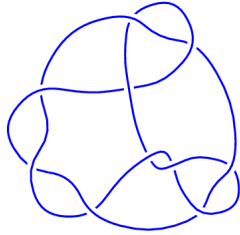
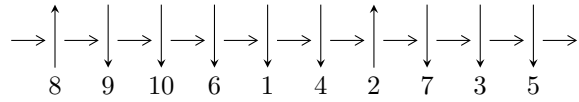


10₃₉ (K10a₂₆)

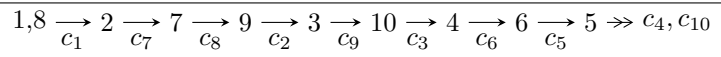


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{30} + u^{29} + \dots + u - 1 \rangle$$

There are 1 irreducible components with 30 representations.

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

$$\mathbf{I. } I_1^u = \langle u^{30} + u^{29} + \cdots + u - 1 \rangle$$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^8 + 2u^6 + 2u^4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^9 + 2u^7 + u^5 - 2u^3 - u \\ -u^{11} - 3u^9 - 4u^7 - u^5 + u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{12} + 3u^{10} + 3u^8 - 2u^6 - 4u^4 - u^2 + 1 \\ -u^{14} - 4u^{12} - 7u^{10} - 4u^8 + 2u^6 + 4u^4 + u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^{23} - 6u^{21} - 16u^{19} - 20u^{17} - 4u^{15} + 22u^{13} + 26u^{11} + 6u^9 - 9u^7 - 6u^5 \\ u^{25} + 7u^{23} + \cdots + 2u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{25} + 6u^{23} + \cdots + 2u^3 + u \\ u^{25} + 7u^{23} + \cdots + 2u^3 + u \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes

$$\begin{aligned} &= -4u^{29} - 4u^{28} - 32u^{27} - 28u^{26} - 120u^{25} - 96u^{24} - 260u^{23} - 196u^{22} - 332u^{21} - \\ &256u^{20} - 196u^{19} - 204u^{18} + 76u^{17} - 72u^{16} + 224u^{15} + 52u^{14} + 136u^{13} + 108u^{12} - \\ &12u^{11} + 100u^{10} - 60u^9 + 44u^8 - 32u^7 - 12u^6 - 8u^5 - 24u^4 + 8u^3 - 12u^2 + 8u - 10 \end{aligned}$$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.856648$	-7.57426	-11.4922
$u = -0.851057 - 0.073998I$	$-3.41555 - 6.72016I$	$-7.40084 + 4.93754I$
$u = -0.851057 + 0.073998I$	$-3.41555 + 6.72016I$	$-7.40084 - 4.93754I$
$u = -0.517153 - 0.543315I$	$2.71504 + 2.05267I$	$-1.58203 - 3.48780I$
$u = -0.517153 + 0.543315I$	$2.71504 - 2.05267I$	$-1.58203 + 3.48780I$
$u = -0.496075 - 1.226990I$	$-6.86248 + 11.58952I$	$-10.39391 - 7.89908I$
$u = -0.496075 + 1.226990I$	$-6.86248 - 11.58952I$	$-10.39391 + 7.89908I$
$u = -0.486868 - 0.916512I$	$1.67645 + 2.06909I$	$-4.15841 - 3.38718I$
$u = -0.486868 + 0.916512I$	$1.67645 - 2.06909I$	$-4.15841 + 3.38718I$
$u = -0.462371 - 1.241173I$	$-11.30754 + 4.69703I$	$-14.6642 - 3.2976I$
$u = -0.462371 + 1.241173I$	$-11.30754 - 4.69703I$	$-14.6642 + 3.2976I$
$u = -0.420533 - 1.243284I$	$-7.40758 - 2.28828I$	$-11.38974 + 1.78470I$
$u = -0.420533 + 1.243284I$	$-7.40758 + 2.28828I$	$-11.38974 - 1.78470I$
$u = -0.272716 - 0.834978I$	$-0.50312 + 1.32269I$	$-5.12281 - 4.79072I$
$u = -0.272716 + 0.834978I$	$-0.50312 - 1.32269I$	$-5.12281 + 4.79072I$
$u = 0.095027 - 1.028252I$	$-1.75153 + 2.04857I$	$-11.94351 - 2.92796I$
$u = 0.095027 + 1.028252I$	$-1.75153 - 2.04857I$	$-11.94351 + 2.92796I$
$u = 0.336716 - 1.031389I$	$-3.63670 - 2.97945I$	$-13.9208 + 5.3409I$
$u = 0.336716 + 1.031389I$	$-3.63670 + 2.97945I$	$-13.9208 - 5.3409I$
$u = 0.429988 - 1.221647I$	$-5.74978 - 2.99724I$	$-8.94829 + 3.11480I$
$u = 0.429988 + 1.221647I$	$-5.74978 + 2.99724I$	$-8.94829 - 3.11480I$
$u = 0.441992$	-1.05262	-9.30023
$u = 0.484811 - 1.215224I$	$-5.35554 - 6.07028I$	$-8.34155 + 3.40396I$
$u = 0.484811 + 1.215224I$	$-5.35554 + 6.07028I$	$-8.34155 - 3.40396I$
$u = 0.500817 - 0.966472I$	$1.01456 - 7.42449I$	$-6.02063 + 8.82247I$
$u = 0.500817 + 0.966472I$	$1.01456 + 7.42449I$	$-6.02063 - 8.82247I$
$u = 0.552271 - 0.456360I$	$2.42981 + 3.18388I$	$-2.48294 - 3.33039I$
$u = 0.552271 + 0.456360I$	$2.42981 - 3.18388I$	$-2.48294 + 3.33039I$
$u = 0.814472 - 0.061657I$	$-1.94581 + 1.35458I$	$-5.23413 - 0.23076I$
$u = 0.814472 + 0.061657I$	$-1.94581 - 1.35458I$	$-5.23413 + 0.23076I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_7	$(u^{30} + u^{29} + \dots + u - 1)$
c_2, c_3, c_9	$(u^{30} + u^{29} + \dots + 7u - 1)$
c_4, c_6	$(u^{30} + 11u^{29} + \dots + u + 1)$
c_5, c_{10}	$(u^{30} + u^{29} + \dots + u - 1)$
c_8	$(u^{30} + 17u^{29} + \dots - u + 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_7	$(y^{30} + 17y^{29} + \dots - y + 1)$
c_2, c_3, c_9	$(y^{30} - 31y^{29} + \dots - 49y + 1)$
c_4, c_6	$(y^{30} + 17y^{29} + \dots + 7y + 1)$
c_5, c_{10}	$(y^{30} - 11y^{29} + \dots - y + 1)$
c_8	$(y^{30} - 7y^{29} + \dots - 25y + 1)$