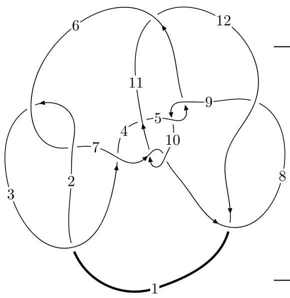
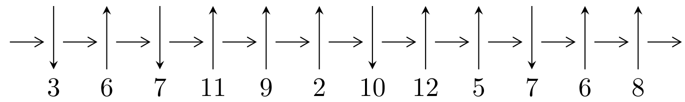
$12n_{0311}$ ($K12n_{0311}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -2044u^{16} - 1922u^{15} + \cdots + 3101b - 1979,\ 2044u^{16} + 1922u^{15} + \cdots + 3101a + 1979, \\
&\quad u^{17} + u^{16} + \cdots + u + 1 \rangle \\
I_2^u &= \langle u^7 + u^6 + 2u^5 + u^4 + 2u^3 + u^2 + b + 2u,\ -u^7 - u^6 - 2u^5 - u^4 - 2u^3 - u^2 + a - u, \\
&\quad u^8 + u^7 + 2u^6 + u^5 + 2u^4 + u^3 + 2u^2 + 1 \rangle \\
I_3^u &= \langle -749460642064u^{21} - 2228668431607u^{20} + \cdots + 2074714652641b + 2531239700657, \\
&\quad 940122740255u^{21} + 759005323853u^{20} + \cdots + 2074714652641a - 6054928651235, \\
&\quad u^{22} + 2u^{21} + \cdots - u + 1 \rangle \\
I_4^u &= \langle b - u,\ 2u^5 + 3u^4 + 6u^3 + 4u^2 + a + 5u + 4,\ u^6 + u^5 + 3u^4 + u^3 + 3u^2 + u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 53 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. $\boldsymbol{I^u_1 = \langle -2044u^{16} - 1922u^{15} + \cdots + 3101b - 1979,\ 2044u^{16} + 1922u^{15} + \cdots + 3101a + 1979,\ u^{17} + u^{16} + \cdots + u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.659142u^{16} - 0.619800u^{15} + \cdots - 4.68139u - 0.638181 \\ 0.659142u^{16} + 0.619800u^{15} + \cdots + 3.68139u + 0.638181 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.815866u^{16} - 0.632699u^{15} + \cdots - 3.30119u - 0.598839 \\ 0.659142u^{16} + 0.619800u^{15} + \cdots + 3.68139u + 0.638181 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.156724u^{16} - 0.0128991u^{15} + \cdots - 1.61980u + 0.0393421 \\ 0.515640u^{16} + 0.419865u^{15} + \cdots + 3.07449u + 0.533699 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ 0.659142u^{16} + 0.619800u^{15} + \cdots + 3.68139u + 0.638181 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0393421u^{16} + 0.196066u^{15} + \cdots + 0.0209610u + 1.65914 \\ 0.533699u^{16} + 0.0180587u^{15} + \cdots + 2.06772u - 1.54079 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.104482u^{16} + 0.0390197u^{15} + \cdots - 0.175105u + 1.50242 \\ 0.629474u^{16} + 0.279910u^{15} + \cdots + 2.04966u - 1.02515 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{7241}{3101}u^{16} - \frac{194}{443}u^{15} + \cdots - \frac{1392}{443}u + \frac{27045}{3101}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} + 7u^{16} + \cdots - 11u - 1$
c_2, c_6, c_8 c_{12}	$u^{17} - u^{16} + \cdots + u - 1$
c_3	$u^{17} + 4u^{16} + \cdots - 9u - 2$
c_4	$u^{17} + 19u^{16} + \cdots - 1920u - 256$
c_5, c_9	$u^{17} - 5u^{16} + \cdots + 11u - 4$
c_7, c_{10}	$u^{17} + 12u^{15} + \cdots - 2u - 1$
c_{11}	$u^{17} + u^{16} + \cdots - 7u - 73$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} + 23y^{16} + \cdots + 53y - 1$
