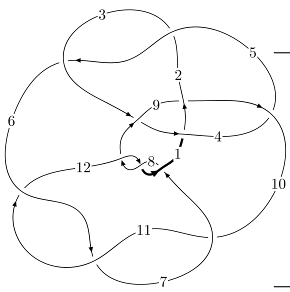
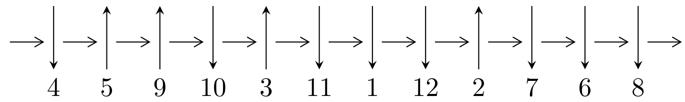
$12a_{0853}$ ($K12a_{0853}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle & 1.02805 \times 10^{16} u^{42} - 1.52246 \times 10^{16} u^{41} + \cdots + 1.26321 \times 10^{17} b - 8.98707 \times 10^{16}, \\
& - 7.21225 \times 10^{16} u^{42} + 3.40792 \times 10^{16} u^{41} + \cdots + 1.68428 \times 10^{17} a - 9.26394 \times 10^{16},\ u^{43} - u^{42} + \cdots - u - 1 \\
I^u_2 = \langle & 2.49774 \times 10^{62} u^{57} - 1.12667 \times 10^{62} u^{56} + \cdots + 3.57909 \times 10^{63} b - 1.55315 \times 10^{63}, \\
& 3.07126 \times 10^{63} u^{57} - 3.20268 \times 10^{64} u^{56} + \cdots + 6.08445 \times 10^{64} a - 8.19267 \times 10^{64},\ u^{58} - u^{57} + \cdots - 120u + \\
I^u_3 = \langle & -12a^5u + 60a^4u + 50a^4 - 58a^3u - 200a^3 - 66a^2u + 345a^2 + 132au + 13b - 290a - 56u + 125, \\
& a^6 + 5a^5u - 6a^5 - 25a^4u + 6a^4 + 48a^3u + 16a^3 - 44a^2u - 41a^2 + 20au + 34a - 4u - 11,\ u^2 + 1\rangle \\
I^u_4 = \langle & b - 1,\ 4a + 1,\ u - 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 114 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.
$\boldsymbol{I_1^u = \langle 1.03\times10^{16}u^{42} - 1.52\times10^{16}u^{41} + \cdots + 1.26\times10^{17}b - 8.99\times10^{16},\ -7.21\times10^{16}u^{42} + 3.41\times10^{16}u^{41} + \cdots + 1.68\times10^{17}a - 9.26\times10^{16},\ u^{43} - u^{42} + \cdots - u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.428209u^{42} - 0.202336u^{41} + \cdots + 4.44451u + 0.550022\\-0.0813834u^{42} + 0.120523u^{41} + \cdots - 0.596660u + 0.711445\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.240572u^{42} + 0.0861176u^{41} + \cdots + 4.10112u + 1.07740\\-0.0655795u^{42} - 0.0289657u^{41} + \cdots - 0.723711u + 1.05998\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.471566u^{42} - 0.505695u^{41} + \cdots + 0.182364u - 0.696209\\-0.163705u^{42} + 0.294773u^{41} + \cdots + 1.16777u - 0.341990\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\u^3 + u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.223904u^{42} + 0.101431u^{41} + \cdots + 3.27806u + 0.658768\\-0.217357u^{42} + 0.0632153u^{41} + \cdots - 1.56479u + 0.639998\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.0156250u^{41} - 0.0156250u^{40} + \cdots + 1.98438u - 0.0156250\\-0.0156250u^{41} + 0.0156250u^{40} + \cdots - 0.984375u + 0.0156250\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-\frac{1}{64}u^{42} + \frac{1}{64}u^{41} + \cdots + \frac{1}{64}u + 1\\0.0156250u^{42} - 0.0156250u^{41} + \cdots + 2.98438u^2 - 0.0156250u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-\frac{1}{64}u^{42} + \frac{1}{64}u^{41} + \cdots + \frac{1}{64}u + 1\\0.0156250u^{42} - 0.0156250u^{41} + \cdots + 1.98438u^2 - 0.0156250u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $=$
