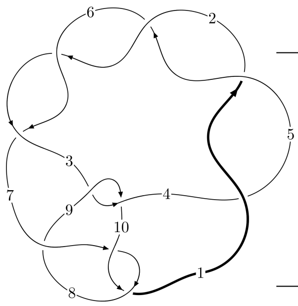
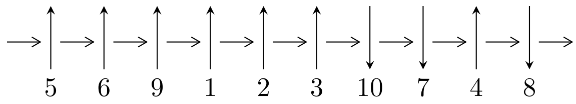
10_{47} $(K10a_{15})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3u^{21} - 41u^{19} + \cdots + b - 2,\ -2u^{21} + u^{20} + \cdots + a + 1,\ u^{22} - 2u^{21} + \cdots - u + 1\rangle$$
$$I_2^u = \langle b - u,\ a - 1,\ u^2 + u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 24 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.
$$\boldsymbol{I_1^u = \langle 3u^{21}-41u^{19}+\cdots+b-2,\ -2u^{21}+u^{20}+\cdots+a+1,\ u^{22}-2u^{21}+\cdots-u+1\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ -u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2+1 \\ u^4-2u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^2+1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2u^{21}-u^{20}+\cdots+4u-1 \\ -3u^{21}+41u^{19}+\cdots-u+2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{20}+u^{19}+\cdots-9u^2+4u \\ -u^{16}+10u^{14}+\cdots+6u^3-4u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{21}-u^{20}+\cdots-10u^2+4u \\ -u^{21}+14u^{19}+\cdots-3u^2+1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -4u^{21}+5u^{20}+53u^{19}-63u^{18}-292u^{17}+333u^{16}+862u^{15}-974u^{14}-1448u^{13}+1758u^{12}+1295u^{11}-2051u^{10}-338u^{9}+1521u^{8}-426u^{7}-628u^{6}+422u^{5}+65u^{4}-139u^{3}+35u^{2}+14u+7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4 c_5, c_6	$u^{22} - 2u^{21} + \cdots - u + 1$
c_3, c_9	$u^{22} + u^{21} + \cdots - 21u^2 + 4$
c_7, c_{10}	$u^{22} - 3u^{21} + \cdots - 8u + 1$
c_8	$u^{22} + 9u^{21} + \cdots + 40u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_5, c_6	$y^{22} - 30y^{21} + \cdots + 3y + 1$
c_3, c_9	$y^{22} - 15y^{21} + \cdots - 168y + 16$
c_7, c_{10}	$y^{22} - 9y^{21} + \cdots - 40y + 1$
c_8	$y^{22} + 11y^{21} + \cdots - 1080y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.964383 + 0.128666I$ $a = 0.184838 - 0.945621I$ $b = -0.299924 + 0.888159I$	$1.70640 + 2.06027I$	$8.35016 - 3.76643I$
$u = 0.964383 - 0.128666I$ $a = 0.184838 + 0.945621I$ $b = -0.299924 - 0.888159I$	$1.70640 - 2.06027I$	$8.35016 + 3.76643I$
$u = -0.889732$ $a = 1.34588$ $b = 1.19747$	0.304299	11.0200
$u = -1.059960 + 0.353222I$ $a = 0.600368 + 0.550351I$ $b = 0.830761 + 0.371286I$	$5.17561 - 7.52719I$	$9.40693 + 6.57102I$
$u = -1.059960 - 0.353222I$ $a = 0.600368 - 0.550351I$ $b = 0.830761 - 0.371286I$	$5.17561 + 7.52719I$	$9.40693 - 6.57102I$
$u = -1.128070 + 0.227245I$ $a = -0.642240 - 0.353090I$ $b = -0.804731 - 0.252365I$	$6.69355 - 1.82013I$	$11.99179 + 1.37946I$
$u = -1.128070 - 0.227245I$ $a = -0.642240 + 0.353090I$ $b = -0.804731 + 0.252365I$	$6.69355 + 1.82013I$	$11.99179 - 1.37946I$
