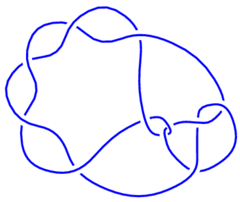
$11a_{55}$ $(K11a_{55})$



[1]

Arc Sequences

↓	↓	↓	↓	↑	↑	↑	↓	↑	↑	↑
4	1	8	2	10	11	9	3	5	6	7

Solving Sequence

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

Representation Ideals

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

$I_1^u = \langle b^2 + b - 1,\ -b + a,\ u - 1\rangle$
$I_2^u = \langle u^{37} - 3u^{36} + \cdots - 2u + 1,\ 5u^{36} - 12u^{35} + \cdots + 2a - 5,\ 5u^{36} - 14u^{35} + \cdots + 2b - 9\rangle$

There are 2 irreducible components with 39 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. $I_1^u = \langle b^2 + b - 1,\ -b + a,\ u - 1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} b \\ b \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} b \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -b+1 \\ 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -b+1 \\ -b \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} b \\ b \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} b \\ b \end{pmatrix}$$
$$a_8 = \begin{pmatrix} b \\ b \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.61803$ $b = -1.61803$	7.23771	5.00000
$u = 1.00000$ $a = 0.618034$ $b = 0.618034$	−0.657974	5.00000

