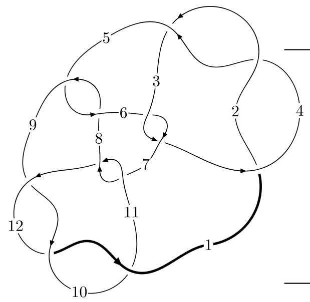
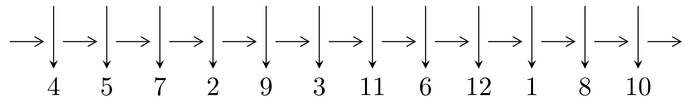
$12a_{0811}$ $(K12a_{0811})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b+u,\ -2u^{17}-7u^{16}+\cdots+2a-7,\ u^{18}+3u^{17}+\cdots+5u-1\rangle$$

$$I_2^u = \langle 5.65807\times10^{75}u^{73}+4.34249\times10^{76}u^{72}+\cdots+1.46489\times10^{74}b-4.16421\times10^{75},$$
$$1.50543\times10^{75}u^{73}+1.12371\times10^{76}u^{72}+\cdots+1.46489\times10^{74}a-3.11479\times10^{75},\ u^{74}+9u^{73}+\cdots+25u-$$

$$I_3^u = \langle b+1,\ -4u^7-6u^6+9u^5+12u^4-6u^3-2u^2+a-u-8,\ u^8+u^7-3u^6-2u^5+3u^4+2u-1\rangle$$

$$I_4^u = \langle -1146a^7+3254a^6+13110a^5-27698a^4-23575a^3+74422a^2+661b-44359a+6376,$$
$$a^8-3a^7-11a^6+26a^5+17a^4-68a^3+48a^2-12a+1,\ u-1\rangle$$