$u = 0.459979 + 0.506822I$ $a = 0.614823 - 0.850759I$ $b = -0.713989 + 0.079726I$	$1.65851 - 0.59540I$	$8.05700 - 0.40058I$
$u = 0.459979 - 0.506822I$ $a = 0.614823 + 0.850759I$ $b = -0.713989 - 0.079726I$	$1.65851 + 0.59540I$	$8.05700 + 0.40058I$
$u = 0.269941 + 0.602986I$ $a = -0.589034 + 0.985256I$ $b = 0.753100 + 0.089219I$	$1.04219 + 4.27368I$	$5.66030 - 6.14849I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.269941 - 0.602986I$ $a = -0.589034 - 0.985256I$ $b = 0.753100 - 0.089219I$	$1.04219 - 4.27368I$	$5.66030 + 6.14849I$
$u = 0.485575$ $a = 0.677603$ $b = -0.329027$	0.739737	13.5160
$u = -1.58393$ $a = -0.123818$ $b = -0.196119$	7.92361	15.4350
$u = -0.138359 + 0.279214I$ $a = -0.56251 + 1.90545I$ $b = 0.454198 + 0.420697I$	$-1.65381 - 0.64556I$	$-2.86526 + 1.77412I$
$u = -0.138359 - 0.279214I$ $a = -0.56251 - 1.90545I$ $b = 0.454198 - 0.420697I$	$-1.65381 + 0.64556I$	$-2.86526 - 1.77412I$
$u = 1.70733$ $a = 3.19649$ $b = -5.45746$	9.66174	9.65860
$u = -1.71885 + 0.02850I$ $a = -0.023243 - 0.195497I$ $b = -0.045523 - 0.335367I$	$11.33560 - 2.65945I$	$9.22485 + 2.49660I$
$u = -1.71885 - 0.02850I$ $a = -0.023243 + 0.195497I$ $b = -0.045523 + 0.335367I$	$11.33560 + 2.65945I$	$9.22485 - 2.49660I$
$u = 1.73830 + 0.09444I$ $a = 2.32463 - 0.78043I$ $b = -4.11462 + 1.13708I$	$15.1237 + 9.3852I$	$10.11771 - 5.10224I$
$u = 1.73830 - 0.09444I$ $a = 2.32463 + 0.78043I$ $b = -4.11462 - 1.13708I$	$15.1237 - 9.3852I$	$10.11771 + 5.10224I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.75301 + 0.05790I$ $a = -2.45571 + 0.49075I$ $b = 4.33329 - 0.71811I$	$17.0458 + 3.0253I$	$12.24161 - 0.83109I$
$u = 1.75301 - 0.05790I$ $a = -2.45571 - 0.49075I$ $b = 4.33329 + 0.71811I$	$17.0458 - 3.0253I$	$12.24161 + 0.83109I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.618034$ $a = \ \ 1.00000$ $b = \ \ 0.618034$	-0.657974	3.00000
$u = -1.61803$ $a = \ \ 1.00000$ $b = -1.61803$	7.23771	3.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u^2-u-1)(u^{22}-2u^{21}+\cdots-u+1)$
c_3, c_9	$u^2(u^{22}+u^{21}+\cdots-21u^2+4)$
c_4, c_5, c_6	$(u^2+u-1)(u^{22}-2u^{21}+\cdots-u+1)$
c_7	$((u-1)^2)(u^{22}-3u^{21}+\cdots-8u+1)$
c_8	$((u+1)^2)(u^{22}+9u^{21}+\cdots+40u+1)$
c_{10}	$((u+1)^2)(u^{22}-3u^{21}+\cdots-8u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_5, c_6	$(y^2 - 3y + 1)(y^{22} - 30y^{21} + \cdots + 3y + 1)$
c_3, c_9	$y^2(y^{22} - 15y^{21} + \cdots - 168y + 16)$
c_7, c_{10}	$((y-1)^2)(y^{22} - 9y^{21} + \cdots - 40y + 1)$
c_8	$((y-1)^2)(y^{22} + 11y^{21} + \cdots - 1080y + 1)$