c_2, c_6, c_8 c_{12}	$y^{17} + 7y^{16} + \cdots - 11y - 1$
c_3	$y^{17} + 30y^{16} + \cdots - 71y - 4$
c_4	$y^{17} - 35y^{16} + \cdots + 409600y - 65536$
c_5, c_9	$y^{17} + 13y^{16} + \cdots + 57y - 16$
c_7, c_{10}	$y^{17} + 24y^{16} + \cdots + 14y - 1$
c_{11}	$y^{17} - y^{16} + \cdots - 1119y - 5329$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.315205 + 1.046030I$ $a = 0.082055 - 0.721069I$ $b = -0.397259 - 0.324959I$	$-7.22031 + 4.62107I$	$-4.34829 - 2.68112I$
$u = 0.315205 - 1.046030I$ $a = 0.082055 + 0.721069I$ $b = -0.397259 + 0.324959I$	$-7.22031 - 4.62107I$	$-4.34829 + 2.68112I$
$u = -0.174342 + 1.095890I$ $a = 0.69443 - 2.33356I$ $b = -0.520091 + 1.237680I$	$-3.36776 + 0.12095I$	$-1.97931 + 0.42212I$
$u = -0.174342 - 1.095890I$ $a = 0.69443 + 2.33356I$ $b = -0.520091 - 1.237680I$	$-3.36776 - 0.12095I$	$-1.97931 - 0.42212I$
$u = -0.104664 + 0.862714I$ $a = -0.258038 - 1.063400I$ $b = 0.362702 + 0.200685I$	$-1.97872 - 1.38925I$	$-1.78976 + 4.99153I$
$u = -0.104664 - 0.862714I$ $a = -0.258038 + 1.063400I$ $b = 0.362702 - 0.200685I$	$-1.97872 + 1.38925I$	$-1.78976 - 4.99153I$
$u = 0.738518 + 0.422689I$ $a = -1.34345 - 0.54001I$ $b = 0.604930 + 0.117324I$	$-2.97240 + 2.41748I$	$1.62401 - 1.63968I$
$u = 0.738518 - 0.422689I$ $a = -1.34345 + 0.54001I$ $b = 0.604930 - 0.117324I$	$-2.97240 - 2.41748I$	$1.62401 + 1.63968I$
$u = -0.584000$ $a = 1.03858$ $b = -0.454582$	1.00795	10.1490
$u = -0.92539 + 1.07797I$ $a = 0.807371 + 0.662951I$ $b = 0.11801 - 1.74092I$	$8.59690 - 1.56188I$	$3.90595 + 1.56397I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.92539 - 1.07797I$ $a = 0.807371 - 0.662951I$ $b = 0.11801 + 1.74092I$	$8.59690 + 1.56188I$	$3.90595 - 1.56397I$
$u = 0.97683 + 1.11228I$ $a = -1.17199 + 0.82087I$ $b = 0.19516 - 1.93315I$	$12.7535 + 7.6085I$	$6.24645 - 4.20129I$
$u = 0.97683 - 1.11228I$ $a = -1.17199 - 0.82087I$ $b = 0.19516 + 1.93315I$	$12.7535 - 7.6085I$	$6.24645 + 4.20129I$
$u = -0.99123 + 1.15222I$ $a = 1.50875 + 0.73748I$ $b = -0.51753 - 1.88970I$	$8.3449 - 13.5034I$	$3.39007 + 6.77550I$
$u = -0.99123 - 1.15222I$ $a = 1.50875 - 0.73748I$ $b = -0.51753 + 1.88970I$	$8.3449 + 13.5034I$	$3.39007 - 6.77550I$
$u = -0.042937 + 0.454619I$ $a = -0.33843 - 1.66461I$ $b = 0.381363 + 1.209990I$	$0.96686 - 2.33424I$	$5.87632 - 0.70126I$
$u = -0.042937 - 0.454619I$ $a = -0.33843 + 1.66461I$ $b = 0.381363 - 1.209990I$	$0.96686 + 2.33424I$	$5.87632 + 0.70126I$

