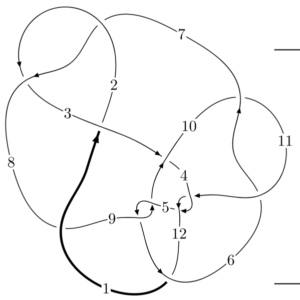
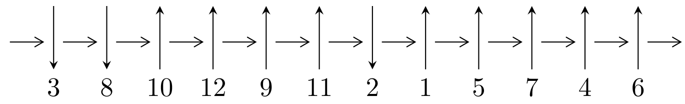
$12a_{0771}$ ($K12a_{0771}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 8.94153 \times 10^{27} u^{43} + 1.81790 \times 10^{28} u^{42} + \cdots + 2.63209 \times 10^{28} b - 4.42452 \times 10^{28}, \\
& - 1.06493 \times 10^{29} u^{43} - 2.17847 \times 10^{29} u^{42} + \cdots + 1.05284 \times 10^{29} a - 5.20010 \times 10^{29}, \\
& u^{44} + 3u^{43} + \cdots + 12u + 8 \rangle \\
I_2^u = \langle & -2u^{35} a + 2u^{35} + \cdots + 3a + 2,\ 30u^{35} a - 138u^{35} + \cdots - 15a + 144,\ u^{36} - u^{35} + \cdots - u^2 + 1 \rangle \\
I_3^u = \langle & b - 1,\ -u^3 + 4u^2 + 4a - 2,\ u^4 - 2u^2 + 2 \rangle
\end{aligned}$$

$$I_1^v = \langle a,\ b + 1,\ 2v + 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 121 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. $\boldsymbol{I_1^u = \langle 8.94 \times 10^{27} u^{43} + 1.82 \times 10^{28} u^{42} + \cdots + 2.63 \times 10^{28} b - 4.42 \times 10^{28},\ -1.06 \times 10^{29} u^{43} - 2.18 \times 10^{29} u^{42} + \cdots + 1.05 \times 10^{29} a - 5.20 \times 10^{29},\ u^{44} + 3u^{43} + \cdots + 12u + 8\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1.01148u^{43} + 2.06914u^{42} + \cdots + 6.75356u + 4.93913 \\ -0.339712u^{43} - 0.690668u^{42} + \cdots + 0.899245u + 1.68099 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.491722u^{43} - 1.08414u^{42} + \cdots - 5.99398u - 7.66894 \\ 0.0371897u^{43} + 0.0225085u^{42} + \cdots + 0.0962924u + 0.243944 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.671771u^{43} + 1.37847u^{42} + \cdots + 7.65281u + 6.62012 \\ -0.339712u^{43} - 0.690668u^{42} + \cdots + 0.899245u + 1.68099 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^6 - u^4 + 1 \\ u^8 - 2u^6 + 2u^4 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.410209u^{43} - 0.680680u^{42} + \cdots - 5.44836u - 3.15716 \\ -0.585333u^{43} - 1.56699u^{42} + \cdots - 0.199466u - 3.32612 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.395067u^{43} - 0.647681u^{42} + \cdots - 7.86724u - 6.66270 \\ -0.214121u^{43} - 0.720629u^{42} + \cdots + 0.874054u - 0.939898 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.454683u^{43} + 0.926181u^{42} + \cdots + 6.06159u + 5.75581 \\ -0.205670u^{43} - 0.268381u^{42} + \cdots - 0.997900u + 1.21691 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.954565u^{43} + 3.18813u^{42} + \cdots - 26.7876u + 6.14997$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{44} + 23u^{43} + \cdots + 272u + 64$
c_2, c_7	$u^{44} + 3u^{43} + \cdots + 12u + 8$
c_3, c_{12}	$128(128u^{44} + 64u^{43} + \cdots - 11u - 1)$
c_4, c_{11}	$u^{44} - 13u^{42} + \cdots + 647u - 416$
c_5, c_6, c_9 c_{10}	$u^{44} + u^{43} + \cdots - 16u - 5$
c_8	$u^{44} + 9u^{43} + \cdots + 42988u + 25384$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{44} - 3y^{43} + \cdots - 12544y + 4096$
c_2, c_7	$y^{44} - 23y^{43} + \cdots - 272y + 64$
c_3, c_{12}	$16384(16384y^{44} + 151552y^{43} + \cdots - 55y + 1)$
