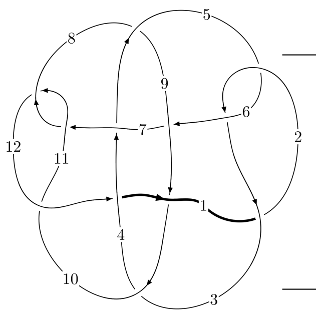
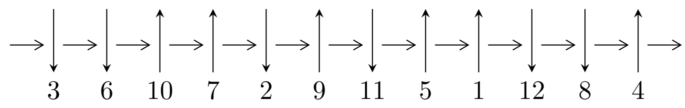
$12a_{0426}$ $(K12a_{0426})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 5u^{17} - 11u^{16} + \cdots + 3b - 11,\ u^{17} + u^{16} + \cdots + 2a + 4,\ u^{18} - 3u^{17} + \cdots - 6u + 2\rangle \\
I_2^u &= \langle 2.93297 \times 10^{19}u^{49} - 3.08421 \times 10^{20}u^{48} + \cdots + 4.46875 \times 10^{17}b - 5.17754 \times 10^{20}, \\
&\quad - 2.95147 \times 10^{19}u^{49} + 6.16285 \times 10^{20}u^{48} + \cdots + 5.80937 \times 10^{18}a + 6.41388 \times 10^{21}, \\
&\quad u^{50} - 11u^{49} + \cdots - 165u + 13\rangle \\
I_3^u &= \langle -u^5a - u^5 + 2u^3a + u^3 - 2au + b - u + 1,\ 2u^4a + u^3a - 3u^4 - 2u^2a - 2u^3 + a^2 - 2au + u^2 + 3u + 2, \\
&\quad u^6 + u^5 - u^4 - 2u^3 + u + 1\rangle \\
I_4^u &= \langle u^5 - u^3 + b + u,\ u^3 + a,\ u^6 + u^5 - u^4 - 2u^3 + u + 1\rangle \\
I_5^u &= \langle -2u^{43}a - 4u^{42}a + \cdots + 4b - 65,\ 50u^{43}a - 95u^{43} + \cdots - 468a + 943,\ u^{44} + 3u^{43} + \cdots - 14u - 1\rangle \\
I_6^u &= \langle 3u^{15} + 5u^{14} - 4u^{13} - 18u^{12} - 11u^{11} + 4u^{10} + 4u^9 + u^8 + 21u^7 + 32u^6 + 22u^5 + 9u^4 + 10u^3 + 5u^2 + b - u - \\
&\quad - 7u^{15} - 28u^{14} + \cdots + 2a - 22,\ u^{16} + 4u^{15} + \cdots + 8u + 2\rangle \\
I_7^u &= \langle -u^2a + b - 1,\ a^2 + 2au + 2u^2 + a + 3u + 2,\ u^3 + u^2 - 1\rangle \\
I_8^u &= \langle -u^3a - u^2a - u^3 + au + 2b + 1,\ -u^2a + u^3 + a^2 + au - 2u^2 + a - u + 2,\ u^4 - u^2 + 1\rangle \\
I_9^u &= \langle -71757a^7 + 7931089b + \cdots - 9811314a + 3141666, \\
&\quad a^8 + 6a^6 - 6a^5 + 26a^4 - 18a^3 + 87a^2 - 60a + 73,\ u - 1\rangle
\end{aligned}$$

* 9 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 212 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

I.

$$I_1^u = \langle 5u^{17}-11u^{16}+\cdots+3b-11,\ u^{17}+u^{16}+\cdots+2a+4,\ u^{18}-3u^{17}+\cdots-6u+2\rangle$$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-\frac{1}{2}u^{17}-\frac{1}{2}u^{16}+\cdots-\frac{3}{2}u^2-2\\-\frac{5}{3}u^{17}+\frac{11}{3}u^{16}+\cdots-\frac{23}{3}u+\frac{11}{3}\end{pmatrix}$$

