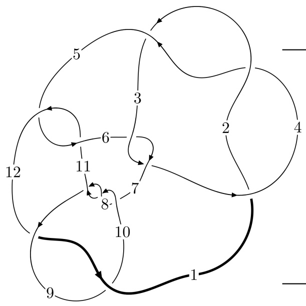
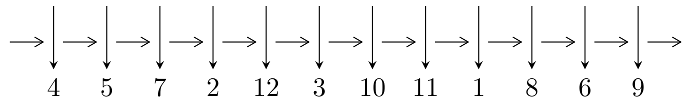
$12a_{0817}$ ($K12a_{0817}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -u^{17} - 2u^{16} + \cdots + 2b - 5u,\ u^{17} + 5u^{16} + \cdots + 2a + 9,\ u^{18} + 3u^{17} + \cdots + 5u - 1\rangle \\
I_2^u &= \langle 5.45567 \times 10^{75} u^{73} + 4.11793 \times 10^{76} u^{72} + \cdots + 1.46489 \times 10^{74} b - 3.85724 \times 10^{75}, \\
&\quad - 1.05682 \times 10^{75} u^{73} - 8.04501 \times 10^{75} u^{72} + \cdots + 7.32443 \times 10^{73} a + 2.11780 \times 10^{75}, \\
&\quad u^{74} + 9u^{73} + \cdots + 25u - 1\rangle \\
I_3^u &= \langle b,\ 3u^7 + 5u^6 - 7u^5 - 11u^4 + 5u^3 + 3u^2 + a + 7,\ u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1\rangle \\
I_4^u &= \langle -16a^7 + 37a^6 + 131a^5 - 231a^4 - 337a^3 + 380a^2 + 86b + 82a - 115, \\
&\quad a^8 - 9a^6 - 5a^5 + 18a^4 + 9a^3 - 11a^2 - 5a + 1,\ u - 1\rangle \\
I_5^u &= \langle b + u,\ a + u,\ u^2 + u - 1\rangle \\
I_6^u &= \langle b - u - 1,\ a + 2,\ u^2 + u - 1\rangle
\end{aligned}$$

* 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. $I^u_1 =$
$\langle -u^{17}-2u^{16}+\cdots+2b-5u,\ u^{17}+5u^{16}+\cdots+2a+9,\ u^{18}+3u^{17}+\cdots+5u-1\rangle$

