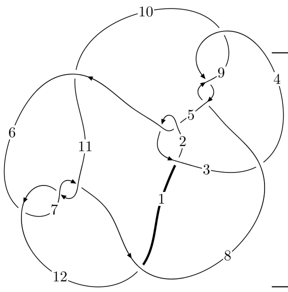
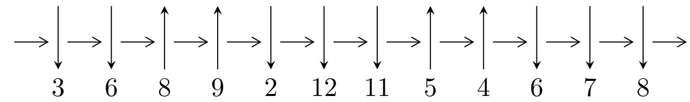
$12n_{0479}$ ($K12n_{0479}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$6{,}12 \underset{c_6}{\to} 3{,}7 \underset{c_2}{\to} 2 \underset{c_1}{\longrightarrow} 1 \underset{c_5}{\longrightarrow} 5 \underset{c_{11}}{\to} 11 \underset{c_7}{\to} 8 \underset{c_3}{\longrightarrow} 4 \underset{c_{10}}{\to} 10 \underset{c_9}{\to} 9 \twoheadrightarrow c_4, c_8, c_{12}$$

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

$$I_1^u = \langle 186488768414913u^{49} - 290002817250832u^{48} + \cdots + 308976956670931b + 23795142626938,$$
$$- 2.98208 \times 10^{14}u^{49} + 1.16633 \times 10^{15}u^{48} + \cdots + 1.85386 \times 10^{15}a - 3.97700 \times 10^{15},\ u^{50} - 2u^{49} + \cdots + 7u -$$
$$I_2^u = \langle b - 1,\ -2u^2a + a^2 - 2au + 4u^2 - 4a + 3u + 7,\ u^3 + u^2 + 2u + 1\rangle$$
$$I_3^u = \langle b + 1,\ u^2 + a - u + 2,\ u^3 - u^2 + 2u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 59 representations.

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[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.