$$\frac{6397662188162984 39}{673713571663806464}u^{42} - \frac{2392691369763753}{5263387278623488}u^{41} + \cdots + \frac{3318446060721997959}{336856785831903232}u + \frac{4707724893365783111}{673713571663806464}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{43} - 7u^{42} + \cdots + 108u - 32$
c_2, c_5	$u^{43} + 2u^{42} + \cdots + 209u + 16$
c_3	$2(2u^{43} - 5u^{42} + \cdots - 12267u + 4806)$
c_4	$2(2u^{43} + 7u^{42} + \cdots - 383u + 38)$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$u^{43} + u^{42} + \cdots - u + 1$
c_9	$u^{43} + 11u^{42} + \cdots + 12u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{43} - 3y^{42} + \cdots + 2640y - 1024$
c_2, c_5	$y^{43} - 28y^{42} + \cdots + 22305y - 256$
c_3	$4(4y^{43} + 131y^{42} + \cdots + 5.60152 \times 10^8 y - 2.30976 \times 10^7)$
c_4	$4(4y^{43} + 163y^{42} + \cdots + 133997y - 1444)$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^{43} + 49y^{42} + \cdots - 7y - 1$
c_9	$y^{43} - 11y^{42} + \cdots + 56y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.045580 + 0.265073I$ $a = 0.422924 + 0.253246I$ $b = -1.010750 - 0.070949I$	$-0.099165 + 0.197199I$	$-0.4146 - 26.5252I$
$u = 1.045580 - 0.265073I$ $a = 0.422924 - 0.253246I$ $b = -1.010750 + 0.070949I$	$-0.099165 - 0.197199I$	$-0.4146 + 26.5252I$
$u = -0.736113 + 0.398028I$ $a = 0.84742 - 1.18772I$ $b = -1.281540 - 0.503412I$	$1.40701 + 9.37887I$	$-3.20335 - 8.94600I$
$u = -0.736113 - 0.398028I$ $a = 0.84742 + 1.18772I$ $b = -1.281540 + 0.503412I$	$1.40701 - 9.37887I$	$-3.20335 + 8.94600I$
$u = 0.473228 + 0.484138I$ $a = 1.232460 + 0.508002I$ $b = -0.614304 + 0.159820I$	$-0.90207 - 1.36883I$	$-10.28742 + 6.03530I$
$u = 0.473228 - 0.484138I$ $a = 1.232460 - 0.508002I$ $b = -0.614304 - 0.159820I$	$-0.90207 + 1.36883I$	$-10.28742 - 6.03530I$
$u = -0.064164 + 1.323640I$ $a = 0.760278 - 0.102506I$ $b = -0.972506 - 0.725155I$	$5.23305 + 6.33277I$	0
$u = -0.064164 - 1.323640I$ $a = 0.760278 + 0.102506I$ $b = -0.972506 + 0.725155I$	$5.23305 - 6.33277I$	0
$u = -0.628592 + 0.239030I$ $a = -0.366369 + 0.658186I$ $b = -0.086228 + 0.994383I$	$-2.33595 + 4.06686I$	$-8.11663 - 7.68950I$
$u = -0.628592 - 0.239030I$ $a = -0.366369 - 0.658186I$ $b = -0.086228 - 0.994383I$	$-2.33595 - 4.06686I$	$-8.11663 + 7.68950I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.077159 + 0.648817I$ $a = \quad 1.42212 - 0.36145I$ $b = -1.117220 + 0.496513I$	$2.05786 - 5.42765I$	$-4.51173 + 4.01745I$
$u = -0.077159 - 0.648817I$ $a = \quad 1.42212 + 0.36145I$ $b = -1.117220 - 0.496513I$	$2.05786 + 5.42765I$	$-4.51173 - 4.01745I$
$u = \quad 0.052827 + 1.379270I$ $a = \quad 0.807394 + 0.046202I$ $b = -0.669512 + 1.007180I$	$4.20635 + 0.15997I$	0
$u = \quad 0.052827 - 1.379270I$ $a = \quad 0.807394 - 0.046202I$ $b = -0.669512 - 1.007180I$	$4.20635 - 0.15997I$	0
$u = \quad 0.581376$ $a = \quad 0.597794$ $b = -0.108975$	-1.12494	-9.33260
$u = -0.28872 + 1.45678I$ $a = \quad 0.0615459 + 0.1163560I$ $b = \quad 0.004483 + 0.567870I$	$8.92969 + 6.54162I$	0
$u = -0.28872 - 1.45678I$ $a = \quad 0.0615459 - 0.1163560I$ $b = \quad 0.004483 - 0.567870I$	$8.92969 - 6.54162I$	0
