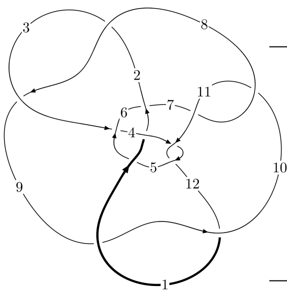
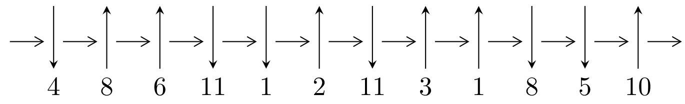
$12n_{0873}$ ($K12n_{0873}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -14522454433989u^{21} - 25681776487073u^{20} + \cdots + 3586941656707b - 31211211235135,\\
& -36929494073687u^{21} - 51455949517906u^{20} + \cdots + 7173883313414a - 58527943826811,\\
& u^{22} + u^{21} + \cdots + 11u^2 - 1\rangle\\
I_2^u = \langle & 4.95406 \times 10^{129}u^{47} - 1.26151 \times 10^{130}u^{46} + \cdots + 1.96857 \times 10^{131}b - 1.02263 \times 10^{133},\\
& 4.32742 \times 10^{130}u^{47} - 2.32616 \times 10^{130}u^{46} + \cdots + 1.83077 \times 10^{133}a + 1.08093 \times 10^{134},\\
& u^{48} - 3u^{47} + \cdots - 5967u + 837\rangle\\
I_3^u = \langle & 4.59095 \times 10^{33}u^{27} + 3.06795 \times 10^{34}u^{26} + \cdots + 1.27873 \times 10^{34}b - 2.02070 \times 10^{34},\\
& 5.39233 \times 10^{33}u^{27} + 3.74664 \times 10^{34}u^{26} + \cdots + 1.27873 \times 10^{34}a + 1.86540 \times 10^{33},\ u^{28} + 6u^{27} + \cdots - 3u + 1\\
I_4^u = \langle & b - u - 1,\ a + 1,\ u^2 + u + 1\rangle\\
I_5^u = \langle & b,\ a^2 - a - 1,\ u - 1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 102 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. $\boldsymbol{I_1^u = \langle -1.45\times 10^{13}u^{21} - 2.57\times 10^{13}u^{20} + \cdots + 3.59\times 10^{12}b - 3.12\times 10^{13},\ -3.69\times 10^{13}u^{21} - 5.15\times 10^{13}u^{20} + \cdots + 7.17\times 10^{12}a - 5.85\times 10^{13},\ u^{22} + u^{21} + \cdots + 11u^2 - 1\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 5.14777u^{21} + 7.17268u^{20} + \cdots + 31.1983u + 8.15847 \\ 4.04870u^{21} + 7.15980u^{20} + \cdots + 19.2083u + 8.70134 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -1.60242u^{21} - 2.95306u^{20} + \cdots - 16.8212u - 10.3165 \\ -1.34149u^{21} - 3.53682u^{20} + \cdots + 5.21457u + 1.60180 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2.94390u^{21} - 6.48988u^{20} + \cdots - 11.6066u - 8.71475 \\ -1.34149u^{21} - 3.53682u^{20} + \cdots + 5.21457u + 1.60180 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 7.46458u^{21} + 11.2167u^{20} + \cdots + 45.2589u + 14.8349 \\ 5.25346u^{21} + 9.78267u^{20} + \cdots + 21.5251u + 10.4285 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.808188u^{21} + 0.198874u^{20} + \cdots + 3.22832u - 1.25017 \\ 3.18771u^{21} + 5.17826u^{20} + \cdots + 15.6431u + 6.85526 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.808188u^{21} + 0.198874u^{20} + \cdots + 3.22832u - 1.25017 \\ 3.75209u^{21} + 6.68875u^{20} + \cdots + 14.8349u + 7.46458 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -5.04727u^{21} - 8.95412u^{20} + \cdots - 17.3452u - 2.58840 \\ 0.141857u^{21} - 1.92509u^{20} + \cdots + 17.6199u + 3.65407 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.597562u^{21} - 0.425433u^{20} + \cdots - 9.43715u - 7.53117 \\ -5.64484u^{21} - 9.37955u^{20} + \cdots - 26.7823u - 10.1196 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{10307681188458}{3586941656707}u^{21} - \frac{33226595290622}{3586941656707}u^{20} + \cdots + \frac{96107874232352}{3586941656707}u + \frac{30375267725218}{3586941656707}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7, c_{10}	$u^{22} + u^{21} + \cdots + 11u^2 - 1$
