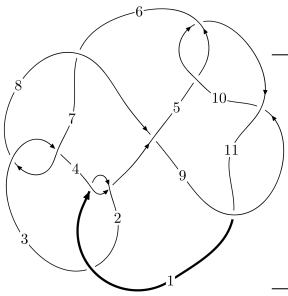
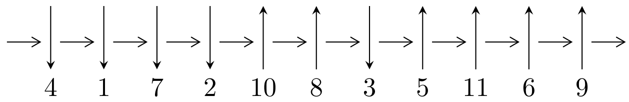
$11a_{36}$ ($K11a_{36}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

Ideals for irreducible components[2]of $X_{\mathbf{par}}$

$$I_1^u = \langle u^{62} - u^{61} + \cdots + b - 2u,\ -u^{60} + u^{59} + \cdots + a - 2,\ u^{63} - 2u^{62} + \cdots - 10u^2 + 1\rangle$$
$$I_2^u = \langle b + 1,\ a + u,\ u^3 - u^2 + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 66 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I.

$$\boldsymbol{I_1^u = \langle u^{62} - u^{61} + \cdots + b - 2u,\ -u^{60} + u^{59} + \cdots + a - 2,\ u^{63} - 2u^{62} + \cdots - 10u^2 + 1\rangle}$$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{60} - u^{59} + \cdots - 4u + 2 \\ -u^{62} + u^{61} + \cdots - 6u^2 + 2u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^{62} + u^{61} + \cdots - 4u + 3 \\ -u^{62} + u^{61} + \cdots - 7u^2 + u \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^5 - u \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{12} + u^{10} - 3u^8 + 2u^6 - 2u^4 + u^2 + 1 \\ u^{12} - 2u^{10} + 4u^8 - 4u^6 + 3u^4 - 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{62} - u^{61} + \cdots - 4u + 2 \\ -u^{62} + u^{61} + \cdots - 5u^2 + 2u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{62} - u^{61} + \cdots - 4u + 2 \\ -u^{62} + u^{61} + \cdots - 5u^2 + 2u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -11u^{62} + 14u^{61} + \cdots + 25u + 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.986745 + 0.175564I$ $a = 0.61504 - 2.83433I$ $b = -1.081170 + 0.440014I$	$-0.60605 + 3.69700I$	$2.17014 - 4.90316I$
$u = 0.986745 - 0.175564I$ $a = 0.61504 + 2.83433I$ $b = -1.081170 - 0.440014I$	$-0.60605 - 3.69700I$	$2.17014 + 4.90316I$
$u = 0.874745 + 0.474777I$ $a = 0.286938 + 1.257720I$ $b = 0.415444 - 0.641775I$	$1.88400 + 1.11201I$	$5.93092 - 2.67876I$
$u = 0.874745 - 0.474777I$ $a = 0.286938 - 1.257720I$ $b = 0.415444 + 0.641775I$	$1.88400 - 1.11201I$	$5.93092 + 2.67876I$
$u = 0.964494 + 0.355493I$ $a = -0.902672 - 0.260134I$ $b = 1.089750 + 0.505160I$	$-0.13818 - 3.33082I$	$2.52685 + 2.17772I$
$u = 0.964494 - 0.355493I$ $a = -0.902672 + 0.260134I$ $b = 1.089750 - 0.505160I$	$-0.13818 + 3.33082I$	$2.52685 - 2.17772I$
$u = -0.812502 + 0.632834I$ $a = 0.90804 - 1.10283I$ $b = -0.817947 + 0.392240I$	$-2.19626 - 0.72911I$	0
$u = -0.812502 - 0.632834I$ $a = 0.90804 + 1.10283I$ $b = -0.817947 - 0.392240I$	$-2.19626 + 0.72911I$	0
$u = -1.028670 + 0.156882I$ $a = -1.00602 + 1.41426I$ $b = 0.264864 - 0.800811I$	$3.55985 - 4.49777I$	$7.47027 + 4.85592I$
$u = -1.028670 - 0.156882I$ $a = -1.00602 - 1.41426I$ $b = 0.264864 + 0.800811I$	$3.55985 + 4.49777I$	$7.47027 - 4.85592I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.042190 + 0.029758I$ $a = -1.18918 - 2.02036I$ $b = 0.778473 + 0.655233I$	$6.20929 - 2.51179I$	$9.63450 + 3.63863I$
$u = -1.042190 - 0.029758I$ $a = -1.18918 + 2.02036I$ $b = 0.778473 - 0.655233I$	$6.20929 + 2.51179I$	$9.63450 - 3.63863I$
$u = -0.935551 + 0.179164I$ $a = 0.853660 - 0.118464I$ $b = -1.182530 + 0.257010I$	$-1.01619 - 1.23564I$	$2.18804 + 4.79371I$
$u = -0.935551 - 0.179164I$ $a = 0.853660 + 0.118464I$ $b = -1.182530 - 0.257010I$	$-1.01619 + 1.23564I$	$2.18804 - 4.79371I$
$u = -1.052700 + 0.191629I$ $a = -0.51296 - 2.42316I$ $b = 1.157220 + 0.552536I$	$0.91945 - 9.52832I$	$0. + 8.35881I$
$u = -1.052700 - 0.191629I$ $a = -0.51296 + 2.42316I$ $b = 1.157220 - 0.552536I$	$0.91945 + 9.52832I$	$0. - 8.35881I$
$u = 0.708953 + 0.814144I$ $a = -0.019906 + 0.202917I$ $b = 0.178721 - 0.848670I$	$-2.92774 - 4.17173I$	0
$u = 0.708953 - 0.814144I$ $a = -0.019906 - 0.202917I$ $b = 0.178721 + 0.848670I$	$-2.92774 + 4.17173I$	0
$u = 0.607392 + 0.688668I$ $a = 0.119031 - 0.627685I$ $b = 0.881881 + 0.575730I$	$0.93068 - 3.11451I$	$1.81708 + 3.79797I$
$u = 0.607392 - 0.688668I$ $a = 0.119031 + 0.627685I$ $b = 0.881881 - 0.575730I$	$0.93068 + 3.11451I$	$1.81708 - 3.79797I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.730831+0.812085I$ $a=-1.03790-0.99175I$ $b=-1.158560+0.468666I$	$-7.07861+2.97979I$	0
$u=-0.730831-0.812085I$ $a=-1.03790+0.99175I$ $b=-1.158560-0.468666I$	$-7.07861-2.97979I$	0
$u=0.866834+0.666035I$ $a=-0.97074-1.07449I$ $b=-1.210370+0.030629I$	$-3.42806+2.58129I$	0
$u=0.866834-0.666035I$ $a=-0.97074+1.07449I$ $b=-1.210370-0.030629I$	$-3.42806-2.58129I$	0