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

$$a_9 = \begin{pmatrix}\frac{1}{2}u^{17}-\frac{5}{2}u^{16}+\cdots+5u-3\\-\frac{5}{3}u^{17}+\frac{11}{3}u^{16}+\cdots-\frac{23}{3}u+\frac{11}{3}\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}\frac{7}{6}u^{17}-\frac{25}{6}u^{16}+\cdots+\frac{23}{3}u-\frac{17}{3}\\-\frac{5}{3}u^{17}+\frac{11}{3}u^{16}+\cdots-\frac{23}{3}u+\frac{11}{3}\end{pmatrix}$$

$$a_1 = \begin{pmatrix}\frac{19}{6}u^{17}-\frac{37}{6}u^{16}+\cdots+\frac{32}{3}u-\frac{14}{3}\\-\frac{2}{3}u^{17}+\frac{2}{3}u^{16}+\cdots+\frac{1}{3}u-\frac{1}{3}\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-\frac{7}{6}u^{17}+\frac{25}{6}u^{16}+\cdots-\frac{23}{3}u+\frac{17}{3}\\\frac{2}{3}u^{17}-\frac{2}{3}u^{16}+\cdots+\frac{2}{3}u+\frac{1}{3}\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}u^3\\u^5-u^3+u\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-\frac{5}{2}u^{17}+\frac{7}{2}u^{16}+\cdots-7u+1\\-3.33333u^{17}+7.33333u^{16}+\cdots-13.3333u+6.33333\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-1.83333u^{17}+3.83333u^{16}+\cdots-8.33333u+3.33333\\-2u^{17}+5u^{16}+\cdots-9u+5\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -8u^{17}+14u^{16}+12u^{15}-50u^{14}-2u^{13}+94u^{12}-40u^{11}-130u^{10}+112u^9+86u^8-140u^7-22u^6+106u^5-20u^4-36u^3+24u^2-14u+6$

in decimal forms when there is not enough margin.

