TGP - DN3

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1) Uporabimo matrike $I+E_{ij}$, $j>i$. Opazimo $(I+E_{ij})^k = (I+kE_{ij})$ za $\forall k \in \mathbb{Z}$. Od tukaj naprej označimo $(i,j) := I+E_{ij}$.

Generatorje množimo med sabo in za večino vzamemo $(I+E_{kl})(I+E_{ij}) = (I+E_{ij}+E_{kl})$, torej med sabo komutirajo, z naslednjimi izjemami:

- $(1,2),(2,3)$: $\begin{bmatrix} 1 & 1 & 1 & 0 \\ & 1 & 1 & 0 \\ & & 1 & 0 \\ & & & 1 \end{bmatrix}$ $\begin{bmatrix} 1 & 1 & 0 & 0 \\ & 1 & 1 & 0 \\ & & 1 & 0 \\ & & & 1 \end{bmatrix}$
- $(1,2),(2,4)$: $\begin{bmatrix} 1 & 1 & 0 & 1 \\ & 1 & 0 & 1 \\ & & 1 & 0 \\ & & & 1 \end{bmatrix}$ $\begin{bmatrix} 1 & 1 & 0 & 0 \\ & 1 & 0 & 1 \\ & & 1 & 0 \\ & & & 1 \end{bmatrix}$
- $(1,3),(3,4)$: $\begin{bmatrix} 1 & 0 & 1 & 1 \\ & 1 & 0 & 0 \\ & & 1 & 1 \\ & & & 1 \end{bmatrix}$ $\begin{bmatrix} 1 & 0 & 1 & 0 \\ & 1 & 0 & 0 \\ & & 1 & 1 \\ & & & 1 \end{bmatrix}$
- $(2,3),(3,4)$: $\begin{bmatrix} 1 & 0 & 0 & 0 \\ & 1 & 1 & 1 \\ & & 1 & 1 \\ & & & 1 \end{bmatrix}$ $\begin{bmatrix} 1 & 0 & 0 & 0 \\ & 1 & 1 & 0 \\ & & 1 & 1 \\ & & & 1 \end{bmatrix}$

Od tod dobimo reprezentacijo:

GEN: $\{1+E_{12},\ 1+E_{13},\ 1+E_{14},\ 1+E_{23},\ 1+E_{24},\ 1+E_{34}\}$

REL: • vsi reda ∞.

• $(1,3)^{(1,2)} = (1,3)$, $(1,4)^{(1,2)} = (1,4)$, $(1,4)^{(1,3)} = (1,4)$, $(2,3)^{(1,2)} = (1,3)^{-1}(2,3)$, $(2,3)^{(1,3)} = (2,3)$, $(2,3)^{(1,4)} = (2,3)$, $(2,4)^{(1,2)} = (1,4)^{-1}(2,4)$, $(2,4)^{(1,3)} = (2,4)$, $(2,4)^{(1,4)} = (2,4)$, $(2,4)^{(2,3)} = (2,4)$, $(3,4)^{(1,2)} = (3,4)$, $(3,4)^{(1,3)} = (1,4)^{-1}(3,4)$, $(3,4)^{(1,4)} = (3,4)$, $(3,4)^{(2,3)} = (2,4)^{-1}(3,4)$, $(3,4)^{(2,4)} = (3,4)$

(tukaj je $g^a = a^{-1}ga$)

$$A = \begin{bmatrix} 1 & 2 & 0 & -2 \\ & 1 & -1 & 3 \\ & & 1 & 1 \\ & & & 1 \end{bmatrix} = \underbrace{(1,2)(1,4)^{-2}(2,3)^{-1}(2,4)^3(3,4)}_{\text{osnovni del}} \underbrace{(1,2)(1,3)(1,4)^{-2}(2,4)(1,4)^{-2}}_{\text{popravki koeficientov}}$$

$$= (1,2)(1,4)^{-2}(2,3)^{-1}(1,2)(1,4)^{-3}(2,4)^3(1,3)(1,4)^{-5}(3,4)(2,4)$$

$$= (1,2)(1,4)^{-2}(1,2)(1,3)(2,3)^{-1}(1,3)(1,4)^{-8}(2,4)^4(3,4)$$

$$= (1,2)^2(1,3)^2(1,4)^{-10}(2,3)^{-1}(2,4)^4(3,4)$$

2) $(1,2)(1,3)(1,4)(2,3)(1,2)(1,3)(1,4)(2,3) =$

$$= (1,2)^2(1,4)(2,3)(1,3)(1,4)(2,3)$$
$$= (1,2)^2(1,3)(1,4)(2,3)(1,4)(2,3)$$
$$= (1,2)^2(1,3)(1,4)^2(2,3)^2$$

3) $x_1 = (1,2,3)$
$x_2 = (1,3)(2,4)$
$x_3 = (1,2)(3,4)$
$x_1^3 = 1,\ x_2^2 = 1,\ x_3^2 = 1$
$x_2^{x_1} = x_3$
$x_3^{x_1} = x_2 x_3$
$x_3^{x_2} = x_3$