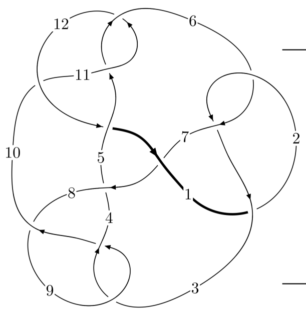
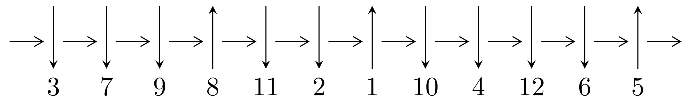
$12a_{0561}$ $(K12a_{0561})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle -u^5 + u^3 - u^2 + b - u,\ -u^5 + 2u^3 - u^2 + a - u + 1,\ u^7 - 2u^5 + u^4 + 2u^3 - u^2 + u + 1\rangle\\
I_2^u &= \langle u^8 - 2u^6 + 2u^4 + b,\ u^{23} - u^{22} + \cdots + 2a + 3,\ u^{24} + u^{23} + \cdots + 2u + 1\rangle\\
I_3^u &= \langle u^{23} - 5u^{21} + \cdots + 2b - u,\ 2u^{23} + u^{22} + \cdots + 2a + 1,\ u^{24} + u^{23} + \cdots + 2u + 1\rangle\\
I_4^u &= \langle -9u^{23} + 30u^{22} + \cdots + 4b + 26,\ u^{23} - 10u^{22} + \cdots + 8a - 34,\ u^{24} - 4u^{23} + \cdots - 12u + 4\rangle\\
I_5^u &= \langle -u^2 + b,\ -u^3 - u^2 + a + 1,\ u^4 - u^2 + 1\rangle\\
I_6^u &= \langle 3u^{23}a + 2u^{23} + \cdots + 2a + 8,\ 8u^{23}a + 2u^{22}a + \cdots + 6a + 4,\ u^{24} + u^{23} + \cdots + 2u^3 + 1\rangle\\
I_7^u &= \langle -u^2 + b,\ u^3 - u^2 + a - u + 1,\ u^4 - u^2 + 1\rangle\\
I_8^u &= \langle u^2 + b - 1,\ -u^3 + a - 1,\ u^4 - u^2 + 1\rangle\\
I_9^u &= \langle u^2 + b - 1,\ u^3 + a - u - 1,\ u^4 - u^2 + 1\rangle\\
I_{10}^u &= \langle b + 1,\ a,\ u - 1\rangle
\end{aligned}
$$

* 10 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 144 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. $I_1^u =$
$\langle -u^5+u^3-u^2+b-u,\ -u^5+2u^3-u^2+a-u+1,\ u^7-2u^5+u^4+2u^3-u^2+u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8, c_{10}	$y^7 + 12y^5 - 3y^4 + 58y^3 - 3y^2 + 11y - 1$
c_2, c_3, c_5 c_6, c_9, c_{11}	$y^7 - 4y^6 + 8y^5 - 7y^4 + 2y^3 + y^2 + 3y - 1$
c_4, c_7, c_{12}	$y^7 + 7y^6 + 28y^5 + 62y^4 + 90y^3 + 96y^2 + 45y - 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.323321 + 0.751928I$ $a = 0.22091 + 1.45384I$ $b = 0.70630 + 1.26451I$	$1.50830 + 2.81502I$	$-1.43908 - 1.09480I$
$u = 0.323321 - 0.751928I$ $a = 0.22091 - 1.45384I$ $b = 0.70630 - 1.26451I$	$1.50830 - 2.81502I$	$-1.43908 + 1.09480I$
$u = -1.209760 + 0.381906I$ $a = 1.45272 - 0.50136I$ $b = 1.21155 + 1.11972I$	$-10.84690 + 7.59135I$	$-15.8701 - 6.7751I$
$u = -1.209760 - 0.381906I$ $a = 1.45272 + 0.50136I$ $b = 1.21155 - 1.11972I$	$-10.84690 - 7.59135I$	$-15.8701 + 6.7751I$
$u = 1.159800 + 0.592772I$ $a = -2.18871 + 0.23437I$ $b = -0.85122 + 2.41814I$	$-5.8285 - 18.2895I$	$-10.4221 + 11.7034I$
$u = 1.159800 - 0.592772I$ $a = -2.18871 - 0.23437I$ $b = -0.85122 - 2.41814I$	$-5.8285 + 18.2895I$	$-10.4221 - 11.7034I$
$u = -0.546712$ $a = -0.969843$ $b = -0.133251$	-0.919438	-10.5380

