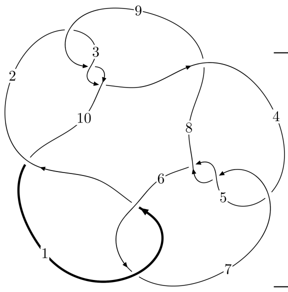
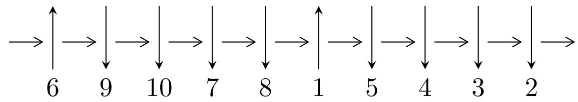
10_{76} $(K10a_{73})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^9 + 4u^7 + u^6 - 5u^5 - 3u^4 + 2u^2 + b + 3u + 1,\ -u^6 + 3u^4 - 2u^2 + a - 1,$$
$$u^{11} - u^{10} - 5u^9 + 4u^8 + 9u^7 - 4u^6 - 5u^5 - 3u^4 - 3u^3 + 5u^2 + 3u + 1\rangle$$
$$I_2^u = \langle u^{11} - 3u^9 - u^8 + 2u^7 + 2u^6 + 3u^5 - 3u^3 - 2u^2 + b - u,\ 2u^{17} - 12u^{15} + \cdots + a + 3,\ u^{18} - u^{17} + \cdots + 2u -$$
$$I_3^u = \langle b,\ a + 1,\ u + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 30 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.

$$\boldsymbol{I_1^u = \langle -u^9+4u^7+\cdots+b+1,\ -u^6+3u^4-2u^2+a-1,\ u^{11}-u^{10}+\cdots+3u+1\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_3 = \begin{pmatrix}1\\u^2\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$

$$a_6 = \begin{pmatrix}u^6-3u^4+2u^2+1\\u^9-4u^7-u^6+5u^5+3u^4-2u^2-3u-1\end{pmatrix}$$

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

$$a_7 = \begin{pmatrix}u^3-2u\\-u^{10}+u^9+4u^8-3u^7-5u^6+2u^5+u^3+3u^2\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}-u^4+u^2+1\\u^9-u^8-4u^7+2u^6+5u^5+u^4-3u^2-3u-1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -2u^{10}+6u^9+8u^8-26u^7-14u^6+34u^5+16u^4+4u^3-10u^2-30u-14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{11} + 3u^{10} + 6u^9 + 7u^8 + 7u^7 + 3u^6 - 2u^5 - 8u^4 - 7u^3 - 5u^2 - 2u - 2$
c_2, c_3, c_4 c_5, c_7, c_9	$u^{11} - u^{10} - 5u^9 + 4u^8 + 9u^7 - 4u^6 - 5u^5 - 3u^4 - 3u^3 + 5u^2 + 3u + 1$
c_8, c_{10}	$u^{11} + 3u^{10} + \cdots - 16u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{11} + 3y^{10} + \cdots - 16y - 4$
c_2, c_3, c_4 c_5, c_7, c_9	$y^{11} - 11y^{10} + \cdots - y - 1$
c_8, c_{10}	$y^{11} + 7y^{10} + \cdots + 24y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.062122+0.811051I$ $a=-1.82009-0.72518I$ $b=\ \ 0.762686+0.875309I$	$4.60381+2.87937I$	$-1.58714-3.23335I$
$u=-0.062122-0.811051I$ $a=-1.82009+0.72518I$ $b=\ \ 0.762686-0.875309I$	$4.60381-2.87937I$	$-1.58714+3.23335I$
$u=-1.32132$ $a=\ \ 0.669088$ $b=-0.992754$	-6.97991	-12.6670
$u=-1.296720+0.321683I$ $a=-0.591796+0.578733I$ $b=\ \ 0.958422-0.661375I$	$-3.08453+5.20915I$	$-9.44226-3.72118I$
$u=-1.296720-0.321683I$ $a=-0.591796-0.578733I$ $b=\ \ 0.958422+0.661375I$	$-3.08453-5.20915I$	$-9.44226+3.72118I$
$u=\ \ 1.360100+0.374662I$ $a=-1.56319-0.53861I$ $b=\ \ 0.764438-1.080520I$	$-4.40916-11.51290I$	$-10.44081+7.44023I$
$u=\ \ 1.360100-0.374662I$ $a=-1.56319+0.53861I$ $b=\ \ 0.764438+1.080520I$	$-4.40916+11.51290I$	$-10.44081-7.44023I$
$u=\ \ 1.42406+0.13076I$ $a=\ \ 0.601423+0.717547I$ $b=-0.273627+1.210650I$	$-11.39950-4.33574I$	$-15.3124+3.6840I$
$u=\ \ 1.42406-0.13076I$ $a=\ \ 0.601423-0.717547I$ $b=-0.273627-1.210650I$	$-11.39950+4.33574I$	$-15.3124-3.6840I$
$u=-0.264651+0.295634I$ $a=\ \ 1.039110-0.325568I$ $b=-0.215541-0.601634I$	$-0.314917+0.927579I$	$-5.88395-7.40073I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.264651 - 0.295634I$		
$a = \quad 1.039110 + 0.325568I$	$-0.314917 - 0.927579I$	$-5.88395 + 7.40073I$
$b = -0.215541 + 0.601634I$		