II. $I_2^u =$
$\langle u^{37}-3u^{36}+\cdots-2u+1,\ 5u^{36}-12u^{35}+\cdots+2a-5,\ 5u^{36}-14u^{35}+\cdots+2b-9\rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} -\frac{5}{2}u^{36}+6u^{35}+\cdots-\frac{5}{2}u+\frac{5}{2} \\ -\frac{5}{2}u^{36}+7u^{35}+\cdots-\frac{9}{2}u+\frac{9}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{5}{2}u^{36}+6u^{35}+\cdots-\frac{5}{2}u+\frac{5}{2} \\ -2u^{36}+5u^{35}+\cdots-4u+3 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^{36}+u^{35}+\cdots-\frac{1}{2}u-\frac{1}{2} \\ -u^{14}+4u^{12}-2u^{11}-7u^{10}+6u^9+4u^8-8u^7+2u^6+4u^5-4u^4+u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{1}{2}u^{36}+u^{35}+\cdots-\frac{1}{2}u+\frac{1}{2} \\ -\frac{1}{2}u^{36}+u^{35}+\cdots-\frac{3}{2}u+\frac{1}{2} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{7}{2}u^{36}+8u^{35}+\cdots-\frac{9}{2}u+\frac{5}{2} \\ -\frac{1}{2}u^{36}+u^{35}+\cdots-\frac{3}{2}u+\frac{1}{2} \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -u^2+1 \\ -u^2 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -\frac{11}{2}u^{36}+12u^{35}+\cdots-\frac{15}{2}u+\frac{9}{2} \\ -\frac{9}{2}u^{36}+9u^{35}+\cdots-\frac{11}{2}u+\frac{9}{2} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{11}{2}u^{36}+12u^{35}+\cdots-\frac{15}{2}u+\frac{9}{2} \\ -\frac{9}{2}u^{36}+9u^{35}+\cdots-\frac{11}{2}u+\frac{9}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.292490 - 0.226502I$ $a = -1.266095 + 0.175912I$ $b = -1.88132 - 0.28860I$	$7.80383 + 2.56815I$	$4.68234 - 2.67332I$
$u = -1.292490 + 0.226502I$ $a = -1.266095 - 0.175912I$ $b = -1.88132 + 0.28860I$	$7.80383 - 2.56815I$	$4.68234 + 2.67332I$
$u = -1.202165 - 0.240427I$ $a = 0.698801 + 0.075518I$ $b = 1.054060 + 0.770930I$	$-1.03449 + 1.41041I$	$2.89217 - 4.96755I$
$u = -1.202165 + 0.240427I$ $a = 0.698801 - 0.075518I$ $b = 1.054060 - 0.770930I$	$-1.03449 - 1.41041I$	$2.89217 + 4.96755I$
$u = -1.107221 - 0.345026I$ $a = -0.093196 - 0.419052I$ $b = -0.20139 - 1.59348I$	$-3.33947 - 1.17576I$	$-4.43128 + 1.03066I$
$u = -1.107221 + 0.345026I$ $a = -0.093196 + 0.419052I$ $b = -0.20139 + 1.59348I$	$-3.33947 + 1.17576I$	$-4.43128 - 1.03066I$
$u = -1.068482 - 0.534952I$ $a = 1.234777 - 0.686344I$ $b = 1.32008 - 2.75090I$	$8.52780 - 5.28278I$	$4.22428 + 3.63452I$
$u = -1.068482 + 0.534952I$ $a = 1.234777 + 0.686344I$ $b = 1.32008 + 2.75090I$	$8.52780 + 5.28278I$	$4.22428 - 3.63452I$
$u = -1.065336 - 0.455792I$ $a = -0.600494 + 0.534236I$ $b = -0.66421 + 2.20189I$	$-0.53133 - 3.88210I$	$2.57643 + 5.18911I$
$u = -1.065336 + 0.455792I$ $a = -0.600494 - 0.534236I$ $b = -0.66421 - 2.20189I$	$-0.53133 + 3.88210I$	$2.57643 - 5.18911I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.895459$ $a = \ \ 0.225285$ $b = -0.328595$	-1.30402	-9.26699
$u = -0.413609 - 0.613148I$ $a = \ \ 1.30913 - 1.85786I$ $b = -0.995830 - 0.873919I$	$10.43059 + 0.72718I$	$6.63678 + 1.09583I$
$u = -0.413609 + 0.613148I$ $a = \ \ 1.30913 + 1.85786I$ $b = -0.995830 + 0.873919I$	$10.43059 - 0.72718I$	$6.63678 - 1.09583I$
$u = -0.346933 - 0.362873I$ $a = -1.27013 + 1.04308I$ $b = \ \ 0.729275 + 0.348350I$	$1.50853 + 0.14938I$	$6.45155 + 0.46456I$
$u = -0.346933 + 0.362873I$ $a = -1.27013 - 1.04308I$ $b = \ \ 0.729275 - 0.348350I$	$1.50853 - 0.14938I$	$6.45155 - 0.46456I$
$u = \ \ 0.264993 - 0.644063I$ $a = \ \ 0.763761 - 0.058524I$ $b = -0.455045 - 0.323893I$	$0.29596 - 1.82108I$	$2.47769 + 3.83748I$