$u = -0.440206 + 0.256952I$ $a = -0.48389 + 1.95063I$ $b = \quad 1.178700 + 0.550685I$	$2.08265 + 2.42825I$	$-0.56440 - 9.11743I$
$u = -0.440206 - 0.256952I$ $a = -0.48389 - 1.95063I$ $b = \quad 1.178700 - 0.550685I$	$2.08265 - 2.42825I$	$-0.56440 + 9.11743I$
$u = -0.18031 + 1.48239I$ $a = -0.162135 - 0.690521I$ $b = \quad 0.679167 - 0.418338I$	$10.59230 + 3.84643I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.18031 - 1.48239I$ $a = -0.162135 + 0.690521I$ $b = 0.679167 + 0.418338I$	$10.59230 - 3.84643I$	0
$u = -0.23828 + 1.49528I$ $a = -2.57330 + 1.37141I$ $b = 1.155900 + 0.144649I$	$11.69970 + 5.56941I$	0
$u = -0.23828 - 1.49528I$ $a = -2.57330 - 1.37141I$ $b = 1.155900 - 0.144649I$	$11.69970 - 5.56941I$	0
$u = 0.31669 + 1.48794I$ $a = -0.638218 + 0.398587I$ $b = 0.004964 - 1.358370I$	$8.9461 - 11.3255I$	0
$u = 0.31669 - 1.48794I$ $a = -0.638218 - 0.398587I$ $b = 0.004964 + 1.358370I$	$8.9461 + 11.3255I$	0
$u = 0.14365 + 1.51608I$ $a = -0.092566 - 0.461995I$ $b = 0.669674 + 1.208150I$	$11.60390 - 0.05307I$	0
$u = 0.14365 - 1.51608I$ $a = -0.092566 + 0.461995I$ $b = 0.669674 - 1.208150I$	$11.60390 + 0.05307I$	0
$u = 0.26648 + 1.52137I$ $a = -1.73238 - 0.59952I$ $b = 1.49175 - 0.86241I$	$14.0100 - 8.2907I$	0
$u = 0.26648 - 1.52137I$ $a = -1.73238 + 0.59952I$ $b = 1.49175 + 0.86241I$	$14.0100 + 8.2907I$	0
$u = 0.446586 + 0.089144I$ $a = 0.02052 - 5.32611I$ $b = 0.954076 - 0.043831I$	$0.777033 - 0.264079I$	$11.3014 - 20.2599I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.446586 - 0.089144I$ $a = 0.02052 + 5.32611I$ $b = 0.954076 + 0.043831I$	$0.777033 + 0.264079I$	$11.3014 + 20.2599I$
$u = 0.21380 + 1.53373I$ $a = -1.63578 - 0.65528I$ $b = 1.77518 + 0.39030I$	$14.8100 - 3.8243I$	0
$u = 0.21380 - 1.53373I$ $a = -1.63578 + 0.65528I$ $b = 1.77518 - 0.39030I$	$14.8100 + 3.8243I$	0
$u = 0.38589 + 1.50890I$ $a = 1.79076 + 0.95620I$ $b = -1.43641 + 0.60380I$	$13.5242 - 18.0612I$	0
$u = 0.38589 - 1.50890I$ $a = 1.79076 - 0.95620I$ $b = -1.43641 - 0.60380I$	$13.5242 + 18.0612I$	0
$u = 0.101852 + 0.424949I$ $a = 1.026490 + 0.504047I$ $b = -0.182737 - 0.500492I$	$-0.434486 - 1.281080I$	$-5.70053 + 4.09830I$
$u = 0.101852 - 0.424949I$ $a = 1.026490 - 0.504047I$ $b = -0.182737 + 0.500492I$	$-0.434486 + 1.281080I$	$-5.70053 - 4.09830I$
$u = -0.40091 + 1.53270I$ $a = 1.54564 - 0.75824I$ $b = -1.237910 - 0.318743I$	$12.6650 + 9.9628I$	0
$u = -0.40091 - 1.53270I$ $a = 1.54564 + 0.75824I$ $b = -1.237910 + 0.318743I$	$12.6650 - 9.9628I$	0
$u = -0.203608 + 0.274430I$ $a = -0.439369 + 1.267360I$ $b = 1.224480 - 0.262463I$	$2.63309 - 0.39699I$	$2.68829 - 3.78144I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.203608 - 0.274430I$ $a = -0.439369 - 1.267360I$ $b = 1.224480 + 0.262463I$	$2.63309 + 0.39699I$	$2.68829 + 3.78144I$
$u = 0.02078 + 1.67786I$ $a = 1.76255 + 0.12189I$ $b = -1.47476 - 0.22968I$	$18.9757 + 4.3403I$	0
$u = 0.02078 - 1.67786I$ $a = 1.76255 - 0.12189I$ $b = -1.47476 + 0.22968I$	$18.9757 - 4.3403I$	0

