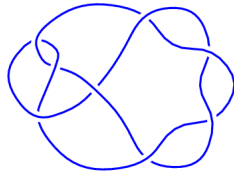
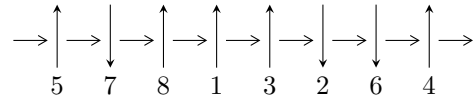


8<sub>7</sub> (K8a<sub>6</sub>)

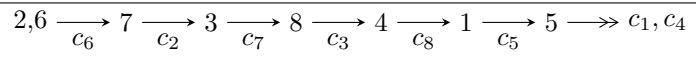


1

**Arc Sequences**



**Solving Sequence**



**Representation Ideals**

$$I = I_1^u$$

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

There are 1 irreducible components with 11 representations.

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

$$\text{I. } I_1^u = \langle u^{11} - u^{10} - 2u^9 + 3u^8 + 2u^7 - 4u^6 + 3u^4 - u^3 - u^2 + 1 \rangle$$

(i) Arc colorings

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

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^6 - u^4 + 1 \\ u^8 - 2u^6 + 2u^4 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^{10} - 3u^8 + 4u^6 - 3u^4 + u^2 - 1 \\ -u^{10} + 2u^8 - 3u^6 + 2u^4 - u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^5 + 2u^3 - u \\ u^5 - u^3 + u \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $4u^{10} - 12u^8 + 4u^7 + 16u^6 - 8u^5 - 8u^4 + 8u^3 - 4u + 2$

(iv) Complex Volumes and Cusp Shapes

Solution to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.11640$	3.38257	2.18572
$u = -1.031506 - 0.521913I$	$-0.37669 - 4.75030I$	$2.64109 + 6.77690I$
$u = -1.031506 + 0.521913I$	$-0.37669 + 4.75030I$	$2.64109 - 6.77690I$
$u = -0.439259 - 0.522038I$	$1.289964 + 0.454766I$	$7.19508 - 1.36957I$
$u = -0.439259 + 0.522038I$	$1.289964 - 0.454766I$	$7.19508 + 1.36957I$
$u = 0.488025 - 0.800566I$	$9.03866 - 1.64593I$	$8.04988 + 0.24481I$
$u = 0.488025 + 0.800566I$	$9.03866 + 1.64593I$	$8.04988 - 0.24481I$
$u = 0.959860 - 0.351396I$	$-1.63627 + 1.27541I$	$-1.47945 - 0.80097I$
$u = 0.959860 + 0.351396I$	$-1.63627 - 1.27541I$	$-1.47945 + 0.80097I$
$u = 1.081080 - 0.631709I$	$7.26485 + 7.02220I$	$5.50054 - 4.88619I$
$u = 1.081080 + 0.631709I$	$7.26485 - 7.02220I$	$5.50054 + 4.88619I$

## II. u-Polynomials

Crossings	u-Polynomials at each crossings
$c_1, c_3, c_4$ $c_8$	$(u^{11} + u^{10} - 6u^9 - 5u^8 + 12u^7 + 6u^6 - 10u^5 + u^4 + 5u^3 - u^2 + 1)$
$c_2, c_6$	$(u^{11} + u^{10} - 2u^9 - 3u^8 + 2u^7 + 4u^6 - 3u^4 - u^3 + u^2 - 1)$
$c_5$	$(u^{11} + 3u^{10} + 4u^9 + u^8 + 2u^7 + 8u^6 + 8u^5 - 5u^4 - 3u^3 + u^2 + 4u + 1)$
$c_7$	$(u^{11} + 5u^{10} + \dots + 2u + 1)$

### III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
$c_1, c_3, c_4$ $c_8$	$(y^{11} - 13y^{10} + \dots + 2y - 1)$
$c_2, c_6$	$(y^{11} - 5y^{10} + \dots + 2y - 1)$
$c_5$	$(y^{11} - y^{10} + \dots + 14y - 1)$
$c_7$	$(y^{11} + 3y^{10} + \dots - 10y - 1)$