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{18} + 7u^{17} + \cdots - 4u + 4$
c_2, c_5, c_7 c_{11}	$u^{18} + 3u^{17} + \cdots + 6u + 2$
c_3, c_8	$u^{18} - 9u^{17} + \cdots - 16u + 8$
c_4, c_6, c_9 c_{12}	$u^{18} + 5u^{16} + \cdots + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{18} + 13y^{17} + \cdots - 272y + 16$
c_2, c_5, c_7 c_{11}	$y^{18} - 7y^{17} + \cdots + 4y + 4$
c_3, c_8	$y^{18} - 9y^{17} + \cdots - 480y + 64$
c_4, c_6, c_9 c_{12}	$y^{18} + 10y^{17} + \cdots + y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.929188 + 0.427848I$ $a = 1.45891 + 0.96005I$ $b = -0.612958 + 0.694927I$	$-2.52393 - 4.60971I$	$-3.54545 + 10.13031I$
$u = 0.929188 - 0.427848I$ $a = 1.45891 - 0.96005I$ $b = -0.612958 - 0.694927I$	$-2.52393 + 4.60971I$	$-3.54545 - 10.13031I$
$u = -0.880851 + 0.560750I$ $a = -0.83772 + 1.88459I$ $b = -0.21871 + 1.48927I$	$-1.22474 + 4.46780I$	$-2.01264 - 5.91058I$
$u = -0.880851 - 0.560750I$ $a = -0.83772 - 1.88459I$ $b = -0.21871 - 1.48927I$	$-1.22474 - 4.46780I$	$-2.01264 + 5.91058I$
$u = 0.582973 + 0.940039I$ $a = -0.268767 - 0.004991I$ $b = -1.09278 - 1.05818I$	$5.24090 + 8.44951I$	$3.89928 - 4.02582I$
$u = 0.582973 - 0.940039I$ $a = -0.268767 + 0.004991I$ $b = -1.09278 + 1.05818I$	$5.24090 - 8.44951I$	$3.89928 + 4.02582I$
$u = 0.829747 + 0.331402I$ $a = -0.543141 - 1.062640I$ $b = 0.506778 + 0.049880I$	$-1.42597 - 1.89978I$	$-0.27303 + 2.78097I$
$u = 0.829747 - 0.331402I$ $a = -0.543141 + 1.062640I$ $b = 0.506778 - 0.049880I$	$-1.42597 + 1.89978I$	$-0.27303 - 2.78097I$
$u = -1.174310 + 0.030732I$ $a = 0.73424 + 1.60100I$ $b = 0.540765 + 1.144710I$	$-8.44772 + 5.23335I$	$-9.78688 - 5.32435I$
$u = -1.174310 - 0.030732I$ $a = 0.73424 - 1.60100I$ $b = 0.540765 - 1.144710I$	$-8.44772 - 5.23335I$	$-9.78688 + 5.32435I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.933002 + 0.761436I$ $a = 0.373106 - 0.772716I$ $b = 0.113921 - 0.679581I$	$4.32570 + 5.86053I$	$5.28493 - 4.51200I$
$u = -0.933002 - 0.761436I$ $a = 0.373106 + 0.772716I$ $b = 0.113921 + 0.679581I$	$4.32570 - 5.86053I$	$5.28493 + 4.51200I$
$u = 0.969925 + 0.853431I$ $a = 0.717351 + 0.406552I$ $b = 0.005204 + 1.085600I$	$1.61741 - 6.44223I$	$-7.21121 + 5.93194I$
$u = 0.969925 - 0.853431I$ $a = 0.717351 - 0.406552I$ $b = 0.005204 - 1.085600I$	$1.61741 + 6.44223I$	$-7.21121 - 5.93194I$
$u = 1.120310 + 0.718189I$ $a = -0.54198 - 1.83396I$ $b = 1.13133 - 1.27977I$	$1.8659 - 20.6729I$	$-0.25702 + 11.54258I$
$u = 1.120310 - 0.718189I$ $a = -0.54198 + 1.83396I$ $b = 1.13133 + 1.27977I$	$1.8659 + 20.6729I$	$-0.25702 - 11.54258I$
$u = 0.056018 + 0.547940I$ $a = -0.591992 - 0.492924I$ $b = -0.373557 + 0.433371I$	$0.572438 - 1.277810I$	$3.90202 + 5.68169I$
$u = 0.056018 - 0.547940I$ $a = -0.591992 + 0.492924I$ $b = -0.373557 - 0.433371I$	$0.572438 + 1.277810I$	$3.90202 - 5.68169I$

