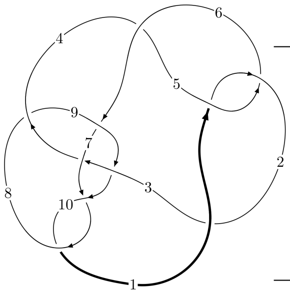
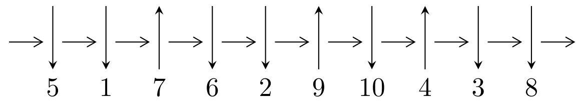
10_{84} ($K10a_{50}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -26695942110849u^{43} + 24221062450767u^{42} + \cdots + 146051535266254b + 143537280527879, \\
& -958891166678785u^{43} + 1195830341741191u^{42} + \cdots + 146051535266254a + 928016870112473, \\
& u^{44} - 2u^{43} + \cdots - 5u + 1 \rangle \\
I_2^u = \langle & b + 1,\ a + 2,\ u - 1 \rangle
\end{aligned}$$

* 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.

$\boldsymbol{I_1^u = \langle -2.67\times10^{13}u^{43}+2.42\times10^{13}u^{42}+\cdots+1.46\times10^{14}b+1.44\times10^{14},\ -9.59\times10^{14}u^{43}+1.20\times10^{15}u^{42}+\cdots+1.46\times10^{14}a+9.28\times10^{14},\ u^{44}-2u^{43}+\cdots-5u+1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u^3\\u^5-u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}6.56543u^{43}-8.18773u^{42}+\cdots+35.0046u-6.35404\\0.182784u^{43}-0.165839u^{42}+\cdots-0.0574672u-0.982785\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}6.55549u^{43}-8.08325u^{42}+\cdots+36.0390u-5.60107\\0.268862u^{43}-0.336643u^{42}+\cdots+0.229869u-1.06886\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-0.202656u^{43}-0.625196u^{42}+\cdots-1.87375u-0.511274\\-0.827844u^{43}+1.65839u^{42}+\cdots-3.42533u+0.827852\end{pmatrix}$$
$$a_9 = \begin{pmatrix}4.95923u^{43}-5.84946u^{42}+\cdots+26.4222u-4.00846\\-1.49853u^{43}+1.58954u^{42}+\cdots-9.24326u+1.49850\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= -\frac{2627515223052688}{73025767633127}u^{43}+\frac{3096365063700750}{73025767633127}u^{42}+\cdots-\frac{11221793809688154}{73025767633127}u+\frac{2703461955268724}{73025767633127}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{44} + 2u^{43} + \cdots + 5u + 1$
c_2, c_4	$u^{44} + 14u^{43} + \cdots - u + 1$
c_3	$u^{44} + 4u^{43} + \cdots - u - 1$
c_6	$u^{44} + 7u^{43} + \cdots - 2u + 2$
c_7, c_{10}	$u^{44} - 2u^{43} + \cdots - 5u - 1$
c_8	$u^{44} - 2u^{43} + \cdots - 17u - 11$
c_9	$u^{44} - 4u^{43} + \cdots - 21u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{44} - 14y^{43} + \cdots + y + 1$
c_2, c_4	$y^{44} + 34y^{43} + \cdots + 137y + 1$
c_3	$y^{44} + 6y^{43} + \cdots + y + 1$
c_6	$y^{44} - 9y^{43} + \cdots - 40y + 4$
c_7, c_{10}	$y^{44} - 26y^{43} + \cdots - 71y + 1$
c_8	$y^{44} - 42y^{43} + \cdots - 2995y + 121$
c_9	$y^{44} - 38y^{43} + \cdots - 123y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.927602 + 0.226351I$ $a = -0.224310 - 0.062924I$ $b = -0.115105 + 0.911207I$	$-1.13001 + 3.88298I$	$-6.50680 - 7.75927I$
$u = -0.927602 - 0.226351I$ $a = -0.224310 + 0.062924I$ $b = -0.115105 - 0.911207I$	$-1.13001 - 3.88298I$	$-6.50680 + 7.75927I$
$u = 0.778786 + 0.710214I$ $a = 1.43805 - 0.91909I$ $b = -1.049480 + 0.821846I$	$0.040125 + 0.820231I$	$-5.81896 - 3.03229I$
