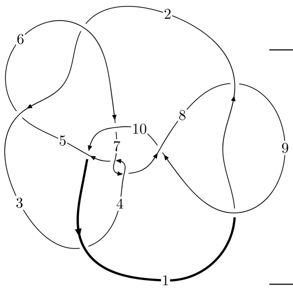
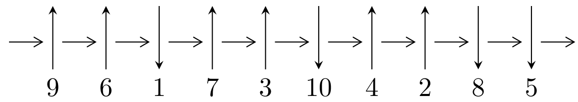
10_{96} $(K10a_{24})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -5272122u^{17} + 4798544u^{16} + \cdots + 515379667b + 28315457, \\
& 38859701u^{17} + 11491400u^{16} + \cdots + 206151868a - 139434563, \\
& u^{18} + 4u^{16} + 9u^{14} - u^{13} + 12u^{12} - 3u^{11} + 11u^{10} - 5u^9 + 8u^8 + 4u^7 + 2u^6 + 6u^5 + 8u^4 + 7u^3 + u^2 + 3u + 4\rangle \\
I_2^u = \langle & u^{14}a - 2u^{14} + \cdots - 2a - 1,\ 2u^{14}a + 2u^{14} + \cdots + a^2 + 4a, \\
& u^{15} - u^{14} + 4u^{13} - 3u^{12} + 8u^{11} - 6u^{10} + 10u^9 - 7u^8 + 8u^7 - 6u^6 + 6u^5 - 4u^4 + 4u^3 - 2u^2 + 2u - 1\rangle \\
I_3^u = \langle & b - 1,\ 2a + 2u + 3,\ u^2 + u + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 50 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.

$\boldsymbol{I_1^u = \langle -5.27\times 10^{6}u^{17} + 4.80\times 10^{6}u^{16} + \cdots + 5.15\times 10^{7}b + 2.83\times 10^{7},\ 3.89\times 10^{7}u^{17} + 1.15\times 10^{7}u^{16} + \cdots + 2.06\times 10^{8}a - 1.39\times 10^{8},\ u^{18} + 4u^{16} + \cdots + 3u + 4\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u^2+1\\-u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.188500u^{17} - 0.0557424u^{16} + \cdots + 0.154930u + 0.676368\\0.102296u^{17} - 0.0931070u^{16} + \cdots - 0.813721u - 0.549410\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.166761u^{17} - 0.0607885u^{16} + \cdots + 0.283272u + 1.04603\\0.0148237u^{17} - 0.207715u^{16} + \cdots - 0.870244u - 0.939258\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.234815u^{17} + 0.0148237u^{16} + \cdots - 0.790765u - 0.165801\\-0.0607885u^{17} + 0.189164u^{16} + \cdots + 1.54632u + 0.667045\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.373129u^{17} - 0.128980u^{16} + \cdots + 0.922103u + 1.59149\\0.128980u^{17} - 0.289335u^{16} + \cdots - 2.71088u - 1.49252\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.137352u^{17} + 0.102296u^{16} + \cdots - 0.248070u - 0.401663\\-0.0557424u^{17} + 0.123431u^{16} + \cdots + 1.24187u + 0.754001\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{23479367}{51537967}u^{17} - \frac{127343919}{206151868}u^{16} + \cdots + \frac{657635827}{206151868}u + \frac{414460539}{51537967}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{18} + 4u^{16} + \cdots - 3u + 4$
c_2, c_4, c_5 c_7	$u^{18} - 2u^{17} + \cdots - u + 1$
c_3, c_6	$4(4u^{18} - 6u^{17} + \cdots + u + 1)$
c_9	$u^{18} + 8u^{17} + \cdots - u + 16$
c_{10}	$u^{18} + 3u^{17} + \cdots + 120u + 32$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{18} + 8y^{17} + \cdots - y + 16$
c_2, c_4, c_5 c_7	$y^{18} + 8y^{17} + \cdots + 17y + 1$
c_3, c_6	$16(16y^{18} - 28y^{17} + \cdots + 11y + 1)$
c_9	$y^{18} + 4y^{17} + \cdots + 735y + 256$
c_{10}	$y^{18} - 5y^{17} + \cdots - 4288y + 1024$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.954364 + 0.371541I$ $a = -0.854485 + 0.746417I$ $b = 0.527077 - 1.253950I$	$-3.68268 - 9.36876I$	$-0.27355 + 5.71519I$