II. $\boldsymbol{I_2^u = \langle 2.93 \times 10^{19}u^{49} - 3.08 \times 10^{20}u^{48} + \cdots + 4.47 \times 10^{17}b - 5.18 \times 10^{20},\ -2.95 \times 10^{19}u^{49} + 6.16 \times 10^{20}u^{48} + \cdots + 5.81 \times 10^{18}a + 6.41 \times 10^{21},\ u^{50} - 11u^{49} + \cdots - 165u + 13\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 5.08053u^{49} - 106.085u^{48} + \cdots + 11433.4u - 1104.06 \\ -65.6329u^{49} + 690.174u^{48} + \cdots - 13362.0u + 1158.61 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 3.20250u^{49} - 44.5872u^{48} + \cdots + 545.377u - 12.0177 \\ -22.0074u^{49} + 211.526u^{48} + \cdots - 924.850u + 52.1829 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 70.7134u^{49} - 796.258u^{48} + \cdots + 24795.5u - 2262.67 \\ -65.6329u^{49} + 690.174u^{48} + \cdots - 13362.0u + 1158.61 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 6.69943u^{49} - 28.5149u^{48} + \cdots - 5493.60u + 527.935 \\ 20.4159u^{49} - 227.260u^{48} + \cdots + 5735.08u - 500.233 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -71.2237u^{49} + 730.489u^{48} + \cdots - 12363.3u + 1079.94 \\ 3.20274u^{49} - 17.3842u^{48} + \cdots - 795.115u + 58.9383 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 7.76879u^{49} - 154.326u^{48} + \cdots + 14845.3u - 1429.50 \\ -84.9603u^{49} + 868.882u^{48} + \cdots - 13592.6u + 1152.16 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 36.0253u^{49} - 376.781u^{48} + \cdots + 8948.18u - 832.007 \\ -29.2879u^{49} + 282.012u^{48} + \cdots - 2240.06u + 176.845 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{9871134219706577536}{446874893374714199}u^{49} - \frac{12379745772287618765 3}{446874893374714199}u^{48} + \cdots + \frac{6910675158351158980446}{446874893374714199}u - \frac{6014728277008070264 50}{446874893374714199}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{50} + 19u^{49} + \cdots + 5099u + 169$
c_2, c_5, c_7 c_{11}	$u^{50} + 11u^{49} + \cdots + 165u + 13$
c_3, c_8	$(u^{25} + 4u^{24} + \cdots + 3u + 1)^2$
c_4, c_6, c_9 c_{12}	$u^{50} + 5u^{49} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{50} + 13y^{49} + \cdots - 3709039y + 28561$
c_2, c_5, c_7 c_{11}	$y^{50} - 19y^{49} + \cdots - 5099y + 169$
c_3, c_8	$(y^{25} - 8y^{24} + \cdots + y - 1)^2$
c_4, c_6, c_9 c_{12}	$y^{50} + 21y^{49} + \cdots + 52y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.553707 + 0.832806I$ $a = 0.043757 - 0.161962I$ $b = 1.07602 + 1.01172I$	$-2.22763 + 6.76528I$	$0. - 5.55124I$
$u = 0.553707 - 0.832806I$ $a = 0.043757 + 0.161962I$ $b = 1.07602 - 1.01172I$	$-2.22763 - 6.76528I$	$0. + 5.55124I$