II. $\boldsymbol{I_2^u = \langle u^7 + u^6 + 2u^5 + u^4 + 2u^3 + u^2 + b + 2u,\ -u^7 - u^6 - 2u^5 - u^4 - 2u^3 - u^2 + a - u,\ u^8 + u^7 + 2u^6 + u^5 + 2u^4 + u^3 + 2u^2 + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^7 + u^6 + 2u^5 + u^4 + 2u^3 + u^2 + u \\ -u^7 - u^6 - 2u^5 - u^4 - 2u^3 - u^2 - 2u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^7 - u^6 - u^5 - u^4 - u^3 - u^2 \\ u^7 + u^6 + 2u^5 + u^4 + 2u^3 + u^2 + 2u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^3 \\ -u^7 - u^6 - u^5 - u^4 - u^3 - u^2 - u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ -u^7 - u^6 - 2u^5 - u^4 - 2u^3 - u^2 - 2u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ -u^6 - u^5 - 2u^4 - u^3 - 2u^2 - u - 2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^4 \\ -u^5 - u^4 - u^3 - u^2 - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^7 - 9u^6 - 9u^5 - 11u^4 - 8u^3 - 14u^2 - 8u - 7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^8 - 3u^7 + 6u^6 - 9u^5 + 12u^4 - 11u^3 + 8u^2 - 4u + 1$
c_2, c_8	$u^8 - u^7 + 2u^6 - u^5 + 2u^4 - u^3 + 2u^2 + 1$
c_3	$u^8 + u^7 + 5u^6 + 8u^5 + 7u^4 + 9u^3 + 5u^2 + 1$
c_4	$u^8 - 2u^7 + 7u^6 - 12u^5 + 16u^4 - 15u^3 + 9u^2 - 4u + 1$
c_5	$u^8 + 2u^7 + 6u^6 + 8u^5 + 11u^4 + 9u^3 + 7u^2 + 2u + 1$
c_6, c_{12}	$u^8 + u^7 + 2u^6 + u^5 + 2u^4 + u^3 + 2u^2 + 1$
c_7	$u^8 + 2u^6 + u^5 + 2u^4 + u^3 + 2u^2 + u + 1$
c_9	$u^8 - 2u^7 + 6u^6 - 8u^5 + 11u^4 - 9u^3 + 7u^2 - 2u + 1$
c_{10}	$u^8 + 2u^6 - u^5 + 2u^4 - u^3 + 2u^2 - u + 1$
c_{11}	$u^8 + u^7 + 2u^6 + 5u^5 + 9u^4 + 10u^3 + 8u^2 + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^8 + 3y^7 + 6y^6 + 13y^5 + 20y^4 + 11y^3 + 1$
c_2, c_6, c_8 c_{12}	$y^8 + 3y^7 + 6y^6 + 9y^5 + 12y^4 + 11y^3 + 8y^2 + 4y + 1$
c_3	$y^8 + 9y^7 + 23y^6 - 2y^5 - 43y^4 - y^3 + 39y^2 + 10y + 1$
c_4	$y^8 + 10y^7 + 33y^6 + 38y^5 + 8y^4 - 19y^3 - 7y^2 + 2y + 1$
c_5, c_9	$y^8 + 8y^7 + 26y^6 + 46y^5 + 55y^4 + 53y^3 + 35y^2 + 10y + 1$
c_7, c_{10}	$y^8 + 4y^7 + 8y^6 + 11y^5 + 12y^4 + 9y^3 + 6y^2 + 3y + 1$
c_{11}	$y^8 + 3y^7 + 12y^6 + 7y^5 + 7y^4 + 8y^3 + 2y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.609994 + 0.714573I$ $a = -1.301040 + 0.094950I$ $b = 0.691049 - 0.809524I$	$0.43885 + 3.70343I$	$1.67706 - 6.67650I$
$u = 0.609994 - 0.714573I$ $a = -1.301040 - 0.094950I$ $b = 0.691049 + 0.809524I$	$0.43885 - 3.70343I$	$1.67706 + 6.67650I$
$u = -0.894229 + 0.700020I$ $a = 1.58761 - 0.15723I$ $b = -0.693376 - 0.542788I$	$-2.47121 - 3.78237I$	$2.85720 + 5.66957I$
$u = -0.894229 - 0.700020I$ $a = 1.58761 + 0.15723I$ $b = -0.693376 + 0.542788I$	$-2.47121 + 3.78237I$	$2.85720 - 5.66957I$
$u = -0.388842 + 1.122290I$ $a = 0.664473 - 0.326753I$ $b = -0.275631 - 0.795537I$	$-6.67501 - 5.79166I$	$-1.38166 + 7.29610I$
$u = -0.388842 - 1.122290I$ $a = 0.664473 + 0.326753I$ $b = -0.275631 + 0.795537I$	$-6.67501 + 5.79166I$	$-1.38166 - 7.29610I$
$u = 0.173077 + 0.769880I$ $a = -0.451035 + 0.466536I$ $b = 0.277959 - 1.236420I$	$0.48271 + 2.83701I$	$-2.15260 - 6.82394I$
$u = 0.173077 - 0.769880I$ $a = -0.451035 - 0.466536I$ $b = 0.277959 + 1.236420I$	$0.48271 - 2.83701I$	$-2.15260 + 6.82394I$

III.

