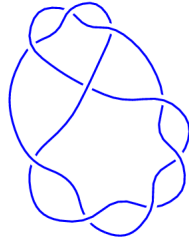
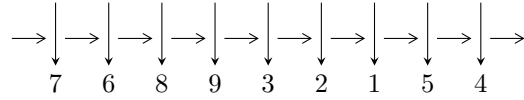


9₅ (K9a₃₆)

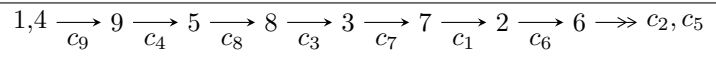


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

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

There are 1 irreducible components with 11 representations.

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

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

(i) Arc colorings

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

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

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

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

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

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

$$a_7 = \begin{pmatrix} -u^4 - u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^8 + 3u^6 + u^4 - 2u^2 + 1 \\ u^8 + 4u^6 + 4u^4 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^9 - 4u^7 - 5u^5 - 2u^3 - u \\ -u^{10} - u^9 - 5u^8 - 4u^7 - 8u^6 - 5u^5 - 3u^4 - 2u^3 + u^2 - u - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^9 - 4u^7 - 5u^5 - 2u^3 - u \\ -u^{10} - u^9 - 5u^8 - 4u^7 - 8u^6 - 5u^5 - 3u^4 - 2u^3 + u^2 - u - 1 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes

$$= -4u^{10} - 4u^9 - 24u^8 - 16u^7 - 44u^6 - 16u^5 - 20u^4 + 4u^3 + 4u^2 + 4u - 14$$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.691368 - 0.499908I$	$11.24540 - 2.30219I$	$-3.67978 + 2.86330I$
$u = -0.691368 + 0.499908I$	$11.24540 + 2.30219I$	$-3.67978 - 2.86330I$
$u = -0.395736$	-0.636835	-15.6982
$u = -0.23988 - 1.50376I$	$17.7594 - 5.6984I$	$-0.45524 + 2.83577I$
$u = -0.23988 + 1.50376I$	$17.7594 + 5.6984I$	$-0.45524 - 2.83577I$
$u = -0.081634 - 1.321476I$	$3.47017 - 1.62554I$	$-5.42199 + 3.91435I$
$u = -0.081634 + 1.321476I$	$3.47017 + 1.62554I$	$-5.42199 - 3.91435I$
$u = 0.18554 - 1.42716I$	$7.76699 + 4.26374I$	$-1.04971 - 4.02329I$
$u = 0.18554 + 1.42716I$	$7.76699 - 4.26374I$	$-1.04971 + 4.02329I$
$u = 0.525209 - 0.369457I$	$2.02228 + 1.65848I$	$-4.54419 - 4.72916I$
$u = 0.525209 + 0.369457I$	$2.02228 - 1.65848I$	$-4.54419 + 4.72916I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_2, c_5 c_6, c_7	$(u^{11} + u^{10} + 8u^9 + 7u^8 + 22u^7 + 16u^6 + 24u^5 + 13u^4 + 9u^3 + 3u^2 - 1)$
c_3	$(u^{11} + u^{10} + 4u^9 + u^8 + 18u^7 + 2u^6 + 26u^5 + 3u^4 + 23u^3 + u^2 + 4u - 5)$
c_4, c_8, c_9	$(u^{11} + u^{10} + 6u^9 + 5u^8 + 12u^7 + 8u^6 + 8u^5 + 3u^4 + u^3 - u^2 + 2u + 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_2, c_5 c_6, c_7	$(y^{11} + 15y^{10} + \dots + 6y - 1)$
c_3	$(y^{11} + 7y^{10} + \dots + 26y - 25)$
c_4, c_8, c_9	$(y^{11} + 11y^{10} + \dots + 6y - 1)$