c_2, c_8	$u^{22} + 6u^{21} + \cdots + 228u + 52$
c_3, c_9, c_{12}	$u^{22} - u^{21} + \cdots + 11u^2 - 1$
c_4, c_{11}	$u^{22} - 6u^{21} + \cdots - 228u + 52$
c_5	$u^{22} - 8u^{20} + \cdots - 7u + 1$
c_6	$u^{22} - 8u^{20} + \cdots + 7u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_7 c_9, c_{10}, c_{12}	$y^{22} - 17y^{21} + \cdots - 22y + 1$
c_2, c_4, c_8 c_{11}	$y^{22} - 10y^{21} + \cdots - 5184y + 2704$
c_5, c_6	$y^{22} - 16y^{21} + \cdots - 23y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.273252 + 1.034170I$ $a = -0.328090 + 1.002630I$ $b = 0.35769 - 1.45925I$	$5.13893 + 2.17267I$	$4.11172 - 1.64759I$
$u = 0.273252 - 1.034170I$ $a = -0.328090 - 1.002630I$ $b = 0.35769 + 1.45925I$	$5.13893 - 2.17267I$	$4.11172 + 1.64759I$
$u = -1.091870 + 0.170196I$ $a = 0.341986 - 0.237190I$ $b = 0.10871 - 1.70943I$	$1.44857I$	$0. - 4.63298I$
$u = -1.091870 - 0.170196I$ $a = 0.341986 + 0.237190I$ $b = 0.10871 + 1.70943I$	$-1.44857I$	$0. + 4.63298I$
$u = 1.16697$ $a = 1.93759$ $b = 1.31755$	-1.38914	-6.49920
$u = 1.17007$ $a = 1.37304$ $b = 0.0438181$	-3.90973	-1.47180
$u = -1.184230 + 0.406235I$ $a = -0.892904 - 0.595909I$ $b = -0.677358 - 0.477546I$	$-5.13893 + 2.17267I$	$-4.11172 - 1.64759I$
$u = -1.184230 - 0.406235I$ $a = -0.892904 + 0.595909I$ $b = -0.677358 + 0.477546I$	$-5.13893 - 2.17267I$	$-4.11172 + 1.64759I$
$u = 1.28862$ $a = -0.871497$ $b = -0.541661$	3.90973	1.47180
$u = 1.190010 + 0.539033I$ $a = -0.019482 + 0.174480I$ $b = 0.02634 - 1.57051I$	$4.41609 - 8.09582I$	$-0.16704 + 6.20921I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.190010 - 0.539033I$ $a = -0.019482 - 0.174480I$ $b = 0.02634 + 1.57051I$	$4.41609 + 8.09582I$	$-0.16704 - 6.20921I$
$u = -1.21834 + 0.77453I$ $a = -1.046370 - 0.586364I$ $b = -0.586487 + 1.182500I$	$-6.16492 + 3.65327I$	$-2.07624 - 2.63478I$
$u = -1.21834 - 0.77453I$ $a = -1.046370 + 0.586364I$ $b = -0.586487 - 1.182500I$	$-6.16492 - 3.65327I$	$-2.07624 + 2.63478I$
$u = -0.216738 + 0.333613I$ $a = -0.485538 + 0.537232I$ $b = -0.157505 + 0.459074I$	$0.962560I$	$0. - 6.99490I$
$u = -0.216738 - 0.333613I$ $a = -0.485538 - 0.537232I$ $b = -0.157505 - 0.459074I$	$-0.962560I$	$0. + 6.99490I$
$u = -0.378784$ $a = -4.90098$ $b = 0.719440$	1.38914	6.49920
$u = 0.360251 + 0.017332I$ $a = -2.22248 - 2.14516I$ $b = 0.179710 - 1.357060I$	$6.16492 + 3.65327I$	$2.07624 - 2.63478I$
$u = 0.360251 - 0.017332I$ $a = -2.22248 + 2.14516I$ $b = 0.179710 + 1.357060I$	$6.16492 - 3.65327I$	$2.07624 + 2.63478I$
$u = 1.36719 + 1.01562I$ $a = -1.161550 + 0.457478I$ $b = -0.66619 - 2.08430I$	$-16.7035I$	$0. + 8.00505I$