$\boldsymbol{I_3^u = \langle -7.49\times 10^{11}u^{21} - 2.23\times 10^{12}u^{20} + \cdots + 2.07\times 10^{12}b + 2.53\times 10^{12},\ 9.40\times 10^{11}u^{21} + 7.59\times 10^{11}u^{20} + \cdots + 2.07\times 10^{12}a - 6.05\times 10^{12},\ u^{22} + 2u^{21} + \cdots - u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.453134u^{21} - 0.365836u^{20} + \cdots - 8.73849u + 2.91844 \\ 0.361236u^{21} + 1.07420u^{20} + \cdots - 1.46154u - 1.22004 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.80823u^{21} + 4.10689u^{20} + \cdots - 6.09846u + 5.54053 \\ 0.102467u^{21} + 0.504369u^{20} + \cdots - 2.52268u - 0.0105824 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0527569u^{21} + 1.00509u^{20} + \cdots - 11.1936u + 2.23883 \\ 0.549456u^{21} + 1.48404u^{20} + \cdots - 1.60828u - 1.57919 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.0918980u^{21} + 0.708369u^{20} + \cdots - 10.2000u + 1.69840 \\ 0.361236u^{21} + 1.07420u^{20} + \cdots - 1.46154u - 1.22004 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0284427u^{21} + 0.181609u^{20} + \cdots + 1.05626u - 3.67101 \\ 0.386881u^{21} + 0.856405u^{20} + \cdots - 0.0832695u - 1.26247 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2.17072u^{21} + 3.86720u^{20} + \cdots + 12.9324u - 2.07204 \\ 0.754654u^{21} + 1.86631u^{20} + \cdots - 1.22080u - 0.574813 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= \frac{4274991010191}{2074714652641}u^{21} + \frac{7650116490863}{2074714652641}u^{20} + \cdots + \frac{37457996269871}{2074714652641}u - \frac{2765051938302}{2074714652641}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{22}+18u^{20}+\cdots+u+1$
c_2,c_6,c_8 c_{12}	$u^{22}-2u^{21}+\cdots+u+1$
c_3	$u^{22}-4u^{21}+\cdots+49499u+24641$
c_4	$(u^{11}-6u^{10}+\cdots-35u-17)^2$
c_5,c_9	$(u^{11}+2u^{10}+\cdots+2u+1)^2$
c_7,c_{10}	$u^{22}+14u^{20}+\cdots-75u+37$
c_{11}	$u^{22}-4u^{21}+\cdots+7278u+1669$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{22} + 36y^{21} + \cdots - 15y + 1$
c_2, c_6, c_8 c_{12}	$y^{22} + 18y^{20} + \cdots + y + 1$
c_3	$y^{22} + 78y^{21} + \cdots + 7715838523y + 607178881$
c_4	$(y^{11} - 18y^{10} + \cdots - 1019y - 289)^2$
c_5, c_9	$(y^{11} + 8y^{10} + \cdots - 6y - 1)^2$
c_7, c_{10}	$y^{22} + 28y^{21} + \cdots + 43881y + 1369$
c_{11}	$y^{22} - 30y^{21} + \cdots + 12275264y + 2785561$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.513561 + 0.876763I$ $a = -1.74964 + 1.01013I$ $b = 0.261055 - 1.067110I$	$-0.28697 + 5.47625I$	$2.65866 - 8.43971I$
$u = 0.513561 - 0.876763I$ $a = -1.74964 - 1.01013I$ $b = 0.261055 + 1.067110I$	$-0.28697 - 5.47625I$	$2.65866 + 8.43971I$
