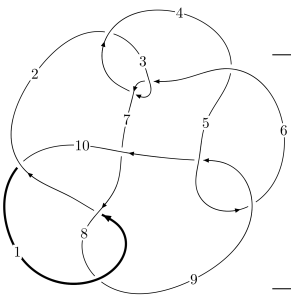
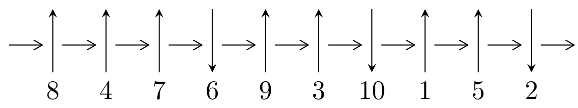
10_{73} $(K10a_3)$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{42} - u^{41} + \cdots + u^2 + b,\ -11u^{42} - 26u^{41} + \cdots + 2a + 15,\ u^{43} + 3u^{42} + \cdots - 3u - 1\rangle$$
$$I_2^u = \langle b,\ a^2 - a + 1,\ u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 45 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. $\boldsymbol{I^u_1 =}$
$\boldsymbol{\langle -u^{42}-u^{41}+\cdots+u^2+b,\ -11u^{42}-26u^{41}+\cdots+2a+15,\ u^{43}+3u^{42}+\cdots-3u-1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^3 \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{11}{2}u^{42} + 13u^{41} + \cdots - 13u - \frac{15}{2} \\ u^{42} + u^{41} + \cdots - u^3 - u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{2}u^{42} - u^{41} + \cdots + u + \frac{1}{2} \\ u^{11} - 3u^9 - 2u^8 + 4u^7 + 4u^6 - u^5 - 4u^4 - u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 5u^{42} + 11u^{41} + \cdots - 11u - 6 \\ \frac{3}{2}u^{42} + 3u^{41} + \cdots - 2u - \frac{3}{2} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{11}{2}u^{42} + 11u^{41} + \cdots - 11u - \frac{13}{2} \\ u^{41} + 2u^{40} + \cdots - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6u^{42} - 15u^{41} + \cdots + 19u + 13$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{43} + 2u^{42} + \cdots + 4u^2 - 1$
c_2	$u^{43} - 23u^{42} + \cdots + 3u - 1$
c_3, c_6	$u^{43} + 3u^{42} + \cdots - 3u - 1$
c_4	$u^{43} + 15u^{42} + \cdots - 136u - 16$
c_5, c_9	$u^{43} - u^{42} + \cdots + 8u - 4$
c_7	$u^{43} - 2u^{42} + \cdots + 54u - 9$
c_{10}	$u^{43} + 20u^{42} + \cdots + 8u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{43} + 20y^{42} + \cdots + 8y - 1$
c_2	$y^{43} - 3y^{42} + \cdots + 23y - 1$
c_3, c_6	$y^{43} - 23y^{42} + \cdots + 3y - 1$
c_4	$y^{43} + 23y^{42} + \cdots + 4128y - 256$
c_5, c_9	$y^{43} + 15y^{42} + \cdots - 136y - 16$
c_7	$y^{43} - 4y^{42} + \cdots + 2520y - 81$
c_{10}	$y^{43} + 8y^{42} + \cdots + 140y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.702205 + 0.692426I$ $a = -0.216763 + 1.063530I$ $b = -0.000164 - 0.427737I$	$-5.79250 + 1.33127I$	$-3.13829 - 0.68119I$
$u = -0.702205 - 0.692426I$ $a = -0.216763 - 1.063530I$ $b = -0.000164 + 0.427737I$	$-5.79250 - 1.33127I$	$-3.13829 + 0.68119I$
$u = -0.781262 + 0.586254I$ $a = 0.083513 - 0.751531I$ $b = -0.318284 + 0.078334I$	$-2.37041 - 2.31340I$	$1.61332 + 3.65794I$
$u = -0.781262 - 0.586254I$ $a = 0.083513 + 0.751531I$ $b = -0.318284 - 0.078334I$	$-2.37041 + 2.31340I$	$1.61332 - 3.65794I$
$u = 0.983429 + 0.401988I$ $a = -0.18299 + 1.51178I$ $b = 0.95580 - 1.21635I$	$0.117899 + 0.694763I$	$2.77512 - 0.93635I$
$u = 0.983429 - 0.401988I$ $a = -0.18299 - 1.51178I$ $b = 0.95580 + 1.21635I$	$0.117899 - 0.694763I$	$2.77512 + 0.93635I$