$u=-0.766973+0.785827I$ $a=0.238443+0.199801I$ $b=-0.074618-0.675215I$	$-4.03831-1.31004I$	0
$u=-0.766973-0.785827I$ $a=0.238443-0.199801I$ $b=-0.074618+0.675215I$	$-4.03831+1.31004I$	0
$u=0.746245+0.806063I$ $a=-1.32268-0.61068I$ $b=-1.246680+0.342536I$	$-7.36657-0.17993I$	0
$u=0.746245-0.806063I$ $a=-1.32268+0.61068I$ $b=-1.246680-0.342536I$	$-7.36657+0.17993I$	0
$u=0.709456+0.839598I$ $a=1.007390-0.709259I$ $b=1.198760+0.538883I$	$-5.96644-9.24715I$	0
$u=0.709456-0.839598I$ $a=1.007390+0.709259I$ $b=1.198760-0.538883I$	$-5.96644+9.24715I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.896870 + 0.059236I$ $a = 1.60096 + 0.91476I$ $b = -0.331068 - 0.319832I$	$1.55408 + 0.10582I$	$6.26556 + 0.58371I$
$u = 0.896870 - 0.059236I$ $a = 1.60096 - 0.91476I$ $b = -0.331068 + 0.319832I$	$1.55408 - 0.10582I$	$6.26556 - 0.58371I$
$u = -0.915129 + 0.657239I$ $a = 0.50428 + 2.10750I$ $b = -0.706877 - 0.424114I$	$-1.85739 - 4.32227I$	0
$u = -0.915129 - 0.657239I$ $a = 0.50428 - 2.10750I$ $b = -0.706877 + 0.424114I$	$-1.85739 + 4.32227I$	0
$u = -0.788679 + 0.828583I$ $a = 1.248600 - 0.560983I$ $b = 1.153780 + 0.425567I$	$-7.38822 - 5.19388I$	0
$u = -0.788679 - 0.828583I$ $a = 1.248600 + 0.560983I$ $b = 1.153780 - 0.425567I$	$-7.38822 + 5.19388I$	0
$u = 0.972413 + 0.616521I$ $a = -1.155960 - 0.419026I$ $b = 0.638145 + 0.682574I$	$2.75209 + 3.26890I$	0
$u = 0.972413 - 0.616521I$ $a = -1.155960 + 0.419026I$ $b = 0.638145 - 0.682574I$	$2.75209 - 3.26890I$	0
$u = -0.880612 + 0.777007I$ $a = 0.870304 - 0.514339I$ $b = 0.742658 + 0.034260I$	$-3.99010 - 2.92514I$	0
$u = -0.880612 - 0.777007I$ $a = 0.870304 + 0.514339I$ $b = 0.742658 - 0.034260I$	$-3.99010 + 2.92514I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.995425 + 0.656387I$ $a = 0.43151 + 2.20348I$ $b = 0.892480 - 0.637862I$	$2.02729 + 8.31052I$	0
$u = 0.995425 - 0.656387I$ $a = 0.43151 - 2.20348I$ $b = 0.892480 + 0.637862I$	$2.02729 - 8.31052I$	0
$u = -0.963455 + 0.732228I$ $a = 1.199630 - 0.298215I$ $b = -0.136404 + 0.659647I$	$-3.43377 - 4.42046I$	0
$u = -0.963455 - 0.732228I$ $a = 1.199630 + 0.298215I$ $b = -0.136404 - 0.659647I$	$-3.43377 + 4.42046I$	0
$u = 0.982283 + 0.738862I$ $a = -0.457935 - 0.943864I$ $b = -1.260650 - 0.325376I$	$-6.64299 + 5.98946I$	0
$u = 0.982283 - 0.738862I$ $a = -0.457935 + 0.943864I$ $b = -1.260650 + 0.325376I$	$-6.64299 - 5.98946I$	0
$u = -0.965072 + 0.771283I$ $a = 0.443626 - 0.814250I$ $b = 1.141120 - 0.407113I$	$-6.84424 - 0.78588I$	0
$u = -0.965072 - 0.771283I$ $a = 0.443626 + 0.814250I$ $b = 1.141120 + 0.407113I$	$-6.84424 + 0.78588I$	0
$u = -0.992955 + 0.736861I$ $a = -1.15889 + 2.64082I$ $b = -1.148080 - 0.485998I$	$-6.27660 - 8.79934I$	0
$u = -0.992955 - 0.736861I$ $a = -1.15889 - 2.64082I$ $b = -1.148080 + 0.485998I$	$-6.27660 + 8.79934I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.004710 + 0.730240I$ $a = -1.188500 - 0.320665I$ $b = 0.198021 + 0.868774I$	$-2.02603 + 9.97382I$	0
$u = 1.004710 - 0.730240I$ $a = -1.188500 + 0.320665I$ $b = 0.198021 - 0.868774I$	$-2.02603 - 9.97382I$	0
$u = 1.014130 + 0.742144I$ $a = 1.18770 + 2.38163I$ $b = 1.201630 - 0.551168I$	$-5.0319 + 15.1597I$	0
$u = 1.014130 - 0.742144I$ $a = 1.18770 - 2.38163I$ $b = 1.201630 + 0.551168I$	$-5.0319 - 15.1597I$	0
$u = 0.467397 + 0.552241I$ $a = 0.336545 + 0.777590I$ $b = 0.656494 - 0.538703I$	$1.61397 + 1.37996I$	$3.33026 - 3.84355I$
$u = 0.467397 - 0.552241I$ $a = 0.336545 - 0.777590I$ $b = 0.656494 + 0.538703I$	$1.61397 - 1.37996I$	$3.33026 + 3.84355I$
$u = 0.100658 + 0.672094I$ $a = 1.138600 + 0.751362I$ $b = 1.149530 - 0.509940I$	$-2.82669 + 6.78405I$	$-3.37376 - 6.18383I$
$u = 0.100658 - 0.672094I$ $a = 1.138600 - 0.751362I$ $b = 1.149530 + 0.509940I$	$-2.82669 - 6.78405I$	$-3.37376 + 6.18383I$
$u = 0.126664 + 0.583968I$ $a = 0.0087736 - 0.0534979I$ $b = 0.195316 + 0.700814I$	$-0.08935 + 2.18002I$	$-0.08533 - 3.20984I$
$u = 0.126664 - 0.583968I$ $a = 0.0087736 + 0.0534979I$ $b = 0.195316 - 0.700814I$	$-0.08935 - 2.18002I$	$-0.08533 + 3.20984I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.032116+0.576226I$ $a=-1.38838+1.00826I$ $b=-1.143910-0.371905I$	$-3.80293-1.26646I$	$-5.80106+0.80985I$
$u=-0.032116-0.576226I$ $a=-1.38838-1.00826I$ $b=-1.143910+0.371905I$	$-3.80293+1.26646I$	$-5.80106-0.80985I$
$u=-0.235960$ $a=\quad 2.62532$ $b=-0.870881$	-1.26098	-8.95540

