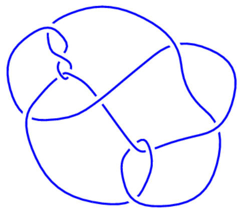
$11a_{117}$ $(K11a_{117})$



[1]

Arc Sequences

$$\rightarrow \downarrow 5 \rightarrow \downarrow 1 \rightarrow \downarrow 9 \rightarrow \downarrow 7 \rightarrow \downarrow 2 \rightarrow \uparrow 11 \rightarrow \downarrow 3 \rightarrow \downarrow 10 \rightarrow \downarrow 4 \rightarrow \downarrow 8 \rightarrow \uparrow 6 \rightarrow$$

Solving Sequence

$$1{,}5 \xrightarrow[c_1]{} 2 \xrightarrow[c_2]{} 3 \xrightarrow[c_5]{} 6 \xrightarrow[c_{11}]{} 11 \xrightarrow[c_6]{} 7 \xrightarrow[c_7]{} 8 \xrightarrow[c_4]{} 4 \xrightarrow[c_{10}]{} 10 \xrightarrow[c_9]{} 9 \twoheadrightarrow c_3, c_8$$

Representation Ideals

$$I = \bigcap_{i=1}^{2} I_i^u$$

$$I_1^u = \langle u - 1 \rangle$$
$$I_2^u = \langle u^{57} + 2u^{56} + \cdots + 4u + 1 \rangle$$

There are 2 irreducible components with 58 representations.

[1]The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

I. $I_1^u = \langle u - 1 \rangle$

(i) Arc colorings

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

$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$

$a_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$

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

$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_7 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

$a_8 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$

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

$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$ 1.00000	-4.93480	-18.0000