$u = 1.36719 - 1.01562I$ $a = -1.161550 - 0.457478I$ $b = -0.66619 + 2.08430I$	$16.7035I$	$0. - 8.00505I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.60296+0.80967I$ $a=\quad 1.045340+0.230207I$ $b=\quad 1.14552-1.72907I$	$-4.41609+8.09582I$	$0.16704-6.20921I$
$u=-1.60296-0.80967I$ $a=\quad 1.045340-0.230207I$ $b=\quad 1.14552+1.72907I$	$-4.41609-8.09582I$	$0.16704+6.20921I$

II. $I_2^u = \langle 4.95 \times 10^{129} u^{47} - 1.26 \times 10^{130} u^{46} + \cdots + 1.97 \times 10^{131} b - 1.02 \times 10^{133},\ 4.33 \times 10^{130} u^{47} - 2.33 \times 10^{130} u^{46} + \cdots + 1.83 \times 10^{133} a + 1.08 \times 10^{134},\ u^{48} - 3u^{47} + \cdots - 5967u + 837 \rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.00236372u^{47} + 0.00127060u^{46} + \cdots + 10.6580u - 5.90425 \\ -0.0251658u^{47} + 0.0640825u^{46} + \cdots - 235.966u + 51.9482 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.00497228u^{47} - 0.0142819u^{46} + \cdots + 74.3726u - 16.8118 \\ -0.00444746u^{47} + 0.0103317u^{46} + \cdots - 25.1012u - 0.497195 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.000524815u^{47} - 0.00395021u^{46} + \cdots + 49.2714u - 17.3090 \\ -0.00444746u^{47} + 0.0103317u^{46} + \cdots - 25.1012u - 0.497195 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0219581u^{47} + 0.0536482u^{46} + \cdots - 192.555u + 41.1721 \\ -0.0271058u^{47} + 0.0694191u^{46} + \cdots - 257.787u + 57.3096 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0195013u^{47} - 0.0514279u^{46} + \cdots + 199.464u - 49.3221 \\ -0.0119878u^{47} + 0.0295546u^{46} + \cdots - 95.9203u + 11.6620 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.0195013u^{47} - 0.0514279u^{46} + \cdots + 199.464u - 49.3221 \\ -0.0145623u^{47} + 0.0363578u^{46} + \cdots - 121.820u + 17.5845 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.0346889u^{47} - 0.0882496u^{46} + \cdots + 311.521u - 61.0827 \\ 0.0537102u^{47} - 0.141102u^{46} + \cdots + 536.795u - 116.450 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.0446323u^{47} + 0.118128u^{46} + \cdots - 444.439u + 104.355 \\ -0.00994333u^{47} + 0.0298788u^{46} + \cdots - 132.918u + 43.2723 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.114747u^{47} - 0.304395u^{46} + \cdots + 1165.62u - 288.012$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7, c_{10}	$u^{48} - 3u^{47} + \cdots - 5967u + 837$
c_2, c_8	$(u^{24} - 2u^{23} + \cdots - 26u + 5)^2$
c_3, c_9, c_{12}	$u^{48} + 3u^{47} + \cdots + 5967u + 837$
c_4, c_{11}	$(u^{24} + 2u^{23} + \cdots + 26u + 5)^2$
c_5	$u^{48} + 2u^{47} + \cdots - 8589u + 13231$
c_6	$u^{48} - 2u^{47} + \cdots + 8589u + 13231$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_7 c_9, c_{10}, c_{12}	$y^{48} - 9y^{47} + \cdots - 17495757y + 700569$
c_2, c_4, c_8 c_{11}	$(y^{24} - 18y^{23} + \cdots + 334y + 25)^2$