$u = 0.954364 - 0.371541I$ $a = -0.854485 - 0.746417I$ $b = 0.527077 + 1.253950I$	$-3.68268 + 9.36876I$	$-0.27355 - 5.71519I$
$u = 0.495157 + 0.969336I$ $a = 0.811360 - 1.129300I$ $b = -1.278490 + 0.262032I$	$1.41086 + 2.64017I$	$-3.75807 - 9.26255I$
$u = 0.495157 - 0.969336I$ $a = 0.811360 + 1.129300I$ $b = -1.278490 - 0.262032I$	$1.41086 - 2.64017I$	$-3.75807 + 9.26255I$
$u = -0.567357 + 0.706169I$ $a = -0.421889 - 0.044039I$ $b = 0.123272 + 0.375141I$	$0.11776 - 1.42471I$	$0.46661 + 2.50425I$
$u = -0.567357 - 0.706169I$ $a = -0.421889 + 0.044039I$ $b = 0.123272 - 0.375141I$	$0.11776 + 1.42471I$	$0.46661 - 2.50425I$
$u = 0.501769 + 0.662267I$ $a = 1.69141 - 0.67535I$ $b = -1.010020 - 0.434093I$	$2.35859 + 1.45777I$	$5.68941 + 2.64543I$
$u = 0.501769 - 0.662267I$ $a = 1.69141 + 0.67535I$ $b = -1.010020 + 0.434093I$	$2.35859 - 1.45777I$	$5.68941 - 2.64543I$
$u = -0.881883 + 0.896090I$ $a = -0.838759 + 0.128282I$ $b = 0.278239 - 0.862332I$	$-0.64162 - 4.35809I$	$2.09542 + 8.94470I$
$u = -0.881883 - 0.896090I$ $a = -0.838759 - 0.128282I$ $b = 0.278239 + 0.862332I$	$-0.64162 + 4.35809I$	$2.09542 - 8.94470I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.715844 + 0.165207I$ $a = 0.153155 + 0.140793I$ $b = -0.254607 + 0.632963I$	$0.38947 - 1.38737I$	$5.20835 + 5.01616I$
$u = -0.715844 - 0.165207I$ $a = 0.153155 - 0.140793I$ $b = -0.254607 - 0.632963I$	$0.38947 + 1.38737I$	$5.20835 - 5.01616I$
$u = 0.644327 + 1.178320I$ $a = -1.77812 + 0.47961I$ $b = 0.57190 + 1.33178I$	$-6.1478 + 15.1779I$	$-2.47148 - 8.89088I$
$u = 0.644327 - 1.178320I$ $a = -1.77812 - 0.47961I$ $b = 0.57190 - 1.33178I$	$-6.1478 - 15.1779I$	$-2.47148 + 8.89088I$
$u = 0.123550 + 1.355420I$ $a = -0.009343 - 0.587707I$ $b = 0.343795 - 1.275010I$	$-9.80486 - 5.84779I$	$-6.18830 + 4.95030I$
$u = 0.123550 - 1.355420I$ $a = -0.009343 + 0.587707I$ $b = 0.343795 + 1.275010I$	$-9.80486 + 5.84779I$	$-6.18830 - 4.95030I$
$u = -0.554083 + 1.298630I$ $a = 0.871664 + 0.626444I$ $b = -0.301163 + 1.054570I$	$-3.73889 - 6.36829I$	$-2.64340 + 9.34206I$
$u = -0.554083 - 1.298630I$ $a = 0.871664 - 0.626444I$ $b = -0.301163 - 1.054570I$	$-3.73889 + 6.36829I$	$-2.64340 - 9.34206I$

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle u^{14}a-2u^{14}+\cdots-2a-1,\ 2u^{14}a+2u^{14}+\cdots+a^2+4a,\ u^{15}-u^{14}+\cdots+2u-1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ -u^{14}a+2u^{14}+\cdots+2a+1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 3u^{13}a-3u^{14}+\cdots-2a-2 \\ -2u^{14}a+2u^{14}+\cdots+2a+2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2u^{14}a+4u^{13}a+\cdots-a+5 \\ -3u^{14}a-u^{14}+\cdots-4u+1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^{14}+3u^{12}+6u^{10}+7u^8+6u^6+4u^4+2u^2+1 \\ -u^{14}+u^{13}+\cdots+u-1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -2u^{14}a-u^{14}+\cdots-2u+4 \\ 2u^{14}-2u^{13}+\cdots-au-2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$(u^{15} + u^{14} + \cdots + 2u + 1)^2$