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

$$I_6^u = \langle b-u-1,\ a+u+1,\ u^2+u-1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 112 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. $\boldsymbol{I_1^u = \langle b + u,\ -2u^{17} - 7u^{16} + \cdots + 2a - 7,\ u^{18} + 3u^{17} + \cdots + 5u - 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{17} + \frac{7}{2}u^{16} + \cdots - 2u + \frac{7}{2} \\ -u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{17} + \frac{7}{2}u^{16} + \cdots - u + \frac{7}{2} \\ -u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{2}u^{17} + 2u^{16} + \cdots - \frac{3}{2}u + 2 \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{2}u^{17} + 2u^{16} + \cdots - \frac{3}{2}u + 3 \\ u^3 - u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^{17} - \frac{9}{2}u^{15} + \cdots + \frac{5}{2}u - 2 \\ -\frac{1}{2}u^{17} - \frac{1}{2}u^{16} + \cdots - \frac{3}{2}u + \frac{1}{2} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{1}{2}u^{16} - u^{15} + \cdots + 3u - \frac{5}{2} \\ -2u^{17} - 3u^{16} + \cdots - 10u + 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{17} + 3u^{16} + \cdots - 3u + 4 \\ \frac{5}{2}u^{17} + \frac{9}{2}u^{16} + \cdots + \frac{25}{2}u - \frac{5}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3u^{17} + 4u^{16} - 25u^{15} - 30u^{14} + 79u^{13} + 59u^{12} - 138u^{11} + 24u^{10} + 161u^9 - 176u^8 - 68u^7 + 150u^6 - 100u^5 - 11u^4 + 62u^3 - 42u^2 + 33u - 16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$u^{18} - 3u^{17} + \cdots - 5u - 1$
c_3, c_6, c_7 c_{11}	$u^{18} + u^{17} + \cdots - 5u - 1$
c_5, c_8	$u^{18} - 5u^{17} + \cdots - 8u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$y^{18} - 17y^{17} + \cdots - 19y + 1$
c_3, c_6, c_7 c_{11}	$y^{18} - 9y^{17} + \cdots - 11y + 1$
c_5, c_8	$y^{18} + 5y^{17} + \cdots + 96y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.989632 + 0.118366I$ $a = -4.73699 + 1.01751I$ $b = -0.989632 - 0.118366I$	$-2.95901 - 0.54782I$	$-26.1989 - 20.7388I$
$u = 0.989632 - 0.118366I$ $a = -4.73699 - 1.01751I$ $b = -0.989632 + 0.118366I$	$-2.95901 + 0.54782I$	$-26.1989 + 20.7388I$
$u = 0.422326 + 0.866115I$ $a = -0.292665 + 0.821087I$ $b = -0.422326 - 0.866115I$	$-1.45893 - 7.65022I$	$-14.1263 + 7.9961I$
$u = 0.422326 - 0.866115I$ $a = -0.292665 - 0.821087I$ $b = -0.422326 + 0.866115I$	$-1.45893 + 7.65022I$	$-14.1263 - 7.9961I$
$u = 0.505624 + 0.659339I$ $a = -0.37939 + 1.54732I$ $b = -0.505624 - 0.659339I$	$-2.76095 - 2.16079I$	$-16.8057 + 4.7341I$
$u = 0.505624 - 0.659339I$ $a = -0.37939 - 1.54732I$ $b = -0.505624 + 0.659339I$	$-2.76095 + 2.16079I$	$-16.8057 - 4.7341I$
$u = -1.217590 + 0.250614I$ $a = 0.999646 + 0.475841I$ $b = 1.217590 - 0.250614I$	$-4.05098 + 7.39685I$	$-19.0054 - 11.1633I$
$u = -1.217590 - 0.250614I$ $a = 0.999646 - 0.475841I$ $b = 1.217590 + 0.250614I$	$-4.05098 - 7.39685I$	$-19.0054 + 11.1633I$
$u = -1.24743$ $a = 0.531653$ $b = 1.24743$	-9.19331	-28.9570
$u = 1.41940 + 0.07138I$ $a = -3.39301 + 0.09249I$ $b = -1.41940 - 0.07138I$	$-6.53479 - 2.67378I$	$-17.5529 + 2.6003I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.41940 - 0.07138I$ $a = -3.39301 - 0.09249I$ $b = -1.41940 + 0.07138I$	$-6.53479 + 2.67378I$	$-17.5529 - 2.6003I$
$u = -0.072733 + 0.557292I$ $a = 1.025250 + 0.580717I$ $b = 0.072733 - 0.557292I$	$2.91333 - 1.30971I$	$-5.30920 + 2.88857I$
$u = -0.072733 - 0.557292I$ $a = 1.025250 - 0.580717I$ $b = 0.072733 + 0.557292I$	$2.91333 + 1.30971I$	$-5.30920 - 2.88857I$
$u = -1.49614 + 0.31846I$ $a = 1.58598 + 1.29639I$ $b = 1.49614 - 0.31846I$	$-15.4055 + 9.6614I$	$-20.3543 - 4.9770I$
$u = -1.49614 - 0.31846I$ $a = 1.58598 - 1.29639I$ $b = 1.49614 + 0.31846I$	$-15.4055 - 9.6614I$	$-20.3543 + 4.9770I$
$u = -1.53609 + 0.37024I$ $a = 1.87364 + 1.16526I$ $b = 1.53609 - 0.37024I$	$-14.0740 + 16.8703I$	$-19.0655 - 8.3694I$
$u = -1.53609 - 0.37024I$ $a = 1.87364 - 1.16526I$ $b = 1.53609 + 0.37024I$	$-14.0740 - 16.8703I$	$-19.0655 + 8.3694I$
$u = 0.218580$ $a = 3.10342$ $b = -0.218580$	-0.840991	-10.2070