$u = -0.837139 + 0.557385I$ $a = 0.79159 - 1.91622I$ $b = 0.14846 - 1.48629I$	-1.07852	0
$u = -0.837139 - 0.557385I$ $a = 0.79159 + 1.91622I$ $b = 0.14846 + 1.48629I$	-1.07852	0
$u = 0.558430 + 0.809571I$ $a = -0.1049370 - 0.0051426I$ $b = 0.475534 - 0.512990I$	$-2.54415 - 3.36836I$	$0. + 11.53583I$
$u = 0.558430 - 0.809571I$ $a = -0.1049370 + 0.0051426I$ $b = 0.475534 + 0.512990I$	$-2.54415 + 3.36836I$	$0. - 11.53583I$
$u = -0.917168 + 0.480093I$ $a = -0.86443 + 1.71315I$ $b = -0.316452 + 1.330430I$	$-2.28095 + 0.36934I$	0
$u = -0.917168 - 0.480093I$ $a = -0.86443 - 1.71315I$ $b = -0.316452 - 1.330430I$	$-2.28095 - 0.36934I$	0
$u = 0.933200 + 0.451504I$ $a = -0.748966 - 0.796862I$ $b = 0.496615 - 0.374938I$	$-1.46923 - 1.71043I$	0
$u = 0.933200 - 0.451504I$ $a = -0.748966 + 0.796862I$ $b = 0.496615 + 0.374938I$	$-1.46923 + 1.71043I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.855986 + 0.425974I$ $a = 0.52160 - 1.79372I$ $b = 0.054829 - 1.272590I$	$-1.96570 + 3.34746I$	$0. - 8.41971I$
$u = -0.855986 - 0.425974I$ $a = 0.52160 + 1.79372I$ $b = 0.054829 + 1.272590I$	$-1.96570 - 3.34746I$	$0. + 8.41971I$
$u = -0.947983 + 0.107928I$ $a = -0.39264 - 2.05984I$ $b = -0.334947 - 1.326910I$	$-2.54415 + 3.36836I$	$-3.18716 - 11.53583I$
$u = -0.947983 - 0.107928I$ $a = -0.39264 + 2.05984I$ $b = -0.334947 + 1.326910I$	$-2.54415 - 3.36836I$	$-3.18716 + 11.53583I$
$u = -0.932177 + 0.127667I$ $a = 1.17876 - 2.00119I$ $b = 0.66990 - 1.34941I$	$-4.36972 + 2.52616I$	$-17.6949 - 8.8137I$
$u = -0.932177 - 0.127667I$ $a = 1.17876 + 2.00119I$ $b = 0.66990 + 1.34941I$	$-4.36972 - 2.52616I$	$-17.6949 + 8.8137I$
$u = 0.705776 + 0.790233I$ $a = -0.379152 + 0.570875I$ $b = -1.29001 - 1.06513I$	$3.42082 + 2.87486I$	0
$u = 0.705776 - 0.790233I$ $a = -0.379152 - 0.570875I$ $b = -1.29001 + 1.06513I$	$3.42082 - 2.87486I$	0
$u = 0.848218 + 0.375573I$ $a = 1.68167 + 0.17265I$ $b = -0.434516 + 0.694240I$	$-2.28095 + 0.36934I$	$-1.79998 + 1.57281I$
$u = 0.848218 - 0.375573I$ $a = 1.68167 - 0.17265I$ $b = -0.434516 - 0.694240I$	$-2.28095 - 0.36934I$	$-1.79998 - 1.57281I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.903202 + 0.595706I$ $a = -0.66474 - 1.60449I$ $b = 1.44211 - 0.54229I$	$-1.79493 - 2.26748I$	0
$u = 0.903202 - 0.595706I$ $a = -0.66474 + 1.60449I$ $b = 1.44211 + 0.54229I$	$-1.79493 + 2.26748I$	0
$u = 0.553438 + 0.956996I$ $a = 0.240338 + 0.074404I$ $b = 1.09277 + 1.06584I$	$3.6258 + 14.5513I$	0
$u = 0.553438 - 0.956996I$ $a = 0.240338 - 0.074404I$ $b = 1.09277 - 1.06584I$	$3.6258 - 14.5513I$	0
$u = -0.805706 + 0.801297I$ $a = -0.487390 + 0.656086I$ $b = -0.193006 + 0.633975I$	4.71625	0
