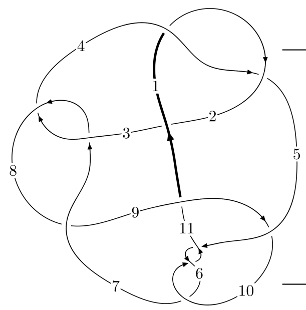
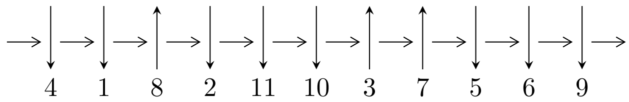
$11a_{41}$ ($K11a_{41}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$5{,}11 \underset{c_5}{\rightarrow} 2{,}6 \underset{c_4}{\longrightarrow} 4 \underset{c_{10}}{\longrightarrow} 10 \underset{c_6}{\longrightarrow} 7 \underset{c_9}{\longrightarrow} 9 \underset{c_{11}}{\longrightarrow} 1 \underset{c_8}{\longrightarrow} 8 \underset{c_3}{\longrightarrow} 3 \longrightarrow\!\!\!\!\rightarrow c_1, c_2, c_7$$

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

$$I_1^u = \langle u^{57} - u^{56} + \cdots + b + 1,\ u^{59} - 2u^{58} + \cdots + a + 3,\ u^{60} - 2u^{59} + \cdots + 3u - 1\rangle$$
$$I_2^u = \langle b + 1,\ u^2 + a - u + 3,\ u^3 - u^2 + 2u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 63 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.