$u = -0.508636 + 0.767746I$ $a = -0.123593 - 0.460656I$ $b = 0.179030 + 0.730958I$	$1.14459 - 2.07644I$	$6.88845 + 3.29115I$
$u = -0.508636 - 0.767746I$ $a = -0.123593 + 0.460656I$ $b = 0.179030 - 0.730958I$	$1.14459 + 2.07644I$	$6.88845 - 3.29115I$
$u = -0.666940 + 0.874899I$ $a = 0.730783 + 0.252461I$ $b = -0.094389 - 0.234171I$	$1.04772 - 2.73877I$	$6.75041 + 0.15171I$
$u = -0.666940 - 0.874899I$ $a = 0.730783 - 0.252461I$ $b = -0.094389 + 0.234171I$	$1.04772 + 2.73877I$	$6.75041 - 0.15171I$
$u = 0.755260 + 0.360527I$ $a = -1.006180 - 0.143301I$ $b = 0.75122 - 1.28017I$	$1.04772 + 2.73877I$	$6.75041 - 0.15171I$
$u = 0.755260 - 0.360527I$ $a = -1.006180 + 0.143301I$ $b = 0.75122 + 1.28017I$	$1.04772 - 2.73877I$	$6.75041 + 0.15171I$
$u = -1.055500 + 0.632113I$ $a = 1.66813 + 0.03713I$ $b = -1.64418 - 0.87598I$	$-0.28697 - 5.47625I$	$2.65866 + 8.43971I$
$u = -1.055500 - 0.632113I$ $a = 1.66813 - 0.03713I$ $b = -1.64418 + 0.87598I$	$-0.28697 + 5.47625I$	$2.65866 - 8.43971I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.024000 + 0.902635I$ $a = -1.117000 - 0.234561I$ $b = \ \ 0.36023 + 1.72510I$	$9.17587 - 5.61734I$	$4.48506 + 3.30154I$
$u = -1.024000 - 0.902635I$ $a = -1.117000 + 0.234561I$ $b = \ \ 0.36023 - 1.72510I$	$9.17587 + 5.61734I$	$4.48506 - 3.30154I$
$u = \ \ 1.10872 + 0.93411I$ $a = \ \ 0.845306 - 0.712187I$ $b = -0.11289 + 1.96334I$	13.3784	$7.19306 + 0.I$
$u = \ \ 1.10872 - 0.93411I$ $a = \ \ 0.845306 + 0.712187I$ $b = -0.11289 - 1.96334I$	13.3784	$7.19306 + 0.I$
$u = \ \ 0.494892 + 0.095903I$ $a = \ \ 0.863812 + 0.114318I$ $b = \ \ 0.075028 + 1.281880I$	$1.14459 - 2.07644I$	$6.88845 + 3.29115I$
$u = \ \ 0.494892 - 0.095903I$ $a = \ \ 0.863812 - 0.114318I$ $b = \ \ 0.075028 - 1.281880I$	$1.14459 + 2.07644I$	$6.88845 - 3.29115I$
$u = -1.19422 + 0.92504I$ $a = -0.398068 - 0.951477I$ $b = -0.22895 + 2.01375I$	$9.17587 + 5.61734I$	$4.48506 - 3.30154I$
$u = -1.19422 - 0.92504I$ $a = -0.398068 + 0.951477I$ $b = -0.22895 - 2.01375I$	$9.17587 - 5.61734I$	$4.48506 + 3.30154I$
$u = \ \ 0.73359 + 1.34764I$ $a = -0.85310 - 1.14643I$ $b = \ \ 0.822086 + 1.042470I$	$-4.61094 + 3.53079I$	$-0.87911 - 8.44762I$
$u = \ \ 0.73359 - 1.34764I$ $a = -0.85310 + 1.14643I$ $b = \ \ 0.822086 - 1.042470I$	$-4.61094 - 3.53079I$	$-0.87911 + 8.44762I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.156708 + 0.376716I$ $a = 3.63955 - 3.95391I$ $b = -0.368242 - 0.799335I$	$-4.61094 - 3.53079I$	$-0.87911 + 8.44762I$
$u = -0.156708 - 0.376716I$ $a = 3.63955 + 3.95391I$ $b = -0.368242 + 0.799335I$	$-4.61094 + 3.53079I$	$-0.87911 - 8.44762I$

IV.