c_5, c_6	$y^{48} + 26y^{47} + \cdots - 324498371y + 175059361$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.958660 + 0.298797I$ $a = 0.376872 + 0.274158I$ $b = -0.155597 + 1.008680I$	$-0.341972 + 0.186667I$	$0.771855 - 1.155242I$
$u = -0.958660 - 0.298797I$ $a = 0.376872 - 0.274158I$ $b = -0.155597 - 1.008680I$	$-0.341972 - 0.186667I$	$0.771855 + 1.155242I$
$u = -0.927474 + 0.188250I$ $a = 1.23408 - 0.85486I$ $b = -0.141625 - 1.292960I$	$0.341972 - 0.186667I$	$-0.771855 + 1.155242I$
$u = -0.927474 - 0.188250I$ $a = 1.23408 + 0.85486I$ $b = -0.141625 + 1.292960I$	$0.341972 + 0.186667I$	$-0.771855 - 1.155242I$
$u = 0.248762 + 1.032370I$ $a = -0.885685 - 1.056230I$ $b = -0.112244 + 0.467226I$	$1.06211 - 4.31695I$	$5.31417 + 5.03356I$
$u = 0.248762 - 1.032370I$ $a = -0.885685 + 1.056230I$ $b = -0.112244 - 0.467226I$	$1.06211 + 4.31695I$	$5.31417 - 5.03356I$
$u = -0.517584 + 0.767984I$ $a = -1.211360 + 0.673550I$ $b = 0.446787 + 0.626280I$	$1.74551 + 3.59835I$	$5.29658 - 4.26820I$
$u = -0.517584 - 0.767984I$ $a = -1.211360 - 0.673550I$ $b = 0.446787 - 0.626280I$	$1.74551 - 3.59835I$	$5.29658 + 4.26820I$
$u = 0.893934 + 0.235448I$ $a = -1.94028 + 0.49910I$ $b = -0.079495 - 0.156983I$	$-7.28426 - 4.94903I$	$5.86283 - 2.23169I$
$u = 0.893934 - 0.235448I$ $a = -1.94028 - 0.49910I$ $b = -0.079495 + 0.156983I$	$-7.28426 + 4.94903I$	$5.86283 + 2.23169I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.743755 + 0.786205I$ $a = 0.042242 - 0.266110I$ $b = -0.316899 + 1.063790I$	$-0.341972 + 0.186667I$	$0.771855 - 1.155242I$
$u = 0.743755 - 0.786205I$ $a = 0.042242 + 0.266110I$ $b = -0.316899 - 1.063790I$	$-0.341972 - 0.186667I$	$0.771855 + 1.155242I$
$u = 0.970625 + 0.493744I$ $a = -0.625929 + 0.915628I$ $b = -0.149584 + 0.499982I$	$-8.26951 - 2.06542I$	$13.8209 + 10.2120I$
$u = 0.970625 - 0.493744I$ $a = -0.625929 - 0.915628I$ $b = -0.149584 - 0.499982I$	$-8.26951 + 2.06542I$	$13.8209 - 10.2120I$
$u = -0.780031 + 0.456023I$ $a = -1.86496 + 0.15206I$ $b = 0.44953 + 1.58443I$	$-1.74551 + 3.59835I$	$-5.29658 - 4.26820I$
$u = -0.780031 - 0.456023I$ $a = -1.86496 - 0.15206I$ $b = 0.44953 - 1.58443I$	$-1.74551 - 3.59835I$	$-5.29658 + 4.26820I$
$u = 0.856030 + 0.700750I$ $a = 1.40609 - 0.41827I$ $b = -0.70218 + 1.44760I$	$1.06211 - 4.31695I$	$5.31417 + 5.03356I$
$u = 0.856030 - 0.700750I$ $a = 1.40609 + 0.41827I$ $b = -0.70218 - 1.44760I$	$1.06211 + 4.31695I$	$5.31417 - 5.03356I$
$u = -1.005980 + 0.512244I$ $a = 0.923914 + 0.398084I$ $b = -0.255731 + 0.295435I$	$-2.04801 + 7.52457I$	$-0.48629 - 6.47027I$
$u = -1.005980 - 0.512244I$ $a = 0.923914 - 0.398084I$ $b = -0.255731 - 0.295435I$	$-2.04801 - 7.52457I$	$-0.48629 + 6.47027I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.766030+0.192205I$ $a=\ \ 1.67093+2.06429I$ $b=\ \ 0.271992+0.572930I$	$-1.06211-4.31695I$	$-5.31417+5.03356I$
$u=-0.766030-0.192205I$ $a=\ \ 1.67093-2.06429I$ $b=\ \ 0.271992-0.572930I$	$-1.06211+4.31695I$	$-5.31417-5.03356I$