c_4, c_{11}	$y^{44} - 26y^{43} + \cdots - 5622769y + 173056$
c_5, c_6, c_9 c_{10}	$y^{44} + 17y^{43} + \cdots - 146y + 25$
c_8	$y^{44} + 29y^{43} + \cdots - 8202497168y + 644347456$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.884944 + 0.456342I$ $a = 1.76169 - 1.31420I$ $b = -0.815843 - 0.660997I$	$3.80422 + 3.00198I$	$9.87086 - 5.43823I$
$u = -0.884944 - 0.456342I$ $a = 1.76169 + 1.31420I$ $b = -0.815843 + 0.660997I$	$3.80422 - 3.00198I$	$9.87086 + 5.43823I$
$u = -0.670238 + 0.750027I$ $a = -0.384753 + 1.126000I$ $b = 0.459752 - 1.089540I$	$0.43707 - 6.38433I$	$5.82179 + 5.84528I$
$u = -0.670238 - 0.750027I$ $a = -0.384753 - 1.126000I$ $b = 0.459752 + 1.089540I$	$0.43707 + 6.38433I$	$5.82179 - 5.84528I$
$u = -0.601725 + 0.830742I$ $a = -0.529924 - 0.448858I$ $b = 0.184705 + 0.860484I$	$-0.47398 + 2.76828I$	$9.57507 - 9.72155I$
$u = -0.601725 - 0.830742I$ $a = -0.529924 + 0.448858I$ $b = 0.184705 - 0.860484I$	$-0.47398 - 2.76828I$	$9.57507 + 9.72155I$
$u = 0.186329 + 0.936259I$ $a = -0.0808606 - 0.0791166I$ $b = -0.073120 + 0.812347I$	$0.435225 - 0.901619I$	$13.9955 + 4.4616I$
$u = 0.186329 - 0.936259I$ $a = -0.0808606 + 0.0791166I$ $b = -0.073120 - 0.812347I$	$0.435225 + 0.901619I$	$13.9955 - 4.4616I$
$u = 0.191787 + 0.913705I$ $a = 0.872159 + 0.565110I$ $b = -0.381936 - 1.276420I$	$-7.62519 + 7.08844I$	$1.23316 - 4.93509I$
$u = 0.191787 - 0.913705I$ $a = 0.872159 - 0.565110I$ $b = -0.381936 + 1.276420I$	$-7.62519 - 7.08844I$	$1.23316 + 4.93509I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.208206+0.873746I$ $a=\quad 1.33288-0.57705I$ $b=-0.57707+1.33359I$	$-4.2603-13.7418I$	$4.56439+7.35664I$
$u=-0.208206-0.873746I$ $a=\quad 1.33288+0.57705I$ $b=-0.57707-1.33359I$	$-4.2603+13.7418I$	$4.56439-7.35664I$
$u=-1.004180+0.480691I$ $a=-0.017302-0.166511I$ $b=-0.289315+0.457341I$	$-1.31781+1.99895I$	$3.76651+1.75105I$
$u=-1.004180-0.480691I$ $a=-0.017302+0.166511I$ $b=-0.289315-0.457341I$	$-1.31781-1.99895I$	$3.76651-1.75105I$
$u=-0.891355+0.676843I$ $a=\quad 1.80496+0.33828I$ $b=-0.524580-1.162410I$	$-0.21415+11.72470I$	$5.05083-10.25102I$
$u=-0.891355-0.676843I$ $a=\quad 1.80496-0.33828I$ $b=-0.524580+1.162410I$	$-0.21415-11.72470I$	$5.05083+10.25102I$
$u=\quad 1.064910+0.482421I$ $a=\quad 0.874561+0.554909I$ $b=-0.432078+0.243913I$	$-1.04936-4.41613I$	$4.34936+8.68385I$
$u=\quad 1.064910-0.482421I$ $a=\quad 0.874561-0.554909I$ $b=-0.432078-0.243913I$	$-1.04936+4.41613I$	$4.34936-8.68385I$
$u=-0.667044+0.444211I$ $a=-1.60584+0.60607I$ $b=\quad 1.020760-0.533523I$	$4.44990+0.84092I$	$12.07181-5.13739I$
$u=-0.667044-0.444211I$ $a=-1.60584-0.60607I$ $b=\quad 1.020760+0.533523I$	$4.44990-0.84092I$	$12.07181+5.13739I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.136530 + 0.421684I$ $a = 0.606451 + 1.237990I$ $b = -1.389530 + 0.221504I$	$-0.17714 - 2.64557I$	$-60.10 - 1.179168I$
$u = 1.136530 - 0.421684I$ $a = 0.606451 - 1.237990I$ $b = -1.389530 - 0.221504I$	$-0.17714 + 2.64557I$	$-60.10 + 1.179168I$