$$\boldsymbol{I^u_4 = \langle b-u,\ 2u^5+3u^4+6u^3+4u^2+a+5u+4,\ u^6+u^5+3u^4+u^3+3u^2+u+1\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3+u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2u^5-3u^4-6u^3-4u^2-5u-4 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -3u^4-2u^3-7u^2+u-6 \\ u^5+u^4+3u^3+u^2+3u+1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -3u^5-4u^4-8u^3-5u^2-7u-5 \\ u^5+u^3+2u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5+u^3+u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2u^5-3u^4-6u^3-4u^2-4u-4 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^5-2u^3+2u^2-2u+3 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 4u^5+2u^4+9u^3-u^2+8u+1 \\ u^4+2u^2+2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^4-3u^3-6u^2-2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^6 - 5u^5 + 13u^4 - 17u^3 + 13u^2 - 5u + 1$
c_2, c_8, c_{10}	$u^6 - u^5 + 3u^4 - u^3 + 3u^2 - u + 1$
c_3	$u^6 + 4u^5 + 2u^4 - 3u^3 + 4u^2 - u + 1$
c_4	$(u^3 + 2u^2 + 3u + 1)^2$
c_5	$(u^3 - u^2 + 2u - 1)^2$
c_6, c_7, c_{12}	$u^6 + u^5 + 3u^4 + u^3 + 3u^2 + u + 1$
c_9	$(u^3 + u^2 + 2u + 1)^2$
c_{11}	$u^6 + 3u^5 - u^3 + 6u^2 - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 + y^5 + 25y^4 + y^3 + 25y^2 + y + 1$
c_2, c_6, c_7 c_8, c_{10}, c_{12}	$y^6 + 5y^5 + 13y^4 + 17y^3 + 13y^2 + 5y + 1$
c_3	$y^6 - 12y^5 + 36y^4 + 17y^3 + 14y^2 + 7y + 1$
c_4	$(y^3 + 2y^2 + 5y - 1)^2$
c_5, c_9	$(y^3 + 3y^2 + 2y - 1)^2$
c_{11}	$y^6 - 9y^5 + 18y^4 + 13y^3 + 32y^2 + 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.377439 + 0.926035I$ $a = 0.53980 - 1.32438I$ $b = 0.377439 + 0.926035I$	-0.531480	$4.97415 + 0.I$
$u = 0.377439 - 0.926035I$ $a = 0.53980 + 1.32438I$ $b = 0.377439 - 0.926035I$	-0.531480	$4.97415 + 0.I$
$u = -0.273131 + 0.614306I$ $a = -2.85527 - 1.63609I$ $b = -0.273131 + 0.614306I$	$-4.66906 + 2.82812I$	$-0.98708 + 1.68684I$
$u = -0.273131 - 0.614306I$ $a = -2.85527 + 1.63609I$ $b = -0.273131 - 0.614306I$	$-4.66906 - 2.82812I$	$-0.98708 - 1.68684I$
$u = -0.60431 + 1.35917I$ $a = 0.31547 - 1.45351I$ $b = -0.60431 + 1.35917I$	$-4.66906 - 2.82812I$	$-0.98708 - 1.68684I$
$u = -0.60431 - 1.35917I$ $a = 0.31547 + 1.45351I$ $b = -0.60431 - 1.35917I$	$-4.66906 + 2.82812I$	$-0.98708 + 1.68684I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^6-5u^5+13u^4-17u^3+13u^2-5u+1)$ $\cdot(u^8-3u^7+6u^6-9u^5+12u^4-11u^3+8u^2-4u+1)$ $\cdot(u^{17}+7u^{16}+\cdots-11u-1)(u^{22}+18u^{20}+\cdots+u+1)$