$u = -0.805706 - 0.801297I$ $a = -0.487390 - 0.656086I$ $b = -0.193006 - 0.633975I$	4.71625	0
$u = 0.251795 + 1.124930I$ $a = -0.254137 + 0.049386I$ $b = -0.423621 + 0.366735I$	$3.42082 - 2.87486I$	0
$u = 0.251795 - 1.124930I$ $a = -0.254137 - 0.049386I$ $b = -0.423621 - 0.366735I$	$3.42082 + 2.87486I$	0
$u = 0.731346 + 0.379553I$ $a = -1.245790 + 0.394727I$ $b = 0.369373 - 0.633955I$	$-1.96570 - 3.34746I$	$0. + 8.41971I$
$u = 0.731346 - 0.379553I$ $a = -1.245790 - 0.394727I$ $b = 0.369373 + 0.633955I$	$-1.96570 + 3.34746I$	$0. - 8.41971I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.370215 + 1.168900I$ $a = 0.223126 - 0.084389I$ $b = 0.462705 - 0.346414I$	$2.53033 - 8.55334I$	0
$u = 0.370215 - 1.168900I$ $a = 0.223126 + 0.084389I$ $b = 0.462705 + 0.346414I$	$2.53033 + 8.55334I$	0
$u = 0.997780 + 0.713374I$ $a = 0.85559 + 1.68166I$ $b = -1.31365 + 1.39313I$	$2.53033 - 8.55334I$	0
$u = 0.997780 - 0.713374I$ $a = 0.85559 - 1.68166I$ $b = -1.31365 - 1.39313I$	$2.53033 + 8.55334I$	0
$u = -1.249550 + 0.152177I$ $a = -0.58334 - 1.39167I$ $b = -0.482964 - 1.010150I$	$-2.22763 + 6.76528I$	0
$u = -1.249550 - 0.152177I$ $a = -0.58334 + 1.39167I$ $b = -0.482964 + 1.010150I$	$-2.22763 - 6.76528I$	0
$u = 0.948687 + 0.830787I$ $a = -0.602613 - 0.618497I$ $b = 0.388518 - 1.079670I$	1.63367	0
$u = 0.948687 - 0.830787I$ $a = -0.602613 + 0.618497I$ $b = 0.388518 + 1.079670I$	1.63367	0
$u = 1.072930 + 0.680011I$ $a = -0.71338 - 1.81412I$ $b = 1.16504 - 1.24505I$	$-3.78504 - 12.42080I$	0
$u = 1.072930 - 0.680011I$ $a = -0.71338 + 1.81412I$ $b = 1.16504 + 1.24505I$	$-3.78504 + 12.42080I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.296060+0.117362I$ $a=\ \ 0.67390+1.34621I$ $b=\ \ 0.541462+0.992346I$	$-3.78504+12.42080I$	0
$u=-1.296060-0.117362I$ $a=\ \ 0.67390-1.34621I$ $b=\ \ 0.541462-0.992346I$	$-3.78504-12.42080I$	0
$u=\ \ 1.102950+0.724130I$ $a=\ \ 0.56636+1.78230I$ $b=-1.13689+1.28166I$	$3.6258-14.5513I$	0
$u=\ \ 1.102950-0.724130I$ $a=\ \ 0.56636-1.78230I$ $b=-1.13689-1.28166I$	$3.6258+14.5513I$	0
$u=\ \ 1.304940+0.232629I$ $a=\ \ 0.177583+0.626392I$ $b=-0.065583+0.228032I$	$-1.79493+2.26748I$	0
$u=\ \ 1.304940-0.232629I$ $a=\ \ 0.177583-0.626392I$ $b=-0.065583-0.228032I$	$-1.79493-2.26748I$	0
$u=\ \ 1.166690+0.634912I$ $a=\ \ 0.454441+0.458068I$ $b=-0.102112+0.474616I$	$-4.36972-2.52616I$	0
$u=\ \ 1.166690-0.634912I$ $a=\ \ 0.454441-0.458068I$ $b=-0.102112-0.474616I$	$-4.36972+2.52616I$	0
$u=\ \ 0.338458+0.034083I$ $a=-0.59797+2.01326I$ $b=\ \ 0.210423-0.573227I$	$-1.46923+1.71043I$	$-1.72966-1.33913I$
$u=\ \ 0.338458-0.034083I$ $a=-0.59797-2.01326I$ $b=\ \ 0.210423+0.573227I$	$-1.46923-1.71043I$	$-1.72966+1.33913I$