$\boldsymbol{I_1^u = \langle 1.86\times10^{14}u^{49} - 2.90\times10^{14}u^{48} + \cdots + 3.09\times10^{14}b + 2.38\times10^{13},\ -2.98\times10^{14}u^{49} + 1.17\times10^{15}u^{48} + \cdots + 1.85\times10^{15}a - 3.98\times10^{15},\ u^{50} - 2u^{49} + \cdots + 7u - 3\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.160858u^{49} - 0.629138u^{48} + \cdots - 4.21769u + 2.14525\\ -0.603569u^{49} + 0.938590u^{48} + \cdots + 1.19866u - 0.0770127\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.442711u^{49} + 0.309453u^{48} + \cdots - 3.01903u + 2.06824\\ -0.603569u^{49} + 0.938590u^{48} + \cdots + 1.19866u - 0.0770127\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^5 - 2u^3 - u\\ -u^7 - 3u^5 - 2u^3 + u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.0498473u^{49} - 0.638746u^{48} + \cdots + 5.09518u + 0.739281\\ -0.316393u^{49} + 0.485397u^{48} + \cdots + 2.60385u - 0.176830\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\u^3 + u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^2 + 1\\u^4 + 2u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.0589435u^{49} - 0.198506u^{48} + \cdots - 4.62549u + 2.19124\\ -0.738441u^{49} + 1.20164u^{48} + \cdots + 1.08821u - 0.149542\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u^3 + 2u\\u^3 + u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.660432u^{49} - 0.972483u^{48} + \cdots - 0.425785u + 2.52397\\ 0.348382u^{49} - 0.970681u^{48} + \cdots - 2.09905u + 1.98130\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -\frac{818278759941418}{308976956670931}u^{49} + \frac{1283399787362471}{308976956670931}u^{48} + \cdots + \frac{3241957768122858}{308976956670931}u - \frac{3010107002943738}{308976956670931}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{50} + 18u^{49} + \cdots + 4150u + 289$
c_2, c_5	$u^{50} + 4u^{49} + \cdots - 28u - 17$
c_3	$u^{50} + u^{49} + \cdots + 1024u + 488$
c_4, c_8, c_9	$u^{50} - u^{49} + \cdots - 16u + 8$
c_6, c_7, c_{11}	$u^{50} + 2u^{49} + \cdots - 7u - 3$
c_{10}, c_{12}	$u^{50} - 2u^{49} + \cdots - 3995u - 2391$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{50} + 38y^{49} + \cdots + 3129458y + 83521$
c_2, c_5	$y^{50} - 18y^{49} + \cdots - 4150y + 289$
c_3	$y^{50} - 41y^{49} + \cdots - 2344704y + 238144$
c_4, c_8, c_9	$y^{50} + 43y^{49} + \cdots - 896y + 64$
c_6, c_7, c_{11}	$y^{50} + 48y^{49} + \cdots - 79y + 9$
c_{10}, c_{12}	$y^{50} + 16y^{49} + \cdots + 33729737y + 5716881$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.548026 + 0.636865I$ $a = -0.141399 + 0.209810I$ $b = 1.031990 - 0.770119I$	$0.14665 + 5.50869I$	$-5.48648 - 2.48413I$
$u = 0.548026 - 0.636865I$ $a = -0.141399 - 0.209810I$ $b = 1.031990 + 0.770119I$	$0.14665 - 5.50869I$	$-5.48648 + 2.48413I$
$u = 0.747661 + 0.370902I$ $a = 1.27766 - 1.31418I$ $b = 1.119580 + 0.753217I$	$-0.80164 - 9.94223I$	$-7.39959 + 7.60109I$
$u = 0.747661 - 0.370902I$ $a = 1.27766 + 1.31418I$ $b = 1.119580 - 0.753217I$	$-0.80164 + 9.94223I$	$-7.39959 - 7.60109I$
$u = -0.701764 + 0.430117I$ $a = -1.00242 - 1.23319I$ $b = -0.971275 + 0.823552I$	$4.04082 + 5.32876I$	$-2.84513 - 5.88571I$
$u = -0.701764 - 0.430117I$ $a = -1.00242 + 1.23319I$ $b = -0.971275 - 0.823552I$	$4.04082 - 5.32876I$	$-2.84513 + 5.88571I$
$u = -0.613532 + 0.535693I$ $a = 0.370473 + 0.106254I$ $b = -0.839697 - 0.858575I$	$4.44373 - 0.93541I$	$-1.58239 - 0.30026I$
$u = -0.613532 - 0.535693I$ $a = 0.370473 - 0.106254I$ $b = -0.839697 + 0.858575I$	$4.44373 + 0.93541I$	$-1.58239 + 0.30026I$
$u = 0.680028 + 0.435043I$ $a = -0.548393 - 0.018507I$ $b = 0.600139 - 0.934400I$	$0.78344 - 3.70599I$	$-5.05675 + 3.80006I$
$u = 0.680028 - 0.435043I$ $a = -0.548393 + 0.018507I$ $b = 0.600139 + 0.934400I$	$0.78344 + 3.70599I$	$-5.05675 - 3.80006I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.609239 + 0.505071I$ $a = 0.659368 - 1.086520I$ $b = 0.728352 + 0.857268I$	$1.077150 - 0.581801I$	$-4.57087 + 2.28469I$
$u = 0.609239 - 0.505071I$ $a = 0.659368 + 1.086520I$ $b = 0.728352 - 0.857268I$	$1.077150 + 0.581801I$	$-4.57087 - 2.28469I$
$u = -0.314558 + 1.181770I$ $a = 0.755396 + 0.911108I$ $b = 0.883202 - 0.570553I$	$-1.86240 + 5.95457I$	0
$u = -0.314558 - 1.181770I$ $a = 0.755396 - 0.911108I$ $b = 0.883202 + 0.570553I$	$-1.86240 - 5.95457I$	0
$u = -0.754187 + 0.037133I$ $a = 1.177820 + 0.351943I$ $b = 0.791193 + 0.522358I$	$-5.37048 - 2.06528I$	$-9.77366 + 3.43997I$
$u = -0.754187 - 0.037133I$ $a = 1.177820 - 0.351943I$ $b = 0.791193 - 0.522358I$	$-5.37048 + 2.06528I$	$-9.77366 - 3.43997I$
$u = -0.030213 + 1.260010I$ $a = -0.22647 + 1.85610I$ $b = -1.111340 - 0.290888I$	$-3.90026 + 0.44346I$	0
$u = -0.030213 - 1.260010I$ $a = -0.22647 - 1.85610I$ $b = -1.111340 + 0.290888I$	$-3.90026 - 0.44346I$	0
$u = 0.251247 + 1.259910I$ $a = -0.547258 + 0.656638I$ $b = -0.684570 - 0.219108I$	$2.05074 - 3.33048I$	0
$u = 0.251247 - 1.259910I$ $a = -0.547258 - 0.656638I$ $b = -0.684570 + 0.219108I$	$2.05074 + 3.33048I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.299311 + 1.263120I$ $a = 0.021398 + 0.222536I$ $b = 0.705583 + 0.479463I$	$-1.35085 + 1.74111I$	0
$u = -0.299311 - 1.263120I$ $a = 0.021398 - 0.222536I$ $b = 0.705583 - 0.479463I$	$-1.35085 - 1.74111I$	0
$u = -0.095422 + 1.324880I$ $a = -0.023038 + 1.203270I$ $b = 1.169140 - 0.223723I$	$1.85552 + 1.71056I$	0
$u = -0.095422 - 1.324880I$ $a = -0.023038 - 1.203270I$ $b = 1.169140 + 0.223723I$	$1.85552 - 1.71056I$	0
$u = 0.667644$ $a = -1.23502$ $b = -0.589141$	-1.84778	-2.14880
$u = -0.179331 + 1.371620I$ $a = 1.20289 - 1.64393I$ $b = -0.538230 + 0.405630I$	$-1.78664 + 3.49510I$	0
$u = -0.179331 - 1.371620I$ $a = 1.20289 + 1.64393I$ $b = -0.538230 - 0.405630I$	$-1.78664 - 3.49510I$	0
$u = 0.523052 + 0.312664I$ $a = -1.58769 + 0.98505I$ $b = -1.278040 + 0.059074I$	$-5.97365 - 1.50019I$	$-9.06126 + 4.58058I$
$u = 0.523052 - 0.312664I$ $a = -1.58769 - 0.98505I$ $b = -1.278040 - 0.059074I$	$-5.97365 + 1.50019I$	$-9.06126 - 4.58058I$
$u = 0.062298 + 1.409670I$ $a = -0.212165 - 1.347970I$ $b = 0.181198 + 0.793511I$	$5.34369 - 2.04364I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.062298 - 1.409670I$ $a = -0.212165 + 1.347970I$ $b = 0.181198 - 0.793511I$	$5.34369 + 2.04364I$	0
$u = 0.20226 + 1.41029I$ $a = 0.244900 + 0.806956I$ $b = -1.348940 + 0.042324I$	$-0.46882 - 4.20038I$	0
$u = 0.20226 - 1.41029I$ $a = 0.244900 - 0.806956I$ $b = -1.348940 - 0.042324I$	$-0.46882 + 4.20038I$	0
$u = -0.478945 + 0.205762I$ $a = 1.01707 - 2.37277I$ $b = -0.767299 + 0.234309I$	$-6.81379 + 1.04376I$	$-7.43326 - 6.78776I$
$u = -0.478945 - 0.205762I$ $a = 1.01707 + 2.37277I$ $b = -0.767299 - 0.234309I$	$-6.81379 - 1.04376I$	$-7.43326 + 6.78776I$
$u = 0.28571 + 1.46065I$ $a = 0.22222 - 2.14370I$ $b = 1.175840 + 0.774815I$	$5.0883 - 13.7071I$	0
$u = 0.28571 - 1.46065I$ $a = 0.22222 + 2.14370I$ $b = 1.175840 - 0.774815I$	$5.0883 + 13.7071I$	0
$u = 0.24689 + 1.47668I$ $a = -1.12288 + 0.98727I$ $b = 0.577120 - 1.045150I$	$6.96288 - 7.09069I$	0
$u = 0.24689 - 1.47668I$ $a = -1.12288 - 0.98727I$ $b = 0.577120 + 1.045150I$	$6.96288 + 7.09069I$	0
$u = 0.21123 + 1.48331I$ $a = -0.10979 - 1.94214I$ $b = 0.854567 + 0.927257I$	$7.49634 - 3.56090I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.21123 - 1.48331I$ $a = -0.10979 + 1.94214I$ $b = 0.854567 - 0.927257I$	$7.49634 + 3.56090I$	0
$u = -0.25705 + 1.47829I$ $a = -0.06564 - 2.05483I$ $b = -1.058610 + 0.870913I$	$10.20760 + 8.82997I$	0
$u = -0.25705 - 1.47829I$ $a = -0.06564 + 2.05483I$ $b = -1.058610 - 0.870913I$	$10.20760 - 8.82997I$	0
$u = 0.15233 + 1.49913I$ $a = -1.01986 + 1.15371I$ $b = 0.992952 - 0.891101I$	$7.08236 + 3.11695I$	0
$u = 0.15233 - 1.49913I$ $a = -1.01986 - 1.15371I$ $b = 0.992952 + 0.891101I$	$7.08236 - 3.11695I$	0
$u = -0.20291 + 1.49495I$ $a = 1.08852 + 1.06865I$ $b = -0.799853 - 0.997275I$	$11.03000 + 2.01018I$	0
$u = -0.20291 - 1.49495I$ $a = 1.08852 - 1.06865I$ $b = -0.799853 + 0.997275I$	$11.03000 - 2.01018I$	0
$u = 0.275380 + 0.327909I$ $a = -0.267865 - 0.801075I$ $b = 0.330232 + 0.361285I$	$-0.199328 - 0.932041I$	$-3.89641 + 7.43641I$
$u = 0.275380 - 0.327909I$ $a = -0.267865 + 0.801075I$ $b = 0.330232 - 0.361285I$	$-0.199328 + 0.932041I$	$-3.89641 - 7.43641I$
$u = -0.403899$ $a = 2.57601$ $b = 1.10270$	-2.29285	3.34720