$u = -0.856054 + 0.662832I$ $a = -0.459912 + 0.582589I$ $b = 0.671689 - 0.315858I$	$-5.34910 - 6.48185I$	$-1.72488 + 7.04551I$
$u = -0.856054 - 0.662832I$ $a = -0.459912 - 0.582589I$ $b = 0.671689 + 0.315858I$	$-5.34910 + 6.48185I$	$-1.72488 - 7.04551I$
$u = -0.225042 + 0.862192I$ $a = -0.295884 - 0.330542I$ $b = 1.27608 - 1.18759I$	$-1.69061 + 8.49752I$	$0.86281 - 6.51033I$
$u = -0.225042 - 0.862192I$ $a = -0.295884 + 0.330542I$ $b = 1.27608 + 1.18759I$	$-1.69061 - 8.49752I$	$0.86281 + 6.51033I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.344780+0.758252I$ $a=-0.130381-0.811333I$ $b=\ \ 0.921218-0.514197I$	$-4.05606+1.05891I$	$-2.88403-0.52575I$
$u=-0.344780-0.758252I$ $a=-0.130381+0.811333I$ $b=\ \ 0.921218+0.514197I$	$-4.05606-1.05891I$	$-2.88403+0.52575I$
$u=-0.199953+0.800457I$ $a=\ \ 0.051467+0.372242I$ $b=-0.93072+1.17107I$	$0.47003+3.49797I$	$3.95877-2.64358I$
$u=-0.199953-0.800457I$ $a=\ \ 0.051467-0.372242I$ $b=-0.93072-1.17107I$	$0.47003-3.49797I$	$3.95877+2.64358I$
$u=\ \ 1.178400+0.107020I$ $a=\ \ 0.396216-0.024715I$ $b=-0.090847-0.484893I$	$0.86535+1.34877I$	$0.663414+0.523198I$
$u=\ \ 1.178400-0.107020I$ $a=\ \ 0.396216+0.024715I$ $b=-0.090847+0.484893I$	$0.86535-1.34877I$	$0.663414-0.523198I$
$u=-1.113040+0.411275I$ $a=-1.45881+1.05016I$ $b=-0.432177-1.242820I$	$3.14686-0.23394I$	$6.25545+1.76917I$
$u=-1.113040-0.411275I$ $a=-1.45881-1.05016I$ $b=-0.432177+1.242820I$	$3.14686+0.23394I$	$6.25545-1.76917I$
$u=\ \ 1.140070+0.437496I$ $a=-0.80318-1.92969I$ $b=-0.35123+1.92571I$	$4.51030+2.45703I$	$9.07720-1.39524I$
$u=\ \ 1.140070-0.437496I$ $a=-0.80318+1.92969I$ $b=-0.35123-1.92571I$	$4.51030-2.45703I$	$9.07720+1.39524I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.126240 + 0.485857I$ $a = 0.62977 + 2.31079I$ $b = 0.62085 - 2.17017I$	$2.59778 + 7.42216I$	$5.67783 - 6.16302I$
$u = 1.126240 - 0.485857I$ $a = 0.62977 - 2.31079I$ $b = 0.62085 + 2.17017I$	$2.59778 - 7.42216I$	$5.67783 + 6.16302I$
$u = -1.139980 + 0.455119I$ $a = 1.12604 - 1.46501I$ $b = 0.68367 + 1.40137I$	$4.38701 - 5.48645I$	$8.10083 + 6.46210I$
$u = -1.139980 - 0.455119I$ $a = 1.12604 + 1.46501I$ $b = 0.68367 - 1.40137I$	$4.38701 + 5.48645I$	$8.10083 - 6.46210I$
$u = 0.769344$ $a = -0.716816$ $b = 0.736269$	1.12210	9.24310
$u = -1.116400 + 0.556388I$ $a = -0.04192 + 1.41433I$ $b = -1.30408 - 1.10564I$	$-1.77735 - 6.01104I$	$0. + 4.92263I$
$u = -1.116400 - 0.556388I$ $a = -0.04192 - 1.41433I$ $b = -1.30408 + 1.10564I$	$-1.77735 + 6.01104I$	$0. - 4.92263I$
$u = 1.207770 + 0.337329I$ $a = -1.27016 - 1.08338I$ $b = 0.27337 + 1.44443I$	$4.74199 + 0.21154I$	$9.28481 + 0.I$
$u = 1.207770 - 0.337329I$ $a = -1.27016 + 1.08338I$ $b = 0.27337 - 1.44443I$	$4.74199 - 0.21154I$	$9.28481 + 0.I$