II. $\boldsymbol{I^u_2 =}$
$\boldsymbol{\langle 2.50\times 10^{62}u^{57} - 1.13\times 10^{62}u^{56} + \cdots + 3.58\times 10^{63}b - 1.55\times 10^{63},\ 3.07\times 10^{63}u^{57} - 3.20\times 10^{64}u^{56} + \cdots + 6.08\times 10^{64}a - 8.19\times 10^{64},\ u^{58} - u^{57} + \cdots - 120u + 17\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.0504773u^{57} + 0.526372u^{56} + \cdots - 34.1344u + 1.34649\\-0.0697872u^{57} + 0.0314792u^{56} + \cdots - 0.190553u + 0.433951\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.265733u^{57} + 0.711612u^{56} + \cdots - 33.4303u + 4.89579\\0.0169308u^{57} - 0.0789094u^{56} + \cdots + 15.7229u - 3.20838\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.327014u^{57} - 0.175535u^{56} + \cdots + 11.9688u - 7.35130\\-0.0763146u^{57} - 0.00228602u^{56} + \cdots - 0.511135u + 0.235990\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\u^3 + u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.247321u^{57} + 0.615412u^{56} + \cdots - 27.6376u + 4.15193\\-0.0154154u^{57} - 0.0157421u^{56} + \cdots + 11.8680u - 2.62983\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.0588235u^{57} - 0.0588235u^{56} + \cdots + 13.1765u - 7.05882\\-0.0641037u^{57} + 0.204261u^{56} + \cdots - 17.3206u + 3.46570\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.344021u^{57} - 0.282487u^{56} + \cdots + 19.4211u - 6.05337\\-0.140157u^{57} + 0.142726u^{56} + \cdots + 4.22674u - 2.08976\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.203865u^{57} - 0.139761u^{56} + \cdots + 23.6478u - 7.14313\\-1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.471425u^{57} + 0.710651u^{56} + \cdots + 3.35966u - 9.60008$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{29} - 5u^{28} + \cdots + u - 1)^2$
c_2, c_5	$(u^{29} + u^{28} + \cdots + 5u - 1)^2$
c_3	$(u^{29} + u^{28} + \cdots - u + 19)^2$
c_4	$(u^{29} - u^{28} + \cdots + 21u + 11)^2$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$u^{58} + u^{57} + \cdots + 120u + 17$
c_9	$(u^{29} - 3u^{28} + \cdots + u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{29} + 3y^{28} + \cdots - 5y - 1)^2$
c_2, c_5	$(y^{29} - 21y^{28} + \cdots - 5y - 1)^2$
c_3	$(y^{29} + 15y^{28} + \cdots + 1103y - 361)^2$
c_4	$(y^{29} + 31y^{28} + \cdots - 1869y - 121)^2$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^{58} + 47y^{57} + \cdots - 6784y + 289$
c_9	$(y^{29} - 5y^{28} + \cdots + 3y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.114956 + 0.991781I$ $a = 1.017780 - 0.070177I$ $b = -0.328130 - 0.742907I$	$-0.330423 - 0.986104I$	$-7.43918 + 1.15236I$
$u = -0.114956 - 0.991781I$ $a = 1.017780 + 0.070177I$ $b = -0.328130 + 0.742907I$	$-0.330423 + 0.986104I$	$-7.43918 - 1.15236I$
$u = 0.575655 + 0.782439I$ $a = 1.078930 + 0.547115I$ $b = 0.253652 + 0.975036I$	$4.20559 + 2.15286I$	$1.11617 - 3.69479I$
$u = 0.575655 - 0.782439I$ $a = 1.078930 - 0.547115I$ $b = 0.253652 - 0.975036I$	$4.20559 - 2.15286I$	$1.11617 + 3.69479I$
$u = -0.136025 + 1.027380I$ $a = 1.46072 + 4.08074I$ $b = 1.16056$	5.59886	$-1.48744 + 0.I$