$u=-0.460646+1.148330I$ $a=\ \ 0.259504-0.217863I$ $b=\ \ 0.570637+0.163273I$	$-1.74551+3.59835I$	$-5.29658-4.26820I$
$u=-0.460646-1.148330I$ $a=\ \ 0.259504+0.217863I$ $b=\ \ 0.570637-0.163273I$	$-1.74551-3.59835I$	$-5.29658+4.26820I$
$u=\ \ 0.577948+1.101290I$ $a=\ \ 0.808072-0.465185I$ $b=-0.59660+1.55739I$	$1.74551-3.59835I$	$5.29658+4.26820I$
$u=\ \ 0.577948-1.101290I$ $a=\ \ 0.808072+0.465185I$ $b=-0.59660-1.55739I$	$1.74551+3.59835I$	$5.29658-4.26820I$
$u=\ \ 0.446675+1.196060I$ $a=\ \ 0.095623+0.368138I$ $b=-0.513294-0.617816I$	$7.28426-4.94903I$	$-5.86283-2.23169I$
$u=\ \ 0.446675-1.196060I$ $a=\ \ 0.095623-0.368138I$ $b=-0.513294+0.617816I$	$7.28426+4.94903I$	$-5.86283+2.23169I$
$u=\ \ 1.189580+0.533084I$ $a=-1.46844-0.02027I$ $b=-0.25289-1.57803I$	$2.04801-7.52457I$	$0.+6.47027I$
$u=\ \ 1.189580-0.533084I$ $a=-1.46844+0.02027I$ $b=-0.25289+1.57803I$	$2.04801+7.52457I$	$0.-6.47027I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.663899 + 0.150986I$ $a = -1.68387 - 4.10135I$ $b = 0.11621 - 1.78501I$	$7.28426 + 4.94903I$	$-5.86283 + 2.23169I$
$u = 0.663899 - 0.150986I$ $a = -1.68387 + 4.10135I$ $b = 0.11621 + 1.78501I$	$7.28426 - 4.94903I$	$-5.86283 - 2.23169I$
$u = -0.078702 + 1.358830I$ $a = 0.094159 + 0.120663I$ $b = -1.008410 - 0.085223I$	$0.341972 + 0.186667I$	0
$u = -0.078702 - 1.358830I$ $a = 0.094159 - 0.120663I$ $b = -1.008410 + 0.085223I$	$0.341972 - 0.186667I$	0
$u = 0.29380 + 1.47214I$ $a = -0.49515 + 1.46933I$ $b = -0.32541 - 1.86032I$	$8.26951 + 2.06542I$	0
$u = 0.29380 - 1.47214I$ $a = -0.49515 - 1.46933I$ $b = -0.32541 + 1.86032I$	$8.26951 - 2.06542I$	0
$u = 1.26636 + 0.99041I$ $a = 1.193410 - 0.552573I$ $b = 0.77074 + 1.70024I$	$-2.04801 - 7.52457I$	0
$u = 1.26636 - 0.99041I$ $a = 1.193410 + 0.552573I$ $b = 0.77074 - 1.70024I$	$-2.04801 + 7.52457I$	0
$u = 0.359351 + 0.042465I$ $a = -0.487925 + 0.301808I$ $b = -0.15610 - 1.60194I$	$8.26951 - 2.06542I$	$-13.8209 + 10.2120I$
$u = 0.359351 - 0.042465I$ $a = -0.487925 - 0.301808I$ $b = -0.15610 + 1.60194I$	$8.26951 + 2.06542I$	$-13.8209 - 10.2120I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.52589 + 0.93816I$ $a = 1.064660 - 0.119286I$ $b = 0.62872 + 2.80534I$	$-1.06211 - 4.31695I$	0
$u = 1.52589 - 0.93816I$ $a = 1.064660 + 0.119286I$ $b = 0.62872 - 2.80534I$	$-1.06211 + 4.31695I$	0
$u = -1.39474 + 1.20682I$ $a = -0.987942 - 0.484496I$ $b = -0.54043 + 2.80033I$	$-7.28426 + 4.94903I$	0
$u = -1.39474 - 1.20682I$ $a = -0.987942 + 0.484496I$ $b = -0.54043 - 2.80033I$	$-7.28426 - 4.94903I$	0
$u = 0.81660 + 1.67474I$ $a = -0.380578 + 0.335441I$ $b = 1.27825 - 2.06541I$	$2.04801 + 7.52457I$	0
$u = 0.81660 - 1.67474I$ $a = -0.380578 - 0.335441I$ $b = 1.27825 + 2.06541I$	$2.04801 - 7.52457I$	0
$u = -2.46337 + 0.42003I$ $a = -0.911634 - 0.251459I$ $b = -4.72637 - 0.05555I$	$-8.26951 + 2.06542I$	0
$u = -2.46337 - 0.42003I$ $a = -0.911634 + 0.251459I$ $b = -4.72637 + 0.05555I$	$-8.26951 - 2.06542I$	0

III.

