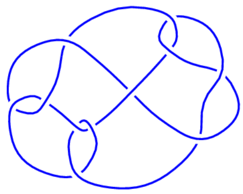
$11a_{36}$ $(K11a_{36})$



[1]

Arc Sequences

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

Solving Sequence

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

Representation Ideals

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

$I_1^u = \langle a^3 + a^2 - 1,\ u - 1,\ a^2 + b \rangle$
$I_2^u = \langle u^{63} - 4u^{62} + \cdots - 3u + 1,\ -11u^{62} + 34u^{61} + \cdots + 2a + 14,\ -21u^{62} + 65u^{61} + \cdots + 4b + 23 \rangle$

There are 2 irreducible components with 66 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. $I_1^u = \langle a^3 + a^2 - 1,\ u - 1,\ a^2 + b\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ -a^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} a^2 \\ a^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a^2 + a - 1 \\ -1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a^2 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a^2 \\ a^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} a^2 \\ a^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} a^2 \\ a^2 \end{pmatrix}$$

(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
$u = \ \ 1.00000$ $a = -0.877439 - 0.744862I$ $b = -0.215080 - 1.307141I$	$-4.66906 + 2.82812I$	$-7.71191 - 2.59975I$
$u = \ \ 1.00000$ $a = -0.877439 + 0.744862I$ $b = -0.215080 + 1.307141I$	$-4.66906 - 2.82812I$	$-7.71191 + 2.59975I$
$u = \ \ 1.00000$ $a = \ \ 0.754878$ $b = -0.569840$	-0.531480	4.42382

II. $I_2^u = \langle u^{63} - 4u^{62} + \cdots - 3u + 1,\ -11u^{62} + 34u^{61} + \cdots + 2a + 14,\ -21u^{62} + 65u^{61} + \cdots + 4b + 23 \rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{11}{2}u^{62} - 17u^{61} + \cdots + \frac{23}{2}u - 7 \\ \frac{21}{4}u^{62} - \frac{65}{4}u^{61} + \cdots + 9u - \frac{23}{4} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{41}{4}u^{62} + \frac{141}{4}u^{61} + \cdots - 25u + \frac{59}{4} \\ -\frac{31}{4}u^{62} + \frac{99}{4}u^{61} + \cdots - 17u + \frac{37}{4} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{4}u^{62} + \frac{3}{4}u^{61} + \cdots - \frac{1}{2}u + \frac{1}{4} \\ -u^{17} + 5u^{15} + \cdots - 4u^4 - u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^4 - u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{35}{4}u^{62} + \frac{119}{4}u^{61} + \cdots - 20u + \frac{53}{4} \\ \frac{1}{2}u^{62} + \frac{1}{2}u^{61} + \cdots - 2u + \frac{5}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{35}{4}u^{62} + \frac{119}{4}u^{61} + \cdots - 20u + \frac{53}{4} \\ -\frac{9}{4}u^{62} + \frac{41}{4}u^{61} + \cdots - 9u + \frac{31}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{57}{4}u^{62} + \frac{197}{4}u^{61} + \cdots - 35u + \frac{83}{4} \\ -\frac{35}{4}u^{62} + \frac{127}{4}u^{61} + \cdots - 23u + \frac{57}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{57}{4}u^{62} + \frac{197}{4}u^{61} + \cdots - 35u + \frac{83}{4} \\ -\frac{35}{4}u^{62} + \frac{127}{4}u^{61} + \cdots - 23u + \frac{57}{4} \end{pmatrix}$$