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle 5.66\times10^{75}u^{73}+4.34\times10^{76}u^{72}+\cdots+1.46\times10^{74}b-4.16\times10^{75},\ 1.51\times10^{75}u^{73}+1.12\times10^{76}u^{72}+\cdots+1.46\times10^{74}a-3.11\times10^{75},\ u^{74}+9u^{73}+\cdots+25u-1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-10.2768u^{73}-76.7095u^{72}+\cdots-183.962u+21.2630\\-38.6246u^{73}-296.439u^{72}+\cdots-742.347u+28.4268\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}28.3478u^{73}+219.729u^{72}+\cdots+558.384u-7.16380\\-38.6246u^{73}-296.439u^{72}+\cdots-742.347u+28.4268\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-55.0611u^{73}-413.482u^{72}+\cdots-963.034u+44.1715\\-100.725u^{73}-764.026u^{72}+\cdots-1830.80u+71.0456\end{pmatrix}$$
$$a_9 = \begin{pmatrix}33.4992u^{73}+261.898u^{72}+\cdots+709.028u-16.0765\\75.6177u^{73}+583.270u^{72}+\cdots+1498.50u-58.5028\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-30.8792u^{73}-233.688u^{72}+\cdots-554.094u+16.6614\\-48.3000u^{73}-364.699u^{72}+\cdots-849.392u+33.2488\end{pmatrix}$$
$$a_7 = \begin{pmatrix}36.0803u^{73}+270.250u^{72}+\cdots+606.729u-28.7422\\-25.1044u^{73}-186.311u^{72}+\cdots-406.556u+16.0348\end{pmatrix}$$
$$a_8 = \begin{pmatrix}32.0304u^{73}+249.765u^{72}+\cdots+672.873u-12.6030\\13.2898u^{73}+102.925u^{72}+\cdots+269.186u-10.8565\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -18.3007u^{73}-137.274u^{72}+\cdots-108.453u-7.83721$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$u^{74} - 9u^{73} + \cdots - 25u - 1$
c_3, c_6, c_7 c_{11}	$u^{74} + 3u^{73} + \cdots - 384u - 256$
c_5, c_8	$(u^{37} + u^{36} + \cdots - 9u + 2)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$y^{74} - 75y^{73} + \cdots - 675y + 1$
c_3, c_6, c_7 c_{11}	$y^{74} - 51y^{73} + \cdots - 5160960y + 65536$
c_5, c_8	$(y^{37} + 15y^{36} + \cdots + 89y - 4)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.987559$ $a = 6.51633$ $b = -0.530694$	-2.53018	0
$u = 0.765958 + 0.687849I$ $a = 0.530736 - 0.170061I$ $b = -0.454310 + 0.712668I$	$-2.53529 + 2.33569I$	0
$u = 0.765958 - 0.687849I$ $a = 0.530736 + 0.170061I$ $b = -0.454310 - 0.712668I$	$-2.53529 - 2.33569I$	0
$u = 0.740221 + 0.600682I$ $a = 0.324726 - 0.192964I$ $b = 1.56736 - 0.14197I$	$-10.44390 + 0.43302I$	0
$u = 0.740221 - 0.600682I$ $a = 0.324726 + 0.192964I$ $b = 1.56736 + 0.14197I$	$-10.44390 - 0.43302I$	0
$u = 0.642782 + 0.680172I$ $a = -1.39299 + 1.23146I$ $b = -1.364200 + 0.024112I$	$-4.74326 + 0.09745I$	0
$u = 0.642782 - 0.680172I$ $a = -1.39299 - 1.23146I$ $b = -1.364200 - 0.024112I$	$-4.74326 - 0.09745I$	0
$u = 0.444752 + 0.973604I$ $a = 0.671707 - 1.134520I$ $b = 1.50776 + 0.32383I$	$-7.6984 - 11.9811I$	0
$u = 0.444752 - 0.973604I$ $a = 0.671707 + 1.134520I$ $b = 1.50776 - 0.32383I$	$-7.6984 + 11.9811I$	0
$u = 0.397060 + 0.840047I$ $a = 0.12647 - 1.41487I$ $b = 1.50364 + 0.23324I$	$-9.28734 - 5.43922I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.397060 - 0.840047I$ $a = 0.12647 + 1.41487I$ $b = 1.50364 - 0.23324I$	$-9.28734 + 5.43922I$	0
$u = 0.458933 + 0.804344I$ $a = -1.168670 + 0.748598I$ $b = -1.44440 - 0.12650I$	$-4.11115 - 5.12689I$	0
$u = 0.458933 - 0.804344I$ $a = -1.168670 - 0.748598I$ $b = -1.44440 + 0.12650I$	$-4.11115 + 5.12689I$	0
$u = 1.009020 + 0.377651I$ $a = 0.396161 - 0.004528I$ $b = 0.000170 - 0.316182I$	$-0.560067 - 0.765120I$	0
