q, S), (q, \varepsilon)\}$ 2) 4)
$\delta(q, b, A) = \{(q, S)\}$ 3)

abaaaa

$S \Rightarrow_1 aAA \Rightarrow_3 abSA \Rightarrow_1 abaAAA$

$(q, abaaaa, S) \vdash (q, baaaa, AA) \vdash (q, aaaa, SA) \vdash (q, aaa, AA$

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)
$\delta(q, a, A) = \{(q, S), (q, \varepsilon)\}$ 2) 4)
$\delta(q, b, A) = \{(q, S)\}$ 3)

abaaaa

$S \Rightarrow^{1)} aAA \Rightarrow^{3)} abSA \Rightarrow^{1)} abaAAA \Rightarrow^{4)} abaaAA$

$(q, abaaaa, S) \vdash (q, baaaa, AA) \vdash (q, aaaa, SA) \vdash (q, aaa, AA)$

$\vdash (q, aa, AA)$

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)
$\delta(q, a, A) = \{(q, S), (q, \varepsilon)\}$ 2) 4)
$\delta(q, b, A) = \{(q, S)\}$ 3)

abaaaa

$S \Rightarrow^{1)} aAA \Rightarrow^{3)} abSA \Rightarrow^{1)} abaAAA \Rightarrow^{4)} abaaAA \Rightarrow^{4)} abaaaA$

$(q, abaaaa, S) \vdash (q, baaaa, AA) \vdash (q, aaaa, SA) \vdash (q, aaa, AA)$

$\vdash (q, aa, AA) \vdash (q, a, A)$

$G = (\{S, A\}, \{a, b\}, P, S)$

P: GNO

1) $S \to aAA$
2) $A \to aS$
3) $A \to bS$
4) $A \to a$

PA $M = (\{q\}, \{a, b\}, \{S, A\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, AA)\}$ 1)
$\delta(q, a, A) = \{(q, S), (q, \varepsilon)\}$ 2) 4)
$\delta(q, b, A) = \{(q, S)\}$ 3)

abaaaaa

$S \Rightarrow_{1)} aAA \Rightarrow_{3)} abSA \Rightarrow_{1)} abaAAA \Rightarrow_{4)} abaaAA \Rightarrow_{4)} abaaaA \Rightarrow_{4)} abaaaa$

$(q, abaaaa, S) \vdash (q, baaaa, AA) \vdash (q, aaaa, SA) \vdash (q, aaa, AAA)$

$\vdash (q, aa, AA) \vdash (q, a, A) \vdash (q, \varepsilon, \varepsilon)$

$G = (\{S, A, B\}, \{a, b\}, P, S)$

P:

1) $S \to aBA$
2) $A \to aB$
3) $A \to b$
4) $B \to bS$
5) $B \to b$

niz: abab

$G = (\{S, A, B\}, \{a, b\}, P, S)$

P:

1) $S \to aBA$
2) $A \to aB$
3) $A \to b$
4) $B \to bS$
5) $B \to b$

miz: abab

$PA\ M = (\{q\}, \{a, b\}, \{S, A, B\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, BA)\}$ 1)

$\delta(q, a, A) = \{(q, B)\}$ 2)

$\delta(q, b, A) = \{(q, \varepsilon)\}$ 3)

$\delta(q, b, B) = \{(q, S), (q, \varepsilon)\}$ 4) 5)

$G = (\{S, A, B\}, \{a, b\}, P, S)$

P:

1) $S \to aBA$
2) $A \to aB$
3) $A \to b$
4) $B \to bS$
5) $B \to b$

$PA\ M = (\{q\}, \{a, b\}, \{S, A, B\}, \delta, q, S, \emptyset)$

$\delta(q, a, S) = \{(q, BA)\}$ 1)