(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
$u = -1.260647 - 0.325376I$ $a = -0.872350 - 0.360942I$ $b = 0.247563 - 1.265493I$	$-6.64299 + 5.98946I$	$-3.19575 - 5.55727I$
$u = -1.260647 + 0.325376I$ $a = -0.872350 + 0.360942I$ $b = 0.247563 + 1.265493I$	$-6.64299 - 5.98946I$	$-3.19575 + 5.55727I$
$u = -1.246675 - 0.342536I$ $a = -0.391390 + 0.754108I$ $b = -0.49480 + 1.52188I$	$-7.36657 + 0.17993I$	$-4.78991 - 0.25174I$
$u = -1.246675 + 0.342536I$ $a = -0.391390 - 0.754108I$ $b = -0.49480 - 1.52188I$	$-7.36657 - 0.17993I$	$-4.78991 + 0.25174I$
$u = -1.210371 - 0.030629I$ $a = -0.701798 + 0.568033I$ $b = -0.12583 + 1.57795I$	$-3.42806 - 2.58129I$	$1.79543 + 2.34538I$
$u = -1.210371 + 0.030629I$ $a = -0.701798 - 0.568033I$ $b = -0.12583 - 1.57795I$	$-3.42806 + 2.58129I$	$1.79543 - 2.34538I$
$u = -1.182534 - 0.257010I$ $a = 0.786900 - 0.019515I$ $b = -0.777418 - 0.263774I$	$-1.01619 + 1.23564I$	$2.18804 - 4.79371I$
$u = -1.182534 + 0.257010I$ $a = 0.786900 + 0.019515I$ $b = -0.777418 + 0.263774I$	$-1.01619 - 1.23564I$	$2.18804 + 4.79371I$
$u = -1.158557 - 0.468666I$ $a = 0.785776 + 0.383079I$ $b = 1.56392 + 0.11806I$	$-7.07861 - 2.97979I$	$-4.67590 + 1.36728I$
$u = -1.158557 + 0.468666I$ $a = 0.785776 - 0.383079I$ $b = 1.56392 - 0.11806I$	$-7.07861 + 2.97979I$	$-4.67590 - 1.36728I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.148084-0.485998I$ $a=\ \ 0.503048-0.854764I$ $b=-0.79519-3.47615I$	$-6.27660-8.79934I$	$-3.04264+6.53675I$
$u=-1.148084+0.485998I$ $a=\ \ 0.503048+0.854764I$ $b=-0.79519+3.47615I$	$-6.27660+8.79934I$	$-3.04264-6.53675I$
$u=-1.143908-0.371905I$ $a=-0.122725-0.463834I$ $b=-0.536396-0.832404I$	$-3.80293-1.26646I$	$-5.80106+0.80985I$
$u=-1.143908+0.371905I$ $a=-0.122725+0.463834I$ $b=-0.536396+0.832404I$	$-3.80293+1.26646I$	$-5.80106-0.80985I$
$u=-1.081169-0.440014I$ $a=-0.726282+0.457965I$ $b=\ \ 1.10450+2.68878I$	$-0.60605-3.69700I$	$2.17014+4.90316I$
$u=-1.081169+0.440014I$ $a=-0.726282-0.457965I$ $b=\ \ 1.10450-2.68878I$	$-0.60605+3.69700I$	$2.17014-4.90316I$
$u=-0.870881$ $a=\ \ 0.270944$ $b=-0.619471$	-1.26098	-8.95538
$u=-0.817947-0.392240I$ $a=\ \ 1.109270+0.241744I$ $b=-0.03987-1.47069I$	$-2.19626+0.72911I$	$-1.158852+0.138195I$
$u=-0.817947+0.392240I$ $a=\ \ 1.109270-0.241744I$ $b=-0.03987+1.47069I$	$-2.19626-0.72911I$	$-1.158852-0.138195I$
$u=-0.706877-0.424114I$ $a=\ \ 0.541742-1.254814I$ $b=-1.84661-1.59720I$	$-1.85739-4.32227I$	$0.09659+6.54104I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.706877 + 0.424114I$ $a = 0.541742 + 1.254814I$ $b = -1.84661 + 1.59720I$	$-1.85739 + 4.32227I$	$0.09659 - 6.54104I$
$u = -0.331068 - 0.319832I$ $a = -1.49067 + 1.26115I$ $b = 1.38167 + 0.91525I$	$1.55408 + 0.10582I$	$6.26556 + 0.58371I$
$u = -0.331068 + 0.319832I$ $a = -1.49067 - 1.26115I$ $b = 1.38167 - 0.91525I$	$1.55408 - 0.10582I$	$6.26556 - 0.58371I$
$u = -0.136404 - 0.659647I$ $a = 1.35415 - 1.18055I$ $b = -0.93743 - 1.16572I$	$-3.43377 + 4.42046I$	$-0.17195 - 2.68359I$
$u = -0.136404 + 0.659647I$ $a = 1.35415 + 1.18055I$ $b = -0.93743 + 1.16572I$	$-3.43377 - 4.42046I$	$-0.17195 + 2.68359I$
$u = -0.074618 - 0.675215I$ $a = -1.02576 - 1.24925I$ $b = -0.339889 + 0.034133I$	$-4.03831 - 1.31004I$	$-1.39925 + 2.71878I$
$u = -0.074618 + 0.675215I$ $a = -1.02576 + 1.24925I$ $b = -0.339889 - 0.034133I$	$-4.03831 + 1.31004I$	$-1.39925 - 2.71878I$
$u = 0.178721 - 0.848670I$ $a = -0.750131 + 0.993339I$ $b = -0.179316 + 0.127652I$	$-2.92774 - 4.17173I$	$-0.05467 + 2.38856I$
$u = 0.178721 + 0.848670I$ $a = -0.750131 - 0.993339I$ $b = -0.179316 - 0.127652I$	$-2.92774 + 4.17173I$	$-0.05467 - 2.38856I$
$u = 0.195316 - 0.700814I$ $a = 0.819954 - 0.047781I$ $b = 0.0323524 + 0.0016528I$	$-0.08935 - 2.18002I$	$-0.08533 + 3.20984I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.195316 + 0.700814I$ $a = 0.819954 + 0.047781I$ $b = 0.0323524 - 0.0016528I$	$-0.08935 + 2.18002I$	$-0.08533 - 3.20984I$