(i) Arc colorings

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

(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_7, c_8, c_{10}	$u^{18} - 3u^{17} + \cdots - 5u - 1$
c_3, c_6, c_9 c_{12}	$u^{18} + u^{17} + \cdots - 5u - 1$
c_5, c_{11}	$u^{18} - 5u^{17} + \cdots - 8u + 4$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.989632 + 0.118366I$ $a = 4.41550 + 0.71456I$ $b = 0.386038 - 0.294983I$	$-2.95901 - 0.54782I$	$-26.1989 - 20.7388I$
$u = 0.989632 - 0.118366I$ $a = 4.41550 - 0.71456I$ $b = 0.386038 + 0.294983I$	$-2.95901 + 0.54782I$	$-26.1989 + 20.7388I$
$u = 0.422326 + 0.866115I$ $a = -0.769480 + 0.797033I$ $b = -1.218200 - 0.431947I$	$-1.45893 - 7.65022I$	$-14.1263 + 7.9961I$
$u = 0.422326 - 0.866115I$ $a = -0.769480 - 0.797033I$ $b = -1.218200 + 0.431947I$	$-1.45893 + 7.65022I$	$-14.1263 - 7.9961I$
$u = 0.505624 + 0.659339I$ $a = 0.58411 - 1.48309I$ $b = 1.039530 + 0.211769I$	$-2.76095 - 2.16079I$	$-16.8057 + 4.7341I$
$u = 0.505624 - 0.659339I$ $a = 0.58411 + 1.48309I$ $b = 1.039530 - 0.211769I$	$-2.76095 + 2.16079I$	$-16.8057 - 4.7341I$
$u = -1.217590 + 0.250614I$ $a = 0.519633 + 0.144909I$ $b = 0.799643 - 0.530407I$	$-4.05098 + 7.39685I$	$-19.0054 - 11.1633I$
$u = -1.217590 - 0.250614I$ $a = 0.519633 - 0.144909I$ $b = 0.799643 + 0.530407I$	$-4.05098 - 7.39685I$	$-19.0054 + 11.1633I$
$u = -1.24743$ $a = -0.0578863$ $b = -0.832862$	-9.19331	-28.9570
$u = 1.41940 + 0.07138I$ $a = 0.323890 - 0.894237I$ $b = 0.149813 - 1.200420I$	$-6.53479 - 2.67378I$	$-17.5529 + 2.6003I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.41940 - 0.07138I$ $a = 0.323890 + 0.894237I$ $b = 0.149813 + 1.200420I$	$-6.53479 + 2.67378I$	$-17.5529 - 2.6003I$
$u = -0.072733 + 0.557292I$ $a = 0.525452 - 0.116898I$ $b = -0.545385 - 0.661484I$	$2.91333 - 1.30971I$	$-5.30920 + 2.88857I$
$u = -0.072733 - 0.557292I$ $a = 0.525452 + 0.116898I$ $b = -0.545385 + 0.661484I$	$2.91333 + 1.30971I$	$-5.30920 - 2.88857I$
$u = -1.49614 + 0.31846I$ $a = -1.43529 - 0.90742I$ $b = -1.35407 + 0.66015I$	$-15.4055 + 9.6614I$	$-20.3543 - 4.9770I$
$u = -1.49614 - 0.31846I$ $a = -1.43529 + 0.90742I$ $b = -1.35407 - 0.66015I$	$-15.4055 - 9.6614I$	$-20.3543 + 4.9770I$
$u = -1.53609 + 0.37024I$ $a = 1.76834 + 0.71483I$ $b = 1.43095 - 0.76866I$	$-14.0740 + 16.8703I$	$-19.0655 - 8.3694I$
$u = -1.53609 - 0.37024I$ $a = 1.76834 - 0.71483I$ $b = 1.43095 + 0.76866I$	$-14.0740 - 16.8703I$	$-19.0655 + 8.3694I$
$u = 0.218580$ $a = -3.80642$ $b = 0.456220$	-0.840991	-10.2070

II. $I_2^u = \langle 5.46\times10^{75}u^{73} + 4.12\times10^{76}u^{72} + \cdots + 1.46\times10^{74}b - 3.86\times10^{75},\ -1.06\times10^{75}u^{73} - 8.05\times10^{75}u^{72} + \cdots + 7.32\times10^{73}a + 2.12\times10^{75},\ u^{74} + 9u^{73} + \cdots + 25u - 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}14.4287u^{73} + 109.838u^{72} + \cdots + 281.944u - 28.9142\\-37.2429u^{73} - 281.109u^{72} + \cdots - 661.514u + 26.3313\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}51.6717u^{73} + 390.947u^{72} + \cdots + 943.457u - 55.2455\\-37.2429u^{73} - 281.109u^{72} + \cdots - 661.514u + 26.3313\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}33.4992u^{73} + 261.898u^{72} + \cdots + 709.028u - 16.0765\\75.6177u^{73} + 583.270u^{72} + \cdots + 1498.50u - 58.5028\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-30.8792u^{73} - 233.688u^{72} + \cdots - 554.094u + 16.6614\\-48.3000u^{73} - 364.699u^{72} + \cdots - 849.392u + 33.2488\end{pmatrix}$$
$$a_7 = \begin{pmatrix}36.0803u^{73} + 270.250u^{72} + \cdots + 606.729u - 28.7422\\-25.1044u^{73} - 186.311u^{72} + \cdots - 406.556u + 16.0348\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}32.0304u^{73} + 249.765u^{72} + \cdots + 672.873u - 12.6030\\13.2898u^{73} + 102.925u^{72} + \cdots + 269.186u - 10.8565\end{pmatrix}$$
$$a_8 = \begin{pmatrix}85.5243u^{73} + 649.125u^{72} + \cdots + 1574.12u - 73.7687\\-13.2898u^{73} - 102.925u^{72} + \cdots - 269.186u + 10.8565\end{pmatrix}$$

