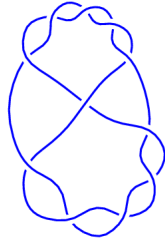
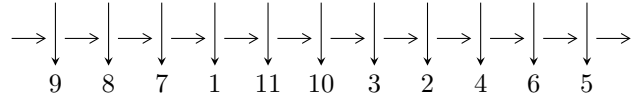


11a₃₆₃ (K11a₃₆₃)

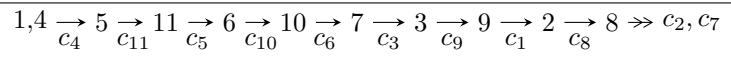


1

Arc Sequences



Solving Sequence



Representation Ideals

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

$$I_1^u = \langle u^5 + 4u^3 + 3u + 1 \rangle$$

$$I_2^u = \langle u^{12} + u^{11} + 8u^{10} + 7u^9 + 22u^8 + 15u^7 + 23u^6 + 9u^5 + 6u^4 + 1 \rangle$$

There are 2 irreducible components with 17 representations.

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

$$\mathbf{I. } I_1^u = \langle u^5 + 4u^3 + 3u + 1 \rangle$$

(i) Arc colorings

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

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 1 \\ -u^3 - 2u - 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^4 + 3u^2 + 1 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^3 - 2u \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^3 + u \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.297463$	-0.520906	-19.1219
$u = -0.07789 - 1.74776I$	$-13.3118 - 6.2970I$	$-0.18315 + 2.53911I$
$u = -0.07789 + 1.74776I$	$-13.3118 + 6.2970I$	$-0.18315 - 2.53911I$
$u = 0.226624 - 1.023225I$	$6.17001 + 3.58174I$	$-1.25591 - 4.89768I$
$u = 0.226624 + 1.023225I$	$6.17001 - 3.58174I$	$-1.25591 + 4.89768I$

$$\text{II. } I_2^u = \langle u^{12} + u^{11} + 8u^{10} + 7u^9 + 22u^8 + 15u^7 + 23u^6 + 9u^5 + 6u^4 + 1 \rangle$$

(i) Arc colorings

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

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} -u^5 - 4u^3 - 3u \\ u^5 + 3u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{11} + 8u^9 + 22u^7 + 24u^5 + 9u^3 \\ -u^{11} - 7u^9 - 16u^7 - 13u^5 - 3u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^4 + 3u^2 + 1 \\ -u^6 - 4u^4 - 3u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{10} - 7u^8 - 16u^6 - 13u^4 - 3u^2 + 1 \\ -u^{11} - 7u^9 - 15u^7 + u^6 - 9u^5 + 3u^4 - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^{10} - u^9 - 7u^8 - 6u^7 - 16u^6 - 9u^5 - 13u^4 + u^3 - 4u^2 + 3u - 2 \\ -u^{11} - u^{10} - 7u^9 - 6u^8 - 16u^7 - 9u^6 - 13u^5 + u^4 - 4u^3 + 3u^2 - 2u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^{10} - u^9 - 7u^8 - 6u^7 - 16u^6 - 9u^5 - 13u^4 + u^3 - 4u^2 + 3u - 2 \\ -u^{11} - u^{10} - 7u^9 - 6u^8 - 16u^7 - 9u^6 - 13u^5 + u^4 - 4u^3 + 3u^2 - 2u \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.552709 - 0.348214I$	$11.47009 - 1.80634I$	$-5.08274 + 3.33972I$
$u = -0.552709 + 0.348214I$	$11.47009 + 1.80634I$	$-5.08274 - 3.33972I$
$u = -0.300612 - 1.096291I$	$15.9921 - 4.7113I$	$-0.92821 + 3.58608I$
$u = -0.300612 + 1.096291I$	$15.9921 + 4.7113I$	$-0.92821 - 3.58608I$
$u = -0.105048 - 0.895324I$	$2.14658 - 1.36304I$	$-5.98906 + 5.15276I$
$u = -0.105048 + 0.895324I$	$2.14658 + 1.36304I$	$-5.98906 - 5.15276I$
$u = -0.02018 - 1.70425I$	$11.47009 - 1.80634I$	$-5.08274 + 3.33972I$
$u = -0.02018 + 1.70425I$	$11.47009 + 1.80634I$	$-5.08274 - 3.33972I$
$u = 0.05512 - 1.72697I$	$15.9921 + 4.7113I$	$-0.92821 - 3.58608I$
$u = 0.05512 + 1.72697I$	$15.9921 - 4.7113I$	$-0.92821 + 3.58608I$
$u = 0.423428 - 0.279325I$	$2.14658 + 1.36304I$	$-5.98906 - 5.15276I$
$u = 0.423428 + 0.279325I$	$2.14658 - 1.36304I$	$-5.98906 + 5.15276I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_2, c_3 c_4, c_5, c_6 c_7, c_8, c_{10} c_{11}	$(u^5 + 4u^3 + 3u + 1)$ $(u^{12} + u^{11} + 8u^{10} + 7u^9 + 22u^8 + 15u^7 + 23u^6 + 9u^5 + 6u^4 + 1)$
c_9	$(u^5 + 5u^4 + 14u^3 + 19u^2 + 16u + 4)$ $(u^6 - 2u^5 + 5u^4 - 4u^3 + 8u^2 - 4u + 3)^2$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_2, c_3 c_4, c_5, c_6 c_7, c_8, c_{10} c_{11}	$(y^5 + 8y^4 + \dots + 9y - 1)(y^{12} + 15y^{11} + \dots + 12y^2 + 1)$
c_9	$(y^5 + 3y^4 + 38y^3 + 47y^2 + 104y - 16)$ $(y^6 + 6y^5 + 25y^4 + 54y^3 + 62y^2 + 32y + 9)^2$