$u = -0.136025 - 1.027380I$ $a = 1.46072 - 4.08074I$ $b = 1.16056$	5.59886	$-1.48744 + 0.I$
$u = 0.435379 + 0.848772I$ $a = 1.108170 + 0.488561I$ $b = -1.093360 + 0.383928I$	$2.02393 - 5.18635I$	$-2.50672 + 7.03100I$
$u = 0.435379 - 0.848772I$ $a = 1.108170 - 0.488561I$ $b = -1.093360 - 0.383928I$	$2.02393 + 5.18635I$	$-2.50672 - 7.03100I$
$u = 0.986825 + 0.374884I$ $a = 0.523680 + 1.034500I$ $b = -1.39544 + 0.53455I$	$7.4851 - 13.0999I$	$1.01719 + 8.12211I$
$u = 0.986825 - 0.374884I$ $a = 0.523680 - 1.034500I$ $b = -1.39544 - 0.53455I$	$7.4851 + 13.0999I$	$1.01719 - 8.12211I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.703908 + 0.609023I$ $a = 0.167707 - 0.211198I$ $b = 1.53445 + 0.45405I$	$7.77622 - 0.55125I$	$6.94303 + 0.19758I$
$u = 0.703908 - 0.609023I$ $a = 0.167707 + 0.211198I$ $b = 1.53445 - 0.45405I$	$7.77622 + 0.55125I$	$6.94303 - 0.19758I$
$u = 0.779580 + 0.501957I$ $a = -0.238984 - 1.367610I$ $b = 1.43653 - 0.66551I$	$7.40612 - 4.48763I$	$5.60010 + 6.67821I$
$u = 0.779580 - 0.501957I$ $a = -0.238984 + 1.367610I$ $b = 1.43653 + 0.66551I$	$7.40612 + 4.48763I$	$5.60010 - 6.67821I$
$u = 0.839019 + 0.382301I$ $a = -0.229288 - 0.881419I$ $b = 0.059577 - 1.184960I$	$2.90482 - 7.12556I$	$-1.34557 + 8.10425I$
$u = 0.839019 - 0.382301I$ $a = -0.229288 + 0.881419I$ $b = 0.059577 + 1.184960I$	$2.90482 + 7.12556I$	$-1.34557 - 8.10425I$
$u = -1.067450 + 0.395502I$ $a = 0.530432 - 0.554638I$ $b = -1.164370 - 0.162769I$	$6.46417 + 4.69569I$	0
$u = -1.067450 - 0.395502I$ $a = 0.530432 + 0.554638I$ $b = -1.164370 + 0.162769I$	$6.46417 - 4.69569I$	0
$u = -0.675231 + 0.482611I$ $a = -2.49228 + 1.77640I$ $b = 1.079220 + 0.058684I$	$5.28092 + 2.23064I$	$-19.0558 + 8.8774I$
$u = -0.675231 - 0.482611I$ $a = -2.49228 - 1.77640I$ $b = 1.079220 - 0.058684I$	$5.28092 - 2.23064I$	$-19.0558 - 8.8774I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.004114 + 1.175970I$ $a = 0.630619 + 0.805872I$ $b = 0.620218 - 0.307429I$	$3.99674 - 1.36069I$	0
$u = -0.004114 - 1.175970I$ $a = 0.630619 - 0.805872I$ $b = 0.620218 + 0.307429I$	$3.99674 + 1.36069I$	0
$u = -0.727738 + 0.348972I$ $a = 0.533803 + 0.610441I$ $b = 0.046849 + 0.301708I$	$3.13199 + 2.80514I$	$-2.17791 - 1.85203I$
$u = -0.727738 - 0.348972I$ $a = 0.533803 - 0.610441I$ $b = 0.046849 - 0.301708I$	$3.13199 - 2.80514I$	$-2.17791 + 1.85203I$
$u = 0.774616 + 0.950835I$ $a = 0.571035 + 0.357762I$ $b = -1.37838 - 0.43416I$	$9.18116 + 7.10658I$	0
$u = 0.774616 - 0.950835I$ $a = 0.571035 - 0.357762I$ $b = -1.37838 + 0.43416I$	$9.18116 - 7.10658I$	0
$u = -0.473827 + 0.581130I$ $a = 1.56751 - 0.75659I$ $b = 0.460562 - 0.048919I$	$4.07927 + 1.37762I$	$1.11267 - 4.75149I$
$u = -0.473827 - 0.581130I$ $a = 1.56751 + 0.75659I$ $b = 0.460562 + 0.048919I$	$4.07927 - 1.37762I$	$1.11267 + 4.75149I$
$u = 0.026089 + 1.270130I$ $a = 0.433342 + 0.790191I$ $b = 0.460562 + 0.048919I$	$4.07927 - 1.37762I$	0
$u = 0.026089 - 1.270130I$ $a = 0.433342 - 0.790191I$ $b = 0.460562 - 0.048919I$	$4.07927 + 1.37762I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.546601 + 0.418251I$ $a = 0.453277 - 0.847452I$ $b = -1.093360 + 0.383928I$	$2.02393 - 5.18635I$	$-2.50672 + 7.03100I$