$u = 1.009020 - 0.377651I$ $a = 0.396161 + 0.004528I$ $b = 0.000170 + 0.316182I$	$-0.560067 + 0.765120I$	0
$u = -0.062358 + 0.874395I$ $a = -0.026642 + 0.252961I$ $b = 1.306060 + 0.081958I$	$-0.68340 - 3.31809I$	0
$u = -0.062358 - 0.874395I$ $a = -0.026642 - 0.252961I$ $b = 1.306060 - 0.081958I$	$-0.68340 + 3.31809I$	0
$u = 0.454310 + 0.712668I$ $a = 0.098685 - 0.671650I$ $b = -0.765958 + 0.687849I$	$-2.53529 - 2.33569I$	0
$u = 0.454310 - 0.712668I$ $a = 0.098685 + 0.671650I$ $b = -0.765958 - 0.687849I$	$-2.53529 + 2.33569I$	0
$u = 0.844818 + 0.836713I$ $a = 0.790427 - 0.298727I$ $b = 1.49740 - 0.26016I$	$-8.87079 + 5.90908I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.844818 - 0.836713I$ $a = 0.790427 + 0.298727I$ $b = 1.49740 + 0.26016I$	$-8.87079 - 5.90908I$	0
$u = 0.231667 + 0.747835I$ $a = 0.427670 - 0.319614I$ $b = 0.342720 + 0.342406I$	$1.71361 - 3.34095I$	$-7.14073 + 5.07807I$
$u = 0.231667 - 0.747835I$ $a = 0.427670 + 0.319614I$ $b = 0.342720 - 0.342406I$	$1.71361 + 3.34095I$	$-7.14073 - 5.07807I$
$u = 0.719088$ $a = -1.78155$ $b = 1.60418$	-9.95403	-72.0690
$u = 1.265280 + 0.210357I$ $a = 1.098350 + 0.079438I$ $b = 0.218129 + 0.234231I$	$-1.19152 - 1.56254I$	0
$u = 1.265280 - 0.210357I$ $a = 1.098350 - 0.079438I$ $b = 0.218129 - 0.234231I$	$-1.19152 + 1.56254I$	0
$u = -1.306060 + 0.081958I$ $a = 0.169294 - 0.019291I$ $b = 0.062358 + 0.874395I$	$-0.68340 + 3.31809I$	0
$u = -1.306060 - 0.081958I$ $a = 0.169294 + 0.019291I$ $b = 0.062358 - 0.874395I$	$-0.68340 - 3.31809I$	0
$u = -0.595869 + 0.339811I$ $a = 1.72234 + 1.01149I$ $b = 1.38711 - 0.28497I$	$-3.44427 + 7.05663I$	$-11.58513 - 7.17023I$
$u = -0.595869 - 0.339811I$ $a = 1.72234 - 1.01149I$ $b = 1.38711 + 0.28497I$	$-3.44427 - 7.05663I$	$-11.58513 + 7.17023I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.364200 + 0.024112I$ $a = -1.267920 + 0.136700I$ $b = -0.642782 + 0.680172I$	$-4.74326 - 0.09745I$	0
$u = 1.364200 - 0.024112I$ $a = -1.267920 - 0.136700I$ $b = -0.642782 - 0.680172I$	$-4.74326 + 0.09745I$	0
$u = -1.366460 + 0.029279I$ $a = -1.41815 - 0.40189I$ $b = -1.290050 + 0.520157I$	$-4.82697 + 1.65745I$	0
$u = -1.366460 - 0.029279I$ $a = -1.41815 + 0.40189I$ $b = -1.290050 - 0.520157I$	$-4.82697 - 1.65745I$	0
$u = 1.290050 + 0.520157I$ $a = 1.16345 - 0.86262I$ $b = 1.366460 + 0.029279I$	$-4.82697 - 1.65745I$	0
$u = 1.290050 - 0.520157I$ $a = 1.16345 + 0.86262I$ $b = 1.366460 - 0.029279I$	$-4.82697 + 1.65745I$	0
$u = 1.40953 + 0.12805I$ $a = 2.51596 - 1.15937I$ $b = 1.54388 + 0.20125I$	$-11.93780 - 3.04537I$	0
$u = 1.40953 - 0.12805I$ $a = 2.51596 + 1.15937I$ $b = 1.54388 - 0.20125I$	$-11.93780 + 3.04537I$	0
$u = -1.38711 + 0.28497I$ $a = 0.945189 + 0.206760I$ $b = 0.595869 - 0.339811I$	$-3.44427 + 7.05663I$	0
$u = -1.38711 - 0.28497I$ $a = 0.945189 - 0.206760I$ $b = 0.595869 + 0.339811I$	$-3.44427 - 7.05663I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.43299 + 0.09516I$ $a = 0.755112 + 0.316373I$ $b = 0.251570 - 0.421107I$	$-6.60087 + 1.06308I$	0
$u = -1.43299 - 0.09516I$ $a = 0.755112 - 0.316373I$ $b = 0.251570 + 0.421107I$	$-6.60087 - 1.06308I$	0
$u = 1.44440 + 0.12650I$ $a = -0.818084 - 0.341295I$ $b = -0.458933 - 0.804344I$	$-4.11115 - 5.12689I$	0
