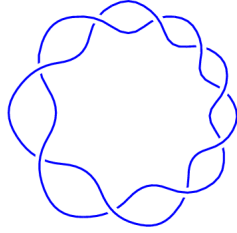
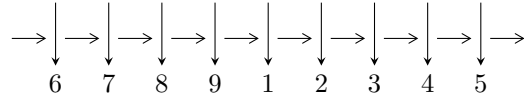


$9_1 (K9a_{41})$

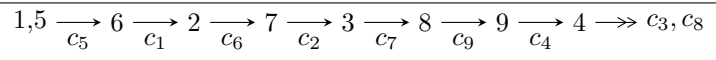


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = \bigcap_{i=1}^2 I_i^u$$

$$I_1^u = \langle u + 1 \rangle$$

$$I_2^u = \langle u^3 - 3u + 1 \rangle$$

There are 2 irreducible components with 4 representations.

¹The knot diagram image is adapter from “C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, <http://www.indiana.edu/~knotinfo>”

$$\mathbf{I. } I_1^u = \langle u + 1 \rangle$$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = -18

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$	-4.93480	-18.0000

$$\text{II. } I_2^u = \langle u^3 - 3u + 1 \rangle$$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u - 1 \\ -2u + 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u + 1 \\ -u^2 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^2 - 1 \\ -u^2 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ -2u + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ -2u + 1 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = -18

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.87939$	12.6112	-18.0000
$u = 0.347296$	-0.548311	-18.0000
$u = 1.53209$	-13.7078	-18.0000

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_2, c_3	$(u + 1)(u^3 - 3u + 1)$
c_4, c_5, c_6	
c_7, c_8, c_9	

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_2, c_3	$(y - 1)(y^3 - 6y^2 + 9y - 1)$
c_4, c_5, c_6	
c_7, c_8, c_9	