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

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ u^5a + u^5 - 2u^3a - u^3 + 2au + u - 1 \end{pmatrix}$$

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

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

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

$$a_4 = \begin{pmatrix} -u^5a - u^5 + 2u^3a + u^3 - 2au + a - u + 1 \\ u^5a + u^5 - 2u^3a - u^3 + 2au + u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^5a + u^3a + 2u^4 + u^3 - au - 2u^2 + a - 2u \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^5a + u^5 - 2u^3a + 2u^4 - u^2a + u^3 + 2au - 2u^2 + a - u - 1 \\ -u^5a - u^5 + 2u^3a + u^2a + 3u^3 - 2au - 3u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^5a + u^3a + u^3 - au + a + 1 \\ -u^5a - u^4a + u^5 + u^3a + 2u^2a + u^2 - a - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2u^5a - u^4a + u^5 + 2u^3a + 2u^4 + 2u^2a + u^3 - au - u^2 - 2u \\ 2u^5 + 2u^4 - 2u^3 + au - 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$(u^6+3u^5+5u^4+4u^3+2u^2+u+1)^2$
c_2, c_5, c_7 c_{11}	$(u^6-u^5-u^4+2u^3-u+1)^2$
c_3, c_8	$u^{12}-9u^{11}+\cdots-104u+17$
c_4, c_6, c_9 c_{12}	$u^{12}+u^{11}+2u^{10}-2u^9+3u^8-3u^7+17u^6-9u^5+19u^4-5u^3+6u^2+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)^2$
c_2, c_5, c_7 c_{11}	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)^2$
c_3, c_8	$y^{12} + 3y^{11} + \cdots + 64y + 289$
c_4, c_6, c_9 c_{12}	$y^{12} + 3y^{11} + \cdots + 12y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.002190 + 0.295542I$ $a = 1.72095 + 1.00813I$ $b = 0.51345 + 1.52069I$	$-5.42615 - 1.84861I$	$-13.43343 + 1.58845I$
$u = 1.002190 + 0.295542I$ $a = 0.39343 - 2.26995I$ $b = -0.085204 - 0.856161I$	$-5.42615 - 1.84861I$	$-13.43343 + 1.58845I$
$u = 1.002190 - 0.295542I$ $a = 1.72095 - 1.00813I$ $b = 0.51345 - 1.52069I$	$-5.42615 + 1.84861I$	$-13.43343 - 1.58845I$
$u = 1.002190 - 0.295542I$ $a = 0.39343 + 2.26995I$ $b = -0.085204 + 0.856161I$	$-5.42615 + 1.84861I$	$-13.43343 - 1.58845I$
$u = -0.428243 + 0.664531I$ $a = -1.071180 - 0.131182I$ $b = 0.170133 - 0.403810I$	$2.13628 - 1.84861I$	$1.43343 + 1.58845I$
$u = -0.428243 + 0.664531I$ $a = -0.275983 - 0.338083I$ $b = -1.172330 + 0.699352I$	$2.13628 - 1.84861I$	$1.43343 + 1.58845I$
$u = -0.428243 - 0.664531I$ $a = -1.071180 + 0.131182I$ $b = 0.170133 + 0.403810I$	$2.13628 + 1.84861I$	$1.43343 - 1.58845I$
$u = -0.428243 - 0.664531I$ $a = -0.275983 + 0.338083I$ $b = -1.172330 - 0.699352I$	$2.13628 + 1.84861I$	$1.43343 - 1.58845I$
$u = -1.073950 + 0.558752I$ $a = 1.34873 - 1.14126I$ $b = -0.344080 - 0.571978I$	$-1.64493 + 11.38600I$	$-6.00000 - 11.02114I$
$u = -1.073950 + 0.558752I$ $a = -0.11594 + 2.13765I$ $b = 1.41803 + 1.13073I$	$-1.64493 + 11.38600I$	$-6.00000 - 11.02114I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.073950-0.558752I$ $a=\ \ 1.34873+1.14126I$ $b=-0.344080+0.571978I$	$-1.64493-11.38600I$	$-6.00000+11.02114I$
$u=-1.073950-0.558752I$ $a=-0.11594-2.13765I$ $b=\ \ 1.41803-1.13073I$	$-1.64493-11.38600I$	$-6.00000+11.02114I$

IV. $I_4^u = \langle u^5 - u^3 + b + u,\ u^3 + a,\ u^6 + u^5 - u^4 - 2u^3 + u + 1\rangle$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

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

$$a_4 = \begin{pmatrix} u^5 - 2u^3 + u \\ -u^5 + u^3 - u \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -1 \\ -u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^2 - 1 \\ -u^4 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.002190 + 0.295542I$ $a = -0.743983 - 0.864704I$ $b = -0.428243 - 0.664531I$	$-3.78121 - 1.84861I$	$-7.43343 + 1.58845I$
$u = 1.002190 - 0.295542I$ $a = -0.743983 + 0.864704I$ $b = -0.428243 + 0.664531I$	$-3.78121 + 1.84861I$	$-7.43343 - 1.58845I$
$u = -0.428243 + 0.664531I$ $a = -0.488802 - 0.072152I$ $b = 1.002190 - 0.295542I$	$3.78121 - 1.84861I$	$7.43343 + 1.58845I$
$u = -0.428243 - 0.664531I$ $a = -0.488802 + 0.072152I$ $b = 1.002190 + 0.295542I$	$3.78121 + 1.84861I$	$7.43343 - 1.58845I$
$u = -1.073950 + 0.558752I$ $a = 0.23279 - 1.75889I$ $b = -1.073950 - 0.558752I$	$11.3860I$	$0. - 11.02114I$
$u = -1.073950 - 0.558752I$ $a = 0.23279 + 1.75889I$ $b = -1.073950 + 0.558752I$	$-11.3860I$	$0. + 11.02114I$

