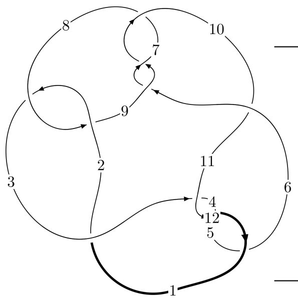
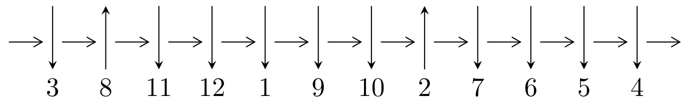
$12a_{0795}$ ($K12a_{0795}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I^u_1 = \langle -u^{70} + 2u^{69} + \cdots + b - 1,\ 2u^{70} - 2u^{69} + \cdots + a + 2,\ u^{71} - 2u^{70} + \cdots + 8u^2 - 1\rangle$$
$$I^u_2 = \langle b,\ u^2 + a + 1,\ u^3 - u^2 + 2u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 74 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.

$$I_1^u = \langle -u^{70}+2u^{69}+\cdots+b-1,\ 2u^{70}-2u^{69}+\cdots+a+2,\ u^{71}-2u^{70}+\cdots+8u^2-1\rangle$$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -2u^{70} + 2u^{69} + \cdots - 10u - 2 \\ u^{70} - 2u^{69} + \cdots - 14u^2 + 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{70} + u^{69} + \cdots - 10u - 2 \\ u^{38} + 16u^{36} + \cdots - 8u^3 - 5u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^5 + 2u^3 + u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{12} - 5u^{10} - 9u^8 - 6u^6 + u^2 + 1 \\ u^{14} + 6u^{12} + 13u^{10} + 10u^8 - 2u^6 - 4u^4 + u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^{58} - 25u^{56} + \cdots - 8u - 1 \\ -u^{70} + 2u^{69} + \cdots - u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{10} - 5u^8 - 8u^6 - 3u^4 + 3u^2 + 1 \\ u^{10} + 4u^8 + 5u^6 - 3u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{70} - 2u^{69} + \cdots + 5u - 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{71} + 21u^{70} + \cdots - 304u - 64$
c_2, c_8	$u^{71} - u^{70} + \cdots + 4u - 8$
c_3, c_5	$u^{71} + 2u^{70} + \cdots - 4u - 1$
c_4, c_{11}, c_{12}	$u^{71} - 2u^{70} + \cdots + 8u^2 - 1$
c_6, c_7, c_9	$u^{71} - 4u^{70} + \cdots + u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{71} + 53y^{70} + \cdots + 216320y - 4096$
c_2, c_8	$y^{71} + 21y^{70} + \cdots - 304y - 64$
c_3, c_5	$y^{71} - 36y^{70} + \cdots + 16y - 1$
c_4, c_{11}, c_{12}	$y^{71} + 60y^{70} + \cdots + 16y - 1$
c_6, c_7, c_9	$y^{71} - 58y^{70} + \cdots + 25y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.256184 + 1.000660I$ $a = -1.44048 - 0.17050I$ $b = 0.942819 + 0.538556I$	$3.71024 + 2.74767I$	0
$u = 0.256184 - 1.000660I$ $a = -1.44048 + 0.17050I$ $b = 0.942819 - 0.538556I$	$3.71024 - 2.74767I$	0
$u = 0.329944 + 1.015460I$ $a = 1.74724 + 0.53409I$ $b = -0.84648 - 1.80456I$	$-0.89927 + 6.92261I$	0
$u = 0.329944 - 1.015460I$ $a = 1.74724 - 0.53409I$ $b = -0.84648 + 1.80456I$	$-0.89927 - 6.92261I$	0
$u = -0.214843 + 1.069620I$ $a = 1.85403 - 0.34171I$ $b = -0.62007 + 1.89231I$	$0.438100 - 1.074520I$	0
$u = -0.214843 - 1.069620I$ $a = 1.85403 + 0.34171I$ $b = -0.62007 - 1.89231I$	$0.438100 + 1.074520I$	0
$u = 0.179274 + 1.163920I$ $a = 1.196860 - 0.319658I$ $b = -0.042857 + 0.336767I$	$0.86953 - 1.32939I$	0
$u = 0.179274 - 1.163920I$ $a = 1.196860 + 0.319658I$ $b = -0.042857 - 0.336767I$	$0.86953 + 1.32939I$	0