$u = -0.546601 - 0.418251I$ $a = 0.453277 + 0.847452I$ $b = -1.093360 - 0.383928I$	$2.02393 + 5.18635I$	$-2.50672 - 7.03100I$
$u = -0.805465 + 1.064120I$ $a = 0.819276 - 0.467320I$ $b = -1.211660 - 0.045159I$	$8.43950 + 1.80223I$	0
$u = -0.805465 - 1.064120I$ $a = 0.819276 + 0.467320I$ $b = -1.211660 + 0.045159I$	$8.43950 - 1.80223I$	0
$u = 0.198901 + 1.329080I$ $a = 0.333173 - 0.169396I$ $b = 0.046849 - 0.301708I$	$3.13199 - 2.80514I$	0
$u = 0.198901 - 1.329080I$ $a = 0.333173 + 0.169396I$ $b = 0.046849 + 0.301708I$	$3.13199 + 2.80514I$	0
$u = 0.065480 + 1.347360I$ $a = -0.267717 + 0.891512I$ $b = 0.253652 - 0.975036I$	$4.20559 - 2.15286I$	0
$u = 0.065480 - 1.347360I$ $a = -0.267717 - 0.891512I$ $b = 0.253652 + 0.975036I$	$4.20559 + 2.15286I$	0
$u = 0.116012 + 1.344200I$ $a = -4.36296 - 1.77186I$ $b = 1.079220 - 0.058684I$	$5.28092 - 2.23064I$	0
$u = 0.116012 - 1.344200I$ $a = -4.36296 + 1.77186I$ $b = 1.079220 + 0.058684I$	$5.28092 + 2.23064I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.191636+0.606717I$ $a=\quad 2.91401+0.73543I$ $b=\quad 0.620218+0.307429I$	$3.99674+1.36069I$	$0.42210-4.47976I$
$u=-0.191636-0.606717I$ $a=\quad 2.91401-0.73543I$ $b=\quad 0.620218-0.307429I$	$3.99674-1.36069I$	$0.42210+4.47976I$
$u=-0.056090+1.391240I$ $a=-2.41142+0.55032I$ $b=\quad 1.53445-0.45405I$	$7.77622+0.55125I$	0
$u=-0.056090-1.391240I$ $a=-2.41142-0.55032I$ $b=\quad 1.53445+0.45405I$	$7.77622-0.55125I$	0
$u=-0.135451+1.404900I$ $a=-2.35836+0.45643I$ $b=\quad 1.43653+0.66551I$	$7.40612+4.48763I$	0
$u=-0.135451-1.404900I$ $a=-2.35836-0.45643I$ $b=\quad 1.43653-0.66551I$	$7.40612-4.48763I$	0
$u=-0.22028+1.39864I$ $a=-0.645746-0.645559I$ $b=\quad 0.059577+1.184960I$	$2.90482+7.12556I$	0
$u=-0.22028-1.39864I$ $a=-0.645746+0.645559I$ $b=\quad 0.059577-1.184960I$	$2.90482-7.12556I$	0
$u=-0.27878+1.48013I$ $a=\quad 2.11580-0.80950I$ $b=-1.39544-0.53455I$	$7.4851+13.0999I$	0
$u=-0.27878-1.48013I$ $a=\quad 2.11580+0.80950I$ $b=-1.39544+0.53455I$	$7.4851-13.0999I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.14926 + 1.50492I$ $a = 2.26623 + 0.33910I$ $b = -1.37838 + 0.43416I$	$9.18116 - 7.10658I$	0
$u = 0.14926 - 1.50492I$ $a = 2.26623 - 0.33910I$ $b = -1.37838 - 0.43416I$	$9.18116 + 7.10658I$	0
$u = 0.29727 + 1.53685I$ $a = 1.66201 + 0.62219I$ $b = -1.164370 + 0.162769I$	$6.46417 - 4.69569I$	0
$u = 0.29727 - 1.53685I$ $a = 1.66201 - 0.62219I$ $b = -1.164370 - 0.162769I$	$6.46417 + 4.69569I$	0
$u = -0.22879 + 1.54997I$ $a = 1.67995 - 0.58369I$ $b = -1.211660 + 0.045159I$	$8.43950 - 1.80223I$	0
$u = -0.22879 - 1.54997I$ $a = 1.67995 + 0.58369I$ $b = -1.211660 - 0.045159I$	$8.43950 + 1.80223I$	0
$u = 0.214429 + 0.048924I$ $a = -2.33130 + 1.05547I$ $b = -0.328130 - 0.742907I$	$-0.330423 - 0.986104I$	$-7.43918 + 1.15236I$
$u = 0.214429 - 0.048924I$ $a = -2.33130 - 1.05547I$ $b = -0.328130 + 0.742907I$	$-0.330423 + 0.986104I$	$-7.43918 - 1.15236I$