II. $I_2^u = \langle b-1,\ -2u^2a + a^2 - 2au + 4u^2 - 4a + 3u + 7,\ u^3 + u^2 + 2u + 1 \rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a+1 \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -a \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ -u^2 - u - 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^2 + u + 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^2 + u + 2 \\ au + 2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 - 1 \\ -u^2 - u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2a - 2u^2 + a - 3 \\ u^2a + au + a + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2 - 4u - 16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u-1)^6$
c_2	$(u+1)^6$
c_3, c_4, c_8 c_9	$(u^2+2)^3$
c_6, c_7	$(u^3+u^2+2u+1)^2$
c_{10}, c_{12}	$(u^3+u^2-1)^2$
c_{11}	$(u^3-u^2+2u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^6$
c_3, c_4, c_8 c_9	$(y+2)^6$
c_6, c_7, c_{11}	$(y^3+3y^2+2y-1)^2$
c_{10}, c_{12}	$(y^3-y^2+2y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=\ \ 0.917744-0.191855I$ $b=\ \ 1.00000$	$-3.55561+2.82812I$	$-8.49024-2.97945I$
$u=-0.215080+1.307140I$ $a=-0.67262+1.68158I$ $b=\ \ 1.00000$	$-3.55561+2.82812I$	$-8.49024-2.97945I$
$u=-0.215080-1.307140I$ $a=\ \ 0.917744+0.191855I$ $b=\ \ 1.00000$	$-3.55561-2.82812I$	$-8.49024+2.97945I$
$u=-0.215080-1.307140I$ $a=-0.67262-1.68158I$ $b=\ \ 1.00000$	$-3.55561-2.82812I$	$-8.49024+2.97945I$
$u=-0.569840$ $a=\ \ 1.75488+1.87343I$ $b=\ \ 1.00000$	-7.69319	-15.0200
$u=-0.569840$ $a=\ \ 1.75488-1.87343I$ $b=\ \ 1.00000$	-7.69319	-15.0200