II. $I_2^u = \langle u^8-2u^6+2u^4+b,\ u^{23}-u^{22}+\cdots+2a+3,\ u^{24}+u^{23}+\cdots+2u+1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{1}{2}u^{23}+\frac{1}{2}u^{22}+\cdots-u-\frac{3}{2} \\ -u^8+2u^6-2u^4 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ -u^3+u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{23}+u^{22}+\cdots-2u-2 \\ \frac{1}{2}u^{22}-\frac{5}{2}u^{20}+\cdots+\frac{1}{2}u+\frac{1}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^5-2u^3+u \\ u^5-u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{3}{2}u^{23}-\frac{21}{2}u^{21}+\cdots+\frac{5}{2}u+3 \\ \frac{1}{2}u^{22}-\frac{5}{2}u^{20}+\cdots+\frac{1}{2}u+\frac{1}{2} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^{23}+\frac{1}{2}u^{22}+\cdots-\frac{3}{2}u^2+\frac{1}{2} \\ -u^3+u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^{23}+\frac{1}{2}u^{22}+\cdots-u-\frac{3}{2} \\ -u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^{23}-\frac{7}{2}u^{21}+\cdots+\frac{3}{2}u+2 \\ u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -2u^{23}+16u^{21}+2u^{20}-60u^{19}-14u^{18}+132u^{17}+50u^{16}-176u^{15}-108u^{14}+124u^{13}+152u^{12}-4u^{11}-134u^{10}-68u^9+66u^8+50u^7-8u^6-16u^5-2u^4+12u^3+2u^2-8u-12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{24} + 10u^{23} + \cdots + 24u + 16$
c_2, c_6	$u^{24} - 4u^{23} + \cdots - 12u + 4$
c_3, c_5, c_9 c_{11}	$u^{24} + u^{23} + \cdots + 2u + 1$
c_4, c_{12}	$u^{24} + 3u^{23} + \cdots + 8u + 3$
c_7	$u^{24} - 12u^{23} + \cdots - 1436u + 276$
c_8, c_{10}	$u^{24} + 13u^{23} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{24} + 6y^{23} + \cdots + 1248y + 256$
c_2, c_6	$y^{24} - 10y^{23} + \cdots - 24y + 16$
c_3, c_5, c_9 c_{11}	$y^{24} - 13y^{23} + \cdots - 4y + 1$
c_4, c_{12}	$y^{24} + 15y^{23} + \cdots - 46y + 9$
c_7	$y^{24} - 2y^{23} + \cdots + 176264y + 76176$
c_8, c_{10}	$y^{24} - y^{23} + \cdots + 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.872385 + 0.264900I$ $a = -0.323474 + 1.214120I$ $b = -0.415052 - 0.487887I$	$-1.33365 - 4.85950I$	$-12.45920 + 5.77046I$
$u = 0.872385 - 0.264900I$ $a = -0.323474 - 1.214120I$ $b = -0.415052 + 0.487887I$	$-1.33365 + 4.85950I$	$-12.45920 - 5.77046I$
$u = -0.315716 + 0.809370I$ $a = 0.33853 - 2.31494I$ $b = 0.75319 - 1.86800I$	$-0.85756 - 7.78163I$	$-4.85194 + 4.83472I$
$u = -0.315716 - 0.809370I$ $a = 0.33853 + 2.31494I$ $b = 0.75319 + 1.86800I$	$-0.85756 + 7.78163I$	$-4.85194 - 4.83472I$
$u = 1.085000 + 0.487361I$ $a = 0.851652 - 0.459018I$ $b = -0.280563 + 0.198174I$	$-1.84490 - 4.33375I$	$-10.12719 + 4.87141I$
$u = 1.085000 - 0.487361I$ $a = 0.851652 + 0.459018I$ $b = -0.280563 - 0.198174I$	$-1.84490 + 4.33375I$	$-10.12719 - 4.87141I$
$u = -0.756777 + 0.219796I$ $a = -0.947046 - 0.628257I$ $b = -0.293717 + 0.337217I$	$-0.610616 + 0.203500I$	$-9.13505 + 0.22341I$
$u = -0.756777 - 0.219796I$ $a = -0.947046 + 0.628257I$ $b = -0.293717 - 0.337217I$	$-0.610616 - 0.203500I$	$-9.13505 - 0.22341I$
$u = 1.170110 + 0.334879I$ $a = 1.225630 + 0.246296I$ $b = 0.357167 - 1.279390I$	$-6.89501 - 3.48528I$	$-12.35004 + 3.84640I$
$u = 1.170110 - 0.334879I$ $a = 1.225630 - 0.246296I$ $b = 0.357167 + 1.279390I$	$-6.89501 + 3.48528I$	$-12.35004 - 3.84640I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.100620 + 0.522247I$ $a = 0.139238 + 0.659699I$ $b = -0.444574 - 0.623609I$	$-1.15502 + 9.82269I$	$-8.18318 - 9.91604I$
$u = -1.100620 - 0.522247I$ $a = 0.139238 - 0.659699I$ $b = -0.444574 + 0.623609I$	$-1.15502 - 9.82269I$	$-8.18318 + 9.91604I$
$u = -0.192309 + 0.742887I$ $a = -1.22926 - 1.35826I$ $b = -0.334849 - 1.104320I$	$-2.86629 - 0.02006I$	$-7.67881 - 0.81568I$
$u = -0.192309 - 0.742887I$ $a = -1.22926 + 1.35826I$ $b = -0.334849 + 1.104320I$	$-2.86629 + 0.02006I$	$-7.67881 + 0.81568I$
$u = -0.516542 + 0.554919I$ $a = -0.458840 + 0.974457I$ $b = 0.630180 + 0.307536I$	$1.74238 + 4.07387I$	$-2.10471 - 4.89426I$
$u = -0.516542 - 0.554919I$ $a = -0.458840 - 0.974457I$ $b = 0.630180 - 0.307536I$	$1.74238 - 4.07387I$	$-2.10471 + 4.89426I$
$u = -1.210320 + 0.293868I$ $a = 1.282240 + 0.074124I$ $b = 0.16762 + 2.00067I$	$-10.16720 - 1.16183I$	$-15.8009 + 0.1079I$
$u = -1.210320 - 0.293868I$ $a = 1.282240 - 0.074124I$ $b = 0.16762 - 2.00067I$	$-10.16720 + 1.16183I$	$-15.8009 - 0.1079I$
$u = 0.439637 + 0.612670I$ $a = 0.066881 - 0.351296I$ $b = 0.791483 + 0.085996I$	$2.85828 + 0.77209I$	$0.169658 - 0.914191I$
$u = 0.439637 - 0.612670I$ $a = 0.066881 + 0.351296I$ $b = 0.791483 - 0.085996I$	$2.85828 - 0.77209I$	$0.169658 + 0.914191I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.148140+0.576039I$ $a=-1.58681+0.02147I$ $b=-0.67603-1.92774I$	$-3.32912+12.94620I$	$-7.81680-8.29853I$
$u=-1.148140-0.576039I$ $a=-1.58681-0.02147I$ $b=-0.67603+1.92774I$	$-3.32912-12.94620I$	$-7.81680+8.29853I$
$u=\quad 1.173300+0.546469I$ $a=-0.858733+0.794056I$ $b=\quad 0.24514+1.86122I$	$-8.44001-9.78226I$	$-13.6619+6.4188I$
$u=\quad 1.173300-0.546469I$ $a=-0.858733-0.794056I$ $b=\quad 0.24514-1.86122I$	$-8.44001+9.78226I$	$-13.6619-6.4188I$

III.