III.

$\boldsymbol{I^u_3 = \langle -12a^5u+60a^4u+\cdots-290a+125,\ 5a^5u-25a^4u+\cdots+34a-11,\ u^2+1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\-1\end{pmatrix}$$
$$a_3 = \begin{pmatrix}a\\0.923077a^5u-4.61538a^4u+\cdots+22.3077a-9.61538\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.923077a^5u-1.07692a^4u+\cdots+8.84615a-2.69231\\-0.615385a^5u+3.07692a^4u+\cdots-17.5385a+8.07692\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.307692a^5u+5.23077a^4u+\cdots-17.0769a+7.15385\\1.15385a^5u-5.76923a^4u+\cdots+21.3846a-7.76923\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1.53846a^5u-4.15385a^4u+\cdots+26.3846a-10.7692\\-0.615385a^5u+3.07692a^4u+\cdots-17.5385a+8.07692\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-2.30769a^5u+11.5385a^4u+\cdots-42.7692a+13.5385\\2.30769a^5u-11.5385a^4u+\cdots+42.7692a-13.5385\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-10.6154a^4u+42.4615a^3u+\cdots+40.3846a-16.7692\\10.6154a^4u-42.4615a^3u+\cdots-40.3846a+15.7692\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-10.6154a^4u+42.4615a^3u+\cdots+40.3846a-15.7692\\10.6154a^4u-42.4615a^3u+\cdots-40.3846a+14.7692\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -\frac{20}{13}a^5u+\frac{100}{13}a^4u+\frac{92}{13}a^4-\frac{36}{13}a^3u-\frac{368}{13}a^3-\frac{292}{13}a^2u+\frac{484}{13}a^2+\frac{324}{13}au-\frac{232}{13}a-\frac{76}{13}u+\frac{48}{13}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^6 + u^5 - u^4 - 2u^3 + u + 1)^2$
c_2	$(u^6 - u^5 - u^4 + 2u^3 - u + 1)^2$
c_3	$u^{12} + 3u^{10} + 5u^8 + 4u^6 + 2u^4 + u^2 + 1$
c_4, c_9	$u^{12} - u^{10} + 5u^8 + 6u^4 - 3u^2 + 1$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$(u^2 + 1)^6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)^2$
c_3	$(y^6 + 3y^5 + 5y^4 + 4y^3 + 2y^2 + y + 1)^2$
c_4, c_9	$(y^6 - y^5 + 5y^4 + 6y^2 - 3y + 1)^2$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$(y + 1)^{12}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 0.901719 - 0.655968I$ $b = -0.428243 - 0.664531I$	$1.39926 - 0.92430I$	$-1.71672 + 0.79423I$
$u = 1.000000I$ $a = 0.618748 + 0.415113I$ $b = -1.073950 + 0.558752I$	$3.28987 - 5.69302I$	$2.00000 + 5.51057I$
$u = 1.000000I$ $a = 1.098280 - 0.655968I$ $b = -0.428243 + 0.664531I$	$1.39926 + 0.92430I$	$-1.71672 - 0.79423I$
$u = 1.000000I$ $a = 1.38125 + 0.41511I$ $b = -1.073950 - 0.558752I$	$3.28987 + 5.69302I$	$2.00000 - 5.51057I$
$u = 1.000000I$ $a = -0.43225 - 2.25915I$ $b = 1.002190 + 0.295542I$	$5.18047 + 0.92430I$	$5.71672 - 0.79423I$
$u = 1.000000I$ $a = 2.43225 - 2.25915I$ $b = 1.002190 - 0.295542I$	$5.18047 - 0.92430I$	$5.71672 + 0.79423I$
$u = -1.000000I$ $a = 0.901719 + 0.655968I$ $b = -0.428243 + 0.664531I$	$1.39926 + 0.92430I$	$-1.71672 - 0.79423I$
$u = -1.000000I$ $a = 0.618748 - 0.415113I$ $b = -1.073950 - 0.558752I$	$3.28987 + 5.69302I$	$2.00000 - 5.51057I$
$u = -1.000000I$ $a = 1.098280 + 0.655968I$ $b = -0.428243 - 0.664531I$	$1.39926 - 0.92430I$	$-1.71672 + 0.79423I$
$u = -1.000000I$ $a = 1.38125 - 0.41511I$ $b = -1.073950 + 0.558752I$	$3.28987 - 5.69302I$	$2.00000 + 5.51057I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad - 1.000000I$ $a = -0.43225 + 2.25915I$ $b = 1.002190 - 0.295542I$	$5.18047 - 0.92430I$	$5.71672 + 0.79423I$
$u = \quad - 1.000000I$ $a = 2.43225 + 2.25915I$ $b = 1.002190 + 0.295542I$	$5.18047 + 0.92430I$	$5.71672 - 0.79423I$