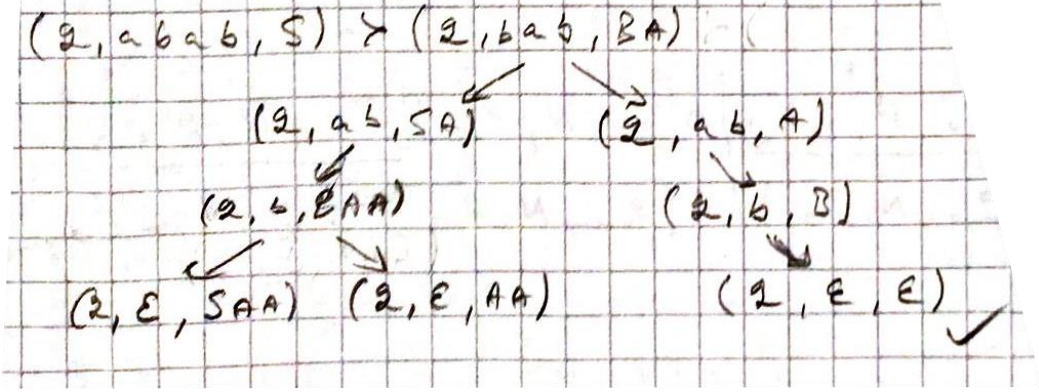
$\delta(q, a, A) = \{(q, B)\}$ 2)

$\delta(q, b, A) = \{(q, \varepsilon)\}$ 3)

$\delta(q, b, B) = \{(q, S), (q, \varepsilon)\}$ 4) 5)

miz: abab

$S \Rightarrow aBA \Rightarrow abA \Rightarrow abaB \Rightarrow abab$



PA koji prihvaća praznim stogom -> Kontekstno neovisna gramatika

РА $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \varepsilon, \varnothing)$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, \varepsilon) = (q_2, \varepsilon)$

ПА $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \varepsilon, \varnothing)$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, \varepsilon) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2],$
$[q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

РА $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \varepsilon, \emptyset)$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, \varepsilon) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2],$
$[q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$

PA $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \varepsilon, \emptyset)$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, \varepsilon) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2],$
$[q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$

$[q_1, K, q_1] \to 0[q_1, N, q_1][q_1, K, q_1] \mid 0[q_1, N, q_2][q_2, K, q_1]$

ПА $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \varepsilon, \varnothing)$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, K) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2], [q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$

$[q_1, K, q_1] \to 0[q_1, N, q_1][q_1, K, q_1] \mid 0[q_1, N, q_2][q_2, K, q_1]$

$[q_1, K, q_2] \to 0[q_1, N, q_1][q_1, K, q_2] \mid 0[q_1, N, q_2][q_2, K, q_2]$

МА $A = (\{q_1, q_2\}, \{0,1\}, \{N, K\}, \delta, q_1, K, \emptyset)$

1) $\delta(q_1, 0, K) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, K) = (q_2, \varepsilon)$

$G = (V, \{0,1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2],$
$[q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

1) $\delta(q_1, 0, K) = \{(q_1, NK)\}$

$[q_1, K, q_1] \to 0[q_1, N, q_1][q_1, K, q_1] \mid 0[q_1, N, q_2][q_2, K, q_1]$

$[q_1, K, q_2] \to 0[q_1, N, q_1][q_1, K, q_2] \mid 0[q_1, N, q_2][q_2, K, q_2]$

2) $\delta(q_1, 0, N) = \{(q_1, NN)\}$

МП $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \varepsilon, \varnothing)$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, \varepsilon) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2],$
$[q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$

$[q_1, K, q_1] \to 0[q_1, N, q_1][q_1, K, q_1] \mid 0[q_1, N, q_2][q_2, K, q_1]$

$[q_1, K, q_2] \to 0[q_1, N, q_1][q_1, K, q_2] \mid 0[q_1, N, q_2][q_2, K, q_2]$

2) $\delta(q_1, 0, N) = \{(q_1, NN)\}$

$[q_1, N, q_1] \to 0[q_1, N, q_1][q_1, N, q_1] \mid 0[q_1, N, q_2][q_2, N, q_1]$

$[q_1, N, q_2] \to 0[q_1, N, q_1][q_1, N, q_2] \mid 0[q_1, N, q_2][q_2, N, q_2]$

ПА $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \varepsilon, \varnothing)$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, \varepsilon) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2],$
$[q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$