$\boldsymbol{I^u_3 = \langle 4.59\times10^{33}u^{27} + 3.07\times10^{34}u^{26} + \cdots + 1.28\times10^{34}b - 2.02\times10^{34},\ 5.39\times10^{33}u^{27} + 3.75\times10^{34}u^{26} + \cdots + 1.28\times10^{34}a + 1.87\times10^{33},\ u^{28} + 6u^{27} + \cdots - 3u + 1\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.421693u^{27} - 2.92996u^{26} + \cdots - 2.09762u - 0.145879 \\ -0.359023u^{27} - 2.39921u^{26} + \cdots - 5.77272u + 1.58023 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} 0.954342u^{27} + 5.86514u^{26} + \cdots + 6.04496u - 1.51386 \\ 0.134097u^{27} + 0.515511u^{26} + \cdots - 4.49632u - 1.02598 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1.08844u^{27} + 6.38065u^{26} + \cdots + 1.54864u - 2.53984 \\ 0.134097u^{27} + 0.515511u^{26} + \cdots - 4.49632u - 1.02598 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.689779u^{27} - 4.66131u^{26} + \cdots - 7.09262u + 1.03455 \\ -0.335035u^{27} - 2.26908u^{26} + \cdots - 5.87314u + 1.70307 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0597787u^{27} + 0.142366u^{26} + \cdots + 7.32896u - 2.61415 \\ -0.0666295u^{27} - 0.814578u^{26} + \cdots - 5.10096u - 2.05238 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0597787u^{27} + 0.142366u^{26} + \cdots + 7.32896u - 2.61415 \\ 0.0481419u^{27} - 0.114863u^{26} + \cdots - 4.39226u - 2.26869 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1.78475u^{27} + 10.6659u^{26} + \cdots + 10.3844u - 2.81942 \\ 0.367722u^{27} + 2.14716u^{26} + \cdots + 5.94205u - 3.52131 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.808930u^{27} - 4.70663u^{26} + \cdots - 2.90576u + 5.60831 \\ 0.975824u^{27} + 5.95926u^{26} + \cdots + 7.47861u + 2.78889 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -0.542938u^{27} - 2.92005u^{26} + \cdots + 27.3198u + 13.5933$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7, c_{12}	$u^{28} - 6u^{27} + \cdots + 3u + 1$
c_2, c_4, c_8 c_{11}	$u^{28} - 7u^{26} + \cdots + 238u^2 + 49$
c_3, c_9, c_{10}	$u^{28} + 6u^{27} + \cdots - 3u + 1$
c_5	$u^{28} - 3u^{27} + \cdots + 621u + 411$
c_6	$u^{28} + 3u^{27} + \cdots - 621u + 411$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_7 c_9, c_{10}, c_{12}	$y^{28} - 10y^{27} + \cdots + 5y + 1$
c_2, c_4, c_8 c_{11}	$(y^{14} - 7y^{13} + \cdots + 238y + 49)^2$
c_5, c_6	$y^{28} + 5y^{27} + \cdots - 761295y + 168921$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.014730 + 0.343268I$ $a = 1.66043 + 0.58864I$ $b = 0.383484 - 0.329857I$	$-7.59311 + 5.18447I$	$-11.1956 - 10.4086I$
$u = -1.014730 - 0.343268I$ $a = 1.66043 - 0.58864I$ $b = 0.383484 + 0.329857I$	$-7.59311 - 5.18447I$	$-11.1956 + 10.4086I$
$u = 0.979232 + 0.467680I$ $a = 0.749738 - 0.970349I$ $b = 0.237326 - 0.450547I$	$-8.46326 - 1.96093I$	$-18.7110 - 7.0175I$