$u = -1.146090 + 0.479405I$ $a = 0.239075 - 1.309680I$ $b = -1.39337 + 0.38888I$	$0.24666 + 5.31593I$	$2.56328 - 8.44742I$
$u = -1.146090 - 0.479405I$ $a = 0.239075 + 1.309680I$ $b = -1.39337 - 0.38888I$	$0.24666 - 5.31593I$	$2.56328 + 8.44742I$
$u = 1.082540 + 0.685582I$ $a = 1.011040 + 0.097761I$ $b = -0.193861 + 0.889333I$	$-2.02935 - 4.79440I$	$7.24675 + 10.74676I$
$u = 1.082540 - 0.685582I$ $a = 1.011040 - 0.097761I$ $b = -0.193861 - 0.889333I$	$-2.02935 + 4.79440I$	$7.24675 - 10.74676I$
$u = 1.259910 + 0.315100I$ $a = 0.091904 + 0.628273I$ $b = 0.52009 + 1.36003I$	$-8.94132 + 9.79930I$	$0. - 4.91774I$
$u = 1.259910 - 0.315100I$ $a = 0.091904 - 0.628273I$ $b = 0.52009 - 1.36003I$	$-8.94132 - 9.79930I$	$0. + 4.91774I$
$u = 0.685053$ $a = -1.66669$ $b = -0.374180$	2.00566	3.54950
$u = -1.201480 + 0.555428I$ $a = -2.04851 + 0.88093I$ $b = 0.60384 + 1.36202I$	$-7.2417 + 18.9627I$	$0. - 10.45856I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.201480-0.555428I$ $a=-2.04851-0.88093I$ $b=\ \ 0.60384-1.36202I$	$-7.2417-18.9627I$	$0.+10.45856I$
$u=-1.298400+0.319915I$ $a=\ \ 0.224279-0.600246I$ $b=\ \ 0.287147-1.310910I$	$-12.44790-2.88689I$	$-3.91928+0.I$
$u=-1.298400-0.319915I$ $a=\ \ 0.224279+0.600246I$ $b=\ \ 0.287147+1.310910I$	$-12.44790+2.88689I$	$-3.91928+0.I$
$u=\ \ 1.330060+0.160088I$ $a=\ \ 0.223696+0.671956I$ $b=-0.211250+1.150130I$	$-7.05764-5.66751I$	$-3.71453+8.78354I$
$u=\ \ 1.330060-0.160088I$ $a=\ \ 0.223696-0.671956I$ $b=-0.211250-1.150130I$	$-7.05764+5.66751I$	$-3.71453-8.78354I$
$u=\ \ 1.219740+0.558773I$ $a=-1.69862-0.67374I$ $b=\ \ 0.423980-1.324410I$	$-10.7383-12.4231I$	$0.+7.73932I$
$u=\ \ 1.219740-0.558773I$ $a=-1.69862+0.67374I$ $b=\ \ 0.423980+1.324410I$	$-10.7383+12.4231I$	$0.-7.73932I$
$u=-0.126816+0.631710I$ $a=-1.75809-0.34785I$ $b=\ \ 1.283540+0.336498I$	$3.08765-1.01915I$	$6.08245+6.44104I$
$u=-0.126816-0.631710I$ $a=-1.75809+0.34785I$ $b=\ \ 1.283540-0.336498I$	$3.08765+1.01915I$	$6.08245-6.44104I$
$u=\ \ 0.643966$ $a=-1.64514$ $b=\ \ 1.21259$	2.74899	-5.75340

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.378525 + 0.481692I$ $a = -1.018580 - 0.068518I$ $b = 0.389924 + 0.119878I$	$0.917264 + 0.353906I$	$10.71011 - 2.76595I$
$u = 0.378525 - 0.481692I$ $a = -1.018580 + 0.068518I$ $b = 0.389924 - 0.119878I$	$0.917264 - 0.353906I$	$10.71011 + 2.76595I$
$u = -1.314340 + 0.508817I$ $a = -0.744288 + 0.705700I$ $b = 0.189010 + 1.009770I$	$-3.99655 + 6.00812I$	0
$u = -1.314340 - 0.508817I$ $a = -0.744288 - 0.705700I$ $b = 0.189010 - 1.009770I$	$-3.99655 - 6.00812I$	0