c_2, c_4, c_5 c_7	$u^{30} + 5u^{29} + \cdots + 2u + 1$
c_3, c_6	$u^{30} + u^{29} + \cdots - 162u + 29$
c_9	$(u^{15} + 7u^{14} + \cdots + 4u^2 - 1)^2$
c_{10}	$(u^{15} - u^{14} + \cdots + 2u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^{15} + 7y^{14} + \cdots + 4y^2 - 1)^2$
c_2, c_4, c_5 c_7	$y^{30} + 19y^{29} + \cdots - 20y^2 + 1$
c_3, c_6	$y^{30} - 13y^{29} + \cdots + 21316y + 841$
c_9	$(y^{15} + 3y^{14} + \cdots + 8y - 1)^2$
c_{10}	$(y^{15} - 5y^{14} + \cdots + 12y^3 - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.385605 + 0.867795I$ $a = 3.01190 + 0.62486I$ $b = -0.160281 - 0.896058I$	$-3.64104 - 1.66084I$	$1.51042 + 3.96405I$
$u = -0.385605 + 0.867795I$ $a = 0.98340 + 3.53440I$ $b = -0.081650 + 1.113800I$	$-3.64104 - 1.66084I$	$1.51042 + 3.96405I$
$u = -0.385605 - 0.867795I$ $a = 3.01190 - 0.62486I$ $b = -0.160281 + 0.896058I$	$-3.64104 + 1.66084I$	$1.51042 - 3.96405I$
$u = -0.385605 - 0.867795I$ $a = 0.98340 - 3.53440I$ $b = -0.081650 - 1.113800I$	$-3.64104 + 1.66084I$	$1.51042 - 3.96405I$
$u = 0.146928 + 1.062740I$ $a = -0.532247 + 0.803689I$ $b = -0.235764 + 1.349700I$	$-5.11062 - 2.07402I$	$-3.82822 + 2.67122I$
$u = 0.146928 + 1.062740I$ $a = -0.336119 + 0.803807I$ $b = 0.789375 - 0.319437I$	$-5.11062 - 2.07402I$	$-3.82822 + 2.67122I$
$u = 0.146928 - 1.062740I$ $a = -0.532247 - 0.803689I$ $b = -0.235764 - 1.349700I$	$-5.11062 + 2.07402I$	$-3.82822 - 2.67122I$
$u = 0.146928 - 1.062740I$ $a = -0.336119 - 0.803807I$ $b = 0.789375 + 0.319437I$	$-5.11062 + 2.07402I$	$-3.82822 - 2.67122I$
$u = -0.715401 + 0.518352I$ $a = -0.495626 + 0.162788I$ $b = 0.253544 + 0.465102I$	$0.24352 - 1.50523I$	$4.15133 + 2.74048I$
$u = -0.715401 + 0.518352I$ $a = 0.203961 - 0.302035I$ $b = -0.220274 + 0.713343I$	$0.24352 - 1.50523I$	$4.15133 + 2.74048I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.715401 - 0.518352I$ $a = -0.495626 - 0.162788I$ $b = 0.253544 - 0.465102I$	$0.24352 + 1.50523I$	$4.15133 - 2.74048I$
$u = -0.715401 - 0.518352I$ $a = 0.203961 + 0.302035I$ $b = -0.220274 - 0.713343I$	$0.24352 + 1.50523I$	$4.15133 - 2.74048I$
$u = 0.758945 + 0.422629I$ $a = 0.732399 - 1.007910I$ $b = -0.549307 + 1.203290I$	$-0.27297 - 4.09199I$	$3.04427 + 3.15094I$
$u = 0.758945 + 0.422629I$ $a = -1.52820 + 0.36163I$ $b = 0.930770 + 0.153909I$	$-0.27297 - 4.09199I$	$3.04427 + 3.15094I$
$u = 0.758945 - 0.422629I$ $a = 0.732399 + 1.007910I$ $b = -0.549307 - 1.203290I$	$-0.27297 + 4.09199I$	$3.04427 - 3.15094I$
$u = 0.758945 - 0.422629I$ $a = -1.52820 - 0.36163I$ $b = 0.930770 - 0.153909I$	$-0.27297 + 4.09199I$	$3.04427 - 3.15094I$
$u = 0.426893 + 1.085670I$ $a = 0.497713 - 0.065950I$ $b = 0.38528 - 1.46920I$	$-7.49803 + 3.60340I$	$-6.16372 - 4.47672I$
$u = 0.426893 + 1.085670I$ $a = -1.91914 + 0.58198I$ $b = 0.672463 + 1.225340I$	$-7.49803 + 3.60340I$	$-6.16372 - 4.47672I$
$u = 0.426893 - 1.085670I$ $a = 0.497713 + 0.065950I$ $b = 0.38528 + 1.46920I$	$-7.49803 - 3.60340I$	$-6.16372 + 4.47672I$