$$I^u_3 = \langle u^{23} - 5u^{21} + \cdots + 2b - u,\ 2u^{23} + u^{22} + \cdots + 2a + 1,\ u^{24} + u^{23} + \cdots + 2u + 1 \rangle$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^{23} - \frac{1}{2}u^{22} + \cdots + \frac{3}{2}u - \frac{1}{2} \\ -\frac{1}{2}u^{23} + \frac{5}{2}u^{21} + \cdots - \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{23} - \frac{1}{2}u^{22} + \cdots + \frac{3}{2}u - \frac{1}{2} \\ -\frac{1}{2}u^{23} + \frac{5}{2}u^{21} + \cdots - \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^5 - 2u^3 + u \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{2}u^{23} - \frac{1}{2}u^{22} + \cdots + u + \frac{3}{2} \\ -\frac{1}{2}u^{22} + \frac{5}{2}u^{20} + \cdots - \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{2}u^{22} + \frac{5}{2}u^{20} + \cdots - \frac{1}{2}u + \frac{1}{2} \\ -\frac{1}{2}u^{23} + \frac{7}{2}u^{21} + \cdots - \frac{3}{2}u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{3}{2}u^{23} - \frac{1}{2}u^{22} + \cdots + u - \frac{1}{2} \\ -\frac{1}{2}u^{23} + \frac{5}{2}u^{21} + \cdots - \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{5}{2}u^{23} + \frac{1}{2}u^{22} + \cdots + u + \frac{1}{2} \\ \frac{1}{2}u^{23} + \frac{1}{2}u^{22} + \cdots - u - \frac{3}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -2u^{23} + 16u^{21} + 2u^{20} - 60u^{19} - 14u^{18} + 132u^{17} + 50u^{16} - 176u^{15} - 108u^{14} + 124u^{13} + 152u^{12} - 4u^{11} - 134u^{10} - 68u^9 + 66u^8 + 50u^7 - 8u^6 - 16u^5 - 2u^4 + 12u^3 + 2u^2 - 8u - 12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{24} + 13u^{23} + \cdots + 4u + 1$
c_2, c_3, c_6 c_9	$u^{24} + u^{23} + \cdots + 2u + 1$
c_4, c_7	$u^{24} + 3u^{23} + \cdots + 8u + 3$
c_5, c_{11}	$u^{24} - 4u^{23} + \cdots - 12u + 4$
c_{10}	$u^{24} + 10u^{23} + \cdots + 24u + 16$
c_{12}	$u^{24} - 12u^{23} + \cdots - 1436u + 276$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{24} - y^{23} + \cdots + 4y + 1$
c_2, c_3, c_6 c_9	$y^{24} - 13y^{23} + \cdots - 4y + 1$
c_4, c_7	$y^{24} + 15y^{23} + \cdots - 46y + 9$
c_5, c_{11}	$y^{24} - 10y^{23} + \cdots - 24y + 16$
c_{10}	$y^{24} + 6y^{23} + \cdots + 1248y + 256$
c_{12}	$y^{24} - 2y^{23} + \cdots + 176264y + 76176$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.872385 + 0.264900I$ $a = 0.93475 - 1.40984I$ $b = -1.23505 - 1.13274I$	$-1.33365 - 4.85950I$	$-12.45920 + 5.77046I$
$u = 0.872385 - 0.264900I$ $a = 0.93475 + 1.40984I$ $b = -1.23505 + 1.13274I$	$-1.33365 + 4.85950I$	$-12.45920 - 5.77046I$
$u = -0.315716 + 0.809370I$ $a = -0.14253 + 1.46556I$ $b = -0.65497 + 1.39733I$	$-0.85756 - 7.78163I$	$-4.85194 + 4.83472I$
$u = -0.315716 - 0.809370I$ $a = -0.14253 - 1.46556I$ $b = -0.65497 - 1.39733I$	$-0.85756 + 7.78163I$	$-4.85194 - 4.83472I$
$u = 1.085000 + 0.487361I$ $a = -2.54924 - 0.76910I$ $b = -2.05211 + 2.16225I$	$-1.84490 - 4.33375I$	$-10.12719 + 4.87141I$
$u = 1.085000 - 0.487361I$ $a = -2.54924 + 0.76910I$ $b = -2.05211 - 2.16225I$	$-1.84490 + 4.33375I$	$-10.12719 - 4.87141I$
$u = -0.756777 + 0.219796I$ $a = -1.34088 - 0.49415I$ $b = 0.283448 - 0.900890I$	$-0.610616 + 0.203500I$	$-9.13505 + 0.22341I$
$u = -0.756777 - 0.219796I$ $a = -1.34088 + 0.49415I$ $b = 0.283448 + 0.900890I$	$-0.610616 - 0.203500I$	$-9.13505 - 0.22341I$
$u = 1.170110 + 0.334879I$ $a = -1.27442 - 0.69688I$ $b = -1.38871 + 0.84297I$	$-6.89501 - 3.48528I$	$-12.35004 + 3.84640I$
$u = 1.170110 - 0.334879I$ $a = -1.27442 + 0.69688I$ $b = -1.38871 - 0.84297I$	$-6.89501 + 3.48528I$	$-12.35004 - 3.84640I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.100620 + 0.522247I$ $a = 2.57917 - 0.35492I$ $b = 1.66695 + 2.42094I$	$-1.15502 + 9.82269I$	$-8.18318 - 9.91604I$
$u = -1.100620 - 0.522247I$ $a = 2.57917 + 0.35492I$ $b = 1.66695 - 2.42094I$	$-1.15502 - 9.82269I$	$-8.18318 + 9.91604I$
$u = -0.192309 + 0.742887I$ $a = -0.145590 + 1.310270I$ $b = -0.402626 + 1.200440I$	$-2.86629 - 0.02006I$	$-7.67881 - 0.81568I$
$u = -0.192309 - 0.742887I$ $a = -0.145590 - 1.310270I$ $b = -0.402626 - 1.200440I$	$-2.86629 + 0.02006I$	$-7.67881 + 0.81568I$
$u = -0.516542 + 0.554919I$ $a = -0.97555 + 1.63616I$ $b = -1.43709 + 0.58926I$	$1.74238 + 4.07387I$	$-2.10471 - 4.89426I$
$u = -0.516542 - 0.554919I$ $a = -0.97555 - 1.63616I$ $b = -1.43709 - 0.58926I$	$1.74238 - 4.07387I$	$-2.10471 + 4.89426I$
$u = -1.210320 + 0.293868I$ $a = 1.131960 - 0.521366I$ $b = 1.152730 + 0.708697I$	$-10.16720 - 1.16183I$	$-15.8009 + 0.1079I$
$u = -1.210320 - 0.293868I$ $a = 1.131960 + 0.521366I$ $b = 1.152730 - 0.708697I$	$-10.16720 + 1.16183I$	$-15.8009 - 0.1079I$
$u = 0.439637 + 0.612670I$ $a = 0.61309 + 1.54085I$ $b = 1.11515 + 0.87846I$	$2.85828 + 0.77209I$	$0.169658 - 0.914191I$
$u = 0.439637 - 0.612670I$ $a = 0.61309 - 1.54085I$ $b = 1.11515 - 0.87846I$	$2.85828 - 0.77209I$	$0.169658 + 0.914191I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.148140 + 0.576039I$ $a = 2.26759 + 0.13614I$ $b = 0.99891 + 2.42525I$	$-3.32912 + 12.94620I$	$-7.81680 - 8.29853I$
$u = -1.148140 - 0.576039I$ $a = 2.26759 - 0.13614I$ $b = 0.99891 - 2.42525I$	$-3.32912 - 12.94620I$	$-7.81680 + 8.29853I$
$u = 1.173300 + 0.546469I$ $a = -2.09835 - 0.02884I$ $b = -1.04662 + 2.14658I$	$-8.44001 - 9.78226I$	$-13.6619 + 6.4188I$
$u = 1.173300 - 0.546469I$ $a = -2.09835 + 0.02884I$ $b = -1.04662 - 2.14658I$	$-8.44001 + 9.78226I$	$-13.6619 - 6.4188I$

