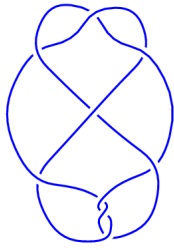
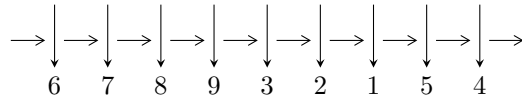


9₁₃ (K9a₃₄)

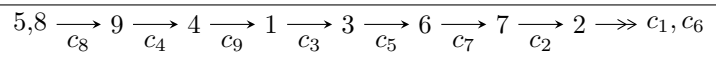


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{18} + u^{17} + \dots - 3u - 1 \rangle$$

There are 1 irreducible components with 18 representations.

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

$$\mathbf{I. } I_1^u = \langle u^{18} + u^{17} + 9u^{16} + 8u^{15} + 32u^{14} + 25u^{13} + 55u^{12} + 36u^{11} + 43u^{10} + 19u^9 + 9u^8 - 4u^7 - 2u^5 + 4u^4 + 2u^3 - u^2 - 3u - 1 \rangle$$

(i) Arc colorings

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

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

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

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

$$a_1 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^6 - 3u^4 - 2u^2 + 1 \\ u^8 + 4u^6 + 4u^4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^7 + 4u^5 + 4u^3 \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{17} + 8u^{15} + 25u^{13} + 36u^{11} + 19u^9 - 4u^7 - 2u^5 + 2u^3 - 3u \\ -u^{17} - u^{16} + \dots + 3u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{17} + 8u^{15} + 25u^{13} + 36u^{11} + 19u^9 - 4u^7 - 2u^5 + 2u^3 - 3u \\ -u^{17} - u^{16} + \dots + 3u + 1 \end{pmatrix}$$

(ii) Obstruction class = -1

$$\mathbf{(iii) Cusp Shapes} = 4u^{17} + 4u^{16} + 36u^{15} + 28u^{14} + 124u^{13} + 72u^{12} + 196u^{11} + 72u^{10} + 120u^9 - 8u^7 - 36u^6 - 8u^5 - 4u^4 + 16u^3 - 8u - 18$$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.678984 - 0.355286I$	$-1.88880 - 5.71427I$	$-11.06596 + 6.05983I$
$u = -0.678984 + 0.355286I$	$-1.88880 + 5.71427I$	$-11.06596 - 6.05983I$
$u = -0.482433 - 0.528989I$	$-1.12877 + 1.78695I$	$-9.23943 + 0.02251I$
$u = -0.482433 + 0.528989I$	$-1.12877 - 1.78695I$	$-9.23943 - 0.02251I$
$u = -0.382766$	-0.621918	-15.9800
$u = -0.25789 - 1.44398I$	$3.89024 - 9.13509I$	$-6.98695 + 5.86478I$
$u = -0.25789 + 1.44398I$	$3.89024 + 9.13509I$	$-6.98695 - 5.86478I$
$u = -0.17132 - 1.45278I$	$5.14514 - 0.55896I$	$-5.51114 - 0.25710I$
$u = -0.17132 + 1.45278I$	$5.14514 + 0.55896I$	$-5.51114 + 0.25710I$
$u = -0.076050 - 1.298791I$	$3.35362 - 1.57187I$	$-5.80878 + 4.22070I$
$u = -0.076050 + 1.298791I$	$3.35362 + 1.57187I$	$-5.80878 - 4.22070I$
$u = 0.215059 - 1.214378I$	$-2.15328 + 3.22673I$	$-11.05526 - 3.62956I$
$u = 0.215059 + 1.214378I$	$-2.15328 - 3.22673I$	$-11.05526 + 3.62956I$
$u = 0.22144 - 1.45044I$	$8.38729 + 4.87394I$	$-2.47320 - 3.60136I$
$u = 0.22144 + 1.45044I$	$8.38729 - 4.87394I$	$-2.47320 + 3.60136I$
$u = 0.590027 - 0.406016I$	$2.42619 + 1.88569I$	$-5.68331 - 3.99357I$
$u = 0.590027 + 0.406016I$	$2.42619 - 1.88569I$	$-5.68331 + 3.99357I$
$u = 0.663049$	-5.83256	-16.3720

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_2, c_6	$(u^{18} + u^{17} + \dots - u - 1)$
c_3	$(u^{18} + u^{17} + \dots + 13u - 5)$
c_4, c_8, c_9	$(u^{18} + u^{17} + \dots - 3u - 1)$
c_5, c_7	$(u^{18} + 3u^{17} + \dots + 3u + 3)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_2, c_6	$(y^{18} - 15y^{17} + \dots - 7y + 1)$
c_3	$(y^{18} + 5y^{17} + \dots - 39y + 25)$
c_4, c_8, c_9	$(y^{18} + 17y^{17} + \dots - 7y + 1)$
c_5, c_7	$(y^{18} + 13y^{17} + \dots - 75y + 9)$