$u = 0.426893 - 1.085670I$ $a = -1.91914 - 0.58198I$ $b = 0.672463 - 1.225340I$	$-7.49803 - 3.60340I$	$-6.16372 + 4.47672I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.594997+1.040830I$ $a=-1.57156-0.42279I$ $b=\ \ 0.212345-0.992556I$	$-1.30682-3.51852I$	$1.71302+2.59027I$
$u=-0.594997+1.040830I$ $a=\ \ 0.257459-0.239199I$ $b=-0.368301-0.106759I$	$-1.30682-3.51852I$	$1.71302+2.59027I$
$u=-0.594997-1.040830I$ $a=-1.57156+0.42279I$ $b=\ \ 0.212345+0.992556I$	$-1.30682+3.51852I$	$1.71302-2.59027I$
$u=-0.594997-1.040830I$ $a=\ \ 0.257459+0.239199I$ $b=-0.368301+0.106759I$	$-1.30682+3.51852I$	$1.71302-2.59027I$
$u=\ \ 0.594032+1.095620I$ $a=-0.858900+0.821598I$ $b=\ \ 1.119760-0.096018I$	$-2.26357+9.21780I$	$-0.14540-7.39135I$
$u=\ \ 0.594032+1.095620I$ $a=\ \ 1.85470-0.46519I$ $b=-0.61782-1.34369I$	$-2.26357+9.21780I$	$-0.14540-7.39135I$
$u=\ \ 0.594032-1.095620I$ $a=-0.858900-0.821598I$ $b=\ \ 1.119760+0.096018I$	$-2.26357-9.21780I$	$-0.14540+7.39135I$
$u=\ \ 0.594032-1.095620I$ $a=\ \ 1.85470+0.46519I$ $b=-0.61782+1.34369I$	$-2.26357-9.21780I$	$-0.14540+7.39135I$
$u=\ \ 0.538411$ $a=-1.79974+1.43818I$ $b=\ \ 0.369866-1.187600I$	-4.71415	-2.56340
$u=\ \ 0.538411$ $a=-1.79974-1.43818I$ $b=\ \ 0.369866+1.187600I$	-4.71415	-2.56340

III. $I_3^u = \langle b-1,\ 2a+2u+3,\ u^2+u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{1}{4}u+2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^2 - u + 1$
c_2, c_4	$(u+1)^2$
c_3	$4(4u^2 + 2u + 1)$
c_5, c_7	$(u-1)^2$
c_6	$4(4u^2 - 2u + 1)$
c_8, c_9	$u^2 + u + 1$
c_{10}	u^2

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8, c_9	$y^2 + y + 1$
c_2, c_4, c_5 c_7	$(y-1)^2$
c_3, c_6	$16(16y^2 + 4y + 1)$
c_{10}	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -1.000000 - 0.866025I$ $b = \quad 1.00000$	$1.64493 - 2.02988I$	$1.87500 + 0.21651I$
$u = -0.500000 - 0.866025I$ $a = -1.000000 + 0.866025I$ $b = \quad 1.00000$	$1.64493 + 2.02988I$	$1.87500 - 0.21651I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)(u^{15}+u^{14}+\cdots+2u+1)^2(u^{18}+4u^{16}+\cdots-3u+4)$
c_2, c_4	$((u+1)^2)(u^{18}-2u^{17}+\cdots-u+1)(u^{30}+5u^{29}+\cdots+2u+1)$
c_3	$16(4u^2+2u+1)(4u^{18}-6u^{17}+\cdots+u+1)(u^{30}+u^{29}+\cdots-162u+29)$
c_5, c_7	$((u-1)^2)(u^{18}-2u^{17}+\cdots-u+1)(u^{30}+5u^{29}+\cdots+2u+1)$
c_6	$16(4u^2-2u+1)(4u^{18}-6u^{17}+\cdots+u+1)(u^{30}+u^{29}+\cdots-162u+29)$
c_8	$(u^2+u+1)(u^{15}+u^{14}+\cdots+2u+1)^2(u^{18}+4u^{16}+\cdots-3u+4)$
c_9	$(u^2+u+1)(u^{15}+7u^{14}+\cdots+4u^2-1)^2(u^{18}+8u^{17}+\cdots-u+16)$
c_{10}	$u^2(u^{15}-u^{14}+\cdots+2u-1)^2(u^{18}+3u^{17}+\cdots+120u+32)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^2+y+1)(y^{15}+7y^{14}+\cdots+4y^2-1)^2(y^{18}+8y^{17}+\cdots-y+16)$
c_2, c_4, c_5 c_7	$((y-1)^2)(y^{18}+8y^{17}+\cdots+17y+1)(y^{30}+19y^{29}+\cdots-20y^2+1)$
c_3, c_6	$256(16y^2+4y+1)(16y^{18}-28y^{17}+\cdots+11y+1)$ $\cdot(y^{30}-13y^{29}+\cdots+21316y+841)$
c_9	$(y^2+y+1)(y^{15}+3y^{14}+\cdots+8y-1)^2$ $\cdot(y^{18}+4y^{17}+\cdots+735y+256)$
c_{10}	$y^2(y^{15}-5y^{14}+\cdots+12y^3-1)^2(y^{18}-5y^{17}+\cdots-4288y+1024)$