IV. $\boldsymbol{I_4^u = \langle -9u^{23} + 30u^{22} + \cdots + 4b + 26,\ u^{23} - 10u^{22} + \cdots + 8a - 34,\ u^{24} - 4u^{23} + \cdots - 12u + 4\rangle}$

(i) Arc colorings

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

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

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

$$a_1 = \begin{pmatrix} -\frac{1}{8}u^{23} + \frac{5}{4}u^{22} + \cdots - \frac{41}{8}u + \frac{17}{4} \\ \frac{9}{4}u^{23} - \frac{15}{2}u^{22} + \cdots + \frac{81}{4}u - \frac{13}{2} \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -0.625000u^{23} + 5.25000u^{22} + \cdots - 22.6250u + 15.2500 \\ -\frac{9}{4}u^{23} + \frac{15}{2}u^{22} + \cdots - \frac{93}{4}u + \frac{25}{2} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} \frac{9}{8}u^{23} - \frac{15}{4}u^{22} + \cdots + \frac{61}{8}u - \frac{7}{4} \\ \frac{5}{4}u^{23} - \frac{7}{2}u^{22} + \cdots + \frac{25}{4}u - \frac{3}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{49}{8}u^{23} - \frac{77}{4}u^{22} + \cdots + \frac{369}{8}u - \frac{57}{4} \\ \frac{15}{4}u^{23} - \frac{21}{2}u^{22} + \cdots + \frac{83}{4}u - \frac{7}{2} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{3}{8}u^{23} - \frac{19}{4}u^{22} + \cdots + \frac{203}{8}u - \frac{67}{4} \\ \frac{11}{4}u^{23} - \frac{21}{2}u^{22} + \cdots + \frac{131}{4}u - \frac{31}{2} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{3}{8}u^{23} + \frac{5}{4}u^{22} + \cdots - \frac{55}{8}u + \frac{21}{4} \\ -\frac{1}{4}u^{23} + \frac{1}{2}u^{22} + \cdots - \frac{9}{4}u + \frac{3}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{23} - 20u^{22} + 12u^{21} + 78u^{20} - 128u^{19} - 88u^{18} + 340u^{17} - 98u^{16} - 440u^{15} + 420u^{14} + 232u^{13} - 598u^{12} + 174u^{11} + 404u^{10} - 406u^9 - 36u^8 + 290u^7 - 156u^6 - 76u^5 + 126u^4 - 26u^3 - 58u^2 + 56u - 18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{24} + 13u^{23} + \cdots + 4u + 1$
c_2, c_5, c_6 c_{11}	$u^{24} + u^{23} + \cdots + 2u + 1$
c_3, c_9	$u^{24} - 4u^{23} + \cdots - 12u + 4$
c_4	$u^{24} - 12u^{23} + \cdots - 1436u + 276$
c_7, c_{12}	$u^{24} + 3u^{23} + \cdots + 8u + 3$
c_8	$u^{24} + 10u^{23} + \cdots + 24u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{24} - y^{23} + \cdots + 4y + 1$
c_2, c_5, c_6 c_{11}	$y^{24} - 13y^{23} + \cdots - 4y + 1$
c_3, c_9	$y^{24} - 10y^{23} + \cdots - 24y + 16$
c_4	$y^{24} - 2y^{23} + \cdots + 176264y + 76176$
c_7, c_{12}	$y^{24} + 15y^{23} + \cdots - 46y + 9$
c_8	$y^{24} + 6y^{23} + \cdots + 1248y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.698657 + 0.763262I$ $a = 0.140948 + 0.781183I$ $b = -0.444574 + 0.623609I$	$-1.15502 - 9.82269I$	$-8.18318 + 9.91604I$
$u = 0.698657 - 0.763262I$ $a = 0.140948 - 0.781183I$ $b = -0.444574 - 0.623609I$	$-1.15502 + 9.82269I$	$-8.18318 - 9.91604I$
$u = 0.326549 + 0.852618I$ $a = -0.25129 - 2.21854I$ $b = -0.67603 - 1.92774I$	$-3.32912 + 12.94620I$	$-7.81680 - 8.29853I$
$u = 0.326549 - 0.852618I$ $a = -0.25129 + 2.21854I$ $b = -0.67603 + 1.92774I$	$-3.32912 - 12.94620I$	$-7.81680 + 8.29853I$
$u = -0.926567 + 0.601992I$ $a = -0.021753 + 1.036510I$ $b = -0.415052 + 0.487887I$	$-1.33365 + 4.85950I$	$-12.45920 - 5.77046I$
$u = -0.926567 - 0.601992I$ $a = -0.021753 - 1.036510I$ $b = -0.415052 - 0.487887I$	$-1.33365 - 4.85950I$	$-12.45920 + 5.77046I$
$u = 0.601776 + 0.655258I$ $a = 0.279930 - 0.116255I$ $b = 0.791483 - 0.085996I$	$2.85828 - 0.77209I$	$0.169658 + 0.914191I$
