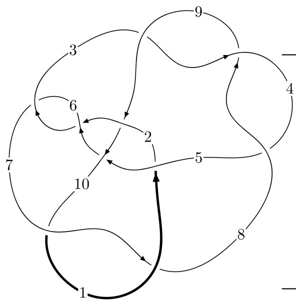
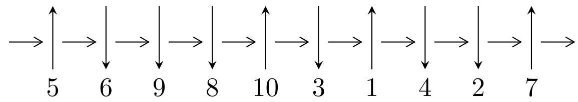
10_{102} $(K10a_{97})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & -2.25484 \times 10^{39} u^{42} + 2.20978 \times 10^{39} u^{41} + \cdots + 2.97870 \times 10^{39} b - 1.19885 \times 10^{39}, \\ & -3.16887 \times 10^{39} u^{42} - 4.11086 \times 10^{36} u^{41} + \cdots + 2.97870 \times 10^{39} a + 2.58687 \times 10^{40}, \\ & u^{43} - 12u^{41} + \cdots - 7u - 1 \rangle \\ I_2^u = \langle & u^6 - 3u^4 - u^3 + 6u^2 + b - 3,\ -u^6 - u^5 + u^4 + 2u^3 - 2u^2 + a - u - 1,\ u^7 + u^6 - 2u^5 - 3u^4 + 3u^3 + 3u^2 - \end{aligned}$$

* 2 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. $\boldsymbol{I_1^u = \langle -2.25\times 10^{39}u^{42} + 2.21\times 10^{39}u^{41} + \cdots + 2.98\times 10^{39}b - 1.20\times 10^{39},\ -3.17\times 10^{39}u^{42} - 4.11\times 10^{36}u^{41} + \cdots + 2.98\times 10^{39}a + 2.59\times 10^{40},\ u^{43} - 12u^{41} + \cdots - 7u - 1\rangle}$

(i) Arc colorings

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

$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$

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

$$a_7 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}1.06384u^{42} + 0.00138009u^{41} + \cdots - 8.11372u - 8.68458\\0.756988u^{42} - 0.741862u^{41} + \cdots - 0.408776u + 0.402477\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-0.534324u^{42} - 0.672258u^{41} + \cdots + 3.56812u + 10.8345\\-0.489904u^{42} + 0.404335u^{41} + \cdots + 3.17936u - 0.269339\end{pmatrix}$$

$$a_1 = \begin{pmatrix}1.67244u^{42} - 0.522788u^{41} + \cdots - 8.92616u - 9.02482\\0.644047u^{42} - 0.551896u^{41} + \cdots - 2.65691u + 0.218556\end{pmatrix}$$

$$a_9 = \begin{pmatrix}1.82083u^{42} - 0.740482u^{41} + \cdots - 8.52249u - 8.28210\\0.756988u^{42} - 0.741862u^{41} + \cdots - 0.408776u + 0.402477\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-0.891489u^{42} + 1.06089u^{41} + \cdots + 7.38092u - 2.51083\\-0.892905u^{42} + 0.445547u^{41} + \cdots + 7.63273u + 1.57813\end{pmatrix}$$