$$I_1^u = \langle u^{57} - u^{56} + \cdots + b + 1,\ u^{59} - 2u^{58} + \cdots + a + 3,\ u^{60} - 2u^{59} + \cdots + 3u - 1\rangle$$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} -u^{59} + 2u^{58} + \cdots + u - 3 \\ -u^{57} + u^{56} + \cdots + u - 1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^{59} + 2u^{58} + \cdots + 2u - 3 \\ -u^{57} + u^{56} + \cdots - 3u^3 - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^7 - 4u^5 - 4u^3 \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^9 + 4u^7 + 5u^5 + 2u^3 + u \\ u^{11} + 5u^9 + 8u^7 + 3u^5 - u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{59} + 2u^{58} + \cdots - u^2 - 2 \\ -u^{57} + u^{56} + \cdots + u - 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{59} + 2u^{58} + \cdots - u^2 - 2 \\ -u^{57} + u^{56} + \cdots + u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{59} - 2u^{58} + \cdots + 8u - 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{60} - 4u^{59} + \cdots + 4u - 1$
c_2	$u^{60} + 32u^{59} + \cdots + 4u + 1$
c_3, c_7	$u^{60} + u^{59} + \cdots + 4u + 8$
c_5, c_6, c_{10}	$u^{60} - 2u^{59} + \cdots + 3u - 1$
c_8	$u^{60} - 21u^{59} + \cdots - 1040u + 64$
c_9	$u^{60} + 2u^{59} + \cdots + 3u - 1$
c_{11}	$u^{60} - 14u^{59} + \cdots - 1087u + 131$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{60} - 32y^{59} + \cdots - 4y + 1$
c_2	$y^{60} - 4y^{59} + \cdots - 32y + 1$
c_3, c_7	$y^{60} - 21y^{59} + \cdots - 1040y + 64$
c_5, c_6, c_{10}	$y^{60} + 54y^{59} + \cdots - 7y + 1$
c_8	$y^{60} + 31y^{59} + \cdots - 118016y + 4096$
c_9	$y^{60} - 2y^{59} + \cdots - 7y + 1$
c_{11}	$y^{60} + 10y^{59} + \cdots + 159609y + 17161$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.272258 + 1.012540I$ $a = 1.93515 + 0.62774I$ $b = 1.147190 - 0.478763I$	$-2.04150 + 6.75419I$	$-6.05975 - 7.03761I$
$u = -0.272258 - 1.012540I$ $a = 1.93515 - 0.62774I$ $b = 1.147190 + 0.478763I$	$-2.04150 - 6.75419I$	$-6.05975 + 7.03761I$
$u = -0.156290 + 1.052030I$ $a = 0.095451 + 0.296346I$ $b = 0.098316 + 0.688037I$	$0.89236 + 2.41054I$	$-2.85789 - 3.50583I$
$u = -0.156290 - 1.052030I$ $a = 0.095451 - 0.296346I$ $b = 0.098316 - 0.688037I$	$0.89236 - 2.41054I$	$-2.85789 + 3.50583I$
$u = 0.102597 + 0.926022I$ $a = -1.92726 + 0.84189I$ $b = -1.169680 - 0.370214I$	$-2.71127 - 1.29749I$	$-7.32877 + 0.87949I$
$u = 0.102597 - 0.926022I$ $a = -1.92726 - 0.84189I$ $b = -1.169680 + 0.370214I$	$-2.71127 + 1.29749I$	$-7.32877 - 0.87949I$
$u = 0.362204 + 0.739680I$ $a = 1.398890 + 0.042352I$ $b = 1.157070 - 0.528981I$	$-1.51448 + 6.91671I$	$-4.99151 - 4.33152I$
$u = 0.362204 - 0.739680I$ $a = 1.398890 - 0.042352I$ $b = 1.157070 + 0.528981I$	$-1.51448 - 6.91671I$	$-4.99151 + 4.33152I$
$u = 0.739190 + 0.273449I$ $a = 2.83377 - 1.12471I$ $b = 1.183660 + 0.548618I$	$-3.14550 - 10.93560I$	$-7.60991 + 8.98761I$
$u = 0.739190 - 0.273449I$ $a = 2.83377 + 1.12471I$ $b = 1.183660 - 0.548618I$	$-3.14550 + 10.93560I$	$-7.60991 - 8.98761I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.705650 + 0.274949I$ $a = -0.556763 - 0.943620I$ $b = 0.216325 - 0.833418I$	$-0.27172 - 5.84779I$	$-4.34743 + 6.06110I$
$u = 0.705650 - 0.274949I$ $a = -0.556763 + 0.943620I$ $b = 0.216325 + 0.833418I$	$-0.27172 + 5.84779I$	$-4.34743 - 6.06110I$
$u = -0.739469 + 0.157117I$ $a = 2.42529 + 0.98016I$ $b = 1.123680 + 0.435823I$	$-4.64706 - 2.94332I$	$-9.69548 + 3.11009I$
$u = -0.739469 - 0.157117I$ $a = 2.42529 - 0.98016I$ $b = 1.123680 - 0.435823I$	$-4.64706 + 2.94332I$	$-9.69548 - 3.11009I$
$u = -0.701322 + 0.243359I$ $a = -2.80040 - 1.59166I$ $b = -1.129360 + 0.462569I$	$-4.44900 + 4.80272I$	$-9.53100 - 5.34375I$
$u = -0.701322 - 0.243359I$ $a = -2.80040 + 1.59166I$ $b = -1.129360 - 0.462569I$	$-4.44900 - 4.80272I$	$-9.53100 + 5.34375I$
$u = 0.691544 + 0.218830I$ $a = -2.61676 + 0.96703I$ $b = -1.228960 + 0.314277I$	$-4.78959 - 2.10958I$	$-9.89618 + 4.41005I$
$u = 0.691544 - 0.218830I$ $a = -2.61676 - 0.96703I$ $b = -1.228960 - 0.314277I$	$-4.78959 + 2.10958I$	$-9.89618 - 4.41005I$
$u = -0.150600 + 0.704962I$ $a = -1.51108 + 0.72061I$ $b = -1.130100 - 0.383816I$	$-2.66735 - 1.26395I$	$-6.69853 + 0.15559I$
$u = -0.150600 - 0.704962I$ $a = -1.51108 - 0.72061I$ $b = -1.130100 + 0.383816I$	$-2.66735 + 1.26395I$	$-6.69853 - 0.15559I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.245563 + 1.262290I$ $a = 1.207160 + 0.477268I$ $b = 0.712663 - 0.173753I$	$2.15190 + 3.30985I$	0
