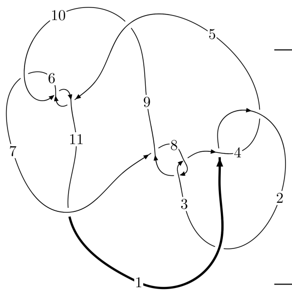
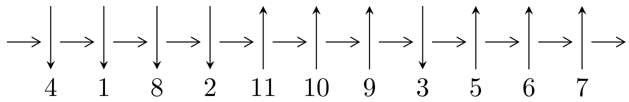
$11a_{56}$ ($K11a_{56}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{54} - u^{53} + \cdots + b + 1,\ -u^{56} + 2u^{55} + \cdots + a - 4,\ u^{57} - 2u^{56} + \cdots + 3u - 1\rangle$$
$$I_2^u = \langle b + 1,\ -u^2 + a - u - 2,\ u^3 + u^2 + 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 60 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.

$$I_1^u = \langle u^{54} - u^{53} + \cdots + b + 1,\ -u^{56} + 2u^{55} + \cdots + a - 4,\ u^{57} - 2u^{56} + \cdots + 3u - 1\rangle$$

(i) Arc colorings

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

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

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

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

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

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

$$a_3 = \begin{pmatrix} u^{56} - 2u^{55} + \cdots + 2u + 4 \\ -u^{54} + u^{53} + \cdots - u - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{56} - 2u^{55} + \cdots + 3u + 3 \\ -u^{54} + u^{53} + \cdots - u - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{56} - 2u^{55} + \cdots + 4u + 3 \\ -u^{54} + u^{53} + \cdots + 2u^2 - 1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -u^{10} - 5u^8 - 8u^6 - 3u^4 + 3u^2 + 1 \\ u^{10} + 4u^8 + 5u^6 - 3u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^{10} - 5u^8 - 8u^6 - 3u^4 + 3u^2 + 1 \\ u^{10} + 4u^8 + 5u^6 - 3u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{56} + 2u^{55} + \cdots - 8u - 9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{57} - 4u^{56} + \cdots - 4u + 1$
c_2	$u^{57} + 30u^{56} + \cdots + 4u + 1$
c_3, c_8	$u^{57} - u^{56} + \cdots + 4u + 8$
c_5, c_6, c_{10}	$u^{57} + 2u^{56} + \cdots + 3u + 1$
c_7	$u^{57} - 21u^{56} + \cdots - 496u + 64$
c_9, c_{11}	$u^{57} - 2u^{56} + \cdots - 3u + 9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{57} - 30y^{56} + \cdots + 4y - 1$
c_2	$y^{57} - 2y^{56} + \cdots - 24y - 1$
c_3, c_8	$y^{57} + 21y^{56} + \cdots - 496y - 64$
c_5, c_6, c_{10}	$y^{57} + 48y^{56} + \cdots + 23y - 1$
c_7	$y^{57} + 25y^{56} + \cdots + 134400y - 4096$
c_9, c_{11}	$y^{57} - 32y^{56} + \cdots + 1719y - 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.339361 + 1.049480I$ $a = 0.50854 - 1.48654I$ $b = -1.48903 + 0.96739I$	$-1.26618 - 6.23330I$	0
$u = 0.339361 - 1.049480I$ $a = 0.50854 + 1.48654I$ $b = -1.48903 - 0.96739I$	$-1.26618 + 6.23330I$	0
$u = -0.245002 + 1.131380I$ $a = -0.32304 - 1.42186I$ $b = 0.208942 + 0.592370I$	$-3.18295 + 0.59460I$	0
$u = -0.245002 - 1.131380I$ $a = -0.32304 + 1.42186I$ $b = 0.208942 - 0.592370I$	$-3.18295 - 0.59460I$	0
$u = 0.317804 + 1.113660I$ $a = -0.301756 + 1.180030I$ $b = 1.38215 - 0.87035I$	$1.12994 - 1.12326I$	0
$u = 0.317804 - 1.113660I$ $a = -0.301756 - 1.180030I$ $b = 1.38215 + 0.87035I$	$1.12994 + 1.12326I$	0