(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_7, c_8, c_{10}	$u^{74} - 9u^{73} + \cdots - 25u - 1$
c_3, c_6, c_9 c_{12}	$u^{74} + 3u^{73} + \cdots - 384u - 256$
c_5, c_{11}	$(u^{37} + u^{36} + \cdots - 9u + 2)^2$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.987559$ $a = -5.10237$ $b = 0.617439$	-2.53018	0
$u = 0.765958 + 0.687849I$ $a = -0.769554 + 0.568181I$ $b = -1.068030 + 0.296505I$	$-2.53529 + 2.33569I$	0
$u = 0.765958 - 0.687849I$ $a = -0.769554 - 0.568181I$ $b = -1.068030 - 0.296505I$	$-2.53529 - 2.33569I$	0
$u = 0.740221 + 0.600682I$ $a = 0.083801 + 0.201944I$ $b = -1.50913 + 0.29868I$	$-10.44390 + 0.43302I$	0
$u = 0.740221 - 0.600682I$ $a = 0.083801 - 0.201944I$ $b = -1.50913 - 0.29868I$	$-10.44390 - 0.43302I$	0
$u = 0.642782 + 0.680172I$ $a = 1.09156 - 1.09879I$ $b = 0.050970 + 1.083900I$	$-4.74326 + 0.09745I$	0
$u = 0.642782 - 0.680172I$ $a = 1.09156 + 1.09879I$ $b = 0.050970 - 1.083900I$	$-4.74326 - 0.09745I$	0
$u = 0.444752 + 0.973604I$ $a = 0.528031 - 0.978953I$ $b = 1.37729 + 0.67188I$	$-7.6984 - 11.9811I$	0
$u = 0.444752 - 0.973604I$ $a = 0.528031 + 0.978953I$ $b = 1.37729 - 0.67188I$	$-7.6984 + 11.9811I$	0
$u = 0.397060 + 0.840047I$ $a = 0.009139 + 1.344670I$ $b = -1.37372 - 0.48631I$	$-9.28734 - 5.43922I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.397060 - 0.840047I$ $a = 0.009139 - 1.344670I$ $b = -1.37372 + 0.48631I$	$-9.28734 + 5.43922I$	0
$u = 0.458933 + 0.804344I$ $a = -0.234033 + 0.783748I$ $b = 0.264672 - 1.252910I$	$-4.11115 - 5.12689I$	0
$u = 0.458933 - 0.804344I$ $a = -0.234033 - 0.783748I$ $b = 0.264672 + 1.252910I$	$-4.11115 + 5.12689I$	0
$u = 1.009020 + 0.377651I$ $a = -1.061260 + 0.291632I$ $b = -0.416875 - 0.417140I$	$-0.560067 - 0.765120I$	0
$u = 1.009020 - 0.377651I$ $a = -1.061260 - 0.291632I$ $b = -0.416875 + 0.417140I$	$-0.560067 + 0.765120I$	0
$u = -0.062358 + 0.874395I$ $a = -0.364737 + 0.159007I$ $b = 0.962355 + 0.175040I$	$-0.68340 - 3.31809I$	0
$u = -0.062358 - 0.874395I$ $a = -0.364737 - 0.159007I$ $b = 0.962355 - 0.175040I$	$-0.68340 + 3.31809I$	0
$u = 0.454310 + 0.712668I$ $a = 0.801818 - 0.221496I$ $b = 1.187720 + 0.083087I$	$-2.53529 - 2.33569I$	0
$u = 0.454310 - 0.712668I$ $a = 0.801818 + 0.221496I$ $b = 1.187720 - 0.083087I$	$-2.53529 + 2.33569I$	0
$u = 0.844818 + 0.836713I$ $a = 0.304386 - 0.398418I$ $b = 1.35981 - 0.54134I$	$-8.87079 + 5.90908I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.844818 - 0.836713I$ $a = 0.304386 + 0.398418I$ $b = 1.35981 + 0.54134I$	$-8.87079 - 5.90908I$	0
$u = 0.231667 + 0.747835I$ $a = -0.012518 - 0.445587I$ $b = -0.193017 + 0.678428I$	$1.71361 - 3.34095I$	$-7.14073 + 5.07807I$
$u = 0.231667 - 0.747835I$ $a = -0.012518 + 0.445587I$ $b = -0.193017 - 0.678428I$	$1.71361 + 3.34095I$	$-7.14073 - 5.07807I$