II. $I_2^u = \langle -2u^{35}a + 2u^{35} + \cdots + 3a + 2,\ 30u^{35}a - 138u^{35} + \cdots - 15a + 144,\ u^{36} - u^{35} + \cdots - u^2 + 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ \frac{2}{5}u^{35}a - \frac{2}{5}u^{35} + \cdots - \frac{3}{5}a - \frac{2}{5} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -1.20000au^{35} - 3.12000u^{35} + \cdots - 9.52000u - 1.84000 \\ -\frac{8}{5}u^{35}a + \frac{9}{5}u^{35} + \cdots + \frac{2}{5}a - 2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{2}{5}u^{35}a - \frac{2}{5}u^{35} + \cdots + \frac{2}{5}a - \frac{2}{5} \\ \frac{2}{5}u^{35}a - \frac{2}{5}u^{35} + \cdots - \frac{3}{5}a - \frac{2}{5} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^6 - u^4 + 1 \\ u^8 - 2u^6 + 2u^4 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -2u^{34}a + \frac{4}{5}u^{35} + \cdots + 2a + \frac{3}{5} \\ -\frac{2}{5}u^{35}a + \frac{2}{5}u^{35} + \cdots + \frac{8}{5}a - \frac{8}{5} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{2}{5}u^{35}a + \frac{2}{5}u^{35} + \cdots + \frac{2}{5}a + \frac{1}{5} \\ -1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.600000au^{35} - 3.68000u^{35} + \cdots + 1.20000a - 2.56000 \\ \frac{6}{5}u^{35}a - \frac{2}{5}u^{35} + \cdots - \frac{4}{5}a + \frac{2}{5} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= 4u^{35} - 40u^{33} + 4u^{32} + 192u^{31} - 36u^{30} - 564u^{29} + 156u^{28} + 1092u^{27} - 412u^{26} - 1380u^{25} + 712u^{24} + 980u^{23} - 792u^{22} - 16u^{21} + 480u^{20} - 732u^{19} + 16u^{18} + 680u^{17} - 280u^{16} - 112u^{15} + 188u^{14} - 272u^{13} + 12u^{12} + 216u^{11} - 80u^{10} + 36u^8 - 80u^7 + 8u^6 + 32u^5 - 8u^4 + 4u^3 - 8u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{36} + 19u^{35} + \cdots + 2u + 1)^2$
c_2, c_4, c_7 c_{11}	$(u^{36} - u^{35} + \cdots - u^2 + 1)^2$
c_3, c_{12}	$25(25u^{72} + 245u^{71} + \cdots + 2.03078 \times 10^7 u + 8751347)$
c_5, c_6, c_9 c_{10}	$u^{72} - 3u^{71} + \cdots - 8u + 1$
c_8	$(u^{36} - 3u^{35} + \cdots - 22u + 5)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{36} - 3y^{35} + \cdots + 2y + 1)^2$
c_2, c_4, c_7 c_{11}	$(y^{36} - 19y^{35} + \cdots - 2y + 1)^2$
c_3, c_{12}	625 $\cdot (625y^{72} + 21875y^{71} + \cdots + 1173257570845272y + 76586074314409)$
c_5, c_6, c_9 c_{10}	$y^{72} + 47y^{71} + \cdots + 16y + 1$
c_8	$(y^{36} + 25y^{35} + \cdots - 154y + 25)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.805609 + 0.585926I$ $a = 1.34736 + 0.54821I$ $b = -0.879869 - 0.290902I$	$2.49525 - 6.60899I$	$9.22618 + 6.99003I$
$u = 0.805609 + 0.585926I$ $a = -1.78646 + 0.60897I$ $b = 0.594572 - 1.095950I$	$2.49525 - 6.60899I$	$9.22618 + 6.99003I$
$u = 0.805609 - 0.585926I$ $a = 1.34736 - 0.54821I$ $b = -0.879869 + 0.290902I$	$2.49525 + 6.60899I$	$9.22618 - 6.99003I$
$u = 0.805609 - 0.585926I$ $a = -1.78646 - 0.60897I$ $b = 0.594572 + 1.095950I$	$2.49525 + 6.60899I$	$9.22618 - 6.99003I$
$u = -0.973666 + 0.342560I$ $a = 0.447907 + 0.107396I$ $b = -0.011489 + 1.238060I$	$-3.28987 + 3.75301I$	$4.00000 - 6.73664I$
$u = -0.973666 + 0.342560I$ $a = 1.28533 + 1.62124I$ $b = -0.381887 - 0.646554I$	$-3.28987 + 3.75301I$	$4.00000 - 6.73664I$
$u = -0.973666 - 0.342560I$ $a = 0.447907 - 0.107396I$ $b = -0.011489 - 1.238060I$	$-3.28987 - 3.75301I$	$4.00000 + 6.73664I$
$u = -0.973666 - 0.342560I$ $a = 1.28533 - 1.62124I$ $b = -0.381887 + 0.646554I$	$-3.28987 - 3.75301I$	$4.00000 + 6.73664I$