II. $I_2^u = \langle u^{57} + 2u^{56} + \cdots + 4u + 1 \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^4 - u^2 + 1 \\ u^6 - 2u^4 + u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^7 + 2u^5 - 2u^3 \\ -u^9 + 3u^7 - 3u^5 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{13} - 4u^{11} + 7u^9 - 6u^7 + 2u^5 - u \\ -u^{13} + 3u^{11} - 5u^9 + 4u^7 - 2u^5 - u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{15} - 4u^{13} + 8u^{11} - 8u^9 + 4u^7 \\ u^{17} - 5u^{15} + 11u^{13} - 12u^{11} + 5u^9 + 2u^7 - 2u^5 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{32} - 9u^{30} + \cdots - 4u^6 + 1 \\ -u^{32} + 8u^{30} + \cdots - 12u^8 + 4u^6 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^{51} - 14u^{49} + \cdots + u^3 - 2u \\ -u^{51} + 13u^{49} + \cdots - u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^{51} - 14u^{49} + \cdots + u^3 - 2u \\ -u^{51} + 13u^{49} + \cdots - u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.198103 - 0.370055I$	$-2.82122 + 0.17822I$	$-9.30180 + 0.92787I$
$u = -1.198103 + 0.370055I$	$-2.82122 - 0.17822I$	$-9.30180 - 0.92787I$
$u = -1.194415 - 0.499684I$	$-8.19464 - 8.71399I$	$-14.9601 + 7.0373I$
$u = -1.194415 + 0.499684I$	$-8.19464 + 8.71399I$	$-14.9601 - 7.0373I$
$u = -1.193889 - 0.471955I$	$-5.94721 - 2.57635I$	$-12.85921 + 0.57296I$
$u = -1.193889 + 0.471955I$	$-5.94721 + 2.57635I$	$-12.85921 - 0.57296I$
$u = -1.190799 - 0.516494I$	$-2.8518 - 14.5970I$	$-9.45364 + 10.00788I$
$u = -1.190799 + 0.516494I$	$-2.8518 + 14.5970I$	$-9.45364 - 10.00788I$
$u = -1.180172 - 0.409792I$	$-4.63162 - 1.95472I$	$-9.48412 + 0.54946I$
$u = -1.180172 + 0.409792I$	$-4.63162 + 1.95472I$	$-9.48412 - 0.54946I$
$u = -1.102494 - 0.477153I$	$0.600300 - 0.796809I$	$-6.41411 + 0.90185I$
$u = -1.102494 + 0.477153I$	$0.600300 + 0.796809I$	$-6.41411 - 0.90185I$
$u = -0.976200 - 0.175447I$	$-0.260427 - 0.093386I$	$-10.10428 + 0.75716I$
$u = -0.976200 + 0.175447I$	$-0.260427 + 0.093386I$	$-10.10428 - 0.75716I$
$u = -0.871162 - 0.481731I$	$-1.78928 - 4.12553I$	$-10.51550 + 7.67121I$
$u = -0.871162 + 0.481731I$	$-1.78928 + 4.12553I$	$-10.51550 - 7.67121I$
$u = -0.854260 - 0.553633I$	$3.54472 - 9.12902I$	$-4.29187 + 9.35832I$
$u = -0.854260 + 0.553633I$	$3.54472 + 9.12902I$	$-4.29187 - 9.35832I$
$u = -0.677040$	-0.929485	-11.1190
$u = -0.659353 - 0.565162I$	$4.09639 + 4.65710I$	$-2.54128 - 2.76987I$
$u = -0.659353 + 0.565162I$	$4.09639 - 4.65710I$	$-2.54128 + 2.76987I$
$u = -0.573785 - 0.409516I$	$-1.012754 + 0.227361I$	$-8.27265 - 0.51249I$
$u = -0.573785 + 0.409516I$	$-1.012754 - 0.227361I$	$-8.27265 + 0.51249I$
$u = -0.305661 - 0.608350I$	$2.89549 - 3.46679I$	$-2.84958 + 3.34170I$
$u = -0.305661 + 0.608350I$	$2.89549 + 3.46679I$	$-2.84958 - 3.34170I$
$u = -0.152096 - 0.803844I$	$0.21111 + 9.73679I$	$-6.35596 - 6.96593I$
$u = -0.152096 + 0.803844I$	$0.21111 - 9.73679I$	$-6.35596 + 6.96593I$
$u = -0.111905 - 0.792068I$	$-5.01846 + 3.97499I$	$-12.06289 - 3.93262I$
$u = -0.111905 + 0.792068I$	$-5.01846 - 3.97499I$	$-12.06289 + 3.93262I$
$u = -0.044927 - 0.773200I$	$-2.60957 - 1.93878I$	$-9.59639 + 2.80772I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.044927 + 0.773200I$	$-2.60957 + 1.93878I$	$-9.59639 - 2.80772I$
$u = 0.107682 - 0.735407I$	$-0.97923 - 1.98324I$	$-4.77053 + 3.25742I$
$u = 0.107682 + 0.735407I$	$-0.97923 + 1.98324I$	$-4.77053 - 3.25742I$
$u = 0.155610 - 0.790091I$	$1.21747 - 4.03618I$	$-4.49079 + 2.19532I$
$u = 0.155610 + 0.790091I$	$1.21747 + 4.03618I$	$-4.49079 - 2.19532I$
$u = 0.260945 - 0.634945I$	$3.29597 - 2.09703I$	$-2.01630 + 2.69781I$
$u = 0.260945 + 0.634945I$	$3.29597 + 2.09703I$	$-2.01630 - 2.69781I$
$u = 0.685277 - 0.557032I$	$4.76168 + 1.02575I$	$-1.09591 - 2.82669I$
$u = 0.685277 + 0.557032I$	$4.76168 - 1.02575I$	$-1.09591 + 2.82669I$
$u = 0.776284 - 0.476241I$	$1.34370 + 1.99239I$	$-1.22032 - 4.61457I$
$u = 0.776284 + 0.476241I$	$1.34370 - 1.99239I$	$-1.22032 + 4.61457I$
$u = 0.836048 - 0.550317I$	$4.33306 + 3.41463I$	$-2.47924 - 4.18588I$
$u = 0.836048 + 0.550317I$	$4.33306 - 3.41463I$	$-2.47924 + 4.18588I$
$u = 1.025367 - 0.120940I$	$-0.97680 + 5.27922I$	$-11.94161 - 5.93896I$
$u = 1.025367 + 0.120940I$	$-0.97680 - 5.27922I$	$-11.94161 + 5.93896I$
$u = 1.119947 - 0.489456I$	$0.82059 + 6.47261I$	$-5.87779 - 6.55868I$
$u = 1.119947 + 0.489456I$	$0.82059 - 6.47261I$	$-5.87779 + 6.55868I$
$u = 1.177444 - 0.489853I$	$-4.05781 + 6.54158I$	$-7.96493 - 6.14344I$
$u = 1.177444 + 0.489853I$	$-4.05781 - 6.54158I$	$-7.96493 + 6.14344I$
$u = 1.185351 - 0.514468I$	$-1.80837 + 8.85455I$	$-7.63497 - 5.30296I$
$u = 1.185351 + 0.514468I$	$-1.80837 - 8.85455I$	$-7.63497 + 5.30296I$
$u = 1.201971 - 0.429227I$	$-6.25189 + 6.18788I$	$-13.2886 - 6.2382I$
$u = 1.201971 + 0.429227I$	$-6.25189 - 6.18788I$	$-13.2886 + 6.2382I$
$u = 1.207108 - 0.396302I$	$-8.92696 + 0.08907I$	$-16.4359 + 0.3297I$
$u = 1.207108 + 0.396302I$	$-8.92696 - 0.08907I$	$-16.4359 - 0.3297I$
$u = 1.208705 - 0.369755I$	$-3.88380 - 5.81260I$	$-11.16022 + 3.92586I$
$u = 1.208705 + 0.369755I$	$-3.88380 + 5.81260I$	$-11.16022 - 3.92586I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_5	$(u-1)(u^{57}+2u^{56}+\cdots+4u+1)$
c_2	$(u+1)(u^{57}+30u^{56}+\cdots+2u+1)$
c_3	$(u+1)(u^{57}-9u^{55}+\cdots+2u-1)$
c_4	$(u-1)(u^{57}+8u^{56}+\cdots+4u-5)$
c_6, c_{11}	$(u)(u^{57}+3u^{56}+\cdots+192u+23)$
c_7	$(u-1)(u^{57}+2u^{56}+\cdots+170u+25)$
c_8, c_{10}	$(u+1)(u^{57}+18u^{56}+\cdots+2u+1)$
c_9	$(u+1)(u^{57}-9u^{55}+\cdots+2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5	$(y-1)(y^{57} - 30y^{56} + \cdots + 2y - 1)$
c_2	$(y-1)(y^{57} - 6y^{56} + \cdots + 10y - 1)$
c_3	$(y-1)(y^{57} - 18y^{56} + \cdots + 2y - 1)$
c_4	$(y-1)(y^{57} + 6y^{56} + \cdots - 1114y - 25)$
c_6, c_{11}	$(y)(y^{57} + 45y^{56} + \cdots - 20314y - 529)$
c_7	$(y-1)(y^{57} - 6y^{56} + \cdots + 20350y - 625)$
c_8, c_{10}	$(y-1)(y^{57} + 42y^{56} + \cdots + 26y - 1)$
c_9	$(y-1)(y^{57} - 18y^{56} + \cdots + 2y - 1)$