$u = 0.596984 + 0.406248I$ $a = 1.37593 - 0.78349I$ $b = -1.384640 - 0.071781I$	$-1.01538 + 2.84865I$	$1.39768 - 5.43636I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.596984 - 0.406248I$ $a = 1.37593 + 0.78349I$ $b = -1.384640 + 0.071781I$	$-1.01538 - 2.84865I$	$1.39768 + 5.43636I$
$u = 1.253070 + 0.301863I$ $a = 1.51757 + 0.68122I$ $b = -0.561583 - 1.231910I$	$3.01994 - 4.67918I$	$0. + 5.37573I$
$u = 1.253070 - 0.301863I$ $a = 1.51757 - 0.68122I$ $b = -0.561583 + 1.231910I$	$3.01994 + 4.67918I$	$0. - 5.37573I$
$u = -1.177230 + 0.535254I$ $a = 0.33951 - 2.06230I$ $b = 1.28426 + 1.59104I$	$3.34693 - 8.44363I$	0
$u = -1.177230 - 0.535254I$ $a = 0.33951 + 2.06230I$ $b = 1.28426 - 1.59104I$	$3.34693 + 8.44363I$	0
$u = -0.674002 + 0.118500I$ $a = -0.26643 - 1.82830I$ $b = -0.006255 - 0.381927I$	$0.77235 - 2.35753I$	$-0.15632 + 5.03988I$
$u = -0.674002 - 0.118500I$ $a = -0.26643 + 1.82830I$ $b = -0.006255 + 0.381927I$	$0.77235 + 2.35753I$	$-0.15632 - 5.03988I$
$u = -1.191540 + 0.559537I$ $a = -0.06666 + 2.26638I$ $b = -1.51037 - 1.66131I$	$1.20075 - 13.70690I$	0
$u = -1.191540 - 0.559537I$ $a = -0.06666 - 2.26638I$ $b = -1.51037 + 1.66131I$	$1.20075 + 13.70690I$	0
$u = -0.025551 + 0.621606I$ $a = -0.721932 + 0.454368I$ $b = 0.017381 + 1.186670I$	$1.39154 + 1.44262I$	$5.16219 - 3.23191I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.025551 - 0.621606I$ $a = -0.721932 - 0.454368I$ $b = 0.017381 - 1.186670I$	$1.39154 - 1.44262I$	$5.16219 + 3.23191I$
$u = 0.176403 + 0.591173I$ $a = 1.253380 - 0.348319I$ $b = -0.682100 - 1.225820I$	$-0.03125 - 3.16118I$	$2.63487 + 2.30647I$
$u = 0.176403 - 0.591173I$ $a = 1.253380 + 0.348319I$ $b = -0.682100 + 1.225820I$	$-0.03125 + 3.16118I$	$2.63487 - 2.30647I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a + 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	$0.500000 + 0.866025I$	$1.64493 - 2.02988I$	$9.00000 + 3.46410I$
$b =$	0		
$u =$	1.00000		
$a =$	$0.500000 - 0.866025I$	$1.64493 + 2.02988I$	$9.00000 - 3.46410I$
$b =$	0		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2 - u + 1)(u^{43} + 2u^{42} + \cdots + 4u^2 - 1)$
c_2	$((u+1)^2)(u^{43} - 23u^{42} + \cdots + 3u - 1)$
c_3	$((u+1)^2)(u^{43} + 3u^{42} + \cdots - 3u - 1)$
c_4	$u^2(u^{43} + 15u^{42} + \cdots - 136u - 16)$
c_5, c_9	$u^2(u^{43} - u^{42} + \cdots + 8u - 4)$
c_6	$((u-1)^2)(u^{43} + 3u^{42} + \cdots - 3u - 1)$
c_7	$(u^2 - u + 1)(u^{43} - 2u^{42} + \cdots + 54u - 9)$
c_8	$(u^2 + u + 1)(u^{43} + 2u^{42} + \cdots + 4u^2 - 1)$
c_{10}	$(u^2 - u + 1)(u^{43} + 20u^{42} + \cdots + 8u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^2+y+1)(y^{43}+20y^{42}+\cdots+8y-1)$
c_2	$((y-1)^2)(y^{43}-3y^{42}+\cdots+23y-1)$
c_3, c_6	$((y-1)^2)(y^{43}-23y^{42}+\cdots+3y-1)$
c_4	$y^2(y^{43}+23y^{42}+\cdots+4128y-256)$
c_5, c_9	$y^2(y^{43}+15y^{42}+\cdots-136y-16)$
c_7	$(y^2+y+1)(y^{43}-4y^{42}+\cdots+2520y-81)$
c_{10}	$(y^2+y+1)(y^{43}+8y^{42}+\cdots+140y-1)$