$u = 1.44440 - 0.12650I$ $a = -0.818084 + 0.341295I$ $b = -0.458933 + 0.804344I$	$-4.11115 + 5.12689I$	0
$u = 0.530694$ $a = 12.1261$ $b = -0.987559$	-2.53018	-192.020
$u = -0.251570 + 0.421107I$ $a = 0.49512 + 2.34529I$ $b = 1.43299 - 0.09516I$	$-6.60087 + 1.06308I$	$-15.5655 - 0.4982I$
$u = -0.251570 - 0.421107I$ $a = 0.49512 - 2.34529I$ $b = 1.43299 + 0.09516I$	$-6.60087 - 1.06308I$	$-15.5655 + 0.4982I$
$u = -0.342720 + 0.342406I$ $a = -0.852282 - 0.134347I$ $b = -0.231667 + 0.747835I$	$1.71361 + 3.34095I$	$-7.14073 - 5.07807I$
$u = -0.342720 - 0.342406I$ $a = -0.852282 + 0.134347I$ $b = -0.231667 - 0.747835I$	$1.71361 - 3.34095I$	$-7.14073 + 5.07807I$
$u = -1.49740 + 0.26016I$ $a = -0.548850 - 0.368493I$ $b = -0.844818 - 0.836713I$	$-8.87079 + 5.90908I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.49740 - 0.26016I$ $a = -0.548850 + 0.368493I$ $b = -0.844818 + 0.836713I$	$-8.87079 - 5.90908I$	0
$u = -1.50364 + 0.23324I$ $a = -0.758602 - 0.420638I$ $b = -0.397060 + 0.840047I$	$-9.28734 + 5.43922I$	0
$u = -1.50364 - 0.23324I$ $a = -0.758602 + 0.420638I$ $b = -0.397060 - 0.840047I$	$-9.28734 - 5.43922I$	0
$u = -1.51258 + 0.29195I$ $a = -2.34120 - 0.86317I$ $b = -1.53693 + 0.15527I$	$-10.51240 + 9.13078I$	0
$u = -1.51258 - 0.29195I$ $a = -2.34120 + 0.86317I$ $b = -1.53693 - 0.15527I$	$-10.51240 - 9.13078I$	0
$u = -1.53328 + 0.16361I$ $a = 2.10853 + 0.19378I$ $b = 1.70709 + 0.15451I$	$-17.8245 + 2.1237I$	0
$u = -1.53328 - 0.16361I$ $a = 2.10853 - 0.19378I$ $b = 1.70709 - 0.15451I$	$-17.8245 - 2.1237I$	0
$u = -1.50776 + 0.32383I$ $a = -0.910033 - 0.096369I$ $b = -0.444752 + 0.973604I$	$-7.6984 + 11.9811I$	0
$u = -1.50776 - 0.32383I$ $a = -0.910033 + 0.096369I$ $b = -0.444752 - 0.973604I$	$-7.6984 - 11.9811I$	0
$u = 1.53693 + 0.15527I$ $a = 2.40267 - 0.64750I$ $b = 1.51258 + 0.29195I$	$-10.51240 - 9.13078I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.53693 - 0.15527I$ $a = 2.40267 + 0.64750I$ $b = 1.51258 - 0.29195I$	$-10.51240 + 9.13078I$	0
$u = -1.54388 + 0.20125I$ $a = -2.24427 - 1.14235I$ $b = -1.40953 + 0.12805I$	$-11.93780 + 3.04537I$	0
$u = -1.54388 - 0.20125I$ $a = -2.24427 + 1.14235I$ $b = -1.40953 - 0.12805I$	$-11.93780 - 3.04537I$	0
$u = -1.56736 + 0.14197I$ $a = -0.222469 - 0.053469I$ $b = -0.740221 - 0.600682I$	$-10.44390 + 0.43302I$	0
$u = -1.56736 - 0.14197I$ $a = -0.222469 + 0.053469I$ $b = -0.740221 + 0.600682I$	$-10.44390 - 0.43302I$	0
$u = 0.401467$ $a = 1.34983$ $b = -0.0384223$	-0.820249	-11.7000
$u = -1.60418$ $a = 0.798596$ $b = -0.719088$	-9.95403	0
$u = -0.218129 + 0.234231I$ $a = -3.68157 - 2.43333I$ $b = -1.265280 + 0.210357I$	$-1.19152 + 1.56254I$	$-9.17228 - 1.36855I$
$u = -0.218129 - 0.234231I$ $a = -3.68157 + 2.43333I$ $b = -1.265280 - 0.210357I$	$-1.19152 - 1.56254I$	$-9.17228 + 1.36855I$
$u = -0.000170 + 0.316182I$ $a = 0.458043 - 1.269910I$ $b = -1.009020 - 0.377651I$	$-0.560067 - 0.765120I$	$-10.35165 + 1.08474I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.000170 - 0.316182I$ $a = 0.458043 + 1.269910I$ $b = -1.009020 + 0.377651I$	$-0.560067 + 0.765120I$	$-10.35165 - 1.08474I$
$u = -1.70709 + 0.15451I$ $a = 1.89436 + 0.19950I$ $b = 1.53328 + 0.16361I$	$-17.8245 - 2.1237I$	0
$u = -1.70709 - 0.15451I$ $a = 1.89436 - 0.19950I$ $b = 1.53328 - 0.16361I$	$-17.8245 + 2.1237I$	0
$u = 0.0384223$ $a = 14.1041$ $b = -0.401467$	-0.820249	-11.7000