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

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2+u-2 \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^2+u-3 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^2+u-2 \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u^2-u+1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2+1 \\ u^2-u+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^2+u-2 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2+1 \\ u^2-u+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2+1 \\ u^2-u+1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -6u^2+4u-16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^3$
c_3, c_4, c_8 c_9	u^3
c_5	$(u+1)^3$
c_6, c_7	$u^3 - u^2 + 2u - 1$
c_{10}, c_{12}	$u^3 - u^2 + 1$
c_{11}	$u^3 + u^2 + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^3$
c_3, c_4, c_8 c_9	y^3
c_6, c_7, c_{11}	y^3+3y^2+2y-1
c_{10}, c_{12}	y^3-y^2+2y-1

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = -0.122561 + 0.744862I$ $b = -1.00000$	$1.37919 - 2.82812I$	$-5.16553 + 1.85489I$
$u = 0.215080 - 1.307140I$ $a = -0.122561 - 0.744862I$ $b = -1.00000$	$1.37919 + 2.82812I$	$-5.16553 - 1.85489I$
$u = 0.569840$ $a = -1.75488$ $b = -1.00000$	-2.75839	-15.6690

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^{50}+18u^{49}+\cdots+4150u+289)$
c_2	$((u-1)^3)(u+1)^6(u^{50}+4u^{49}+\cdots-28u-17)$
c_3	$u^3(u^2+2)^3(u^{50}+u^{49}+\cdots+1024u+488)$
c_4, c_8, c_9	$u^3(u^2+2)^3(u^{50}-u^{49}+\cdots-16u+8)$
c_5	$((u-1)^6)(u+1)^3(u^{50}+4u^{49}+\cdots-28u-17)$
c_6, c_7	$(u^3-u^2+2u-1)(u^3+u^2+2u+1)^2(u^{50}+2u^{49}+\cdots-7u-3)$
c_{10}, c_{12}	$(u^3-u^2+1)(u^3+u^2-1)^2(u^{50}-2u^{49}+\cdots-3995u-2391)$
c_{11}	$((u^3-u^2+2u-1)^2)(u^3+u^2+2u+1)(u^{50}+2u^{49}+\cdots-7u-3)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^{50}+38y^{49}+\cdots+3129458y+83521)$
c_2, c_5	$((y-1)^9)(y^{50}-18y^{49}+\cdots-4150y+289)$
c_3	$y^3(y+2)^6(y^{50}-41y^{49}+\cdots-2344704y+238144)$
c_4, c_8, c_9	$y^3(y+2)^6(y^{50}+43y^{49}+\cdots-896y+64)$
c_6, c_7, c_{11}	$((y^3+3y^2+2y-1)^3)(y^{50}+48y^{49}+\cdots-79y+9)$
c_{10}, c_{12}	$((y^3-y^2+2y-1)^3)(y^{50}+16y^{49}+\cdots+3.37297\times 10^7 y+5716881)$