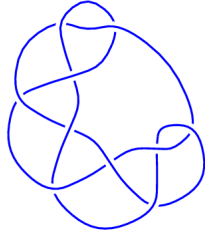
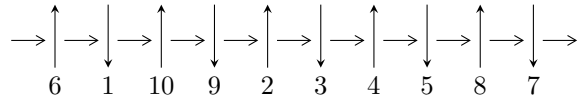


10₄₅ (K10a₂₅)

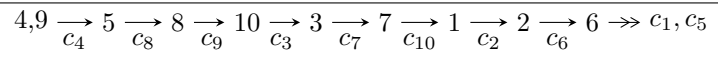


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{44} + u^{43} + \dots + 2u + 1 \rangle$$

There are 1 irreducible components with 44 representations.

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

$$\text{I. } \Gamma_1^u = \langle u^{44} + u^{43} + \dots + 2u + 1 \rangle$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^8 + u^6 + u^4 + 1 \\ u^{10} + 2u^8 + 3u^6 + 2u^4 + u^2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -u^{11} - 2u^9 - 2u^7 + u^3 \\ u^{11} + 3u^9 + 4u^7 + 3u^5 + u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{32} + 7u^{30} + \dots + 2u^{12} + 1 \\ -u^{32} - 8u^{30} + \dots - 12u^8 - 4u^6 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{21} + 4u^{19} + 9u^{17} + 12u^{15} + 12u^{13} + 10u^{11} + 9u^9 + 6u^7 + 3u^5 + u \\ u^{23} + 5u^{21} + \dots + 2u^3 + u \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $-4u^{43} - 4u^{42} + \dots - 12u - 6$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.764138 - 0.339961I$	$-2.30812 + 8.68200I$	$-3.24304 - 6.31705I$
$u = -0.764138 + 0.339961I$	$-2.30812 - 8.68200I$	$-3.24304 + 6.31705I$
$u = -0.721497 - 0.387567I$	$-4.35508 + 1.04298I$	$-6.65567 - 0.28795I$
$u = -0.721497 + 0.387567I$	$-4.35508 - 1.04298I$	$-6.65567 + 0.28795I$
$u = -0.633616 - 0.150714I$	$0.14884 - 2.53826I$	$-0.24501 + 3.05915I$
$u = -0.633616 + 0.150714I$	$0.14884 + 2.53826I$	$-0.24501 - 3.05915I$
$u = -0.603028 - 0.598100I$	$-1.27162 - 1.94114I$	$-1.79245 + 3.31415I$
$u = -0.603028 + 0.598100I$	$-1.27162 + 1.94114I$	$-1.79245 - 3.31415I$
$u = -0.570711 - 1.124896I$	$-13.7161I$	$10.0128I$
$u = -0.570711 + 1.124896I$	$13.7161I$	$-10.0128I$
$u = -0.568139 - 1.097595I$	$-2.27286 - 5.97235I$	$-3.25101 + 4.61402I$
$u = -0.568139 + 1.097595I$	$-2.27286 + 5.97235I$	$-3.25101 - 4.61402I$
$u = -0.525013 - 0.980467I$	$-0.14884 - 2.53826I$	$0.24501 + 3.05915I$
$u = -0.525013 + 0.980467I$	$-0.14884 + 2.53826I$	$0.24501 - 3.05915I$
$u = -0.494931 - 1.113463I$	$2.75664 - 1.75570I$	$3.52773 + 0.85914I$
$u = -0.494931 + 1.113463I$	$2.75664 + 1.75570I$	$3.52773 - 0.85914I$
$u = -0.358424 - 1.122989I$	$3.67003 - 5.88530I$	$4.74516 + 6.36553I$
$u = -0.358424 + 1.122989I$	$3.67003 + 5.88530I$	$4.74516 - 6.36553I$
$u = -0.326591 - 0.684448I$	$-1.50871I$	$4.89247I$
$u = -0.326591 + 0.684448I$	$1.50871I$	$-4.89247I$
$u = -0.228645 - 1.128367I$	$2.27286 + 5.97235I$	$3.25101 - 4.61402I$
$u = -0.228645 + 1.128367I$	$2.27286 - 5.97235I$	$3.25101 + 4.61402I$
$u = -0.219635 - 1.024162I$	$-1.08070I$	$1.29853I$
$u = -0.219635 + 1.024162I$	$1.08070I$	$-1.29853I$
$u = 0.254705 - 1.115021I$	$4.35508 - 1.04298I$	$6.65567 + 0.28795I$
$u = 0.254705 + 1.115021I$	$4.35508 + 1.04298I$	$6.65567 - 0.28795I$
$u = 0.323792 - 1.114602I$	$5.06451 + 1.08737I$	$7.53766 - 0.51091I$
$u = 0.323792 + 1.114602I$	$5.06451 - 1.08737I$	$7.53766 + 0.51091I$
$u = 0.523186 - 1.116827I$	$3.71248 + 6.51845I$	$4.95829 - 6.88419I$
$u = 0.523186 + 1.116827I$	$3.71248 - 6.51845I$	$4.95829 + 6.88419I$

	Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.560153 - 1.120389I$	$2.30812 + 8.68200I$	$3.24304 - 6.31705I$
$u =$	$0.560153 + 1.120389I$	$2.30812 - 8.68200I$	$3.24304 + 6.31705I$
$u =$	$0.567171 - 0.946930I$	$-2.75664 - 1.75570I$	$-3.52773 + 0.85914I$
$u =$	$0.567171 + 0.946930I$	$-2.75664 + 1.75570I$	$-3.52773 - 0.85914I$
$u =$	$0.570170 - 1.011785I$	$-3.67003 + 5.88530I$	$-4.74516 - 6.36553I$
$u =$	$0.570170 + 1.011785I$	$-3.67003 - 5.88530I$	$-4.74516 + 6.36553I$
$u =$	$0.651337 - 0.622116I$	$-3.71248 + 6.51845I$	$-4.95829 - 6.88419I$
$u =$	$0.651337 + 0.622116I$	$-3.71248 - 6.51845I$	$-4.95829 + 6.88419I$
$u =$	$0.662694 - 0.538070I$	$-5.06451 - 1.08737I$	$-7.53766 + 0.51091I$
$u =$	$0.662694 + 0.538070I$	$-5.06451 + 1.08737I$	$-7.53766 - 0.51091I$
$u =$	$0.663842 - 0.251119I$	$1.27162 - 1.94114I$	$1.79245 + 3.31415I$
$u =$	$0.663842 + 0.251119I$	$1.27162 + 1.94114I$	$1.79245 - 3.31415I$
$u =$	$0.737315 - 0.329710I$	$-3.75579I$	$2.66459I$
$u =$	$0.737315 + 0.329710I$	$3.75579I$	$-2.66459I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_4, c_5 c_8	$(u^{44} + u^{43} + \dots + 2u + 1)$
c_2, c_9	$(u^{44} + 21u^{43} + \dots + 2u + 1)$
c_3, c_{10}	$(u^{44} + 5u^{43} + \dots + 82u + 13)$
c_6, c_7	$(u^{44} + u^{43} + \dots + 68u + 17)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4, c_5 c_8	$(y^{44} + 21y^{43} + \dots + 2y + 1)$
c_2, c_9	$(y^{44} + 5y^{43} + \dots + 6y + 1)$
c_3, c_{10}	$(y^{44} + 9y^{43} + \dots + 5314y + 169)$
c_6, c_7	$(y^{44} - 11y^{43} + \dots - 4794y + 289)$