c_2, c_8	$(u^6-u^5+3u^4-u^3+3u^2-u+1)(u^8-u^7+\cdots+2u^2+1)$ $\cdot(u^{17}-u^{16}+\cdots+u-1)(u^{22}-2u^{21}+\cdots+u+1)$
c_3	$(u^6+4u^5+2u^4-3u^3+4u^2-u+1)$ $\cdot(u^8+u^7+\cdots+5u^2+1)(u^{17}+4u^{16}+\cdots-9u-2)$ $\cdot(u^{22}-4u^{21}+\cdots+49499u+24641)$
c_4	$(u^3+2u^2+3u+1)^2$ $\cdot(u^8-2u^7+7u^6-12u^5+16u^4-15u^3+9u^2-4u+1)$ $\cdot((u^{11}-6u^{10}+\cdots-35u-17)^2)(u^{17}+19u^{16}+\cdots-1920u-256)$
c_5	$((u^3-u^2+2u-1)^2)(u^8+2u^7+\cdots+2u+1)$ $\cdot((u^{11}+2u^{10}+\cdots+2u+1)^2)(u^{17}-5u^{16}+\cdots+11u-4)$
c_6, c_{12}	$(u^6+u^5+3u^4+u^3+3u^2+u+1)(u^8+u^7+\cdots+2u^2+1)$ $\cdot(u^{17}-u^{16}+\cdots+u-1)(u^{22}-2u^{21}+\cdots+u+1)$
c_7	$(u^6+u^5+3u^4+u^3+3u^2+u+1)(u^8+2u^6+\cdots+u+1)$ $\cdot(u^{17}+12u^{15}+\cdots-2u-1)(u^{22}+14u^{20}+\cdots-75u+37)$
c_9	$((u^3+u^2+2u+1)^2)(u^8-2u^7+\cdots-2u+1)$ $\cdot((u^{11}+2u^{10}+\cdots+2u+1)^2)(u^{17}-5u^{16}+\cdots+11u-4)$
c_{10}	$(u^6-u^5+3u^4-u^3+3u^2-u+1)(u^8+2u^6+\cdots-u+1)$ $\cdot(u^{17}+12u^{15}+\cdots-2u-1)(u^{22}+14u^{20}+\cdots-75u+37)$
c_{11}	$(u^6+3u^5-u^3+6u^2-2u+1)$ $\cdot(u^8+u^7+2u^6+5u^5+9u^4+10u^3+8u^2+4u+1)$ $\cdot(u^{17}+u^{16}+\cdots-7u-73)(u^{22}-4u^{21}+\cdots+7278u+1669)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^6+y^5+25y^4+y^3+25y^2+y+1)$ $\cdot(y^8+3y^7+\cdots+11y^3+1)(y^{17}+23y^{16}+\cdots+53y-1)$ $\cdot(y^{22}+36y^{21}+\cdots-15y+1)$
c_2, c_6, c_8 c_{12}	$(y^6+5y^5+13y^4+17y^3+13y^2+5y+1)$ $\cdot(y^8+3y^7+6y^6+9y^5+12y^4+11y^3+8y^2+4y+1)$ $\cdot(y^{17}+7y^{16}+\cdots-11y-1)(y^{22}+18y^{20}+\cdots+y+1)$
c_3	$(y^6-12y^5+36y^4+17y^3+14y^2+7y+1)$ $\cdot(y^8+9y^7+23y^6-2y^5-43y^4-y^3+39y^2+10y+1)$ $\cdot(y^{17}+30y^{16}+\cdots-71y-4)$ $\cdot(y^{22}+78y^{21}+\cdots+7715838523y+607178881)$
c_4	$(y^3+2y^2+5y-1)^2$ $\cdot(y^8+10y^7+33y^6+38y^5+8y^4-19y^3-7y^2+2y+1)$ $\cdot(y^{11}-18y^{10}+\cdots-1019y-289)^2$ $\cdot(y^{17}-35y^{16}+\cdots+409600y-65536)$
c_5, c_9	$(y^3+3y^2+2y-1)^2$ $\cdot(y^8+8y^7+26y^6+46y^5+55y^4+53y^3+35y^2+10y+1)$ $\cdot((y^{11}+8y^{10}+\cdots-6y-1)^2)(y^{17}+13y^{16}+\cdots+57y-16)$
c_7, c_{10}	$(y^6+5y^5+13y^4+17y^3+13y^2+5y+1)$ $\cdot(y^8+4y^7+8y^6+11y^5+12y^4+9y^3+6y^2+3y+1)$ $\cdot(y^{17}+24y^{16}+\cdots+14y-1)(y^{22}+28y^{21}+\cdots+43881y+1369)$
c_{11}	$(y^6-9y^5+18y^4+13y^3+32y^2+8y+1)$ $\cdot(y^8+3y^7+12y^6+7y^5+7y^4+8y^3+2y^2+1)$ $\cdot(y^{17}-y^{16}+\cdots-1119y-5329)$ $\cdot(y^{22}-30y^{21}+\cdots+12275264y+2785561)$