III. $\boldsymbol{I_3^u = \langle b+1,\ -4u^7-6u^6+\cdots+a-8,\ u^8+u^7-3u^6-2u^5+3u^4+2u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 21u^7+30u^6-48u^5-61u^4+31u^3+11u^2+11u+30$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$
c_3, c_6	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$
c_5, c_8	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$
c_7, c_{11}	y^8
c_9, c_{10}, c_{12}	$(y-1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.180120 + 0.268597I$ $a = -1.82964 + 0.62117I$ $b = -1.00000$	$-2.68559 - 1.13123I$	$-14.0862 + 1.5750I$
$u = 1.180120 - 0.268597I$ $a = -1.82964 - 0.62117I$ $b = -1.00000$	$-2.68559 + 1.13123I$	$-14.0862 - 1.5750I$
$u = 0.108090 + 0.747508I$ $a = 0.001985 - 0.277604I$ $b = -1.00000$	$0.51448 - 2.57849I$	$-10.94521 + 2.41352I$
$u = 0.108090 - 0.747508I$ $a = 0.001985 + 0.277604I$ $b = -1.00000$	$0.51448 + 2.57849I$	$-10.94521 - 2.41352I$
$u = -1.37100$ $a = -0.449265$ $b = -1.00000$	-8.14766	-19.2760
$u = -1.334530 + 0.318930I$ $a = -0.858837 - 0.373191I$ $b = -1.00000$	$-4.02461 + 6.44354I$	$-18.3815 - 0.5907I$
$u = -1.334530 - 0.318930I$ $a = -0.858837 + 0.373191I$ $b = -1.00000$	$-4.02461 - 6.44354I$	$-18.3815 + 0.5907I$
$u = 0.463640$ $a = 8.82225$ $b = -1.00000$	-2.48997	37.1020