$u = 0.601776 - 0.655258I$ $a = 0.279930 + 0.116255I$ $b = 0.791483 + 0.085996I$	$2.85828 + 0.77209I$	$0.169658 - 0.914191I$
$u = -0.678263 + 0.539058I$ $a = -0.964344 - 0.372340I$ $b = -0.293717 - 0.337217I$	$-0.610616 - 0.203500I$	$-9.13505 - 0.22341I$
$u = -0.678263 - 0.539058I$ $a = -0.964344 + 0.372340I$ $b = -0.293717 + 0.337217I$	$-0.610616 + 0.203500I$	$-9.13505 + 0.22341I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.980297 + 0.588649I$ $a = 0.113521 + 0.705035I$ $b = 0.630180 - 0.307536I$	$1.74238 - 4.07387I$	$-2.10471 + 4.89426I$
$u = 0.980297 - 0.588649I$ $a = 0.113521 - 0.705035I$ $b = 0.630180 + 0.307536I$	$1.74238 + 4.07387I$	$-2.10471 - 4.89426I$
$u = -1.121890 + 0.265387I$ $a = -1.181480 + 0.301677I$ $b = -0.334849 - 1.104320I$	$-2.86629 - 0.02006I$	$-7.67881 - 0.81568I$
$u = -1.121890 - 0.265387I$ $a = -1.181480 - 0.301677I$ $b = -0.334849 + 1.104320I$	$-2.86629 + 0.02006I$	$-7.67881 + 0.81568I$
$u = 0.931338 + 0.696367I$ $a = 0.833175 - 0.533883I$ $b = -0.280563 - 0.198174I$	$-1.84490 + 4.33375I$	$-10.12719 - 4.87141I$
$u = 0.931338 - 0.696367I$ $a = 0.833175 + 0.533883I$ $b = -0.280563 + 0.198174I$	$-1.84490 - 4.33375I$	$-10.12719 + 4.87141I$
$u = 0.085720 + 0.808442I$ $a = 1.02986 - 1.56270I$ $b = 0.357167 - 1.279390I$	$-6.89501 - 3.48528I$	$-12.35004 + 3.84640I$
$u = 0.085720 - 0.808442I$ $a = 1.02986 + 1.56270I$ $b = 0.357167 + 1.279390I$	$-6.89501 + 3.48528I$	$-12.35004 - 3.84640I$
$u = -1.215740 + 0.207825I$ $a = 1.215180 - 0.172607I$ $b = 0.24514 + 1.86122I$	$-8.44001 - 9.78226I$	$-13.6619 + 6.4188I$
$u = -1.215740 - 0.207825I$ $a = 1.215180 + 0.172607I$ $b = 0.24514 - 1.86122I$	$-8.44001 + 9.78226I$	$-13.6619 - 6.4188I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.129130 + 0.560846I$ $a = 1.60964 + 0.09043I$ $b = 0.75319 - 1.86800I$	$-0.85756 - 7.78163I$	$-4.85194 + 4.83472I$
$u = 1.129130 - 0.560846I$ $a = 1.60964 - 0.09043I$ $b = 0.75319 + 1.86800I$	$-0.85756 + 7.78163I$	$-4.85194 - 4.83472I$
$u = 1.189000 + 0.481105I$ $a = -1.053390 + 0.667687I$ $b = 0.16762 + 2.00067I$	$-10.16720 - 1.16183I$	$-15.8009 + 0.1079I$
$u = 1.189000 - 0.481105I$ $a = -1.053390 - 0.667687I$ $b = 0.16762 - 2.00067I$	$-10.16720 + 1.16183I$	$-15.8009 - 0.1079I$

V. $\boldsymbol{I_5^u = \langle -u^2 + b,\ -u^3 - u^2 + a + 1,\ u^4 - u^2 + 1 \rangle}$

(i) Arc colorings

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

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

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

$$a_1 = \begin{pmatrix} u^3 + u^2 - 1 \\ u^2 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 2u^3 + u^2 - 1 \\ u^2 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^3 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^3 - 2u^2 + 1 \\ -u^2 - u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u - 1 \\ u^3 - u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^3 + 2u^2 - 1 \\ u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 + u^2 - u - 1 \\ u^2 - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12u^2 - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.866025 + 0.500000I$ $a = -0.50000 + 1.86603I$ $b = 0.500000 + 0.866025I$	$-6.08965I$	$-6.00000 + 10.39230I$
$u = 0.866025 - 0.500000I$ $a = -0.50000 - 1.86603I$ $b = 0.500000 - 0.866025I$	$6.08965I$	$-6.00000 - 10.39230I$
$u = -0.866025 + 0.500000I$ $a = -0.500000 + 0.133975I$ $b = 0.500000 - 0.866025I$	$6.08965I$	$-6.00000 - 10.39230I$
$u = -0.866025 - 0.500000I$ $a = -0.500000 - 0.133975I$ $b = 0.500000 + 0.866025I$	$-6.08965I$	$-6.00000 + 10.39230I$