$u = 0.979232 - 0.467680I$ $a = 0.749738 + 0.970349I$ $b = 0.237326 + 0.450547I$	$-8.46326 + 1.96093I$	$-18.7110 + 7.0175I$
$u = -0.496673 + 0.768001I$ $a = 1.005340 - 0.286801I$ $b = -0.563773 - 1.206430I$	1.93477	$5.92241 + 0.I$
$u = -0.496673 - 0.768001I$ $a = 1.005340 + 0.286801I$ $b = -0.563773 + 1.206430I$	1.93477	$5.92241 + 0.I$
$u = -0.992052 + 0.459650I$ $a = 0.003979 + 0.143588I$ $b = 0.134027 + 1.181700I$	-1.93477	$-5.92241 + 0.I$
$u = -0.992052 - 0.459650I$ $a = 0.003979 - 0.143588I$ $b = 0.134027 - 1.181700I$	-1.93477	$-5.92241 + 0.I$
$u = 0.387299 + 1.069450I$ $a = 0.036211 + 0.233151I$ $b = -0.423206 - 0.850595I$	$7.59311 - 5.18447I$	$11.1956 + 10.4086I$
$u = 0.387299 - 1.069450I$ $a = 0.036211 - 0.233151I$ $b = -0.423206 + 0.850595I$	$7.59311 + 5.18447I$	$11.1956 - 10.4086I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.047247 + 0.733479I$ $a = 1.61892 + 0.33925I$ $b = 0.440102 - 0.460280I$	$4.89300I$	$0. - 7.60186I$
$u = -0.047247 - 0.733479I$ $a = 1.61892 - 0.33925I$ $b = 0.440102 + 0.460280I$	$-4.89300I$	$0. + 7.60186I$
$u = -0.679081 + 0.083690I$ $a = -2.12459 + 1.06002I$ $b = 0.454670 + 0.928650I$	$2.46314I$	$0. - 2.00039I$
$u = -0.679081 - 0.083690I$ $a = -2.12459 - 1.06002I$ $b = 0.454670 - 0.928650I$	$-2.46314I$	$0. + 2.00039I$
$u = 1.051370 + 0.863549I$ $a = 1.319180 - 0.300420I$ $b = -0.26399 + 2.12102I$	$-4.89300I$	$0. + 7.60186I$
$u = 1.051370 - 0.863549I$ $a = 1.319180 + 0.300420I$ $b = -0.26399 - 2.12102I$	$4.89300I$	$0. - 7.60186I$
$u = 0.265070 + 1.360020I$ $a = -0.55094 + 1.63469I$ $b = -0.34283 - 1.80566I$	$8.46326 + 1.96093I$	$18.7110 + 7.0175I$
$u = 0.265070 - 1.360020I$ $a = -0.55094 - 1.63469I$ $b = -0.34283 + 1.80566I$	$8.46326 - 1.96093I$	$18.7110 - 7.0175I$
$u = 0.85372 + 1.18626I$ $a = 0.397120 - 0.660605I$ $b = -0.23043 + 1.45825I$	$-2.46314I$	$0. + 2.00039I$
$u = 0.85372 - 1.18626I$ $a = 0.397120 + 0.660605I$ $b = -0.23043 - 1.45825I$	$2.46314I$	$0. - 2.00039I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.416735 + 0.077196I$ $a = -2.99728 - 5.98223I$ $b = 0.07631 - 1.84503I$	$7.59311 + 5.18447I$	$11.1956 - 10.4086I$
$u = 0.416735 - 0.077196I$ $a = -2.99728 + 5.98223I$ $b = 0.07631 + 1.84503I$	$7.59311 - 5.18447I$	$11.1956 + 10.4086I$
$u = 0.119064 + 0.246970I$ $a = -1.248920 + 0.006958I$ $b = 0.20262 - 1.57409I$	$8.46326 + 1.96093I$	$18.7110 + 7.0175I$
$u = 0.119064 - 0.246970I$ $a = -1.248920 - 0.006958I$ $b = 0.20262 + 1.57409I$	$8.46326 - 1.96093I$	$18.7110 - 7.0175I$
$u = -1.46353 + 1.26810I$ $a = -0.946510 - 0.455742I$ $b = -0.65629 + 2.97983I$	$-7.59311 + 5.18447I$	$-11.1956 - 10.4086I$
$u = -1.46353 - 1.26810I$ $a = -0.946510 + 0.455742I$ $b = -0.65629 - 2.97983I$	$-7.59311 - 5.18447I$	$-11.1956 + 10.4086I$