$u = -0.245563 - 1.262290I$ $a = 1.207160 - 0.477268I$ $b = 0.712663 + 0.173753I$	$2.15190 - 3.30985I$	0
$u = 0.313312 + 0.634127I$ $a = 0.406095 + 0.033528I$ $b = 0.231815 + 0.743223I$	$1.19086 + 2.11650I$	$-1.10142 - 0.94504I$
$u = 0.313312 - 0.634127I$ $a = 0.406095 - 0.033528I$ $b = 0.231815 - 0.743223I$	$1.19086 - 2.11650I$	$-1.10142 + 0.94504I$
$u = 0.593362 + 0.375996I$ $a = 1.44574 - 0.93956I$ $b = 0.826187 + 0.623051I$	$3.02257 - 4.24450I$	$-1.33904 + 7.25011I$
$u = 0.593362 - 0.375996I$ $a = 1.44574 + 0.93956I$ $b = 0.826187 - 0.623051I$	$3.02257 + 4.24450I$	$-1.33904 - 7.25011I$
$u = -0.651026 + 0.178717I$ $a = 0.833384 - 0.653334I$ $b = -0.075209 - 0.564522I$	$-1.64038 + 0.76431I$	$-6.82050 - 1.17334I$
$u = -0.651026 - 0.178717I$ $a = 0.833384 + 0.653334I$ $b = -0.075209 + 0.564522I$	$-1.64038 - 0.76431I$	$-6.82050 + 1.17334I$
$u = 0.514134 + 0.433646I$ $a = 0.120502 - 0.319390I$ $b = 0.725195 - 0.626130I$	$3.31167 + 0.60747I$	$0.058994 + 0.358835I$
$u = 0.514134 - 0.433646I$ $a = 0.120502 + 0.319390I$ $b = 0.725195 + 0.626130I$	$3.31167 - 0.60747I$	$0.058994 - 0.358835I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.667151$ $a = 1.87106$ $b = 0.617384$	-1.74355	-3.65290
$u = 0.146423 + 1.356920I$ $a = -1.11641 + 0.87341I$ $b = -1.211750 - 0.122488I$	$2.27680 - 1.86506I$	0
$u = 0.146423 - 1.356920I$ $a = -1.11641 - 0.87341I$ $b = -1.211750 + 0.122488I$	$2.27680 + 1.86506I$	0
$u = -0.298418 + 1.347350I$ $a = 0.950662 + 0.883761I$ $b = 1.102840 + 0.401160I$	$0.089664 + 0.805813I$	0
$u = -0.298418 - 1.347350I$ $a = 0.950662 - 0.883761I$ $b = 1.102840 - 0.401160I$	$0.089664 - 0.805813I$	0
$u = -0.112811 + 1.380760I$ $a = 0.088761 + 1.367980I$ $b = -0.973157 - 0.442087I$	$3.11222 - 0.32948I$	0
$u = -0.112811 - 1.380760I$ $a = 0.088761 - 1.367980I$ $b = -0.973157 + 0.442087I$	$3.11222 + 0.32948I$	0
$u = -0.181790 + 1.380090I$ $a = 0.51009 - 1.34681I$ $b = -0.578631 + 0.449363I$	$4.27304 + 3.48079I$	0
$u = -0.181790 - 1.380090I$ $a = 0.51009 + 1.34681I$ $b = -0.578631 - 0.449363I$	$4.27304 - 3.48079I$	0
$u = -0.252426 + 1.375440I$ $a = 1.054820 + 0.112572I$ $b = -0.213723 - 0.598525I$	$3.31453 + 4.03685I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.252426-1.375440I$ $a=\ \ 1.054820-0.112572I$ $b=-0.213723+0.598525I$	$3.31453-4.03685I$	0
$u=\ \ 0.272964+1.386080I$ $a=-1.045560+0.896556I$ $b=-1.260740+0.293725I$	$0.31494-5.61200I$	0
$u=\ \ 0.272964-1.386080I$ $a=-1.045560-0.896556I$ $b=-1.260740-0.293725I$	$0.31494+5.61200I$	0
$u=-0.27784+1.39711I$ $a=-1.46445-2.26687I$ $b=-1.121330+0.494109I$	$0.77544+8.36220I$	0
$u=-0.27784-1.39711I$ $a=-1.46445+2.26687I$ $b=-1.121330-0.494109I$	$0.77544-8.36220I$	0
$u=\ \ 0.11177+1.42352I$ $a=\ \ 0.003244-0.724114I$ $b=\ \ 0.361594+0.782628I$	$7.44712+0.69473I$	0
$u=\ \ 0.11177-1.42352I$ $a=\ \ 0.003244+0.724114I$ $b=\ \ 0.361594-0.782628I$	$7.44712-0.69473I$	0
$u=\ \ 0.27859+1.41128I$ $a=-0.929433-0.027526I$ $b=\ \ 0.233048-0.870544I$	$5.10898-9.43023I$	0
$u=\ \ 0.27859-1.41128I$ $a=-0.929433+0.027526I$ $b=\ \ 0.233048+0.870544I$	$5.10898+9.43023I$	0
$u=\ \ 0.07750+1.43810I$ $a=\ \ 0.274235+0.847102I$ $b=\ \ 1.113070-0.571356I$	$5.22134+5.76496I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.07750 - 1.43810I$ $a = 0.274235 - 0.847102I$ $b = 1.113070 + 0.571356I$	$5.22134 - 5.76496I$	0
$u = 0.29362 + 1.41349I$ $a = 1.61836 - 1.90667I$ $b = 1.192200 + 0.565015I$	$2.2343 - 14.6854I$	0
$u = 0.29362 - 1.41349I$ $a = 1.61836 + 1.90667I$ $b = 1.192200 - 0.565015I$	$2.2343 + 14.6854I$	0
$u = 0.19005 + 1.43268I$ $a = -0.563532 + 0.432636I$ $b = 0.708476 - 0.712296I$	$9.23623 - 1.96231I$	0
$u = 0.19005 - 1.43268I$ $a = -0.563532 - 0.432636I$ $b = 0.708476 + 0.712296I$	$9.23623 + 1.96231I$	0
$u = 0.22072 + 1.43184I$ $a = 0.55993 - 1.54260I$ $b = 0.857884 + 0.678909I$	$8.80345 - 7.21631I$	0
$u = 0.22072 - 1.43184I$ $a = 0.55993 + 1.54260I$ $b = 0.857884 - 0.678909I$	$8.80345 + 7.21631I$	0
$u = -0.434286 + 0.236524I$ $a = 0.227567 - 1.379360I$ $b = -0.654919 + 0.246891I$	$-0.85637 + 1.13107I$	$-6.00125 - 6.01444I$
$u = -0.434286 - 0.236524I$ $a = 0.227567 + 1.379360I$ $b = -0.654919 - 0.246891I$	$-0.85637 - 1.13107I$	$-6.00125 + 6.01444I$
$u = 0.388108$ $a = -3.78596$ $b = -1.10470$	-2.19031	0.722320