$u = 0.719088$ $a = 2.14467$ $b = -1.58871$	-9.95403	-72.0690
$u = 1.265280 + 0.210357I$ $a = -0.126339 + 0.671818I$ $b = -0.200503 + 0.532779I$	$-1.19152 - 1.56254I$	0
$u = 1.265280 - 0.210357I$ $a = -0.126339 - 0.671818I$ $b = -0.200503 - 0.532779I$	$-1.19152 + 1.56254I$	0
$u = -1.306060 + 0.081958I$ $a = -0.837235 + 0.046967I$ $b = -0.818917 + 0.935827I$	$-0.68340 + 3.31809I$	0
$u = -1.306060 - 0.081958I$ $a = -0.837235 - 0.046967I$ $b = -0.818917 - 0.935827I$	$-0.68340 - 3.31809I$	0
$u = -0.595869 + 0.339811I$ $a = 1.37457 + 0.51483I$ $b = 1.135850 - 0.588468I$	$-3.44427 + 7.05663I$	$-11.58513 - 7.17023I$
$u = -0.595869 - 0.339811I$ $a = 1.37457 - 0.51483I$ $b = 1.135850 + 0.588468I$	$-3.44427 - 7.05663I$	$-11.58513 + 7.17023I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.364200 + 0.024112I$ $a = 2.71573 + 0.41433I$ $b = 1.128650 - 0.067233I$	$-4.74326 - 0.09745I$	0
$u = 1.364200 - 0.024112I$ $a = 2.71573 - 0.41433I$ $b = 1.128650 + 0.067233I$	$-4.74326 + 0.09745I$	0
$u = -1.366460 + 0.029279I$ $a = 1.223220 + 0.076417I$ $b = 1.033360 + 0.936789I$	$-4.82697 + 1.65745I$	0
$u = -1.366460 - 0.029279I$ $a = 1.223220 - 0.076417I$ $b = 1.033360 - 0.936789I$	$-4.82697 - 1.65745I$	0
$u = 1.290050 + 0.520157I$ $a = 0.614962 - 0.662756I$ $b = 1.088720 + 0.061864I$	$-4.82697 - 1.65745I$	0
$u = 1.290050 - 0.520157I$ $a = 0.614962 + 0.662756I$ $b = 1.088720 - 0.061864I$	$-4.82697 + 1.65745I$	0
$u = 1.40953 + 0.12805I$ $a = -2.21461 + 0.77406I$ $b = -1.45817 - 0.42165I$	$-11.93780 - 3.04537I$	0
$u = 1.40953 - 0.12805I$ $a = -2.21461 - 0.77406I$ $b = -1.45817 + 0.42165I$	$-11.93780 + 3.04537I$	0
$u = -1.38711 + 0.28497I$ $a = 0.264716 - 0.296527I$ $b = -0.011117 - 0.768662I$	$-3.44427 + 7.05663I$	0
$u = -1.38711 - 0.28497I$ $a = 0.264716 + 0.296527I$ $b = -0.011117 + 0.768662I$	$-3.44427 - 7.05663I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.43299 + 0.09516I$ $a = -0.1258650 - 0.0186642I$ $b = 0.305601 + 0.680349I$	$-6.60087 + 1.06308I$	0
$u = -1.43299 - 0.09516I$ $a = -0.1258650 + 0.0186642I$ $b = 0.305601 - 0.680349I$	$-6.60087 - 1.06308I$	0
$u = 1.44440 + 0.12650I$ $a = -2.42296 + 0.13068I$ $b = -1.172300 - 0.348245I$	$-4.11115 - 5.12689I$	0
$u = 1.44440 - 0.12650I$ $a = -2.42296 - 0.13068I$ $b = -1.172300 + 0.348245I$	$-4.11115 + 5.12689I$	0
$u = 0.530694$ $a = -10.8001$ $b = -0.156268$	-2.53018	-192.020
$u = -0.251570 + 0.421107I$ $a = -0.26379 - 2.00340I$ $b = -1.229010 + 0.199425I$	$-6.60087 + 1.06308I$	$-15.5655 - 0.4982I$
$u = -0.251570 - 0.421107I$ $a = -0.26379 + 2.00340I$ $b = -1.229010 - 0.199425I$	$-6.60087 - 1.06308I$	$-15.5655 + 0.4982I$
$u = -0.342720 + 0.342406I$ $a = -2.05882 - 0.92201I$ $b = -0.953270 + 0.548459I$	$1.71361 + 3.34095I$	$-7.14073 - 5.07807I$