$u = -2.37916 + 0.47274I$ $a = -0.922686 - 0.283543I$ $b = -4.44802 + 0.11490I$	$-8.46326 + 1.96093I$	0
$u = -2.37916 - 0.47274I$ $a = -0.922686 + 0.283543I$ $b = -4.44802 - 0.11490I$	$-8.46326 - 1.96093I$	0

IV. $I_4^u = \langle b - u - 1,\ a + 1,\ u^2 + u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -1.00000$ $b = \quad 0.500000 + 0.866025I$	$4.05977I$	$0. - 6.92820I$
$u = -0.500000 - 0.866025I$ $a = -1.00000$ $b = \quad 0.500000 - 0.866025I$	$-4.05977I$	$0. + 6.92820I$

V. $I_5^u = \langle b,\ a^2 - a - 1,\ u - 1\rangle$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ 0 \end{pmatrix}$$

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

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

$$a_1 = \begin{pmatrix} -a+1 \\ 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0 \\ -a \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -a+1 \\ -a+1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -a+1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} a-1 \\ a \end{pmatrix}$$

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.618034$ $b = 0$	3.94784	0
$u = 1.00000$ $a = 1.61803$ $b = 0$	−3.94784	0

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$((u-1)^2)(u^2-u+1)(u^{22}+u^{21}+\cdots+11u^2-1)$ $\cdot(u^{28}-6u^{27}+\cdots+3u+1)(u^{48}-3u^{47}+\cdots-5967u+837)$
c_2, c_8	$u^2(u^2-u-1)(u^{22}+6u^{21}+\cdots+228u+52)$ $\cdot((u^{24}-2u^{23}+\cdots-26u+5)^2)(u^{28}-7u^{26}+\cdots+238u^2+49)$
c_3, c_9	$((u+1)^2)(u^2+u+1)(u^{22}-u^{21}+\cdots+11u^2-1)$ $\cdot(u^{28}+6u^{27}+\cdots-3u+1)(u^{48}+3u^{47}+\cdots+5967u+837)$
c_4, c_{11}	$u^2(u^2+u-1)(u^{22}-6u^{21}+\cdots-228u+52)$ $\cdot((u^{24}+2u^{23}+\cdots+26u+5)^2)(u^{28}-7u^{26}+\cdots+238u^2+49)$
c_5	$(u^2+u-1)(u^2+u+1)(u^{22}-8u^{20}+\cdots-7u+1)$ $\cdot(u^{28}-3u^{27}+\cdots+621u+411)(u^{48}+2u^{47}+\cdots-8589u+13231)$
c_6	$(u^2-u-1)(u^2-u+1)(u^{22}-8u^{20}+\cdots+7u+1)$ $\cdot(u^{28}+3u^{27}+\cdots-621u+411)(u^{48}-2u^{47}+\cdots+8589u+13231)$
c_{10}	$((u-1)^2)(u^2+u+1)(u^{22}+u^{21}+\cdots+11u^2-1)$ $\cdot(u^{28}+6u^{27}+\cdots-3u+1)(u^{48}-3u^{47}+\cdots-5967u+837)$
c_{12}	$((u+1)^2)(u^2-u+1)(u^{22}-u^{21}+\cdots+11u^2-1)$ $\cdot(u^{28}-6u^{27}+\cdots+3u+1)(u^{48}+3u^{47}+\cdots+5967u+837)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_7 c_9, c_{10}, c_{12}	$((y-1)^2)(y^2+y+1)(y^{22}-17y^{21}+\cdots-22y+1)$ $\cdot(y^{28}-10y^{27}+\cdots+5y+1)(y^{48}-9y^{47}+\cdots-1.74958\times10^7y+700569)$
c_2, c_4, c_8 c_{11}	$y^2(y^2-3y+1)(y^{14}-7y^{13}+\cdots+238y+49)^2$ $\cdot(y^{22}-10y^{21}+\cdots-5184y+2704)(y^{24}-18y^{23}+\cdots+334y+25)^2$
c_5, c_6	$(y^2-3y+1)(y^2+y+1)(y^{22}-16y^{21}+\cdots-23y+1)$ $\cdot(y^{28}+5y^{27}+\cdots-761295y+168921)$ $\cdot(y^{48}+26y^{47}+\cdots-324498371y+175059361)$