$$a_8 = \begin{pmatrix}0.580848u^{42} + 1.18966u^{41} + \cdots - 4.91202u - 10.4146\\-0.291565u^{42} + 0.524997u^{41} + \cdots + 0.716241u + 0.694269\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3.56001u^{42} - 2.01639u^{41} + \cdots - 29.9474u - 1.29868$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{43} - 3u^{42} + \cdots - 1000u + 419$
c_2, c_6	$u^{43} - 12u^{41} + \cdots - 7u - 1$
c_3, c_4, c_8	$u^{43} + u^{42} + \cdots + 10u - 1$
c_5	$u^{43} + u^{42} + \cdots + 2u - 1$
c_7, c_{10}	$u^{43} - 17u^{41} + \cdots + 85u - 19$
c_9	$u^{43} - 7u^{42} + \cdots + 18u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{43} - 17y^{42} + \cdots + 2566222y - 175561$
c_2, c_6	$y^{43} - 24y^{42} + \cdots + 29y - 1$
c_3, c_4, c_8	$y^{43} + 45y^{42} + \cdots + 28y - 1$
c_5	$y^{43} + y^{42} + \cdots + 8y - 1$
c_7, c_{10}	$y^{43} - 34y^{42} + \cdots + 4299y - 361$
c_9	$y^{43} + y^{42} + \cdots + 68y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.179428 + 0.966528I$ $a = -0.758038 + 0.845663I$ $b = 0.655485 - 0.701109I$	$3.68686 + 3.98038I$	$2.52488 - 5.84737I$
$u = 0.179428 - 0.966528I$ $a = -0.758038 - 0.845663I$ $b = 0.655485 + 0.701109I$	$3.68686 - 3.98038I$	$2.52488 + 5.84737I$
$u = 0.873967 + 0.439410I$ $a = -1.86520 - 0.23703I$ $b = -0.248002 - 0.538074I$	$8.42806 - 4.73173I$	$3.14920 + 6.15524I$
$u = 0.873967 - 0.439410I$ $a = -1.86520 + 0.23703I$ $b = -0.248002 + 0.538074I$	$8.42806 + 4.73173I$	$3.14920 - 6.15524I$
$u = -0.894503 + 0.382311I$ $a = 1.176590 + 0.347821I$ $b = 1.61995 - 0.69095I$	$8.00794 - 0.59552I$	$3.42142 - 0.64701I$
$u = -0.894503 - 0.382311I$ $a = 1.176590 - 0.347821I$ $b = 1.61995 + 0.69095I$	$8.00794 + 0.59552I$	$3.42142 + 0.64701I$
$u = -0.937588 + 0.179486I$ $a = -0.339877 - 1.370130I$ $b = -0.908003 + 0.652924I$	$-1.78551 + 0.79823I$	$-3.86305 + 0.92711I$
$u = -0.937588 - 0.179486I$ $a = -0.339877 + 1.370130I$ $b = -0.908003 - 0.652924I$	$-1.78551 - 0.79823I$	$-3.86305 - 0.92711I$
$u = 1.005980 + 0.308159I$ $a = -0.113439 + 0.394153I$ $b = 0.524877 - 0.944675I$	$0.85124 - 2.72416I$	$2.00505 + 5.61413I$
$u = 1.005980 - 0.308159I$ $a = -0.113439 - 0.394153I$ $b = 0.524877 + 0.944675I$	$0.85124 + 2.72416I$	$2.00505 - 5.61413I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.765516 + 0.410276I$ $a = -0.11829 - 1.69787I$ $b = -0.114903 + 1.388430I$	$8.79687 + 1.11797I$	$3.28924 + 1.64001I$
$u = 0.765516 - 0.410276I$ $a = -0.11829 + 1.69787I$ $b = -0.114903 - 1.388430I$	$8.79687 - 1.11797I$	$3.28924 - 1.64001I$
$u = -0.028174 + 0.866113I$ $a = 0.809304 + 0.674158I$ $b = -0.391438 - 1.141660I$	$6.04283 - 2.22576I$	$2.85072 + 2.97682I$
$u = -0.028174 - 0.866113I$ $a = 0.809304 - 0.674158I$ $b = -0.391438 + 1.141660I$	$6.04283 + 2.22576I$	$2.85072 - 2.97682I$
$u = -0.780496 + 0.342696I$ $a = -0.346122 - 0.358729I$ $b = 1.14579 + 1.89719I$	$8.42175 + 3.77684I$	$3.65503 - 8.57155I$
$u = -0.780496 - 0.342696I$ $a = -0.346122 + 0.358729I$ $b = 1.14579 - 1.89719I$	$8.42175 - 3.77684I$	$3.65503 + 8.57155I$
$u = -1.078720 + 0.416332I$ $a = 0.42969 + 1.53300I$ $b = 0.516989 - 0.937834I$	$0.60187 + 3.31941I$	$1.55391 - 4.71171I$