$u = -0.771553 + 0.550437I$ $a = -1.162210 - 0.407110I$ $b = 0.234332 + 0.882807I$	$-0.80333 + 2.21040I$	$6.18679 - 3.72055I$
$u = -0.771553 + 0.550437I$ $a = 0.386775 + 0.087230I$ $b = -0.335627 + 0.268806I$	$-0.80333 + 2.21040I$	$6.18679 - 3.72055I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.771553 - 0.550437I$ $a = -1.162210 + 0.407110I$ $b = 0.234332 - 0.882807I$	$-0.80333 - 2.21040I$	$6.18679 + 3.72055I$
$u = -0.771553 - 0.550437I$ $a = 0.386775 - 0.087230I$ $b = -0.335627 - 0.268806I$	$-0.80333 - 2.21040I$	$6.18679 + 3.72055I$
$u = 0.733643 + 0.592284I$ $a = -0.04384 + 1.44725I$ $b = -0.505467 - 0.969491I$	$2.70142 + 1.96554I$	$10.00564 - 0.22737I$
$u = 0.733643 + 0.592284I$ $a = -1.66783 - 0.73754I$ $b = 0.697085 - 0.342379I$	$2.70142 + 1.96554I$	$10.00564 - 0.22737I$
$u = 0.733643 - 0.592284I$ $a = -0.04384 - 1.44725I$ $b = -0.505467 + 0.969491I$	$2.70142 - 1.96554I$	$10.00564 + 0.22737I$
$u = 0.733643 - 0.592284I$ $a = -1.66783 + 0.73754I$ $b = 0.697085 + 0.342379I$	$2.70142 - 1.96554I$	$10.00564 + 0.22737I$
$u = 0.879174 + 0.103222I$ $a = 0.891367 - 0.781604I$ $b = -0.198899 - 1.224140I$	$-4.77876 - 0.27307I$	$-2.50261 + 0.38004I$
$u = 0.879174 + 0.103222I$ $a = 1.81483 - 0.20231I$ $b = -0.386040 + 0.988207I$	$-4.77876 - 0.27307I$	$-2.50261 + 0.38004I$
$u = 0.879174 - 0.103222I$ $a = 0.891367 + 0.781604I$ $b = -0.198899 + 1.224140I$	$-4.77876 + 0.27307I$	$-2.50261 - 0.38004I$
$u = 0.879174 - 0.103222I$ $a = 1.81483 + 0.20231I$ $b = -0.386040 - 0.988207I$	$-4.77876 + 0.27307I$	$-2.50261 - 0.38004I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.079360+0.331184I$ $a=0.473951+0.743199I$ $b=0.049864+1.153020I$	$-3.28987+3.70794I$	$4.00000-4.78665I$
$u=-1.079360+0.331184I$ $a=0.28883+1.39170I$ $b=-0.226916-0.363024I$	$-3.28987+3.70794I$	$4.00000-4.78665I$
$u=-1.079360-0.331184I$ $a=0.473951-0.743199I$ $b=0.049864-1.153020I$	$-3.28987-3.70794I$	$4.00000+4.78665I$
$u=-1.079360-0.331184I$ $a=0.28883-1.39170I$ $b=-0.226916+0.363024I$	$-3.28987-3.70794I$	$4.00000+4.78665I$
$u=0.193860+0.787757I$ $a=-1.35011-0.68528I$ $b=0.63317+1.34153I$	$-0.40442+7.72472I$	$7.24945-5.61903I$
$u=0.193860+0.787757I$ $a=1.54997-0.17570I$ $b=-1.130270+0.112171I$	$-0.40442+7.72472I$	$7.24945-5.61903I$
$u=0.193860-0.787757I$ $a=-1.35011+0.68528I$ $b=0.63317-1.34153I$	$-0.40442-7.72472I$	$7.24945+5.61903I$
$u=0.193860-0.787757I$ $a=1.54997+0.17570I$ $b=-1.130270-0.112171I$	$-0.40442-7.72472I$	$7.24945+5.61903I$
$u=1.169940+0.367759I$ $a=-0.568021-0.939849I$ $b=-0.194502-1.387160I$	$-7.19868-0.64400I$	$-1.19682+0.84878I$
$u=1.169940+0.367759I$ $a=-0.308788-0.720856I$ $b=0.802333+0.406586I$	$-7.19868-0.64400I$	$-1.19682+0.84878I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.169940 - 0.367759I$ $a = -0.568021 + 0.939849I$ $b = -0.194502 + 1.387160I$	$-7.19868 + 0.64400I$	$-1.19682 - 0.84878I$
$u = 1.169940 - 0.367759I$ $a = -0.308788 + 0.720856I$ $b = 0.802333 - 0.406586I$	$-7.19868 + 0.64400I$	$-1.19682 - 0.84878I$