$u = 0.778786 - 0.710214I$ $a = 1.43805 + 0.91909I$ $b = -1.049480 - 0.821846I$	$0.040125 - 0.820231I$	$-5.81896 + 3.03229I$
$u = -0.927070 + 0.063011I$ $a = -1.49031 - 0.50021I$ $b = -1.37113 + 0.48363I$	$-4.92583 + 1.73663I$	$-14.9087 - 4.1335I$
$u = -0.927070 - 0.063011I$ $a = -1.49031 + 0.50021I$ $b = -1.37113 - 0.48363I$	$-4.92583 - 1.73663I$	$-14.9087 + 4.1335I$
$u = -0.658922 + 0.846151I$ $a = -0.183634 - 0.593747I$ $b = 0.865773 + 0.460561I$	$3.70844 - 0.99499I$	$0.63089 + 2.41468I$
$u = -0.658922 - 0.846151I$ $a = -0.183634 + 0.593747I$ $b = 0.865773 - 0.460561I$	$3.70844 + 0.99499I$	$0.63089 - 2.41468I$
$u = 0.878177 + 0.660456I$ $a = 0.670319 + 1.230810I$ $b = -1.59639 + 0.09563I$	$-1.82200 - 2.55706I$	$-9.50147 + 2.98004I$
$u = 0.878177 - 0.660456I$ $a = 0.670319 - 1.230810I$ $b = -1.59639 - 0.09563I$	$-1.82200 + 2.55706I$	$-9.50147 - 2.98004I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.840203+0.731796I$ $a=\ \ 0.53742+1.70678I$ $b=-0.912754-0.201576I$	$1.40942+2.09852I$	$-2.80453-11.50069I$
$u=-0.840203-0.731796I$ $a=\ \ 0.53742-1.70678I$ $b=-0.912754+0.201576I$	$1.40942-2.09852I$	$-2.80453+11.50069I$
$u=\ \ 0.772905+0.818777I$ $a=\ \ 0.33712-1.68078I$ $b=\ \ 0.254394+1.136870I$	$5.49636+2.42871I$	$0.-2.25678I$
$u=\ \ 0.772905-0.818777I$ $a=\ \ 0.33712+1.68078I$ $b=\ \ 0.254394-1.136870I$	$5.49636-2.42871I$	$0.+2.25678I$
$u=\ \ 0.709073+0.883385I$ $a=-0.840026+0.862508I$ $b=\ \ 1.27066-0.62408I$	$2.27409+8.60569I$	$-2.63926-4.58190I$
$u=\ \ 0.709073-0.883385I$ $a=-0.840026-0.862508I$ $b=\ \ 1.27066+0.62408I$	$2.27409-8.60569I$	$-2.63926+4.58190I$
$u=-1.117850+0.238085I$ $a=\ \ 1.25957+0.83369I$ $b=\ \ 1.277770-0.452951I$	$-5.29949+8.62766I$	$-9.10597-7.54655I$
$u=-1.117850-0.238085I$ $a=\ \ 1.25957-0.83369I$ $b=\ \ 1.277770+0.452951I$	$-5.29949-8.62766I$	$-9.10597+7.54655I$
$u=-0.902384+0.723912I$ $a=-0.42622-3.07845I$ $b=-0.993100+0.182802I$	$1.21777+3.45181I$	$0.+7.88863I$
$u=-0.902384-0.723912I$ $a=-0.42622+3.07845I$ $b=-0.993100-0.182802I$	$1.21777-3.45181I$	$0.-7.88863I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.940648 + 0.702120I$ $a = -0.12431 + 2.40011I$ $b = -1.20650 - 0.83342I$	$-0.45271 - 6.24747I$	$-7.31920 + 8.44159I$
$u = 0.940648 - 0.702120I$ $a = -0.12431 - 2.40011I$ $b = -1.20650 + 0.83342I$	$-0.45271 + 6.24747I$	$-7.31920 - 8.44159I$
$u = 1.18227$ $a = 1.12361$ $b = 0.834518$	-2.71479	5.71830
$u = 0.802912 + 0.142507I$ $a = 0.916574 + 0.518690I$ $b = -0.174142 - 0.024221I$	$-1.40557 - 0.34934I$	$-7.47293 + 0.48118I$
$u = 0.802912 - 0.142507I$ $a = 0.916574 - 0.518690I$ $b = -0.174142 + 0.024221I$	$-1.40557 + 0.34934I$	$-7.47293 - 0.48118I$
$u = 0.812067$ $a = -6.68009$ $b = -1.03778$	-2.95636	47.1560
$u = 0.098222 + 0.805268I$ $a = -0.628805 - 0.691139I$ $b = 1.121430 + 0.435398I$	$-1.20700 - 5.24815I$	$-2.80453 + 6.18731I$
$u = 0.098222 - 0.805268I$ $a = -0.628805 + 0.691139I$ $b = 1.121430 - 0.435398I$	$-1.20700 + 5.24815I$	$-2.80453 - 6.18731I$