$u = -0.217571 + 0.785287I$ $a = -1.245700 - 0.372469I$ $b = 1.125800 - 0.040746I$	$3.94493 + 2.68423I$	$-3.68030 - 4.11188I$
$u = -0.217571 - 0.785287I$ $a = -1.245700 + 0.372469I$ $b = 1.125800 + 0.040746I$	$3.94493 - 2.68423I$	$-3.68030 + 4.11188I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.791627 + 0.174417I$ $a = -0.70746 + 3.50167I$ $b = 1.24243 - 2.17476I$	$-3.48296 - 11.07580I$	$-12.4369 + 7.9989I$
$u = 0.791627 - 0.174417I$ $a = -0.70746 - 3.50167I$ $b = 1.24243 + 2.17476I$	$-3.48296 + 11.07580I$	$-12.4369 - 7.9989I$
$u = -0.324904 + 0.736311I$ $a = 0.816203 + 0.458100I$ $b = -0.792190 - 0.999424I$	$-0.33299 + 6.68944I$	$-8.75568 - 6.96134I$
$u = -0.324904 - 0.736311I$ $a = 0.816203 - 0.458100I$ $b = -0.792190 + 0.999424I$	$-0.33299 - 6.68944I$	$-8.75568 + 6.96134I$
$u = 0.801438 + 0.059793I$ $a = -1.39728 + 1.51429I$ $b = 1.55766 - 0.93488I$	$-10.39180 - 4.18324I$	$-17.6640 + 4.0027I$
$u = 0.801438 - 0.059793I$ $a = -1.39728 - 1.51429I$ $b = 1.55766 + 0.93488I$	$-10.39180 + 4.18324I$	$-17.6640 - 4.0027I$
$u = 0.767734 + 0.173295I$ $a = 1.48648 - 2.41574I$ $b = -1.20346 + 1.04399I$	$1.17708 - 6.66958I$	$-8.37292 + 6.44479I$
$u = 0.767734 - 0.173295I$ $a = 1.48648 + 2.41574I$ $b = -1.20346 - 1.04399I$	$1.17708 + 6.66958I$	$-8.37292 - 6.44479I$
$u = -0.756173 + 0.159399I$ $a = -1.18126 - 3.65137I$ $b = 1.52619 + 2.22298I$	$-2.23215 + 4.83532I$	$-11.48650 - 4.26666I$
$u = -0.756173 - 0.159399I$ $a = -1.18126 + 3.65137I$ $b = 1.52619 - 2.22298I$	$-2.23215 - 4.83532I$	$-11.48650 + 4.26666I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.347096 + 1.197000I$ $a = 0.890138 - 0.346320I$ $b = -1.26266 - 1.32210I$	$-6.90568 + 0.03158I$	0
$u = 0.347096 - 1.197000I$ $a = 0.890138 + 0.346320I$ $b = -1.26266 + 1.32210I$	$-6.90568 - 0.03158I$	0
$u = 0.733221 + 0.158026I$ $a = -1.82401 + 0.88157I$ $b = 0.636704 - 0.077125I$	$-1.87111 - 2.10145I$	$-11.67107 + 3.54361I$
$u = 0.733221 - 0.158026I$ $a = -1.82401 - 0.88157I$ $b = 0.636704 + 0.077125I$	$-1.87111 + 2.10145I$	$-11.67107 - 3.54361I$
$u = -0.723605 + 0.189746I$ $a = 1.73646 + 1.99125I$ $b = -1.28817 - 0.74944I$	$1.83396 + 0.92082I$	$-6.84757 - 1.21767I$
$u = -0.723605 - 0.189746I$ $a = 1.73646 - 1.99125I$ $b = -1.28817 + 0.74944I$	$1.83396 - 0.92082I$	$-6.84757 + 1.21767I$
$u = -0.747959$ $a = -3.24996$ $b = 2.66245$	-6.09275	-15.2180
$u = 0.742764 + 0.034256I$ $a = -0.00879 - 1.63305I$ $b = -0.299685 + 0.720499I$	$-4.20092 - 2.01610I$	$-15.1041 + 4.5782I$
$u = 0.742764 - 0.034256I$ $a = -0.00879 + 1.63305I$ $b = -0.299685 - 0.720499I$	$-4.20092 + 2.01610I$	$-15.1041 - 4.5782I$
$u = -0.697910 + 0.237511I$ $a = -1.97426 - 0.37324I$ $b = 0.650196 - 0.355443I$	$-2.02822 - 2.95146I$	$-11.59106 + 2.08454I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.697910-0.237511I$ $a=-1.97426+0.37324I$ $b=\ \ 0.650196+0.355443I$	$-2.02822+2.95146I$	$-11.59106-2.08454I$
