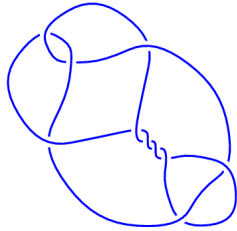
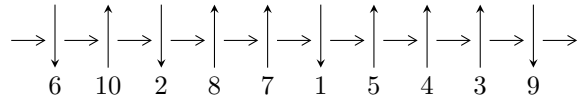


10₃₅ (K10a₂₃)

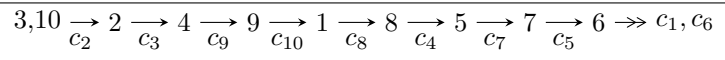


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{24} - u^{23} + \dots + 2u + 1 \rangle$$

There are 1 irreducible components with 24 representations.

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

$$\text{I. } \Gamma_1^u = \langle u^{24} - u^{23} + \cdots + 2u + 1 \rangle$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

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

$$a_8 = \begin{pmatrix} -u^7 - 2u^5 - 2u^3 - 2u \\ -u^9 - u^7 - u^5 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{12} + 3u^{10} + 5u^8 + 6u^6 + 4u^4 + 3u^2 + 1 \\ u^{14} + 2u^{12} + 3u^{10} + 2u^8 - u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{17} - 4u^{15} - 9u^{13} - 14u^{11} - 15u^9 - 14u^7 - 10u^5 - 6u^3 - 3u \\ -u^{19} - 3u^{17} - 6u^{15} - 7u^{13} - 5u^{11} - 3u^9 + u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{22} + 5u^{20} + \cdots + 6u^2 + 1 \\ u^{23} - u^{22} + \cdots - 2u - 1 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes

$$= -4u^{22} + 4u^{21} - 16u^{20} + 16u^{19} - 44u^{18} + 40u^{17} - 76u^{16} + 68u^{15} - 100u^{14} + 84u^{13} - 104u^{12} + 92u^{11} - 84u^{10} + 80u^9 - 68u^8 + 68u^7 - 32u^6 + 48u^5 - 16u^4 + 20u^3 + 16u + 6$$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.796791 - 0.499576I$	$-6.63583 + 1.57218I$	$0.12166 - 2.29522I$
$u = -0.796791 + 0.499576I$	$-6.63583 - 1.57218I$	$0.12166 + 2.29522I$
$u = -0.646340 - 1.071004I$	$-8.32116 + 3.84160I$	$-2.22402 - 2.38554I$
$u = -0.646340 + 1.071004I$	$-8.32116 - 3.84160I$	$-2.22402 + 2.38554I$
$u = -0.594609 - 0.955867I$	$-0.63403 + 3.08008I$	$-2.04297 - 2.82964I$
$u = -0.594609 + 0.955867I$	$-0.63403 - 3.08008I$	$-2.04297 + 2.82964I$
$u = -0.528833 - 0.750384I$	$0.10636 + 1.48443I$	$-1.33713 - 3.68159I$
$u = -0.528833 + 0.750384I$	$0.10636 - 1.48443I$	$-1.33713 + 3.68159I$
$u = -0.363279 - 0.314457I$	$0.204139 + 1.110190I$	$3.08627 - 5.87957I$
$u = -0.363279 + 0.314457I$	$0.204139 - 1.110190I$	$3.08627 + 5.87957I$
$u = -0.072875 - 0.970800I$	$-3.49325 + 2.24409I$	$-5.16388 - 4.25877I$
$u = -0.072875 + 0.970800I$	$-3.49325 - 2.24409I$	$-5.16388 + 4.25877I$
$u = -0.010886 - 1.154687I$	$-12.40929 + 3.30322I$	$-5.60088 - 2.43434I$
$u = -0.010886 + 1.154687I$	$-12.40929 - 3.30322I$	$-5.60088 + 2.43434I$
$u = 0.661510 - 1.069177I$	$-8.06054 - 10.39450I$	$-1.68269 + 7.07233I$
$u = 0.661510 + 1.069177I$	$-8.06054 + 10.39450I$	$-1.68269 - 7.07233I$
$u = 0.664372 - 0.974834I$	$0.78944 - 7.34378I$	$2.03585 + 8.70536I$
$u = 0.664372 + 0.974834I$	$0.78944 + 7.34378I$	$2.03585 - 8.70536I$
$u = 0.679491 - 0.850026I$	$3.76737 - 2.61939I$	$8.11481 + 3.60921I$
$u = 0.679491 + 0.850026I$	$3.76737 + 2.61939I$	$8.11481 - 3.60921I$
$u = 0.698704 - 0.680933I$	$1.66329 + 2.08350I$	$4.24893 - 3.59251I$
$u = 0.698704 + 0.680933I$	$1.66329 - 2.08350I$	$4.24893 + 3.59251I$
$u = 0.809538 - 0.528973I$	$-6.45491 + 4.87894I$	$0.44407 - 2.58342I$
$u = 0.809538 + 0.528973I$	$-6.45491 - 4.87894I$	$0.44407 + 2.58342I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_6	$(u^{24} + u^{23} + \cdots + 2u + 1)$
c_2, c_9	$(u^{24} + u^{23} + \cdots - 2u + 1)$
c_3, c_{10}	$(u^{24} + 9u^{23} + \cdots + 4u + 1)$
c_4, c_5, c_7 c_8	$(u^{24} + 5u^{23} + \cdots + 4u + 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_6	$(y^{24} + 5y^{23} + \dots + 4y + 1)$
c_2, c_9	$(y^{24} + 9y^{23} + \dots + 4y + 1)$
c_3, c_{10}	$(y^{24} + 13y^{23} + \dots + 44y + 1)$
c_4, c_5, c_7 c_8	$(y^{24} + 29y^{23} + \dots + 20y + 1)$