$u = 1.133010 + 0.369128I$ $a = 0.498144 - 0.725878I$ $b = 1.113320 - 0.253728I$	$-4.55359 + 1.09231I$	$-9.24999 - 5.05772I$
$u = 1.133010 - 0.369128I$ $a = 0.498144 + 0.725878I$ $b = 1.113320 + 0.253728I$	$-4.55359 - 1.09231I$	$-9.24999 + 5.05772I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.835443 + 0.852874I$ $a = -0.056114 + 0.817361I$ $b = 0.565371 - 0.419340I$	$4.53169 + 2.82413I$	$0. - 4.92903I$
$u = -0.835443 - 0.852874I$ $a = -0.056114 - 0.817361I$ $b = 0.565371 + 0.419340I$	$4.53169 - 2.82413I$	$0. + 4.92903I$
$u = -0.940979 + 0.796566I$ $a = -0.298082 - 0.266590I$ $b = 0.375731 + 0.414152I$	$4.19341 + 3.30756I$	0
$u = -0.940979 - 0.796566I$ $a = -0.298082 + 0.266590I$ $b = 0.375731 - 0.414152I$	$4.19341 - 3.30756I$	0
$u = 0.973933 + 0.757495I$ $a = -1.09792 + 1.17097I$ $b = 0.181664 - 1.203370I$	$4.87682 - 8.33877I$	$0. + 7.62816I$
$u = 0.973933 - 0.757495I$ $a = -1.09792 - 1.17097I$ $b = 0.181664 + 1.203370I$	$4.87682 + 8.33877I$	$0. - 7.62816I$
$u = -1.046830 + 0.731985I$ $a = 0.54736 + 1.47326I$ $b = 0.992978 - 0.410523I$	$2.52892 + 6.89763I$	0
$u = -1.046830 - 0.731985I$ $a = 0.54736 - 1.47326I$ $b = 0.992978 + 0.410523I$	$2.52892 - 6.89763I$	0
$u = 1.033090 + 0.762400I$ $a = 0.30235 - 2.16182I$ $b = 1.32116 + 0.62604I$	$1.2704 - 14.7099I$	0
$u = 1.033090 - 0.762400I$ $a = 0.30235 + 2.16182I$ $b = 1.32116 - 0.62604I$	$1.2704 + 14.7099I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.109387 + 0.546973I$ $a = 0.696572 + 1.005610I$ $b = 0.218376 - 0.606022I$	$1.40694 - 1.21023I$	$2.44144 + 1.67923I$
$u = -0.109387 - 0.546973I$ $a = 0.696572 - 1.005610I$ $b = 0.218376 + 0.606022I$	$1.40694 + 1.21023I$	$2.44144 - 1.67923I$
$u = 0.188748 + 0.259164I$ $a = 2.94448 + 0.60372I$ $b = -1.038390 - 0.225035I$	$-1.92044 - 0.80342I$	$-4.41092 - 0.12174I$
$u = 0.188748 - 0.259164I$ $a = 2.94448 - 0.60372I$ $b = -1.038390 + 0.225035I$	$-1.92044 + 0.80342I$	$-4.41092 + 0.12174I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -2.00000$ $b = -1.00000$	-3.28987	-12.0000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)(u^{44}+2u^{43}+\cdots+5u+1)$
c_2	$(u+1)(u^{44}+14u^{43}+\cdots-u+1)$
c_3	$(u-1)(u^{44}+4u^{43}+\cdots-u-1)$
c_4	$(u-1)(u^{44}+14u^{43}+\cdots-u+1)$
c_5	$(u+1)(u^{44}+2u^{43}+\cdots+5u+1)$
c_6	$u(u^{44}+7u^{43}+\cdots-2u+2)$
c_7	$(u-1)(u^{44}-2u^{43}+\cdots-5u-1)$
c_8	$(u+1)(u^{44}-2u^{43}+\cdots-17u-11)$
c_9	$(u+1)(u^{44}-4u^{43}+\cdots-21u+1)$
c_{10}	$(u+1)(u^{44}-2u^{43}+\cdots-5u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y-1)(y^{44} - 14y^{43} + \cdots + y + 1)$
c_2, c_4	$(y-1)(y^{44} + 34y^{43} + \cdots + 137y + 1)$
c_3	$(y-1)(y^{44} + 6y^{43} + \cdots + y + 1)$
c_6	$y(y^{44} - 9y^{43} + \cdots - 40y + 4)$
c_7, c_{10}	$(y-1)(y^{44} - 26y^{43} + \cdots - 71y + 1)$
c_8	$(y-1)(y^{44} - 42y^{43} + \cdots - 2995y + 121)$
c_9	$(y-1)(y^{44} - 38y^{43} + \cdots - 123y + 1)$