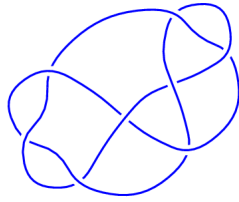
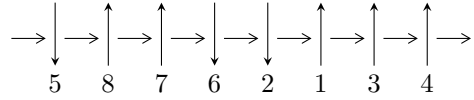


$\delta_{13} (K8a_7)$

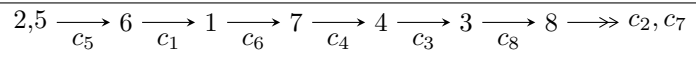


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{14} - u^{13} - 3u^{12} + 4u^{11} + 4u^{10} - 7u^9 - u^8 + 6u^7 - 2u^6 - 2u^5 + 2u^4 - u + 1 \rangle$$

There are 1 irreducible components with 14 representations.

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

$$I_1^u = \langle u^{14} - u^{13} - 3u^{12} + 4u^{11} + 4u^{10} - 7u^9 - u^8 + 6u^7 - 2u^6 - 2u^5 + 2u^4 - u + 1 \rangle \quad \mathbf{I.}$$

(i) Arc colorings

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

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

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

$$a_1 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{11} + 2u^9 - 2u^7 + u^3 \\ u^{13} - 3u^{11} + 5u^9 - 4u^7 + 2u^5 - u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^8 - u^6 + u^4 + 1 \\ -u^8 + 2u^6 - 2u^4 \end{pmatrix}$$

(ii) Obstruction class = -1

$$\text{(iii) Cusp Shapes} = 4u^{13} - 16u^{11} + 4u^{10} + 28u^9 - 12u^8 - 20u^7 + 16u^6 - 8u^4 + 8u^3 - 2$$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.157218 - 0.286866I$	$-7.82627 + 0.47055I$	$-5.32829 + 0.18349I$
$u = -1.157218 + 0.286866I$	$-7.82627 - 0.47055I$	$-5.32829 - 0.18349I$
$u = -1.068409 - 0.522447I$	$-0.56380 - 5.07185I$	$1.67153 + 6.33126I$
$u = -1.068409 + 0.522447I$	$-0.56380 + 5.07185I$	$1.67153 - 6.33126I$
$u = -0.403136 - 0.584808I$	$1.36265 + 0.62859I$	$6.31651 - 1.42251I$
$u = -0.403136 + 0.584808I$	$1.36265 - 0.62859I$	$6.31651 + 1.42251I$
$u = 0.268039 - 0.757899I$	$-3.51248 - 3.62879I$	$0.33383 + 2.63226I$
$u = 0.268039 + 0.757899I$	$-3.51248 + 3.62879I$	$0.33383 - 2.63226I$
$u = 0.728347 - 0.560551I$	$-1.44038 + 2.19128I$	$1.23919 - 3.85718I$
$u = 0.728347 + 0.560551I$	$-1.44038 - 2.19128I$	$1.23919 + 3.85718I$
$u = 0.989783 - 0.381937I$	$-1.69471 + 1.40484I$	$-1.50927 - 0.52948I$
$u = 0.989783 + 0.381937I$	$-1.69471 - 1.40484I$	$-1.50927 + 0.52948I$
$u = 1.142594 - 0.546762I$	$-6.06421 + 8.53123I$	$-2.72348 - 6.18031I$
$u = 1.142594 + 0.546762I$	$-6.06421 - 8.53123I$	$-2.72348 + 6.18031I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_5	$(u^{14} + u^{13} + \dots + u + 1)$
c_2, c_3, c_7	$(u^{14} + u^{13} + \dots + u + 1)$
c_4	$(u^{14} + 7u^{13} + \dots + u + 1)$
c_6	$(u^{14} + 3u^{13} + \dots + 7u + 3)$
c_8	$(u^{14} + u^{13} + \dots - 3u + 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5	$(y^{14} - 7y^{13} + \dots - y + 1)$
c_2, c_3, c_7	$(y^{14} + 13y^{13} + \dots - y + 1)$
c_4	$(y^{14} + y^{13} + \dots + 7y + 1)$
c_6	$(y^{14} + 5y^{13} + \dots + 23y + 9)$
c_8	$(y^{14} + y^{13} + \dots - y + 1)$