$u = 0.198021 - 0.868774I$ $a = 1.049606 + 0.917230I$ $b = -0.95994 + 1.19007I$	$-2.02603 - 9.97382I$	$1.64006 + 7.22241I$
$u = 0.198021 + 0.868774I$ $a = 1.049606 - 0.917230I$ $b = -0.95994 - 1.19007I$	$-2.02603 + 9.97382I$	$1.64006 - 7.22241I$
$u = 0.264864 - 0.800811I$ $a = -0.559548 - 1.099467I$ $b = 0.81299 - 1.61264I$	$3.55985 - 4.49777I$	$7.47027 + 4.85592I$
$u = 0.264864 + 0.800811I$ $a = -0.559548 + 1.099467I$ $b = 0.81299 + 1.61264I$	$3.55985 + 4.49777I$	$7.47027 - 4.85592I$
$u = 0.415444 - 0.641775I$ $a = 0.100446 + 1.297986I$ $b = -0.346139 + 1.236417I$	$1.88400 + 1.11201I$	$5.93092 - 2.67876I$
$u = 0.415444 + 0.641775I$ $a = 0.100446 - 1.297986I$ $b = -0.346139 - 1.236417I$	$1.88400 - 1.11201I$	$5.93092 + 2.67876I$
$u = 0.638145 - 0.682574I$ $a = 1.192667 + 0.309590I$ $b = -0.86573 + 1.12014I$	$2.75209 - 3.26890I$	$5.78541 + 2.79593I$
$u = 0.638145 + 0.682574I$ $a = 1.192667 - 0.309590I$ $b = -0.86573 - 1.12014I$	$2.75209 + 3.26890I$	$5.78541 - 2.79593I$
$u = 0.656494 - 0.538703I$ $a = 0.012964 + 0.851835I$ $b = -0.272117 + 0.549297I$	$1.61397 + 1.37996I$	$3.33026 - 3.84355I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.656494 + 0.538703I$ $a = \ \ 0.012964 - 0.851835I$ $b = -0.272117 - 0.549297I$	$1.61397 - 1.37996I$	$3.33026 + 3.84355I$
$u = \ \ 0.742658 - 0.034260I$ $a = -1.13508 - 1.09861I$ $b = -0.366755 - 1.129166I$	$-3.99010 + 2.92514I$	$5.31377 - 3.77140I$
$u = \ \ 0.742658 + 0.034260I$ $a = -1.13508 + 1.09861I$ $b = -0.366755 + 1.129166I$	$-3.99010 - 2.92514I$	$5.31377 + 3.77140I$
$u = \ \ 0.778473 - 0.655233I$ $a = -0.764783 - 0.681937I$ $b = \ \ 1.29948 - 2.07021I$	$6.20929 + 2.51179I$	$9.63450 - 3.63863I$
$u = \ \ 0.778473 + 0.655233I$ $a = -0.764783 + 0.681937I$ $b = \ \ 1.29948 + 2.07021I$	$6.20929 - 2.51179I$	$9.63450 + 3.63863I$
$u = \ \ 0.881881 - 0.575730I$ $a = \ \ 0.840382 - 0.232270I$ $b = \ \ 0.504565 + 0.299278I$	$0.93068 + 3.11451I$	$1.81708 - 3.79797I$
$u = \ \ 0.881881 + 0.575730I$ $a = \ \ 0.840382 + 0.232270I$ $b = \ \ 0.504565 - 0.299278I$	$0.93068 - 3.11451I$	$1.81708 + 3.79797I$
$u = \ \ 0.892480 - 0.637862I$ $a = \ \ 0.390325 + 1.014433I$ $b = -1.01680 + 2.47664I$	$2.02729 + 8.31052I$	$3.92324 - 8.70014I$
$u = \ \ 0.892480 + 0.637862I$ $a = \ \ 0.390325 - 1.014433I$ $b = -1.01680 - 2.47664I$	$2.02729 - 8.31052I$	$3.92324 + 8.70014I$
$u = \ \ 1.089748 - 0.505160I$ $a = \ \ 0.852987 + 0.069193I$ $b = -0.778146 + 0.571791I$	$-0.13818 + 3.33082I$	$2.52685 - 2.17772I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.089748 + 0.505160I$ $a = 0.852987 - 0.069193I$ $b = -0.778146 - 0.571791I$	$-0.13818 - 3.33082I$	$2.52685 + 2.17772I$
$u = 1.141124 - 0.407113I$ $a = -0.964140 + 0.331926I$ $b = 0.199886 + 1.127971I$	$-6.84424 - 0.78588I$	$-3.59501 - 1.40789I$
$u = 1.141124 + 0.407113I$ $a = -0.964140 - 0.331926I$ $b = 0.199886 - 1.127971I$	$-6.84424 + 0.78588I$	$-3.59501 + 1.40789I$
$u = 1.149532 - 0.509940I$ $a = -0.143550 + 0.520988I$ $b = -0.390377 + 0.840878I$	$-2.82669 + 6.78405I$	$-3.37376 - 6.18383I$
$u = 1.149532 + 0.509940I$ $a = -0.143550 - 0.520988I$ $b = -0.390377 - 0.840878I$	$-2.82669 - 6.78405I$	$-3.37376 + 6.18383I$
$u = 1.153782 - 0.425567I$ $a = -0.368537 - 0.854079I$ $b = -0.51992 - 1.47700I$	$-7.38822 + 5.19388I$	$-4.52301 - 6.32517I$
$u = 1.153782 + 0.425567I$ $a = -0.368537 + 0.854079I$ $b = -0.51992 + 1.47700I$	$-7.38822 - 5.19388I$	$-4.52301 + 6.32517I$
$u = 1.157218 - 0.552536I$ $a = -0.676408 - 0.488559I$ $b = 1.00434 - 2.45256I$	$0.91945 + 9.52832I$	$3.69264 - 8.35881I$
$u = 1.157218 + 0.552536I$ $a = -0.676408 + 0.488559I$ $b = 1.00434 + 2.45256I$	$0.91945 - 9.52832I$	$3.69264 + 8.35881I$
$u = 1.198763 - 0.538883I$ $a = 0.754252 - 0.361327I$ $b = 1.310190 - 0.342612I$	$-5.96644 + 9.24715I$	$-3.19852 - 5.45523I$