II.

$\boldsymbol{I_2^u = \langle u^{11} - 3u^9 + \cdots + b - u,\ 2u^{17} - 12u^{15} + \cdots + a + 3,\ u^{18} - u^{17} + \cdots + 2u - 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2u^{17} + 12u^{15} + \cdots - 2u - 3 \\ -u^{11} + 3u^9 + u^8 - 2u^7 - 2u^6 - 3u^5 + 3u^3 + 2u^2 + u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} -2u^{17} + 12u^{15} + \cdots - 2u - 3 \\ u^{14} - 4u^{12} + \cdots + 3u^2 + u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -2u^{17} + 12u^{15} + \cdots - 3u - 2 \\ u^{13} - 5u^{11} - 2u^{10} + 9u^9 + 8u^8 - 4u^7 - 10u^6 - 6u^5 + 5u^3 + 6u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{17} - 24u^{15} - 4u^{14} + 56u^{13} + 20u^{12} - 48u^{11} - 36u^{10} - 24u^9 + 16u^8 + 64u^7 + 24u^6 - 12u^5 - 20u^4 - 24u^3 - 8u^2 - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1)^2$
c_2, c_3, c_4 c_5, c_7, c_9	$u^{18} - u^{17} + \cdots + 2u - 1$
c_8, c_{10}	$(u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^2$
c_2, c_3, c_4 c_5, c_7, c_9	$y^{18} - 13y^{17} + \cdots - 12y + 1$
c_8, c_{10}	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.11181$ $a = -0.294140$ $b = 0.512358$	-2.09142	-3.34770
$u = -0.138557 + 0.857281I$ $a = 1.70857 + 0.83690I$ $b = -0.728966 - 0.986295I$	$0.30826 + 7.08493I$	$-6.42320 - 5.91335I$
$u = -0.138557 - 0.857281I$ $a = 1.70857 - 0.83690I$ $b = -0.728966 + 0.986295I$	$0.30826 - 7.08493I$	$-6.42320 + 5.91335I$
$u = -1.112360 + 0.436175I$ $a = -0.238783 + 0.723669I$ $b = 0.628449 - 0.875112I$	$-2.67293 - 2.45442I$	$-9.67208 + 2.91298I$
$u = -1.112360 - 0.436175I$ $a = -0.238783 - 0.723669I$ $b = 0.628449 + 0.875112I$	$-2.67293 + 2.45442I$	$-9.67208 - 2.91298I$
$u = -0.535620 + 0.576021I$ $a = -0.792096 - 0.581161I$ $b = 0.140343 + 0.966856I$	$-5.07330 + 2.09337I$	$-12.51499 - 4.16283I$
$u = -0.535620 - 0.576021I$ $a = -0.792096 + 0.581161I$ $b = 0.140343 - 0.966856I$	$-5.07330 - 2.09337I$	$-12.51499 + 4.16283I$
$u = 0.035822 + 0.749326I$ $a = 1.96913 + 0.59401I$ $b = -0.796005 - 0.733148I$	$1.08148 - 1.33617I$	$-4.71591 + 0.70175I$
$u = 0.035822 - 0.749326I$ $a = 1.96913 - 0.59401I$ $b = -0.796005 + 0.733148I$	$1.08148 + 1.33617I$	$-4.71591 - 0.70175I$
$u = -1.209730 + 0.357771I$ $a = 0.429481 - 0.621272I$ $b = -0.796005 + 0.733148I$	$1.08148 + 1.33617I$	$-4.71591 - 0.70175I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.209730-0.357771I$ $a=\ 0.429481+0.621272I$ $b=-0.796005-0.733148I$	$1.08148-1.33617I$	$-4.71591+0.70175I$
$u=\ 1.253840+0.303492I$ $a=-1.61989-0.98839I$ $b=\ 0.628449-0.875112I$	$-2.67293-2.45442I$	$-9.67208+2.91298I$
$u=\ 1.253840-0.303492I$ $a=-1.61989+0.98839I$ $b=\ 0.628449+0.875112I$	$-2.67293+2.45442I$	$-9.67208-2.91298I$
$u=\ 1.308540+0.065670I$ $a=-0.41325-1.38121I$ $b=\ 0.140343-0.966856I$	$-5.07330-2.09337I$	$-12.51499+4.16283I$
$u=\ 1.308540-0.065670I$ $a=-0.41325+1.38121I$ $b=\ 0.140343+0.966856I$	$-5.07330+2.09337I$	$-12.51499-4.16283I$
$u=\ 1.311030+0.356898I$ $a=\ 1.61494+0.70203I$ $b=-0.728966+0.986295I$	$0.30826-7.08493I$	$-6.42320+5.91335I$
$u=\ 1.311030-0.356898I$ $a=\ 1.61494-0.70203I$ $b=-0.728966-0.986295I$	$0.30826+7.08493I$	$-6.42320-5.91335I$
$u=\ 0.285873$ $a=-3.02207$ $b=\ 0.512358$	-2.09142	-3.34770