$u = -0.342720 - 0.342406I$ $a = -2.05882 + 0.92201I$ $b = -0.953270 - 0.548459I$	$1.71361 - 3.34095I$	$-7.14073 + 5.07807I$
$u = -1.49740 + 0.26016I$ $a = 1.99549 + 0.47867I$ $b = 1.42581 - 0.12941I$	$-8.87079 + 5.90908I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.49740 - 0.26016I$ $a = 1.99549 - 0.47867I$ $b = 1.42581 + 0.12941I$	$-8.87079 - 5.90908I$	0
$u = -1.50364 + 0.23324I$ $a = 1.62278 + 0.88393I$ $b = 1.170740 - 0.442254I$	$-9.28734 + 5.43922I$	0
$u = -1.50364 - 0.23324I$ $a = 1.62278 - 0.88393I$ $b = 1.170740 + 0.442254I$	$-9.28734 - 5.43922I$	0
$u = -1.51258 + 0.29195I$ $a = -0.276538 + 0.634948I$ $b = 0.32567 + 1.44514I$	$-10.51240 + 9.13078I$	0
$u = -1.51258 - 0.29195I$ $a = -0.276538 - 0.634948I$ $b = 0.32567 - 1.44514I$	$-10.51240 - 9.13078I$	0
$u = -1.53328 + 0.16361I$ $a = -1.83362 - 0.39801I$ $b = -1.80406 - 0.33054I$	$-17.8245 + 2.1237I$	0
$u = -1.53328 - 0.16361I$ $a = -1.83362 + 0.39801I$ $b = -1.80406 + 0.33054I$	$-17.8245 - 2.1237I$	0
$u = -1.50776 + 0.32383I$ $a = -1.92923 - 0.67310I$ $b = -1.36228 + 0.48402I$	$-7.6984 + 11.9811I$	0
$u = -1.50776 - 0.32383I$ $a = -1.92923 + 0.67310I$ $b = -1.36228 - 0.48402I$	$-7.6984 - 11.9811I$	0
$u = 1.53693 + 0.15527I$ $a = 2.05996 - 0.14354I$ $b = 1.38923 + 0.60719I$	$-10.51240 - 9.13078I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.53693 - 0.15527I$ $a = 2.05996 + 0.14354I$ $b = 1.38923 - 0.60719I$	$-10.51240 + 9.13078I$	0
$u = -1.54388 + 0.20125I$ $a = 0.376558 - 0.067493I$ $b = -0.268156 - 1.180450I$	$-11.93780 + 3.04537I$	0
$u = -1.54388 - 0.20125I$ $a = 0.376558 + 0.067493I$ $b = -0.268156 + 1.180450I$	$-11.93780 - 3.04537I$	0
$u = -1.56736 + 0.14197I$ $a = -1.80095 - 0.55160I$ $b = -1.068740 + 0.079519I$	$-10.44390 + 0.43302I$	0
$u = -1.56736 - 0.14197I$ $a = -1.80095 + 0.55160I$ $b = -1.068740 - 0.079519I$	$-10.44390 - 0.43302I$	0
$u = 0.401467$ $a = -1.57968$ $b = 0.195871$	-0.820249	-11.7000
$u = -1.60418$ $a = -2.26280$ $b = -0.589285$	-9.95403	0
$u = -0.218129 + 0.234231I$ $a = -0.130714 + 1.149030I$ $b = 0.444722 + 0.888915I$	$-1.19152 + 1.56254I$	$-9.17228 - 1.36855I$
$u = -0.218129 - 0.234231I$ $a = -0.130714 - 1.149030I$ $b = 0.444722 - 0.888915I$	$-1.19152 - 1.56254I$	$-9.17228 + 1.36855I$
$u = -0.000170 + 0.316182I$ $a = 2.28289 + 2.44470I$ $b = 0.789115 - 0.457450I$	$-0.560067 - 0.765120I$	$-10.35165 + 1.08474I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.000170 - 0.316182I$ $a = 2.28289 - 2.44470I$ $b = 0.789115 + 0.457450I$	$-0.560067 + 0.765120I$	$-10.35165 - 1.08474I$
$u = -1.70709 + 0.15451I$ $a = 1.39938 + 0.39730I$ $b = 1.43731 + 0.34297I$	$-17.8245 - 2.1237I$	0
$u = -1.70709 - 0.15451I$ $a = 1.39938 - 0.39730I$ $b = 1.43731 - 0.34297I$	$-17.8245 + 2.1237I$	0
$u = 0.0384223$ $a = -17.9721$ $b = 0.580310$	-0.820249	-11.7000