$u = -0.176866 + 0.751609I$ $a = -0.952710 + 0.470829I$ $b = 0.298605 - 1.284180I$	$-3.28987 - 2.99647I$	$4.00000 + 2.49060I$
$u = -0.176866 + 0.751609I$ $a = 1.328940 - 0.404023I$ $b = -0.769681 + 0.178507I$	$-3.28987 - 2.99647I$	$4.00000 + 2.49060I$
$u = -0.176866 - 0.751609I$ $a = -0.952710 - 0.470829I$ $b = 0.298605 + 1.284180I$	$-3.28987 + 2.99647I$	$4.00000 - 2.49060I$
$u = -0.176866 - 0.751609I$ $a = 1.328940 + 0.404023I$ $b = -0.769681 - 0.178507I$	$-3.28987 + 2.99647I$	$4.00000 - 2.49060I$
$u = 0.241156 + 0.725408I$ $a = -0.685379 - 0.494659I$ $b = -0.082118 + 0.888085I$	$0.618939 - 0.643996I$	$9.19682 + 0.84878I$
$u = 0.241156 + 0.725408I$ $a = -0.402951 + 0.714998I$ $b = 0.125392 + 0.204531I$	$0.618939 - 0.643996I$	$9.19682 + 0.84878I$
$u = 0.241156 - 0.725408I$ $a = -0.685379 + 0.494659I$ $b = -0.082118 - 0.888085I$	$0.618939 + 0.643996I$	$9.19682 - 0.84878I$
$u = 0.241156 - 0.725408I$ $a = -0.402951 - 0.714998I$ $b = 0.125392 - 0.204531I$	$0.618939 + 0.643996I$	$9.19682 - 0.84878I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.188280 + 0.342283I$ $a = -0.257826 + 0.747976I$ $b = 1.125280 - 0.027064I$	$-4.56945 - 4.07135I$	$2.11548 + 2.88119I$
$u = -1.188280 + 0.342283I$ $a = -0.422122 + 0.546791I$ $b = -0.54628 + 1.40974I$	$-4.56945 - 4.07135I$	$2.11548 + 2.88119I$
$u = -1.188280 - 0.342283I$ $a = -0.257826 - 0.747976I$ $b = 1.125280 + 0.027064I$	$-4.56945 + 4.07135I$	$2.11548 - 2.88119I$
$u = -1.188280 - 0.342283I$ $a = -0.422122 - 0.546791I$ $b = -0.54628 - 1.40974I$	$-4.56945 + 4.07135I$	$2.11548 - 2.88119I$
$u = -0.038116 + 0.743633I$ $a = 0.769766 + 0.614159I$ $b = -0.35364 - 1.45234I$	$-5.77640 - 2.21040I$	$1.81321 + 3.72055I$
$u = -0.038116 + 0.743633I$ $a = 1.55350 - 0.71846I$ $b = -0.659913 + 1.186540I$	$-5.77640 - 2.21040I$	$1.81321 + 3.72055I$
$u = -0.038116 - 0.743633I$ $a = 0.769766 - 0.614159I$ $b = -0.35364 + 1.45234I$	$-5.77640 + 2.21040I$	$1.81321 - 3.72055I$
$u = -0.038116 - 0.743633I$ $a = 1.55350 + 0.71846I$ $b = -0.659913 - 1.186540I$	$-5.77640 + 2.21040I$	$1.81321 - 3.72055I$
$u = 1.143830 + 0.521070I$ $a = 0.057559 + 0.543208I$ $b = 0.176175 + 0.122923I$	$-2.01029 - 4.07135I$	$5.88452 + 2.88119I$
$u = 1.143830 + 0.521070I$ $a = 1.70412 + 0.57551I$ $b = -0.104231 + 0.944623I$	$-2.01029 - 4.07135I$	$5.88452 + 2.88119I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.143830 - 0.521070I$ $a = 0.057559 - 0.543208I$ $b = 0.176175 - 0.122923I$	$-2.01029 + 4.07135I$	$5.88452 - 2.88119I$
$u = 1.143830 - 0.521070I$ $a = 1.70412 - 0.57551I$ $b = -0.104231 - 0.944623I$	$-2.01029 + 4.07135I$	$5.88452 - 2.88119I$
$u = 1.184710 + 0.434081I$ $a = 0.270936 - 0.001720I$ $b = 0.64951 + 1.30606I$	$-9.28116 - 1.96554I$	$-2.00564 + 0.22737I$
$u = 1.184710 + 0.434081I$ $a = -1.66650 - 1.05864I$ $b = 0.46135 - 1.46236I$	$-9.28116 - 1.96554I$	$-2.00564 + 0.22737I$
$u = 1.184710 - 0.434081I$ $a = 0.270936 + 0.001720I$ $b = 0.64951 - 1.30606I$	$-9.28116 + 1.96554I$	$-2.00564 - 0.22737I$