$[q_1, K, q_1] \to 0[q_1, N, q_1][q_1, K, q_1] \mid 0[q_1, N, q_2][q_2, K, q_1]$

$[q_1, K, q_2] \to 0[q_1, N, q_1][q_1, K, q_2] \mid 0[q_1, N, q_2][q_2, K, q_2]$

2) $\delta(q_1, 0, N) = \{(q_1, NN)\}$

$[q_1, N, q_1] \to 0[q_1, N, q_1][q_1, N, q_1] \mid 0[q_1, N, q_2][q_2, N, q_1]$

$[q_1, N, q_2] \to 0[q_1, N, q_1][q_1, N, q_2] \mid 0[q_1, N, q_2][q_2, N, q_2]$

3) $\delta(q_1, 1, N) = \{(q_2, \varepsilon)\}$

$[q_1, N, q_2] \to 1$

МП $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, K, \emptyset)$

1) $\delta(q_1, 0, K) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, K) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2], [q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

1) $\delta(q_1, 0, K) = \{(q_1, NK)\}$

$[q_1, K, q_1] \to 0[q_1, N, q_1][q_1, K, q_1] \mid 0[q_1, N, q_2][q_2, K, q_1]$

$[q_1, K, q_2] \to 0[q_1, N, q_1][q_1, K, q_2] \mid 0[q_1, N, q_2][q_2, K, q_2]$

2) $\delta(q_1, 0, N) = \{(q_1, NN)\}$

$[q_1, N, q_1] \to 0[q_1, N, q_1][q_1, N, q_1] \mid 0[q_1, N, q_2][q_2, N, q_1]$

$[q_1, N, q_2] \to 0[q_1, N, q_1][q_1, N, q_2] \mid 0[q_1, N, q_2][q_2, N, q_2]$

3) $\delta(q_1, 1, N) = \{(q_2, \varepsilon)\}$

$[q_1, N, q_2] \to 1$

4) $\delta(q_2, 1, N) = \{(q_2, \varepsilon)\}$

$[q_2, N, q_2] \to 1$

ПА $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \varepsilon, \varnothing)$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, \varepsilon) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2],$
$[q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$

$[q_1, K, q_1] \to 0[q_1, N, q_1][q_1, K, q_1] \mid 0[q_1, N, q_2][q_2, K, q_1]$

$[q_1, K, q_2] \to 0[q_1, N, q_1][q_1, K, q_2] \mid 0[q_1, N, q_2][q_2, K, q_2]$

2) $\delta(q_1, 0, N) = \{(q_1, NN)\}$

$[q_1, N, q_1] \to 0[q_1, N, q_1][q_1, N, q_1] \mid 0[q_1, N, q_2][q_2, N, q_1]$

$[q_1, N, q_2] \to 0[q_1, N, q_1][q_1, N, q_2] \mid 0[q_1, N, q_2][q_2, N, q_2]$

3) $\delta(q_1, 1, N) = \{(q_2, \varepsilon)\}$

$[q_1, N, q_2] \to 1$

4) $\delta(q_2, 1, N) = \{(q_2, \varepsilon)\}$

$[q_2, N, q_2] \to 1$

5) $[q_2, N, q_2] \to \varepsilon$

6) $[q_2, K, q_2] \to \varepsilon$

PA $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \varepsilon, \emptyset)$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, \varepsilon) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2],$
$[q_1, K, q_1], [q_1, K, q_2], [q_2, K, q_1], [q_2, K, q_2]\}$