$u = \ \ 0.264993 + 0.644063I$ $a = \ \ 0.763761 + 0.058524I$ $b = -0.455045 + 0.323893I$	$0.29596 + 1.82108I$	$2.47769 - 3.83748I$
$u = \ \ 0.291593 - 0.810846I$ $a = -0.717144 - 0.923118I$ $b = \ \ 0.572017 - 0.001336I$	$3.73036 - 4.62550I$	$7.76738 + 4.90690I$
$u = \ \ 0.291593 + 0.810846I$ $a = -0.717144 + 0.923118I$ $b = \ \ 0.572017 + 0.001336I$	$3.73036 + 4.62550I$	$7.76738 - 4.90690I$
$u = \ \ 0.303756 - 0.900467I$ $a = \ \ 0.65488 + 1.67244I$ $b = -0.688101 + 0.324075I$	$13.1327 - 6.1887I$	$8.61498 + 3.29397I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.303756 + 0.900467I$ $a = 0.65488 - 1.67244I$ $b = -0.688101 - 0.324075I$	$13.1327 + 6.1887I$	$8.61498 - 3.29397I$
$u = 0.524588 - 0.440300I$ $a = 0.145703 + 0.839859I$ $b = 0.523657 + 0.627013I$	$1.20413 + 1.03970I$	$6.27276 - 4.95197I$
$u = 0.524588 + 0.440300I$ $a = 0.145703 - 0.839859I$ $b = 0.523657 - 0.627013I$	$1.20413 - 1.03970I$	$6.27276 + 4.95197I$
$u = 0.765250 - 0.648990I$ $a = -0.777976 - 0.766069I$ $b = -0.374237 - 0.818529I$	$6.20655 + 2.48097I$	$9.67939 - 3.72325I$
$u = 0.765250 + 0.648990I$ $a = -0.777976 + 0.766069I$ $b = -0.374237 + 0.818529I$	$6.20655 - 2.48097I$	$9.67939 + 3.72325I$
$u = 0.808570 - 0.765765I$ $a = 1.11915 + 1.07868I$ $b = 0.275422 + 1.378049I$	$16.2880 + 2.8364I$	$9.81426 - 2.86801I$
$u = 0.808570 + 0.765765I$ $a = 1.11915 - 1.07868I$ $b = 0.275422 - 1.378049I$	$16.2880 - 2.8364I$	$9.81426 + 2.86801I$
$u = 0.985925 - 0.345436I$ $a = -1.45751 - 0.44914I$ $b = -1.50123 + 0.26577I$	$7.10974 + 1.19498I$	$5.28072 - 5.41154I$
$u = 0.985925 + 0.345436I$ $a = -1.45751 + 0.44914I$ $b = -1.50123 - 0.26577I$	$7.10974 - 1.19498I$	$5.28072 + 5.41154I$
$u = 1.051550 - 0.471969I$ $a = 0.684498 - 0.105620I$ $b = 0.446515 - 1.072806I$	$-0.46634 + 2.82395I$	$2.81248 - 2.07751I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.051550 + 0.471969I$ $a = 0.684498 + 0.105620I$ $b = 0.446515 + 1.072806I$	$-0.46634 - 2.82395I$	$2.81248 + 2.07751I$
$u = 1.115345 - 0.521228I$ $a = -0.118843 + 0.497110I$ $b = 0.26744 + 1.73358I$	$-2.10926 + 6.36685I$	$-0.76306 - 6.73734I$
$u = 1.115345 + 0.521228I$ $a = -0.118843 - 0.497110I$ $b = 0.26744 - 1.73358I$	$-2.10926 - 6.36685I$	$-0.76306 + 6.73734I$
$u = 1.151514 - 0.569123I$ $a = -0.529684 - 0.596376I$ $b = -1.11367 - 2.02963I$	$1.18638 + 9.75247I$	$4.12651 - 8.53256I$
$u = 1.151514 + 0.569123I$ $a = -0.529684 + 0.596376I$ $b = -1.11367 + 2.02963I$	$1.18638 - 9.75247I$	$4.12651 + 8.53256I$
$u = 1.180879 - 0.602533I$ $a = 1.107721 + 0.652171I$ $b = 1.85086 + 2.25935I$	$10.4876 + 11.6846I$	$5.51812 - 6.88609I$
$u = 1.180879 + 0.602533I$ $a = 1.107721 - 0.652171I$ $b = 1.85086 - 2.25935I$	$10.4876 - 11.6846I$	$5.51812 + 6.88609I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^2(u^{37}+3u^{36}+\cdots-2u-1)$
c_2	$(u+1)^2(u^{37}+19u^{36}+\cdots+4u+1)$
c_3, c_8	$u^2(u^{37}+u^{36}+\cdots-3u^2-4)$
c_4	$(u+1)^2(u^{37}+3u^{36}+\cdots-2u-1)$
c_5, c_6	$(u^2-u-1)(u^{37}+2u^{36}+\cdots+u-1)$
c_7	$u^2(u^{37}+15u^{36}+\cdots-24u-16)$
c_9, c_{10}, c_{11}	$(u^2+u-1)(u^{37}+2u^{36}+\cdots+u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^2(y^{37} - 19y^{36} + \cdots + 4y - 1)$
c_2	$(y-1)^2(y^{37} + y^{36} + \cdots - 44y - 1)$
c_3, c_8	$y^2(y^{37} + 15y^{36} + \cdots - 24y - 16)$
c_5, c_6, c_9	$(y^2 - 3y + 1)(y^{37} - 48y^{36} + \cdots + 25y - 1)$
c_7	$y^2(y^{37} + 11y^{36} + \cdots + 7712y - 256)$
c_{10}	$(y^2 - 3y + 1)(y^{37} - 48y^{36} + \cdots + 25y - 1)$
c_{11}	$(y^2 - 3y + 1)(y^{37} - 48y^{36} + \cdots + 25y - 1)$