

DAWG

W_0 acts on a \mathbb{Z} lattice ($W_0 \subseteq GL(\mathbb{Z})$)

is finite and generated by reflections.

A reflection is $s \in GL(\mathbb{Z})$ such that

s is conjugate to $\begin{pmatrix} -1 & & \\ & \dots & \\ & & 1 \end{pmatrix}$

W_0 also acts on \mathbb{Z}^* : If $\langle \mu, \lambda^\nu \rangle = \mu(\lambda^\nu)$

$$\langle w\mu, \lambda^\nu \rangle = \langle \mu, w^{-1}\lambda^\nu \rangle, \quad \mu \in \mathbb{Z}^*, \lambda^\nu \in \mathbb{Z}, w \in W_0$$

The DAWG is

$$W = \{ q^k x^\mu w y \lambda^\nu \mid k \in \mathbb{Z}, \mu \in \mathbb{Z}^*, w \in W, \lambda^\nu \in \mathbb{Z} \}$$

with

$$x^\mu x^\nu = x^{\mu+\nu}$$

$$y \lambda^\nu y \lambda^\sigma = y \lambda^{\nu+\sigma}$$

$$w x^\mu = x^{w\mu} w$$

$$w y \lambda^\nu = y w \lambda^\nu w$$

$$x^\mu y \lambda^\nu = q^{\langle \mu, \lambda^\nu \rangle} y \lambda^\nu x^\mu$$