1) $\delta(q_1, 0, \varepsilon) = \{(q_1, NK)\}$

$[q_1, K, q_1] \to 0[q_1, N, q_1][q_1, K, q_1] \mid 0[q_1, N, q_2][q_2, K, q_1]$

$[q_1, K, q_2] \to 0[q_1, N, q_1][q_1, K, q_2] \mid 0[q_1, N, q_2][q_2, K, q_2]$

2) $\delta(q_1, 0, N) = \{(q_1, NN)\}$

$[q_1, N, q_1] \to 0[q_1, N, q_1][q_1, N, q_1] \mid 0[q_1, N, q_2][q_2, N, q_1]$

$[q_1, N, q_2] \to 0[q_1, N, q_1][q_1, N, q_2] \mid 0[q_1, N, q_2][q_2, N, q_2]$

3) $\delta(q_1, 1, N) = \{(q_2, \varepsilon)\}$

$[q_1, N, q_2] \to 1$

4) $\delta(q_2, 1, N) = \{(q_2, \varepsilon)\}$

$[q_2, N, q_2] \to 1$

5) $[q_2, N, q_2] \to \varepsilon$

6) $[q_2, K, q_2] \to \varepsilon$

0) $S \to [q_1, K, q_1] \mid [q_1, K, q_2]$

$S \to [q_0, Z_0, q], q \in Q$

ПА $A = (\{q_1, q_2\}, \{0, 1\}, \{N, K\}, \delta, q_1, \kappa, \varnothing)$

1) $\delta(q_1, 0, \kappa) = \{(q_1, NK)\}$
2) $(q_1, 0, N) = (q_1, NN)$
3) $(q_1, 1, N) = (q_2, \varepsilon)$
4) $(q_2, 1, N) = (q_2, \varepsilon)$
5) $(q_2, \varepsilon, N) = (q_2, \varepsilon)$
6) $(q_2, \varepsilon, \kappa) = (q_2, \varepsilon)$

$G = (V, \{0, 1\}, P, S)$

$V = \{S, [q_1, N, q_1], [q_1, N, q_2], [q_2, N, q_1], [q_2, N, q_2], [q_1, \kappa, q_1], [q_1, \kappa, q_2], [q_2, \kappa, q_1], [q_2, \kappa, q_2]\}$

1) $\delta(q_1, 0, \kappa) = \{(q_1, NK)\}$

$[q_1, \kappa, q_1] \to 0[q_1, N, q_1][q_1, \kappa, q_1] \mid 0[q_1, N, q_2][q_2, \kappa, q_1]$

$[q_1, \kappa, q_2] \to 0[q_1, N, q_1][q_1, \kappa, q_2] \mid 0[q_1, N, q_2][q_2, \kappa, q_2]$

2) $\delta(q_1, 0, N) = \{(q_1, NN)\}$

$[q_1, N, q_1] \to 0[q_1, N, q_1][q_1, N, q_1] \mid 0[q_1, N, q_2][q_2, N, q_1]$

$[q_1, N, q_2] \to 0[q_1, N, q_1][q_1, N, q_2] \mid 0[q_1, N, q_2][q_2, N, q_2]$

3) $\delta(q_1, 1, N) = \{(q_2, \varepsilon)\}$

$[q_1, N, q_2] \to 1$

4) $\delta(q_2, 1, N) = \{(q_2, \varepsilon)\}$

$[q_2, N, q_2] \to 1$

5) $[q_2, N, q_2] \to \varepsilon$

6) $[q_2, \kappa, q_2] \to \varepsilon$

0) $S \to [q_1, \kappa, q_1] \mid [q_1, \kappa, q_2]$ $\quad S \to [q_0, z_0, q], q \in Q$

$S \to [q_1, \kappa, q_2]$

$[q_1, \kappa, q_2] \to 0[q_1, N, q_2][q_2, \kappa, q_2]$

$[q_1, N, q_2] \to 0[q_1, N, q_2][q_2, N, q_2]$

$[q_1, N, q_2] \to 1$

$[q_2, \kappa, q_2] \to \varepsilon$

$[q_2, N, q_2] \to \varepsilon$

$[q_2, N, q_2] \to 1$