$u = 0.799224 + 0.161136I$ $a = 3.09156 + 0.85984I$ $b = -1.72076 - 1.24432I$	$1.44780 + 10.42440I$	$2.90383 - 7.96893I$
$u = 0.799224 - 0.161136I$ $a = 3.09156 - 0.85984I$ $b = -1.72076 + 1.24432I$	$1.44780 - 10.42440I$	$2.90383 + 7.96893I$
$u = 0.806026 + 0.024229I$ $a = -0.524270 - 0.510392I$ $b = 0.297226 + 0.891673I$	$7.00743 + 2.64990I$	$8.23772 - 3.33458I$
$u = 0.806026 - 0.024229I$ $a = -0.524270 + 0.510392I$ $b = 0.297226 - 0.891673I$	$7.00743 - 2.64990I$	$8.23772 + 3.33458I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.787966 + 0.130536I$ $a = -2.57577 - 0.95104I$ $b = 1.42239 + 1.23954I$	$4.10218 + 5.18574I$	$6.42318 - 4.39381I$
$u = 0.787966 - 0.130536I$ $a = -2.57577 + 0.95104I$ $b = 1.42239 - 1.23954I$	$4.10218 - 5.18574I$	$6.42318 + 4.39381I$
$u = 0.226143 + 1.198470I$ $a = -0.29741 - 1.54674I$ $b = -1.71216 + 1.04442I$	$-3.91254 + 1.67555I$	0
$u = 0.226143 - 1.198470I$ $a = -0.29741 + 1.54674I$ $b = -1.71216 - 1.04442I$	$-3.91254 - 1.67555I$	0
$u = -0.754570 + 0.135098I$ $a = -1.92141 + 1.62306I$ $b = 0.580662 - 0.892200I$	$-0.25463 - 4.33211I$	$1.62345 + 4.63416I$
$u = -0.754570 - 0.135098I$ $a = -1.92141 - 1.62306I$ $b = 0.580662 + 0.892200I$	$-0.25463 + 4.33211I$	$1.62345 - 4.63416I$
$u = -0.338013 + 0.681571I$ $a = 0.642106 - 0.604854I$ $b = -0.849512 + 0.966860I$	$-2.04198 - 6.13465I$	$-0.96110 + 7.52026I$
$u = -0.338013 - 0.681571I$ $a = 0.642106 + 0.604854I$ $b = -0.849512 - 0.966860I$	$-2.04198 + 6.13465I$	$-0.96110 - 7.52026I$
$u = 0.722838 + 0.126778I$ $a = 2.54617 + 1.95088I$ $b = -1.31528 - 1.75485I$	$-0.80005 + 1.75324I$	$2.03009 - 4.15615I$
$u = 0.722838 - 0.126778I$ $a = 2.54617 - 1.95088I$ $b = -1.31528 + 1.75485I$	$-0.80005 - 1.75324I$	$2.03009 + 4.15615I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.275696 + 1.237520I$ $a = 0.808387 + 0.975749I$ $b = -0.556151 - 0.097923I$	$-1.78635 - 3.24178I$	0
$u = -0.275696 - 1.237520I$ $a = 0.808387 - 0.975749I$ $b = -0.556151 + 0.097923I$	$-1.78635 + 3.24178I$	0
$u = 0.353003 + 1.235470I$ $a = 0.259194 + 0.074469I$ $b = 0.608563 - 0.823394I$	$3.27082 + 1.52614I$	0
$u = 0.353003 - 1.235470I$ $a = 0.259194 - 0.074469I$ $b = 0.608563 + 0.823394I$	$3.27082 - 1.52614I$	0
$u = -0.664926 + 0.248231I$ $a = -0.53582 + 1.91639I$ $b = -0.321007 - 0.845457I$	$-0.56153 + 2.51315I$	$1.83697 - 2.48665I$
$u = -0.664926 - 0.248231I$ $a = -0.53582 - 1.91639I$ $b = -0.321007 + 0.845457I$	$-0.56153 - 2.51315I$	$1.83697 + 2.48665I$
$u = -0.704230 + 0.061019I$ $a = 1.64700 - 0.65736I$ $b = -0.525612 + 0.326561I$	$1.82968 - 0.29846I$	$5.16983 - 0.57329I$
$u = -0.704230 - 0.061019I$ $a = 1.64700 + 0.65736I$ $b = -0.525612 - 0.326561I$	$1.82968 + 0.29846I$	$5.16983 + 0.57329I$
$u = 0.355735 + 1.276270I$ $a = -0.681670 + 0.406147I$ $b = -0.007104 + 0.903876I$	$2.96572 + 6.83199I$	0
$u = 0.355735 - 1.276270I$ $a = -0.681670 - 0.406147I$ $b = -0.007104 - 0.903876I$	$2.96572 - 6.83199I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.294328 + 1.319490I$ $a = 1.338980 + 0.220264I$ $b = -0.580535 + 0.617472I$	$-2.52174 - 3.91370I$	0