$u = -1.078720 - 0.416332I$ $a = 0.42969 - 1.53300I$ $b = 0.516989 + 0.937834I$	$0.60187 - 3.31941I$	$1.55391 + 4.71171I$
$u = 1.129000 + 0.367417I$ $a = -0.365298 + 0.935642I$ $b = -1.15401 - 0.92294I$	$-3.24498 - 4.34665I$	$-5.96005 + 6.56486I$
$u = 1.129000 - 0.367417I$ $a = -0.365298 - 0.935642I$ $b = -1.15401 + 0.92294I$	$-3.24498 + 4.34665I$	$-5.96005 - 6.56486I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.191130 + 0.116555I$ $a = 0.256373 + 0.200746I$ $b = 0.664648 - 0.107180I$	$-1.93492 + 0.03968I$	$-6.28529 + 0.84629I$
$u = -1.191130 - 0.116555I$ $a = 0.256373 - 0.200746I$ $b = 0.664648 + 0.107180I$	$-1.93492 - 0.03968I$	$-6.28529 - 0.84629I$
$u = -0.378773 + 1.211200I$ $a = -0.790261 - 0.487133I$ $b = 0.729066 + 0.956751I$	$10.42570 - 7.06955I$	$4.08198 + 5.07559I$
$u = -0.378773 - 1.211200I$ $a = -0.790261 + 0.487133I$ $b = 0.729066 - 0.956751I$	$10.42570 + 7.06955I$	$4.08198 - 5.07559I$
$u = -1.213920 + 0.493820I$ $a = -0.400742 - 0.782997I$ $b = -1.36620 + 1.30872I$	$2.55744 + 7.03361I$	$0. - 6.57917I$
$u = -1.213920 - 0.493820I$ $a = -0.400742 + 0.782997I$ $b = -1.36620 - 1.30872I$	$2.55744 - 7.03361I$	$0. + 6.57917I$
$u = -1.137270 + 0.679680I$ $a = 0.184669 - 0.702586I$ $b = -0.708630 + 0.391631I$	$-1.44466 + 3.00552I$	$0. - 9.20545I$
$u = -1.137270 - 0.679680I$ $a = 0.184669 + 0.702586I$ $b = -0.708630 - 0.391631I$	$-1.44466 - 3.00552I$	$0. + 9.20545I$
$u = 1.158150 + 0.671841I$ $a = 0.232978 - 0.277892I$ $b = 0.750511 + 0.201961I$	$1.98226 - 3.31409I$	0
$u = 1.158150 - 0.671841I$ $a = 0.232978 + 0.277892I$ $b = 0.750511 - 0.201961I$	$1.98226 + 3.31409I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.219040 + 0.557460I$ $a = 0.372924 - 1.203390I$ $b = 0.973714 + 1.002820I$	$0.51328 - 9.38930I$	0
$u = 1.219040 - 0.557460I$ $a = 0.372924 + 1.203390I$ $b = 0.973714 - 1.002820I$	$0.51328 + 9.38930I$	0
$u = -1.26281 + 0.69376I$ $a = 0.265003 + 1.100870I$ $b = 1.25438 - 1.17806I$	$7.5587 + 13.7273I$	0
$u = -1.26281 - 0.69376I$ $a = 0.265003 - 1.100870I$ $b = 1.25438 + 1.17806I$	$7.5587 - 13.7273I$	0
$u = 0.548716$ $a = 2.07278$ $b = 1.17742$	2.69846	8.61990
$u = 1.41987 + 0.31511I$ $a = 0.211755 + 0.472935I$ $b = 0.172064 + 0.048798I$	$1.65782 - 2.65936I$	0
$u = 1.41987 - 0.31511I$ $a = 0.211755 - 0.472935I$ $b = 0.172064 - 0.048798I$	$1.65782 + 2.65936I$	0
$u = 1.14071 + 0.96754I$ $a = 0.310323 + 0.683171I$ $b = -1.152640 - 0.275297I$	$3.92762 - 3.88689I$	0
$u = 1.14071 - 0.96754I$ $a = 0.310323 - 0.683171I$ $b = -1.152640 + 0.275297I$	$3.92762 + 3.88689I$	0
$u = -0.018931 + 0.428931I$ $a = 1.30275 - 0.64031I$ $b = -0.458147 + 0.443775I$	$-0.163307 + 1.128420I$	$-2.36544 - 5.85154I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.018931 - 0.428931I$ $a = 1.30275 + 0.64031I$ $b = -0.458147 - 0.443775I$	$-0.163307 - 1.128420I$	$-2.36544 + 5.85154I$
$u = -0.243711 + 0.078761I$ $a = -5.49149 - 1.45816I$ $b = 0.405795 + 0.070225I$	$2.85108 - 0.00109I$	$4.91718 - 0.42732I$
$u = -0.243711 - 0.078761I$ $a = -5.49149 + 1.45816I$ $b = 0.405795 - 0.070225I$	$2.85108 + 0.00109I$	$4.91718 + 0.42732I$