IV. $I_4^u = \langle b-1,\ 4a+1,\ u-1\rangle$

(i) Arc colorings

$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$

$a_{11} = \begin{pmatrix}0\\1\end{pmatrix}$

$a_7 = \begin{pmatrix}1\\1\end{pmatrix}$

$a_3 = \begin{pmatrix}-0.25\\1\end{pmatrix}$

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

$a_5 = \begin{pmatrix}0.75\\1\end{pmatrix}$

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

$a_{10} = \begin{pmatrix}1\\2\end{pmatrix}$

$a_4 = \begin{pmatrix}0.25\\0\end{pmatrix}$

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

$a_9 = \begin{pmatrix}-1\\2\end{pmatrix}$

$a_8 = \begin{pmatrix}0\\1\end{pmatrix}$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 14.0625$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.250000$ $b = 1.00000$	0	14.0620

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^6+u^5+\cdots+u+1)^2(u^{29}-5u^{28}+\cdots+u-1)^2$ $\cdot(u^{43}-7u^{42}+\cdots+108u-32)$
c_2	$(u+1)(u^6-u^5+\cdots-u+1)^2(u^{29}+u^{28}+\cdots+5u-1)^2$ $\cdot(u^{43}+2u^{42}+\cdots+209u+16)$
c_3	$4(2u-1)(u^{12}+3u^{10}+5u^8+4u^6+2u^4+u^2+1)$ $\cdot((u^{29}+u^{28}+\cdots-u+19)^2)(2u^{43}-5u^{42}+\cdots-12267u+4806)$
c_4	$4(2u-1)(u^{12}-u^{10}+\cdots-3u^2+1)(u^{29}-u^{28}+\cdots+21u+11)^2$ $\cdot(2u^{43}+7u^{42}+\cdots-383u+38)$
c_5	$(u-1)(u^6+u^5+\cdots+u+1)^2(u^{29}+u^{28}+\cdots+5u-1)^2$ $\cdot(u^{43}+2u^{42}+\cdots+209u+16)$
c_6, c_7, c_8	$(u-1)(u^2+1)^6(u^{43}+u^{42}+\cdots-u+1)(u^{58}+u^{57}+\cdots+120u+17)$
c_9	$(u-2)(u^{12}-u^{10}+\cdots-3u^2+1)(u^{29}-3u^{28}+\cdots+u-1)^2$ $\cdot(u^{43}+11u^{42}+\cdots+12u+4)$
c_{10}, c_{11}, c_{12}	$(u+1)(u^2+1)^6(u^{43}+u^{42}+\cdots-u+1)(u^{58}+u^{57}+\cdots+120u+17)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^6-3y^5+\cdots-y+1)^2(y^{29}+3y^{28}+\cdots-5y-1)^2$ $\cdot(y^{43}-3y^{42}+\cdots+2640y-1024)$
c_2, c_5	$(y-1)(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot((y^{29}-21y^{28}+\cdots-5y-1)^2)(y^{43}-28y^{42}+\cdots+22305y-256)$
c_3	$16(4y-1)(y^6+3y^5+5y^4+4y^3+2y^2+y+1)^2$ $\cdot(y^{29}+15y^{28}+\cdots+1103y-361)^2$ $\cdot(4y^{43}+131y^{42}+\cdots+560152341y-23097636)$
c_4	$16(4y-1)(y^6-y^5+5y^4+6y^2-3y+1)^2$ $\cdot(y^{29}+31y^{28}+\cdots-1869y-121)^2$ $\cdot(4y^{43}+163y^{42}+\cdots+133997y-1444)$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$(y-1)(y+1)^{12}(y^{43}+49y^{42}+\cdots-7y-1)$ $\cdot(y^{58}+47y^{57}+\cdots-6784y+289)$
c_9	$(y-4)(y^6-y^5+\cdots-3y+1)^2(y^{29}-5y^{28}+\cdots+3y-1)^2$ $\cdot(y^{43}-11y^{42}+\cdots+56y-16)$