II. $I_2^u = \langle b+1,\ a+u,\ u^3-u^2+1\rangle$

(i) Arc colorings

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

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

$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$

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

$a_{11} = \begin{pmatrix} u \\ -u^2+u+1 \end{pmatrix}$

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

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

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

$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$

$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2u^2 - 7u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^3$
c_2, c_4	$(u+1)^3$
c_3, c_6, c_7	u^3
c_5	$u^3 - u^2 + 1$
c_8, c_{11}	$u^3 - u^2 + 2u - 1$
c_9	$u^3 + u^2 + 2u + 1$
c_{10}	$u^3 + u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_6, c_7	y^3
c_5, c_{10}	$y^3 - y^2 + 2y - 1$
c_8, c_9, c_{11}	$y^3 + 3y^2 + 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = -0.877439 - 0.744862I$ $b = -1.00000$	$-4.66906 + 2.82812I$	$-7.71191 - 2.59975I$
$u = 0.877439 - 0.744862I$ $a = -0.877439 + 0.744862I$ $b = -1.00000$	$-4.66906 - 2.82812I$	$-7.71191 + 2.59975I$
$u = -0.754878$ $a = 0.754878$ $b = -1.00000$	-0.531480	4.42380

III. u-Polynomials

Crossings	u-Polynomials at each crossing
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 crossing
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}	$(y^3 + 3y^2 + 2y - 1)(y^{63} + 48y^{62} + \cdots + 340y - 1)$