VI. $I^u_6 =$
$\langle 3u^{23}a+2u^{23}+\cdots+2a+8,\ 8u^{23}a+2u^{22}a+\cdots+6a+4,\ u^{24}+u^{23}+\cdots+2u^3+1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a \\ -\frac{3}{4}u^{23}a - \frac{1}{2}u^{23} + \cdots - \frac{1}{2}a - 2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{2}u^{22}a - \frac{3}{2}u^{23} + \cdots + \frac{3}{2}a - \frac{1}{2} \\ \frac{1}{4}u^{22}a + \frac{3}{2}u^{23} + \cdots + \frac{1}{2}a - \frac{1}{2}u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^5 - 2u^3 + u \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{23}a + 2u^{23} + \cdots - \frac{3}{4}u + \frac{7}{4} \\ -\frac{3}{2}u^{23}a - \frac{1}{2}u^{23} + \cdots - \frac{3}{2}a + \frac{3}{4}u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{3}{2}u^{23}a + 4u^{23} + \cdots + \frac{3}{2}a + \frac{7}{2} \\ \frac{3}{4}u^{23}a + u^{23} + \cdots - u^2 - \frac{1}{2}u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{3}{4}u^{22}a - 2u^{23} + \cdots + u - \frac{3}{2} \\ -\frac{1}{2}u^{23}a + \frac{1}{2}u^{23} + \cdots - \frac{3}{4}a - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^{23}a + u^{23} + \cdots + \frac{3}{2}a - \frac{3}{4} \\ \frac{3}{2}u^{23}a + \frac{1}{2}u^{23} + \cdots + \frac{3}{2}a + \frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{23} + 2u^{22} - 20u^{21} - 12u^{20} + 52u^{19} + 32u^{18} - 86u^{17} - 52u^{16} + 102u^{15} + 54u^{14} - 92u^{13} - 30u^{12} + 70u^{11} - 4u^{10} - 52u^9 + 30u^8 + 38u^7 - 26u^6 - 26u^5 + 14u^4 + 8u^3 - 2u^2 - 4u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8, c_{10}	$(u^{24} + 11u^{23} + \cdots + 10u^2 + 1)^2$
c_2, c_3, c_5 c_6, c_9, c_{11}	$(u^{24} + u^{23} + \cdots + 2u^3 + 1)^2$
c_4, c_7, c_{12}	$(u^{24} + 3u^{23} + \cdots + 24u + 16)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8, c_{10}	$(y^{24}+5y^{23}+\cdots+20y+1)^2$
c_2, c_3, c_5 c_6, c_9, c_{11}	$(y^{24}-11y^{23}+\cdots+10y^2+1)^2$
c_4, c_7, c_{12}	$(y^{24}+y^{23}+\cdots+1248y+256)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.673584+0.693562I$ $a=-0.187427+0.846591I$ $b=\ \ 0.437063+0.503858I$	$1.08130+5.29622I$	$-3.89211-6.28296I$
$u=-0.673584+0.693562I$ $a=-0.291150+0.030306I$ $b=-0.835137-0.166242I$	$1.08130+5.29622I$	$-3.89211-6.28296I$
$u=-0.673584-0.693562I$ $a=-0.187427-0.846591I$ $b=\ \ 0.437063-0.503858I$	$1.08130-5.29622I$	$-3.89211+6.28296I$
$u=-0.673584-0.693562I$ $a=-0.291150-0.030306I$ $b=-0.835137+0.166242I$	$1.08130-5.29622I$	$-3.89211+6.28296I$
$u=\ \ 0.813349+0.704643I$ $a=\ \ 0.876273-0.562837I$ $b=-0.149388-0.336857I$	$-2.35506-2.67607I$	$-11.61139+3.32415I$
$u=\ \ 0.813349+0.704643I$ $a=\ \ 0.039587+0.868673I$ $b=-0.189251+0.635297I$	$-2.35506-2.67607I$	$-11.61139+3.32415I$
$u=\ \ 0.813349-0.704643I$ $a=\ \ 0.876273+0.562837I$ $b=-0.149388+0.336857I$	$-2.35506+2.67607I$	$-11.61139-3.32415I$
$u=\ \ 0.813349-0.704643I$ $a=\ \ 0.039587-0.868673I$ $b=-0.189251-0.635297I$	$-2.35506+2.67607I$	$-11.61139-3.32415I$
$u=-0.928673+0.614578I$ $a=-0.849267-0.512377I$ $b=\ \ 0.195140-0.099707I$	$0.328380-0.252703I$	$-5.61015+0.96511I$
$u=-0.928673+0.614578I$ $a=-0.293437+0.612548I$ $b=-0.793906-0.293423I$	$0.328380-0.252703I$	$-5.61015+0.96511I$

Solutions to I_6^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.928673 - 0.614578I$ $a = -0.849267 + 0.512377I$ $b = 0.195140 + 0.099707I$	$0.328380 + 0.252703I$	$-5.61015 - 0.96511I$
$u = -0.928673 - 0.614578I$ $a = -0.293437 - 0.612548I$ $b = -0.793906 + 0.293423I$	$0.328380 + 0.252703I$	$-5.61015 - 0.96511I$
$u = 1.059150 + 0.358290I$ $a = 0.894053 - 0.453200I$ $b = -0.149388 + 0.336857I$	$-2.35506 + 2.67607I$	$-11.61139 - 3.32415I$
$u = 1.059150 + 0.358290I$ $a = -2.07144 + 0.44659I$ $b = -0.23092 + 2.60789I$	$-2.35506 + 2.67607I$	$-11.61139 - 3.32415I$
$u = 1.059150 - 0.358290I$ $a = 0.894053 + 0.453200I$ $b = -0.149388 - 0.336857I$	$-2.35506 - 2.67607I$	$-11.61139 + 3.32415I$
$u = 1.059150 - 0.358290I$ $a = -2.07144 - 0.44659I$ $b = -0.23092 - 2.60789I$	$-2.35506 - 2.67607I$	$-11.61139 + 3.32415I$
$u = -1.001220 + 0.511096I$ $a = -0.855740 - 0.482886I$ $b = 0.195140 + 0.099707I$	$0.328380 + 0.252703I$	$-5.61015 - 0.96511I$
$u = -1.001220 + 0.511096I$ $a = -1.54622 + 0.71600I$ $b = -1.34179 - 1.21490I$	$0.328380 + 0.252703I$	$-5.61015 - 0.96511I$
$u = -1.001220 - 0.511096I$ $a = -0.855740 + 0.482886I$ $b = 0.195140 - 0.099707I$	$0.328380 - 0.252703I$	$-5.61015 + 0.96511I$
$u = -1.001220 - 0.511096I$ $a = -1.54622 - 0.71600I$ $b = -1.34179 + 1.21490I$	$0.328380 - 0.252703I$	$-5.61015 + 0.96511I$