II. $\boldsymbol{I_2^u = \langle u^6 - 3u^4 - u^3 + 6u^2 + b - 3,\ -u^6 - u^5 + u^4 + 2u^3 - 2u^2 + a - u - 1,\ u^7 + u^6 - 2u^5 - 3u^4 + 3u^3 + 3u^2 - u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^6 - 5u^5 + 4u^4 + 10u^3 - 2u^2 - 11u - 3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^7+2y^6+5y^5+3y^4+4y^3+2y^2-1$
c_2, c_6	$y^7-5y^6+16y^5-29y^4+33y^3-21y^2+7y-1$
c_3, c_4, c_8	$y^7+8y^6+24y^5+32y^4+16y^3-y^2-2y-1$
c_5	$y^7-2y^5-4y^4-3y^3-5y^2-2y-1$
c_7, c_{10}	$y^7-7y^6+21y^5-33y^4+29y^3-16y^2+5y-1$
c_9	$y^7+4y^5-8y^4+8y^3-5y^2+2y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.060630 + 0.467862I$ $a = 0.094535 + 0.998646I$ $b = -0.498285 - 0.549564I$	$-1.05108 - 2.27150I$	$-1.29108 + 1.27417I$
$u = 1.060630 - 0.467862I$ $a = 0.094535 - 0.998646I$ $b = -0.498285 + 0.549564I$	$-1.05108 + 2.27150I$	$-1.29108 - 1.27417I$
$u = 0.719538$ $a = 2.07355$ $b = 0.931490$	2.16696	-8.53360
$u = -0.636439 + 0.197997I$ $a = 1.36182 - 0.54122I$ $b = 0.85369 + 1.27696I$	$8.25977 + 2.86772I$	$1.82451 - 0.48406I$
$u = -0.636439 - 0.197997I$ $a = 1.36182 + 0.54122I$ $b = 0.85369 - 1.27696I$	$8.25977 - 2.86772I$	$1.82451 + 0.48406I$
$u = -1.28396 + 0.82422I$ $a = 0.006867 - 0.472371I$ $b = -0.821146 + 0.390568I$	$1.57743 + 3.93356I$	$-3.26663 - 8.37973I$
$u = -1.28396 - 0.82422I$ $a = 0.006867 + 0.472371I$ $b = -0.821146 - 0.390568I$	$1.57743 - 3.93356I$	$-3.26663 + 8.37973I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^7+u^5-u^4+2u^3+1)(u^{43}-3u^{42}+\cdots-1000u+419)$
c_2	$(u^7+u^6+\cdots-u-1)(u^{43}-12u^{41}+\cdots-7u-1)$
c_3, c_4	$(u^7+4u^5+4u^3+u^2+1)(u^{43}+u^{42}+\cdots+10u-1)$
c_5	$(u^7+2u^4-u^3+u^2+1)(u^{43}+u^{42}+\cdots+2u-1)$
c_6	$(u^7-u^6+\cdots-u+1)(u^{43}-12u^{41}+\cdots-7u-1)$
c_7	$(u^7-u^6+\cdots-u+1)(u^{43}-17u^{41}+\cdots+85u-19)$
c_8	$(u^7+4u^5+4u^3-u^2-1)(u^{43}+u^{42}+\cdots+10u-1)$
c_9	$(u^7-2u^4+2u^3+u^2-2u+1)(u^{43}-7u^{42}+\cdots+18u-1)$
c_{10}	$(u^7+u^6+\cdots-u-1)(u^{43}-17u^{41}+\cdots+85u-19)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^7+2y^6+5y^5+3y^4+4y^3+2y^2-1)$ $\cdot(y^{43}-17y^{42}+\cdots+2566222y-175561)$
c_2, c_6	$(y^7-5y^6+16y^5-29y^4+33y^3-21y^2+7y-1)$ $\cdot(y^{43}-24y^{42}+\cdots+29y-1)$
c_3, c_4, c_8	$(y^7+8y^6+24y^5+32y^4+16y^3-y^2-2y-1)$ $\cdot(y^{43}+45y^{42}+\cdots+28y-1)$
c_5	$(y^7-2y^5+\cdots-2y-1)(y^{43}+y^{42}+\cdots+8y-1)$
c_7, c_{10}	$(y^7-7y^6+21y^5-33y^4+29y^3-16y^2+5y-1)$ $\cdot(y^{43}-34y^{42}+\cdots+4299y-361)$
c_9	$(y^7+4y^5+\cdots+2y-1)(y^{43}+y^{42}+\cdots+68y-1)$