$u = 1.184710 - 0.434081I$ $a = -1.66650 + 1.05864I$ $b = 0.46135 + 1.46236I$	$-9.28116 + 1.96554I$	$-2.00564 - 0.22737I$
$u = -1.184420 + 0.463218I$ $a = 0.927533 - 0.364029I$ $b = 0.34103 - 1.54824I$	$-9.07499 + 6.60899I$	$-1.22618 - 6.99003I$
$u = -1.184420 + 0.463218I$ $a = -1.85045 + 0.91774I$ $b = 0.77145 + 1.19452I$	$-9.07499 + 6.60899I$	$-1.22618 - 6.99003I$
$u = -1.184420 - 0.463218I$ $a = 0.927533 + 0.364029I$ $b = 0.34103 + 1.54824I$	$-9.07499 - 6.60899I$	$-1.22618 + 6.99003I$
$u = -1.184420 - 0.463218I$ $a = -1.85045 - 0.91774I$ $b = 0.77145 - 1.19452I$	$-9.07499 - 6.60899I$	$-1.22618 + 6.99003I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.168380+0.513346I$ $a=-0.844950+0.649405I$ $b=\ \ 0.915189+0.166444I$	$-6.17532+7.72472I$	$0.75055-5.61903I$
$u=-1.168380+0.513346I$ $a=\ \ 1.85055-0.85235I$ $b=-0.367709-1.354240I$	$-6.17532+7.72472I$	$0.75055-5.61903I$
$u=-1.168380-0.513346I$ $a=-0.844950-0.649405I$ $b=\ \ 0.915189-0.166444I$	$-6.17532-7.72472I$	$0.75055+5.61903I$
$u=-1.168380-0.513346I$ $a=\ \ 1.85055+0.85235I$ $b=-0.367709+1.354240I$	$-6.17532-7.72472I$	$0.75055+5.61903I$
$u=\ \ 1.175040+0.526945I$ $a=-0.565080-1.163500I$ $b=\ \ 1.214090+0.120279I$	$-3.28987-12.60260I$	$4.00000+8.81146I$
$u=\ \ 1.175040+0.526945I$ $a=\ \ 2.03424+0.94384I$ $b=-0.68262+1.38913I$	$-3.28987-12.60260I$	$4.00000+8.81146I$
$u=\ \ 1.175040-0.526945I$ $a=-0.565080+1.163500I$ $b=\ \ 1.214090-0.120279I$	$-3.28987+12.60260I$	$4.00000-8.81146I$
$u=\ \ 1.175040-0.526945I$ $a=\ \ 2.03424-0.94384I$ $b=-0.68262-1.38913I$	$-3.28987+12.60260I$	$4.00000-8.81146I$
$u=-0.446315+0.412227I$ $a=-5.77405-3.06455I$ $b=\ \ 0.091090+1.080300I$	$-1.80097-0.27307I$	$10.50261+0.38004I$
$u=-0.446315+0.412227I$ $a=-2.07421+6.71218I$ $b=\ \ 0.136632-0.945269I$	$-1.80097-0.27307I$	$10.50261+0.38004I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.446315 - 0.412227I$ $a = -5.77405 + 3.06455I$ $b = 0.091090 - 1.080300I$	$-1.80097 + 0.27307I$	$10.50261 - 0.38004I$
$u = -0.446315 - 0.412227I$ $a = -2.07421 - 6.71218I$ $b = 0.136632 + 0.945269I$	$-1.80097 + 0.27307I$	$10.50261 - 0.38004I$

III. $\boldsymbol{I_3^u = \langle b-1,\ -u^3+4u^2+4a-2,\ u^4-2u^2+2\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{1}{4}u^3-u^2+\frac{1}{2} \\ 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{1}{8}u^3-\frac{1}{2}u^2-\frac{1}{4}u \\ -\frac{1}{2}u^3+\frac{1}{2}u+\frac{1}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{4}u^3-u^2+\frac{3}{2} \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^3-u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{4}u^3-u^2+\frac{5}{2} \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{1}{4}u^3-u^2+\frac{3}{2} \\ 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{3}{8}u^3-\frac{1}{2}u^2+\frac{1}{4}u+\frac{3}{2} \\ \frac{1}{2}u^3-\frac{1}{2}u+\frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^2 - 2u + 2)^2$
c_2, c_7	$u^4 - 2u^2 + 2$
c_3	$16(16u^4 + 32u^3 + 32u^2 + 16u + 5)$
c_4, c_9, c_{10}	$(u + 1)^4$
c_5, c_6, c_{11}	$(u - 1)^4$
c_8	$u^4 + 2u^2 + 2$