$u=-0.111577+1.260490I$ $a=-0.973741+0.037777I$ $b=-0.005497-0.653120I$	$4.01768+1.95795I$	0
$u=-0.111577-1.260490I$ $a=-0.973741-0.037777I$ $b=-0.005497+0.653120I$	$4.01768-1.95795I$	0
$u=\ \ 0.093225+0.721635I$ $a=\ \ 1.274690+0.098830I$ $b=-0.760475+0.967960I$	$0.538881-1.251930I$	$-6.70748+0.95320I$
$u=\ \ 0.093225-0.721635I$ $a=\ \ 1.274690-0.098830I$ $b=-0.760475-0.967960I$	$0.538881+1.251930I$	$-6.70748-0.95320I$
$u=\ \ 0.293715+1.240310I$ $a=-0.461247-0.815444I$ $b=\ \ 0.109258+0.796307I$	$-0.49943-1.72973I$	0
$u=\ \ 0.293715-1.240310I$ $a=-0.461247+0.815444I$ $b=\ \ 0.109258-0.796307I$	$-0.49943+1.72973I$	0
$u=-0.309231+1.263960I$ $a=\ \ 0.71727+1.79747I$ $b=-2.66465+0.70550I$	$-2.17852+3.81797I$	0
$u=-0.309231-1.263960I$ $a=\ \ 0.71727-1.79747I$ $b=-2.66465-0.70550I$	$-2.17852-3.81797I$	0
$u=-0.246621+1.292500I$ $a=-0.081651-0.489646I$ $b=\ \ 0.688163-0.243775I$	$2.61245+3.17474I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.246621 - 1.292500I$ $a = -0.081651 + 0.489646I$ $b = 0.688163 + 0.243775I$	$2.61245 - 3.17474I$	0
$u = 0.312288 + 1.286840I$ $a = 0.832695 + 0.953099I$ $b = 0.466349 - 0.620225I$	$-0.08510 - 5.83054I$	0
$u = 0.312288 - 1.286840I$ $a = 0.832695 - 0.953099I$ $b = 0.466349 + 0.620225I$	$-0.08510 + 5.83054I$	0
$u = 0.350571 + 1.300740I$ $a = -0.51714 - 1.46183I$ $b = -1.72983 + 0.54565I$	$-6.14537 - 8.33234I$	0
$u = 0.350571 - 1.300740I$ $a = -0.51714 + 1.46183I$ $b = -1.72983 - 0.54565I$	$-6.14537 + 8.33234I$	0
$u = -0.632866$ $a = 0.755852$ $b = -0.593534$	-1.44345	-6.17470
$u = -0.161984 + 1.369530I$ $a = 0.826573 + 0.609366I$ $b = 0.182639 + 0.542628I$	$0.43014 + 3.75727I$	0
$u = -0.161984 - 1.369530I$ $a = 0.826573 - 0.609366I$ $b = 0.182639 - 0.542628I$	$0.43014 - 3.75727I$	0
$u = 0.310198 + 1.356630I$ $a = 0.60405 - 1.33113I$ $b = -0.858121 + 0.380258I$	$2.90857 - 5.89514I$	0
$u = 0.310198 - 1.356630I$ $a = 0.60405 + 1.33113I$ $b = -0.858121 - 0.380258I$	$2.90857 + 5.89514I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.457320 + 0.399866I$ $a = -0.876469 - 0.014419I$ $b = -0.207572 - 0.853124I$	$-5.04352 + 1.61644I$	$-14.6425 - 4.5743I$
$u = -0.457320 - 0.399866I$ $a = -0.876469 + 0.014419I$ $b = -0.207572 + 0.853124I$	$-5.04352 - 1.61644I$	$-14.6425 + 4.5743I$
$u = -0.319562 + 1.359040I$ $a = -1.46931 + 2.12621I$ $b = -2.00071 - 2.27701I$	$2.55975 + 8.73487I$	0
$u = -0.319562 - 1.359040I$ $a = -1.46931 - 2.12621I$ $b = -2.00071 + 2.27701I$	$2.55975 - 8.73487I$	0
$u = -0.302482 + 1.367500I$ $a = 0.25531 - 1.81957I$ $b = 1.60307 + 0.95919I$	$6.75117 + 4.65324I$	0
$u = -0.302482 - 1.367500I$ $a = 0.25531 + 1.81957I$ $b = 1.60307 - 0.95919I$	$6.75117 - 4.65324I$	0