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

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^2+u-3 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^2+u-2 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u^2-u+1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^2+1 \\ u^2-u+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2+1 \\ u^2-u+1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2+1 \\ u^2-u+1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2+u-2 \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2+u-2 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^2+4u-16$

(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_7, c_8	u^3
c_5, c_6	$u^3 - u^2 + 2u - 1$
c_9, c_{11}	$u^3 - u^2 + 1$
c_{10}	$u^3 + u^2 + 2u + 1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.215080 + 1.307140I$ $a = -1.122560 + 0.744862I$ $b = -1.00000$	$1.37919 - 2.82812I$	$-6.82789 + 2.41717I$
$u = \quad 0.215080 - 1.307140I$ $a = -1.122560 - 0.744862I$ $b = -1.00000$	$1.37919 + 2.82812I$	$-6.82789 - 2.41717I$
$u = \quad 0.569840$ $a = -2.75488$ $b = -1.00000$	-2.75839	-15.3440

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{60}-4u^{59}+\cdots+4u-1)$
c_2	$((u+1)^3)(u^{60}+32u^{59}+\cdots+4u+1)$
c_3, c_7	$u^3(u^{60}+u^{59}+\cdots+4u+8)$
c_4	$((u+1)^3)(u^{60}-4u^{59}+\cdots+4u-1)$
c_5, c_6	$(u^3-u^2+2u-1)(u^{60}-2u^{59}+\cdots+3u-1)$
c_8	$u^3(u^{60}-21u^{59}+\cdots-1040u+64)$
c_9	$(u^3-u^2+1)(u^{60}+2u^{59}+\cdots+3u-1)$
c_{10}	$(u^3+u^2+2u+1)(u^{60}-2u^{59}+\cdots+3u-1)$
c_{11}	$(u^3-u^2+1)(u^{60}-14u^{59}+\cdots-1087u+131)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^3)(y^{60} - 32y^{59} + \cdots - 4y + 1)$
c_2	$((y-1)^3)(y^{60} - 4y^{59} + \cdots - 32y + 1)$
c_3, c_7	$y^3(y^{60} - 21y^{59} + \cdots - 1040y + 64)$
c_5, c_6, c_{10}	$(y^3 + 3y^2 + 2y - 1)(y^{60} + 54y^{59} + \cdots - 7y + 1)$
c_8	$y^3(y^{60} + 31y^{59} + \cdots - 118016y + 4096)$
c_9	$(y^3 - y^2 + 2y - 1)(y^{60} - 2y^{59} + \cdots - 7y + 1)$
c_{11}	$(y^3 - y^2 + 2y - 1)(y^{60} + 10y^{59} + \cdots + 159609y + 17161)$