Solution to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.198763 + 0.538883I$ $a = 0.754252 + 0.361327I$ $b = 1.310190 + 0.342612I$	$-5.96644 - 9.24715I$	$-3.19852 + 5.45523I$
$u = 1.201634 - 0.551168I$ $a = 0.463214 + 0.830081I$ $b = -0.56304 + 3.29672I$	$-5.0319 + 15.1597I$	$-1.53749 - 10.20107I$
$u = 1.201634 + 0.551168I$ $a = 0.463214 - 0.830081I$ $b = -0.56304 - 3.29672I$	$-5.0319 - 15.1597I$	$-1.53749 + 10.20107I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^3(u^{63}+4u^{62}+\cdots-3u-1)$
c_2	$(u+1)^3(u^{63}+34u^{62}+\cdots+5u+1)$
c_3, c_7	$u^3(u^{63}+u^{62}+\cdots+12u+8)$
c_4	$(u+1)^3(u^{63}+4u^{62}+\cdots-3u-1)$
c_5	$(u^3-u^2+1)(u^{63}+2u^{62}+\cdots+10u^2-1)$
c_6	$u^3(u^{63}+21u^{62}+\cdots-624u-64)$
c_8	$(u^3-u^2+2u-1)(u^{63}+2u^{62}+\cdots-18u+9)$
c_9	$(u^3+u^2+2u+1)(u^{63}+20u^{62}+\cdots+20u+1)$
c_{10}	$(u^3+u^2-1)(u^{63}+2u^{62}+\cdots+10u^2-1)$
c_{11}	$(u^3-u^2+2u-1)(u^{63}+20u^{62}+\cdots+20u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^3(y^{63} - 34y^{62} + \cdots + 5y - 1)$
c_2	$(y-1)^3(y^{63} - 6y^{62} + \cdots - 27y - 1)$
c_3, c_7	$y^3(y^{63} + 21y^{62} + \cdots - 624y - 64)$
c_5, c_{10}	$(y^3 - y^2 + 2y - 1)(y^{63} - 20y^{62} + \cdots + 20y - 1)$
c_6	$y^3(y^{63} + 37y^{62} + \cdots + 167168y - 4096)$
c_8	$(y^3 + 3y^2 + 2y - 1)(y^{63} + 12y^{62} + \cdots - 16272y - 81)$
c_9, c_{11}	$(y^3 + 3y^2 + 2y - 1)(y^{63} + 48y^{62} + \cdots + 340y - 1)$