c_{12}	$16(16u^4 - 32u^3 + 32u^2 - 16u + 5)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+4)^2$
c_2, c_7	$(y^2-2y+2)^2$
c_3, c_{12}	$256(256y^4+160y^2+64y+25)$
c_4, c_5, c_6 c_9, c_{10}, c_{11}	$(y-1)^4$
c_8	$(y^2+2y+2)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.098680 + 0.455090I$ $a = -0.339101 - 0.611557I$ $b = \quad 1.00000$	$0.82247 - 3.66386I$	$8.00000 + 4.00000I$
$u = \quad 1.098680 - 0.455090I$ $a = -0.339101 + 0.611557I$ $b = \quad 1.00000$	$0.82247 + 3.66386I$	$8.00000 - 4.00000I$
$u = -1.098680 + 0.455090I$ $a = -0.66090 + 1.38844I$ $b = \quad 1.00000$	$0.82247 + 3.66386I$	$8.00000 - 4.00000I$
$u = -1.098680 - 0.455090I$ $a = -0.66090 - 1.38844I$ $b = \quad 1.00000$	$0.82247 - 3.66386I$	$8.00000 + 4.00000I$

IV. $\boldsymbol{I_1^v = \langle a,\ b+1,\ 2v+1 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} -0.5 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.5 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.5 \\ 0.5 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.5 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1.5 \\ -0.5 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_7 c_8	y
c_3, c_{12}	$4(4y-1)$
c_4, c_5, c_6 c_9, c_{10}, c_{11}	$y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000$ $a = 0$ $b = -1.00000$	3.28987	12.0000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^2-2u+2)^2(u^{36}+19u^{35}+\cdots+2u+1)^2$ $\cdot(u^{44}+23u^{43}+\cdots+272u+64)$
c_2, c_7	$u(u^4-2u^2+2)(u^{36}-u^{35}+\cdots-u^2+1)^2(u^{44}+3u^{43}+\cdots+12u+8)$
c_3	$102400(2u-1)(16u^4+32u^3+32u^2+16u+5)$ $\cdot(128u^{44}+64u^{43}+\cdots-11u-1)$ $\cdot(25u^{72}+245u^{71}+\cdots+20307804u+8751347)$
c_4	$(u-1)(u+1)^4(u^{36}-u^{35}+\cdots-u^2+1)^2$ $\cdot(u^{44}-13u^{42}+\cdots+647u-416)$
c_5, c_6	$((u-1)^4)(u+1)(u^{44}+u^{43}+\cdots-16u-5)(u^{72}-3u^{71}+\cdots-8u+1)$
c_8	$u(u^4+2u^2+2)(u^{36}-3u^{35}+\cdots-22u+5)^2$ $\cdot(u^{44}+9u^{43}+\cdots+42988u+25384)$
c_9, c_{10}	$(u-1)(u+1)^4(u^{44}+u^{43}+\cdots-16u-5)(u^{72}-3u^{71}+\cdots-8u+1)$
c_{11}	$((u-1)^4)(u+1)(u^{36}-u^{35}+\cdots-u^2+1)^2$ $\cdot(u^{44}-13u^{42}+\cdots+647u-416)$
c_{12}	$102400(2u+1)(16u^4-32u^3+32u^2-16u+5)$ $\cdot(128u^{44}+64u^{43}+\cdots-11u-1)$ $\cdot(25u^{72}+245u^{71}+\cdots+20307804u+8751347)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^2+4)^2(y^{36}-3y^{35}+\cdots+2y+1)^2$ $\cdot\,(y^{44}-3y^{43}+\cdots-12544y+4096)$
c_2, c_7	$y(y^2-2y+2)^2(y^{36}-19y^{35}+\cdots-2y+1)^2$ $\cdot\,(y^{44}-23y^{43}+\cdots-272y+64)$
c_3, c_{12}	$10485760000(4y-1)(256y^4+160y^2+64y+25)$ $\cdot\,(16384y^{44}+151552y^{43}+\cdots-55y+1)$ $\cdot\,(625y^{72}+21875y^{71}+\cdots+1173257570845272y+76586074314409)$
c_4, c_{11}	$((y-1)^5)(y^{36}-19y^{35}+\cdots-2y+1)^2$ $\cdot\,(y^{44}-26y^{43}+\cdots-5622769y+173056)$
c_5, c_6, c_9 c_{10}	$((y-1)^5)(y^{44}+17y^{43}+\cdots-146y+25)(y^{72}+47y^{71}+\cdots+16y+1)$
c_8	$y(y^2+2y+2)^2(y^{36}+25y^{35}+\cdots-154y+25)^2$ $\cdot\,(y^{44}+29y^{43}+\cdots-8202497168y+644347456)$