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.065560 + 0.419774I$ $a = 0.236066 + 0.782241I$ $b = -0.189251 - 0.635297I$	$-2.35506 + 2.67607I$	$-11.61139 - 3.32415I$
$u = -1.065560 + 0.419774I$ $a = 1.82622 + 0.97204I$ $b = -0.23092 + 2.60789I$	$-2.35506 + 2.67607I$	$-11.61139 - 3.32415I$
$u = -1.065560 - 0.419774I$ $a = 0.236066 - 0.782241I$ $b = -0.189251 + 0.635297I$	$-2.35506 - 2.67607I$	$-11.61139 + 3.32415I$
$u = -1.065560 - 0.419774I$ $a = 1.82622 - 0.97204I$ $b = -0.23092 - 2.60789I$	$-2.35506 - 2.67607I$	$-11.61139 + 3.32415I$
$u = 0.228351 + 0.822417I$ $a = 1.06886 - 1.26863I$ $b = 0.218871 - 1.132270I$	$-5.63436 + 4.73566I$	$-10.88636 - 2.91588I$
$u = 0.228351 + 0.822417I$ $a = -0.52699 - 2.14743I$ $b = -0.64283 - 1.72007I$	$-5.63436 + 4.73566I$	$-10.88636 - 2.91588I$
$u = 0.228351 - 0.822417I$ $a = 1.06886 + 1.26863I$ $b = 0.218871 + 1.132270I$	$-5.63436 - 4.73566I$	$-10.88636 + 2.91588I$
$u = 0.228351 - 0.822417I$ $a = -0.52699 + 2.14743I$ $b = -0.64283 + 1.72007I$	$-5.63436 - 4.73566I$	$-10.88636 + 2.91588I$
$u = 1.051290 + 0.529712I$ $a = -0.081995 + 0.707393I$ $b = 0.437063 - 0.503858I$	$1.08130 - 5.29622I$	$-3.89211 + 6.28296I$
$u = 1.051290 + 0.529712I$ $a = 1.68869 + 0.41227I$ $b = 1.12931 - 1.61414I$	$1.08130 - 5.29622I$	$-3.89211 + 6.28296I$

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.051290 - 0.529712I$ $a = -0.081995 - 0.707393I$ $b = 0.437063 + 0.503858I$	$1.08130 + 5.29622I$	$-3.89211 - 6.28296I$
$u = 1.051290 - 0.529712I$ $a = 1.68869 - 0.41227I$ $b = 1.12931 + 1.61414I$	$1.08130 + 5.29622I$	$-3.89211 - 6.28296I$
$u = 1.177390 + 0.234520I$ $a = 1.147630 + 0.271970I$ $b = 0.218871 - 1.132270I$	$-5.63436 + 4.73566I$	$-10.88636 - 2.91588I$
$u = 1.177390 + 0.234520I$ $a = -1.353580 - 0.137275I$ $b = -0.29717 + 1.94311I$	$-5.63436 + 4.73566I$	$-10.88636 - 2.91588I$
$u = 1.177390 - 0.234520I$ $a = 1.147630 - 0.271970I$ $b = 0.218871 + 1.132270I$	$-5.63436 - 4.73566I$	$-10.88636 + 2.91588I$
$u = 1.177390 - 0.234520I$ $a = -1.353580 + 0.137275I$ $b = -0.29717 - 1.94311I$	$-5.63436 - 4.73566I$	$-10.88636 + 2.91588I$
$u = -1.152400 + 0.519393I$ $a = 0.970487 + 0.853116I$ $b = -0.29717 + 1.94311I$	$-5.63436 + 4.73566I$	$-10.88636 - 2.91588I$
$u = -1.152400 + 0.519393I$ $a = -1.48727 + 0.13129I$ $b = -0.64283 - 1.72007I$	$-5.63436 + 4.73566I$	$-10.88636 - 2.91588I$
$u = -1.152400 - 0.519393I$ $a = 0.970487 - 0.853116I$ $b = -0.29717 - 1.94311I$	$-5.63436 - 4.73566I$	$-10.88636 + 2.91588I$
$u = -1.152400 - 0.519393I$ $a = -1.48727 - 0.13129I$ $b = -0.64283 + 1.72007I$	$-5.63436 - 4.73566I$	$-10.88636 + 2.91588I$

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.320890+0.627041I$ $a=\ \ 0.167757-0.365090I$ $b=-0.835137+0.166242I$	$1.08130-5.29622I$	$-3.89211+6.28296I$
$u=-0.320890+0.627041I$ $a=\ \ 0.67130-2.82650I$ $b=\ \ 1.12931-1.61414I$	$1.08130-5.29622I$	$-3.89211+6.28296I$
$u=-0.320890-0.627041I$ $a=\ \ 0.167757+0.365090I$ $b=-0.835137-0.166242I$	$1.08130+5.29622I$	$-3.89211-6.28296I$
$u=-0.320890-0.627041I$ $a=\ \ 0.67130+2.82650I$ $b=\ \ 1.12931+1.61414I$	$1.08130+5.29622I$	$-3.89211-6.28296I$
$u=\ \ 0.312794+0.462406I$ $a=\ \ 1.007250+0.906155I$ $b=-0.793906+0.293423I$	$0.328380+0.252703I$	$-5.61015-0.96511I$
$u=\ \ 0.312794+0.462406I$ $a=-1.04965-3.26660I$ $b=-1.34179-1.21490I$	$0.328380+0.252703I$	$-5.61015-0.96511I$
$u=\ \ 0.312794-0.462406I$ $a=\ \ 1.007250-0.906155I$ $b=-0.793906-0.293423I$	$0.328380-0.252703I$	$-5.61015+0.96511I$
$u=\ \ 0.312794-0.462406I$ $a=-1.04965+3.26660I$ $b=-1.34179+1.21490I$	$0.328380-0.252703I$	$-5.61015+0.96511I$