III. $\boldsymbol{I^u_3 =}$
$\boldsymbol{\langle b,\ 3u^7+5u^6-7u^5-11u^4+5u^3+3u^2+a+7,\ u^8+u^7-3u^6-2u^5+3u^4+2u-1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2+1 \\ -u^4+2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -3u^7-5u^6+7u^5+11u^4-5u^3-3u^2-7 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -3u^7-5u^6+7u^5+11u^4-5u^3-3u^2-7 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^3-2u \\ -u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^6+3u^4-2u^2-1 \\ u^6-2u^4+u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^6-3u^4+2u^2+1 \\ -u^6+2u^4-u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -3u^7-6u^6+7u^5+14u^4-5u^3-5u^2-8 \\ u^6-2u^4+u^2 \end{pmatrix}$$

(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_8	$(u - 1)^8$
c_9, c_{12}	u^8
c_{10}	$(u + 1)^8$
c_{11}	$u^8 - 3u^7 + 7u^6 - 10u^5 + 11u^4 - 10u^3 + 6u^2 - 4u + 1$

(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_{11}	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$
c_7, c_8, c_{10}	$(y-1)^8$
c_9, c_{12}	y^8

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.180120 + 0.268597I$ $a = 1.194470 + 0.635084I$ $b = 0$	$-2.68559 - 1.13123I$	$-14.0862 + 1.5750I$
$u = 1.180120 - 0.268597I$ $a = 1.194470 - 0.635084I$ $b = 0$	$-2.68559 + 1.13123I$	$-14.0862 - 1.5750I$
$u = 0.108090 + 0.747508I$ $a = 0.637416 + 0.344390I$ $b = 0$	$0.51448 - 2.57849I$	$-10.94521 + 2.41352I$
$u = 0.108090 - 0.747508I$ $a = 0.637416 - 0.344390I$ $b = 0$	$0.51448 + 2.57849I$	$-10.94521 - 2.41352I$
$u = -1.37100$ $a = -0.687555$ $b = 0$	-8.14766	-19.2760
$u = -1.334530 + 0.318930I$ $a = 0.286111 - 0.344558I$ $b = 0$	$-4.02461 + 6.44354I$	$-18.3815 - 0.5907I$
$u = -1.334530 - 0.318930I$ $a = 0.286111 + 0.344558I$ $b = 0$	$-4.02461 - 6.44354I$	$-18.3815 + 0.5907I$
$u = 0.463640$ $a = -7.54843$ $b = 0$	-2.48997	37.1020