$u = 0.323439 + 1.366540I$ $a = 0.49653 + 1.92085I$ $b = 1.43211 - 1.25712I$	$6.04049 - 10.62110I$	0
$u = 0.323439 - 1.366540I$ $a = 0.49653 - 1.92085I$ $b = 1.43211 + 1.25712I$	$6.04049 + 10.62110I$	0
$u = 0.006893 + 1.406310I$ $a = 0.364284 - 0.865963I$ $b = 1.82585 - 0.65702I$	$6.91128 - 1.42136I$	0
$u = 0.006893 - 1.406310I$ $a = 0.364284 + 0.865963I$ $b = 1.82585 + 0.65702I$	$6.91128 + 1.42136I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.282957 + 1.379610I$ $a = 0.840598 + 1.131810I$ $b = -0.867253 + 0.022284I$	$3.08119 + 0.61059I$	0
$u = -0.282957 - 1.379610I$ $a = 0.840598 - 1.131810I$ $b = -0.867253 - 0.022284I$	$3.08119 - 0.61059I$	0
$u = 0.334719 + 1.370140I$ $a = -1.57757 - 1.91835I$ $b = -1.55721 + 2.29709I$	$1.3962 - 15.1466I$	0
$u = 0.334719 - 1.370140I$ $a = -1.57757 + 1.91835I$ $b = -1.55721 - 2.29709I$	$1.3962 + 15.1466I$	0
$u = -0.01386 + 1.41878I$ $a = -0.569707 + 0.076935I$ $b = -1.93745 - 0.20438I$	$10.58420 + 3.03649I$	0
$u = -0.01386 - 1.41878I$ $a = -0.569707 - 0.076935I$ $b = -1.93745 + 0.20438I$	$10.58420 - 3.03649I$	0
$u = -0.03263 + 1.42756I$ $a = 0.369062 + 0.657493I$ $b = 1.61604 + 1.00344I$	$6.40163 + 7.44140I$	0
$u = -0.03263 - 1.42756I$ $a = 0.369062 - 0.657493I$ $b = 1.61604 - 1.00344I$	$6.40163 - 7.44140I$	0
$u = -0.226398 + 0.239535I$ $a = 0.930119 - 0.695460I$ $b = 0.086502 + 0.441868I$	$-0.325148 + 0.797487I$	$-7.87828 - 8.56231I$
$u = -0.226398 - 0.239535I$ $a = 0.930119 + 0.695460I$ $b = 0.086502 - 0.441868I$	$-0.325148 - 0.797487I$	$-7.87828 + 8.56231I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.231421$ $a = -3.37094$ $b = -0.563822$	-2.02563	-2.73450

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^2 + 4u - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = 0.662359 - 0.562280I$ $b = 0$	$1.37919 - 2.82812I$	$-6.82789 + 2.41717I$
$u = 0.215080 - 1.307140I$ $a = 0.662359 + 0.562280I$ $b = 0$	$1.37919 + 2.82812I$	$-6.82789 - 2.41717I$
$u = 0.569840$ $a = -1.32472$ $b = 0$	-2.75839	-15.3440

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^3(u^{71} + 21u^{70} + \cdots - 304u - 64)$
c_2, c_8	$u^3(u^{71} - u^{70} + \cdots + 4u - 8)$
c_3, c_5	$(u^3 - u^2 + 1)(u^{71} + 2u^{70} + \cdots - 4u - 1)$
c_4	$(u^3 + u^2 + 2u + 1)(u^{71} - 2u^{70} + \cdots + 8u^2 - 1)$
c_6, c_7	$((u-1)^3)(u^{71} - 4u^{70} + \cdots + u - 1)$
c_9	$((u+1)^3)(u^{71} - 4u^{70} + \cdots + u - 1)$
c_{11}, c_{12}	$(u^3 - u^2 + 2u - 1)(u^{71} - 2u^{70} + \cdots + 8u^2 - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^3(y^{71} + 53y^{70} + \cdots + 216320y - 4096)$
c_2, c_8	$y^3(y^{71} + 21y^{70} + \cdots - 304y - 64)$
c_3, c_5	$(y^3 - y^2 + 2y - 1)(y^{71} - 36y^{70} + \cdots + 16y - 1)$
c_4, c_{11}, c_{12}	$(y^3 + 3y^2 + 2y - 1)(y^{71} + 60y^{70} + \cdots + 16y - 1)$
c_6, c_7, c_9	$((y-1)^3)(y^{71} - 58y^{70} + \cdots + 25y - 1)$