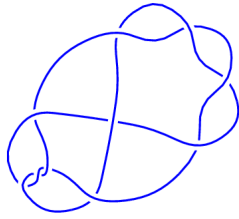
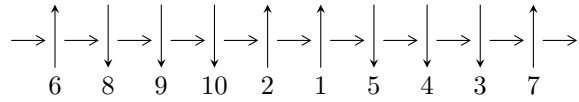


10₁₆ (K10a₁₁₅)

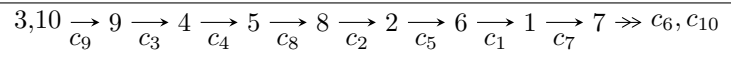


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{23} + u^{22} + \dots + 2u + 1 \rangle$$

There are 1 irreducible components with 23 representations.

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

$$\text{I. } \Gamma_1^u = \langle u^{23} + u^{22} + \cdots + 2u + 1 \rangle$$

(i) Arc colorings

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

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

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

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} u^{16} + 7u^{14} + 19u^{12} + 22u^{10} + 3u^8 - 14u^6 - 6u^4 + 4u^2 + 1 \\ u^{16} + 6u^{14} + 14u^{12} + 14u^{10} + 2u^8 - 6u^6 - 2u^4 + 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^{19} + 8u^{17} + 26u^{15} + 40u^{13} + 19u^{11} - 24u^9 - 30u^7 + 9u^3 \\ u^{21} + 9u^{19} + \cdots + 3u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^9 - 4u^7 - 5u^5 + 3u \\ -u^{11} - 5u^9 - 8u^7 - 3u^5 + 3u^3 + u \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes

$$= -4u^{22} - 4u^{21} - 36u^{20} - 32u^{19} - 132u^{18} - 104u^{17} - 236u^{16} - 164u^{15} - 160u^{14} - 100u^{13} + 108u^{12} + 44u^{11} + 224u^{10} + 84u^9 + 48u^8 + 28u^7 - 80u^6 + 8u^5 - 24u^4 + 8u^2 - 16u - 6$$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.833290 - 0.100941I$	$-12.38016 - 5.22748I$	$-9.66631 + 3.33432I$
$u = -0.833290 + 0.100941I$	$-12.38016 + 5.22748I$	$-9.66631 - 3.33432I$
$u = -0.717171$	-2.00773	-4.01170
$u = -0.385250 - 1.158797I$	$-9.14246 + 0.83337I$	$-6.62647 + 0.43888I$
$u = -0.385250 + 1.158797I$	$-9.14246 - 0.83337I$	$-6.62647 - 0.43888I$
$u = -0.367126 - 1.335770I$	$-7.87123 - 9.54664I$	$-5.28748 + 5.57899I$
$u = -0.367126 + 1.335770I$	$-7.87123 + 9.54664I$	$-5.28748 - 5.57899I$
$u = -0.298297 - 1.284851I$	$2.00599 - 3.66457I$	$0.82434 + 2.67133I$
$u = -0.298297 + 1.284851I$	$2.00599 + 3.66457I$	$0.82434 - 2.67133I$
$u = -0.223948 - 0.344528I$	$-0.140168 - 0.925919I$	$-2.94249 + 7.44214I$
$u = -0.223948 + 0.344528I$	$-0.140168 + 0.925919I$	$-2.94249 - 7.44214I$
$u = -0.039073 - 1.333054I$	$4.96840 - 1.68040I$	$2.82272 + 4.29991I$
$u = -0.039073 + 1.333054I$	$4.96840 + 1.68040I$	$2.82272 - 4.29991I$
$u = 0.116711 - 1.367359I$	$-1.46467 + 3.53591I$	$-1.36507 - 3.24061I$
$u = 0.116711 + 1.367359I$	$-1.46467 - 3.53591I$	$-1.36507 + 3.24061I$
$u = 0.313551 - 1.193895I$	$-0.817157 + 0.745308I$	$-5.08009 + 0.73522I$
$u = 0.313551 + 1.193895I$	$-0.817157 - 0.745308I$	$-5.08009 - 0.73522I$
$u = 0.337825 - 1.317982I$	$0.16340 + 7.25342I$	$-3.09734 - 7.25802I$
$u = 0.337825 + 1.317982I$	$0.16340 - 7.25342I$	$-3.09734 + 7.25802I$
$u = 0.458650 - 0.443050I$	$-7.11725 + 1.68405I$	$-6.35516 - 3.83025I$
$u = 0.458650 + 0.443050I$	$-7.11725 - 1.68405I$	$-6.35516 + 3.83025I$
$u = 0.778833 - 0.078232I$	$-4.21185 + 3.22031I$	$-8.22079 - 4.90443I$
$u = 0.778833 + 0.078232I$	$-4.21185 - 3.22031I$	$-8.22079 + 4.90443I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_5, c_6 c_{10}	$(u^{23} + u^{22} + \dots - 2u - 1)$
c_2, c_4	$(u^{23} + u^{22} + \dots + 4u - 5)$
c_3, c_8, c_9	$(u^{23} + u^{22} + \dots + 2u + 1)$
c_7	$(u^{23} + 7u^{22} + \dots + 40u + 17)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5, c_6 c_{10}	$(y^{23} + 27y^{22} + \dots - 4y - 1)$
c_2, c_4	$(y^{23} - 17y^{22} + \dots - 144y - 25)$
c_3, c_8, c_9	$(y^{23} + 19y^{22} + \dots - 4y - 1)$
c_7	$(y^{23} - 9y^{22} + \dots + 1260y - 289)$