$u = -0.294328 - 1.319490I$ $a = 1.338980 - 0.220264I$ $b = -0.580535 - 0.617472I$	$-2.52174 + 3.91370I$	0
$u = -0.181659 + 1.350590I$ $a = 0.400207 - 0.673731I$ $b = 0.475022 + 0.135856I$	$-3.91953 - 3.45367I$	0
$u = -0.181659 - 1.350590I$ $a = 0.400207 + 0.673731I$ $b = 0.475022 - 0.135856I$	$-3.91953 + 3.45367I$	0
$u = 0.308057 + 1.342450I$ $a = 2.07004 - 0.68307I$ $b = -1.21623 - 2.16373I$	$-5.43045 + 5.50488I$	0
$u = 0.308057 - 1.342450I$ $a = 2.07004 + 0.68307I$ $b = -1.21623 + 2.16373I$	$-5.43045 - 5.50488I$	0
$u = -0.040540 + 1.380290I$ $a = 0.437295 - 0.786403I$ $b = 0.388863 - 1.268110I$	$-5.57754 - 2.56020I$	0
$u = -0.040540 - 1.380290I$ $a = 0.437295 + 0.786403I$ $b = 0.388863 + 1.268110I$	$-5.57754 + 2.56020I$	0
$u = -0.321142 + 1.347280I$ $a = -1.81984 - 0.00606I$ $b = 0.797242 - 1.062560I$	$-4.92507 - 8.23091I$	0
$u = -0.321142 - 1.347280I$ $a = -1.81984 + 0.00606I$ $b = 0.797242 + 1.062560I$	$-4.92507 + 8.23091I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.010128 + 1.388520I$ $a = -0.665649 + 0.739671I$ $b = 0.02872 + 1.83602I$	$-9.28405 + 1.35733I$	0
$u = 0.010128 - 1.388520I$ $a = -0.665649 - 0.739671I$ $b = 0.02872 - 1.83602I$	$-9.28405 - 1.35733I$	0
$u = 0.337618 + 1.347450I$ $a = -1.76632 + 1.05829I$ $b = 1.40418 + 1.48266I$	$-0.55115 + 9.25140I$	0
$u = 0.337618 - 1.347450I$ $a = -1.76632 - 1.05829I$ $b = 1.40418 - 1.48266I$	$-0.55115 - 9.25140I$	0
$u = 0.086152 + 0.593036I$ $a = -0.86026 - 1.12969I$ $b = -0.349711 + 1.132030I$	$-3.25990 + 1.13842I$	$-4.67839 - 1.12304I$
$u = 0.086152 - 0.593036I$ $a = -0.86026 + 1.12969I$ $b = -0.349711 - 1.132030I$	$-3.25990 - 1.13842I$	$-4.67839 + 1.12304I$
$u = -0.268783 + 1.376140I$ $a = -1.251340 + 0.579944I$ $b = -0.053457 - 1.081820I$	$-5.67983 - 0.88312I$	0
$u = -0.268783 - 1.376140I$ $a = -1.251340 - 0.579944I$ $b = -0.053457 + 1.081820I$	$-5.67983 + 0.88312I$	0
$u = 0.340495 + 1.364500I$ $a = 1.93564 - 1.27843I$ $b = -1.80297 - 1.45511I$	$-3.3664 + 14.5406I$	0
$u = 0.340495 - 1.364500I$ $a = 1.93564 + 1.27843I$ $b = -1.80297 + 1.45511I$	$-3.3664 - 14.5406I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.279491+0.522898I$ $a=-0.1114230+0.0411162I$ $b=\ \ 0.664100-0.647028I$	$0.29336-1.71892I$	$2.35747+4.28522I$
$u=-0.279491-0.522898I$ $a=-0.1114230-0.0411162I$ $b=\ \ 0.664100+0.647028I$	$0.29336+1.71892I$	$2.35747-4.28522I$
$u=-0.04491+1.42071I$ $a=-0.362172+0.648626I$ $b=-0.88717+1.55692I$	$-8.60971-7.06322I$	0
$u=-0.04491-1.42071I$ $a=-0.362172-0.648626I$ $b=-0.88717-1.55692I$	$-8.60971+7.06322I$	0
$u=-0.475182+0.281427I$ $a=\ \ 0.033922-1.111620I$ $b=\ \ 0.503597+0.110254I$	$1.12264-1.10520I$	$5.95384+5.07623I$
$u=-0.475182-0.281427I$ $a=\ \ 0.033922+1.111620I$ $b=\ \ 0.503597-0.110254I$	$1.12264+1.10520I$	$5.95384-5.07623I$
$u=\ \ 0.195845$ $a=\ \ 3.55820$ $b=-0.749956$	-1.30246	-9.05740