III. $I_3^u = \langle b,\ a+1,\ u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.00000$ $b = \quad 0$	-3.28987	-12.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$u(u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1)^2$ $\cdot (u^{11} + 3u^{10} + 6u^9 + 7u^8 + 7u^7 + 3u^6 - 2u^5 - 8u^4 - 7u^3 - 5u^2 - 2u - 2)$
c_2, c_3, c_7	$(u + 1)$ $\cdot (u^{11} - u^{10} - 5u^9 + 4u^8 + 9u^7 - 4u^6 - 5u^5 - 3u^4 - 3u^3 + 5u^2 + 3u + 1)$ $\cdot (u^{18} - u^{17} + \cdots + 2u - 1)$
c_4, c_5, c_9	$(u - 1)$ $\cdot (u^{11} - u^{10} - 5u^9 + 4u^8 + 9u^7 - 4u^6 - 5u^5 - 3u^4 - 3u^3 + 5u^2 + 3u + 1)$ $\cdot (u^{18} - u^{17} + \cdots + 2u - 1)$
c_8, c_{10}	$u(u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1)^2$ $\cdot (u^{11} + 3u^{10} + \cdots - 16u - 4)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^2$ $\cdot (y^{11} + 3y^{10} + \cdots - 16y - 4)$
c_2, c_3, c_4 c_5, c_7, c_9	$(y-1)(y^{11} - 11y^{10} + \cdots - y - 1)(y^{18} - 13y^{17} + \cdots - 12y + 1)$
c_8, c_{10}	$y(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^2$ $\cdot (y^{11} + 7y^{10} + \cdots + 24y - 16)$