IV. $\boldsymbol{I^u_4 =}$
$\boldsymbol{\langle -16a^7+86b+\cdots+82a-115,\ a^8-9a^6-5a^5+18a^4+9a^3-11a^2-5a+1,\ u-1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-1\\0\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0\\1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}a\\0.186047a^7-0.430233a^6+\cdots-0.953488a+1.33721\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.186047a^7+0.430233a^6+\cdots+1.95349a-1.33721\\0.186047a^7-0.430233a^6+\cdots-0.953488a+1.33721\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.430233a^7-0.151163a^6+\cdots-2.26744a+1.18605\\1.20930a^7-0.546512a^6+\cdots-7.69767a-0.0581395\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\1.65116a^7-0.755814a^6+\cdots-12.8372a+0.430233\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\1.65116a^7-0.755814a^6+\cdots-12.8372a+0.430233\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0.430233a^7-0.151163a^6+\cdots-2.26744a+1.18605\\0.918605a^7-0.0930233a^6+\cdots-9.89535a-1.61628\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.395349a^7-0.476744a^6+\cdots-2.65116a+1.77907\\0.918605a^7-0.0930233a^6+\cdots-9.89535a-1.61628\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{11}{86}a^7+\frac{6}{43}a^6+\frac{41}{43}a^5-\frac{27}{43}a^4-\frac{57}{86}a^3+\frac{265}{43}a^2+\frac{223}{86}a-\frac{1705}{86}$

(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, c_8	$u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1$
c_9	$u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1$
c_{10}	$u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1$
c_{11}	$u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1$
c_{12}	$u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1$

(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_{11}	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$
c_7, c_8, c_{10}	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$
c_9, c_{12}	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.043770 + 0.152194I$ $b = 0.855237 + 0.665892I$	$0.51448 - 2.57849I$	$-10.94521 + 2.41352I$
$u = 1.00000$ $a = 1.043770 - 0.152194I$ $b = 0.855237 - 0.665892I$	$0.51448 + 2.57849I$	$-10.94521 - 2.41352I$
$u = 1.00000$ $a = -0.759875 + 0.104398I$ $b = -1.031810 + 0.655470I$	$-4.02461 + 6.44354I$	$-18.3815 - 0.5907I$
$u = 1.00000$ $a = -0.759875 - 0.104398I$ $b = -1.031810 - 0.655470I$	$-4.02461 - 6.44354I$	$-18.3815 + 0.5907I$
$u = 1.00000$ $a = -1.80990 + 0.33963I$ $b = -0.570868 - 0.730671I$	$-2.68559 + 1.13123I$	$-14.0862 - 1.5750I$
$u = 1.00000$ $a = -1.80990 - 0.33963I$ $b = -0.570868 + 0.730671I$	$-2.68559 - 1.13123I$	$-14.0862 + 1.5750I$
$u = 1.00000$ $a = 0.155540$ $b = 1.09818$	-8.14766	-19.2760
$u = 1.00000$ $a = 2.89645$ $b = -0.603304$	-2.48997	37.1020

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

(i) Arc colorings

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

(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_8, c_9	$u^2 + u - 1$
c_4, c_6, c_{10} c_{12}	$u^2 - u - 1$
c_5, c_{11}	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_8, c_9, c_{10} c_{12}	$y^2 - 3y + 1$
c_5, c_{11}	y^2

(vi) Complex Volumes and Cusp Shapes

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

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

(i) Arc colorings

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

(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_8, c_9	$u^2 + u - 1$
c_4, c_6, c_{10} c_{12}	$u^2 - u - 1$
c_5, c_{11}	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_8, c_9, c_{10} c_{12}	$y^2 - 3y + 1$
c_5, c_{11}	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -2.00000$ $b = 1.61803$	-9.86960	25.0000
$u = -1.61803$ $a = -2.00000$ $b = -0.618034$	-9.86960	25.0000

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2, c_7 c_8	$(u-1)^8(u^2+u-1)^2(u^8+u^7-3u^6-2u^5+3u^4+2u-1)$ $\cdot(u^{18}-3u^{17}+\cdots-5u-1)(u^{74}-9u^{73}+\cdots-25u-1)$
c_3, c_9	$u^8(u^2+u-1)^2(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(u^{18}+u^{17}+\cdots-5u-1)(u^{74}+3u^{73}+\cdots-384u-256)$
c_4, c_{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_5, c_{11}	$u^4(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^{18}-5u^{17}+\cdots-8u+4)(u^{37}+u^{36}+\cdots-9u+2)^2$
c_6, c_{12}	$u^8(u^2-u-1)^2(u^8+u^7-u^6-2u^5+u^4+2u^3-2u-1)$ $\cdot(u^{18}+u^{17}+\cdots-5u-1)(u^{74}+3u^{73}+\cdots-384u-256)$

VIII. Riley Polynomials

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