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(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	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = 0.122561 + 0.744862I$ $b = -1.00000$	$-4.66906 - 2.82812I$	$-5.17211 + 2.41717I$
$u = -0.215080 - 1.307140I$ $a = 0.122561 - 0.744862I$ $b = -1.00000$	$-4.66906 + 2.82812I$	$-5.17211 - 2.41717I$
$u = -0.569840$ $a = 1.75488$ $b = -1.00000$	-0.531480	3.34420

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{57} - 4u^{56} + \cdots - 4u + 1)$
c_2	$((u+1)^3)(u^{57} + 30u^{56} + \cdots + 4u + 1)$
c_3, c_8	$u^3(u^{57} - u^{56} + \cdots + 4u + 8)$
c_4	$((u+1)^3)(u^{57} - 4u^{56} + \cdots - 4u + 1)$
c_5, c_6	$(u^3 + u^2 + 2u + 1)(u^{57} + 2u^{56} + \cdots + 3u + 1)$
c_7	$u^3(u^{57} - 21u^{56} + \cdots - 496u + 64)$
c_9, c_{11}	$(u^3 + u^2 - 1)(u^{57} - 2u^{56} + \cdots - 3u + 9)$
c_{10}	$(u^3 - u^2 + 2u - 1)(u^{57} + 2u^{56} + \cdots + 3u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^3)(y^{57} - 30y^{56} + \cdots + 4y - 1)$
c_2	$((y-1)^3)(y^{57} - 2y^{56} + \cdots - 24y - 1)$
c_3, c_8	$y^3(y^{57} + 21y^{56} + \cdots - 496y - 64)$
c_5, c_6, c_{10}	$(y^3 + 3y^2 + 2y - 1)(y^{57} + 48y^{56} + \cdots + 23y - 1)$
c_7	$y^3(y^{57} + 25y^{56} + \cdots + 134400y - 4096)$
c_9, c_{11}	$(y^3 - y^2 + 2y - 1)(y^{57} - 32y^{56} + \cdots + 1719y - 81)$