IV.

$\boldsymbol{I^u_4 = \langle -1146a^7 + 661b + \cdots - 44359a + 6376,\ a^8 - 3a^7 + \cdots - 12a + 1,\ u - 1\rangle}$

(i) Arc colorings

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

$$a_4 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ 1.73374a^7 - 4.92284a^6 + \cdots + 67.1089a - 9.64599 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1.73374a^7 + 4.92284a^6 + \cdots - 66.1089a + 9.64599 \\ 1.73374a^7 - 4.92284a^6 + \cdots + 67.1089a - 9.64599 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.278366a^7 + 0.762481a^6 + \cdots - 11.1589a + 2.73374 \\ 1.14977a^7 - 3.10590a^6 + \cdots + 30.4387a - 3.07413 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2.07716a^7 - 5.99395a^6 + \cdots + 78.8321a - 10.7958 \\ 3.50530a^7 - 9.86233a^6 + \cdots + 120.430a - 16.6036 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ 2.85628a^7 - 7.73676a^6 + \cdots + 84.1952a - 9.61573 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ 2.85628a^7 - 7.73676a^6 + \cdots + 84.1952a - 9.61573 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2.07716a^7 - 5.99395a^6 + \cdots + 78.8321a - 10.7958 \\ 1.55371a^7 - 3.60363a^6 + \cdots + 22.5008a - 1.12254 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= -\frac{2804}{661}a^7 + \frac{8399}{661}a^6 + \frac{31167}{661}a^5 - \frac{73309}{661}a^4 - \frac{51158}{661}a^3 + \frac{194340}{661}a^2 - \frac{127808}{661}a + \frac{11630}{661}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^8$
c_3, c_6	y^8
c_5, c_8	$y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1$
c_7, c_{11}	$y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1$
c_9, c_{10}, c_{12}	$y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.265160 + 0.224125I$ $b = 1.334530 - 0.318930I$	$-4.02461 + 6.44354I$	$-18.3815 - 0.5907I$
$u = 1.00000$ $a = 1.265160 - 0.224125I$ $b = 1.334530 + 0.318930I$	$-4.02461 - 6.44354I$	$-18.3815 + 0.5907I$
$u = 1.00000$ $a = 0.615944$ $b = 1.37100$	-8.14766	-19.2760
$u = 1.00000$ $a = 0.207725 + 0.028522I$ $b = -0.108090 + 0.747508I$	$0.51448 + 2.57849I$	$-10.94521 - 2.41352I$
$u = 1.00000$ $a = 0.207725 - 0.028522I$ $b = -0.108090 - 0.747508I$	$0.51448 - 2.57849I$	$-10.94521 + 2.41352I$
$u = 1.00000$ $a = -2.32604 + 0.24162I$ $b = -1.180120 - 0.268597I$	$-2.68559 - 1.13123I$	$-14.0862 + 1.5750I$
$u = 1.00000$ $a = -2.32604 - 0.24162I$ $b = -1.180120 + 0.268597I$	$-2.68559 + 1.13123I$	$-14.0862 - 1.5750I$
$u = 1.00000$ $a = 4.09035$ $b = -0.463640$	-2.48997	37.1020

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -20$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_5	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 2.00000$ $b = -0.618034$	-1.97392	-20.0000
$u = -1.61803$ $a = 2.00000$ $b = 1.61803$	-17.7653	-20.0000

VI. $I_6^u = \langle b - u - 1,\ a + u + 1,\ u^2 + u - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 25$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -1.61803$ $b = 1.61803$	-9.86960	25.0000
$u = -1.61803$ $a = 0.618034$ $b = -0.618034$	-9.86960	25.0000

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2, c_9 c_{10}	$(u-1)^8(u^2+u-1)^2(u^8+u^7-3u^6-2u^5+3u^4+2u-1)$ $\cdot(u^{18}-3u^{17}+\cdots-5u-1)(u^{74}-9u^{73}+\cdots-25u-1)$
c_3, c_7	$u^8(u^2+u-1)^2(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(u^{18}+u^{17}+\cdots-5u-1)(u^{74}+3u^{73}+\cdots-384u-256)$
c_4, c_{12}	$(u+1)^8(u^2-u-1)^2(u^8-u^7-3u^6+2u^5+3u^4-2u-1)$ $\cdot(u^{18}-3u^{17}+\cdots-5u-1)(u^{74}-9u^{73}+\cdots-25u-1)$
c_5	$u^4(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)^2$ $\cdot(u^{18}-5u^{17}+\cdots-8u+4)(u^{37}+u^{36}+\cdots-9u+2)^2$
c_6, c_{11}	$u^8(u^2-u-1)^2(u^8+u^7-u^6-2u^5+u^4+2u^3-2u-1)$ $\cdot(u^{18}+u^{17}+\cdots-5u-1)(u^{74}+3u^{73}+\cdots-384u-256)$
c_8	$u^4(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^2$ $\cdot(u^{18}-5u^{17}+\cdots-8u+4)(u^{37}+u^{36}+\cdots-9u+2)^2$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$(y-1)^8(y^2-3y+1)^2$ $\cdot (y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot (y^{18}-17y^{17}+\cdots-19y+1)(y^{74}-75y^{73}+\cdots-675y+1)$
c_3, c_6, c_7 c_{11}	$y^8(y^2-3y+1)^2(y^8-3y^7+\cdots-4y+1)$ $\cdot (y^{18}-9y^{17}+\cdots-11y+1)(y^{74}-51y^{73}+\cdots-5160960y+65536)$
c_5, c_8	$y^4(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)^2$ $\cdot (y^{18}+5y^{17}+\cdots+96y+16)(y^{37}+15y^{36}+\cdots+89y-4)^2$