VII. $\boldsymbol{I^u_7 = \langle -u^2 + b,\ u^3 - u^2 + a - u + 1,\ u^4 - u^2 + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^2 - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_7	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.866025 + 0.500000I$ $a = 0.366025 + 0.366025I$ $b = 0.500000 + 0.866025I$	$-2.02988I$	$-6.00000 + 3.46410I$
$u = 0.866025 - 0.500000I$ $a = 0.366025 - 0.366025I$ $b = 0.500000 - 0.866025I$	$2.02988I$	$-6.00000 - 3.46410I$
$u = -0.866025 + 0.500000I$ $a = -1.36603 - 1.36603I$ $b = 0.500000 - 0.866025I$	$2.02988I$	$-6.00000 - 3.46410I$
$u = -0.866025 - 0.500000I$ $a = -1.36603 + 1.36603I$ $b = 0.500000 + 0.866025I$	$-2.02988I$	$-6.00000 + 3.46410I$

VIII. $\boldsymbol{I_8^u = \langle u^2 + b - 1,\ -u^3 + a - 1,\ u^4 - u^2 + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^2 - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.866025 + 0.500000I$ $a = 1.00000 + 1.00000I$ $b = 0.500000 - 0.866025I$	$-2.02988I$	$-6.00000 + 3.46410I$
$u = 0.866025 - 0.500000I$ $a = 1.00000 - 1.00000I$ $b = 0.500000 + 0.866025I$	$2.02988I$	$-6.00000 - 3.46410I$
$u = -0.866025 + 0.500000I$ $a = 1.00000 + 1.00000I$ $b = 0.500000 + 0.866025I$	$2.02988I$	$-6.00000 - 3.46410I$
$u = -0.866025 - 0.500000I$ $a = 1.00000 - 1.00000I$ $b = 0.500000 - 0.866025I$	$-2.02988I$	$-6.00000 + 3.46410I$

IX. $I_9^u = \langle u^2 + b - 1,\ u^3 + a - u - 1,\ u^4 - u^2 + 1\rangle$

(i) Arc colorings

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

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

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

$$a_1 = \begin{pmatrix} -u^3 + u + 1 \\ -u^2 + 1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -2u^3 + 2u + 1 \\ -u^3 - u^2 + 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^3 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^2 + u + 2 \\ -u^3 - u^2 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3 + u^2 \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^3 - u^2 + u + 2 \\ -u^2 + 1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_9	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.866025 + 0.500000I$ $a = 1.86603 - 0.50000I$ $b = 0.500000 - 0.866025I$	$2.02988I$	$-6.00000 - 3.46410I$
$u = 0.866025 - 0.500000I$ $a = 1.86603 + 0.50000I$ $b = 0.500000 + 0.866025I$	$-2.02988I$	$-6.00000 + 3.46410I$
$u = -0.866025 + 0.500000I$ $a = 0.133975 - 0.500000I$ $b = 0.500000 + 0.866025I$	$-2.02988I$	$-6.00000 + 3.46410I$
$u = -0.866025 - 0.500000I$ $a = 0.133975 + 0.500000I$ $b = 0.500000 - 0.866025I$	$2.02988I$	$-6.00000 - 3.46410I$

X. $I^u_{10} = \langle b+1,\ a,\ u-1\rangle$

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -18$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{10}	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0$ $b = -1.00000$	-4.93480	-18.0000

XI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_8, c_{10}	$(u+1)(u^2-u+1)^8(u^7+4u^6+8u^5+7u^4+2u^3-u^2+3u+1)$ $\cdot(u^{24}+10u^{23}+\cdots+24u+16)(u^{24}+11u^{23}+\cdots+10u^2+1)^2$ $\cdot(u^{24}+13u^{23}+\cdots+4u+1)^2$
c_2, c_3, c_5 c_6, c_9, c_{11}	$(u-1)(u^4-u^2+1)^4(u^7-2u^5+u^4+2u^3-u^2+u+1)$ $\cdot(u^{24}-4u^{23}+\cdots-12u+4)(u^{24}+u^{23}+\cdots+2u+1)^2$ $\cdot(u^{24}+u^{23}+\cdots+2u^3+1)^2$
c_4, c_7, c_{12}	$u(u^4-u^2+1)^4(u^7-3u^6+8u^5-10u^4+12u^3-6u^2+3u+3)$ $\cdot(u^{24}-12u^{23}+\cdots-1436u+276)(u^{24}+3u^{23}+\cdots+24u+16)^2$ $\cdot(u^{24}+3u^{23}+\cdots+8u+3)^2$

XII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8, c_{10}	$(y-1)(y^2+y+1)^8(y^7+12y^5-3y^4+58y^3-3y^2+11y-1)$ $\cdot\,((y^{24}-y^{23}+\cdots+4y+1)^2)(y^{24}+5y^{23}+\cdots+20y+1)^2$ $\cdot\,(y^{24}+6y^{23}+\cdots+1248y+256)$
c_2, c_3, c_5 c_6, c_9, c_{11}	$(y-1)(y^2-y+1)^8(y^7-4y^6+8y^5-7y^4+2y^3+y^2+3y-1)$ $\cdot\,((y^{24}-13y^{23}+\cdots-4y+1)^2)(y^{24}-11y^{23}+\cdots+10y^2+1)^2$ $\cdot\,(y^{24}-10y^{23}+\cdots-24y+16)$
c_4, c_7, c_{12}	$y(y^2-y+1)^8(y^7+7y^6+28y^5+62y^4+90y^3+96y^2+45y-9)$ $\cdot\,(y^{24}-2y^{23}+\cdots+176264y+76176)$ $\cdot\,((y^{24}+y^{23}+\cdots+1248y+256)^2)(y^{24}+15y^{23}+\cdots-46y+9)^2$