V. $I^u_5 = \langle -2u^{43}a - 4u^{42}a + \cdots + 4b - 65,\ 50u^{43}a - 95u^{43} + \cdots - 468a + 943,\ u^{44} + 3u^{43} + \cdots - 14u - 1\rangle$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ \frac{1}{2}u^{43}a + u^{42}a + \cdots + 163u + \frac{65}{4} \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} 7u^{43}a + \frac{7}{8}u^{43} + \cdots - \frac{5}{2}a - \frac{91}{8} \\ \frac{9}{4}u^{43}a + \frac{9}{4}u^{42}a + \cdots + \frac{7}{2}a - 1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -\frac{1}{2}u^{43}a - u^{42}a + \cdots + a - \frac{65}{4} \\ \frac{1}{2}u^{43}a + u^{42}a + \cdots + 163u + \frac{65}{4} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{21}{4}u^{42}a + 2u^{43} + \cdots - \frac{65}{4}a + \frac{23}{2} \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{49}{2}u^{43}a + 2u^{43} + \cdots - \frac{139}{4}a + \frac{21}{2} \\ -\frac{5}{2}u^{43}a - \frac{1}{8}u^{43} + \cdots + \frac{1}{4}a - \frac{7}{8} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -\frac{9}{2}u^{43} - \frac{19}{4}u^{42} + \cdots + a - \frac{41}{4} \\ -\frac{1}{2}u^{43}a - 6u^{43} + \cdots + 226u + \frac{83}{4} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{95}{4}u^{43}a + \frac{13}{8}u^{43} + \cdots + 29a + \frac{79}{8} \\ \frac{7}{4}u^{43}a + \frac{11}{8}u^{43} + \cdots - \frac{5}{2}a - \frac{11}{8} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{97}{4}u^{43} - 54u^{42} + \cdots + \frac{1089}{4}u + \frac{51}{4}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$(u^{44} + 19u^{43} + \cdots + 70u + 1)^2$
c_2, c_5, c_7 c_{11}	$(u^{44} - 3u^{43} + \cdots + 14u - 1)^2$
c_3, c_8	$(u^{44} + u^{43} + \cdots + 840u + 271)^2$
c_4, c_6, c_9 c_{12}	$u^{88} + 11u^{87} + \cdots + 20u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$(y^{44} + 17y^{43} + \cdots - 3330y + 1)^2$
c_2, c_5, c_7 c_{11}	$(y^{44} - 19y^{43} + \cdots - 70y + 1)^2$
c_3, c_8	$(y^{44} - 7y^{43} + \cdots - 1090962y + 73441)^2$
c_4, c_6, c_9 c_{12}	$y^{88} - 39y^{87} + \cdots - 250y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.767481 + 0.649572I$ $a = -0.209749 + 0.455086I$ $b = 1.050190 + 0.737585I$	$3.61742 + 6.06223I$	$4.09868 - 3.56729I$
$u = 0.767481 + 0.649572I$ $a = -0.69676 - 2.08757I$ $b = 1.35788 - 1.16717I$	$3.61742 + 6.06223I$	$4.09868 - 3.56729I$
$u = 0.767481 - 0.649572I$ $a = -0.209749 - 0.455086I$ $b = 1.050190 - 0.737585I$	$3.61742 - 6.06223I$	$4.09868 + 3.56729I$
$u = 0.767481 - 0.649572I$ $a = -0.69676 + 2.08757I$ $b = 1.35788 + 1.16717I$	$3.61742 - 6.06223I$	$4.09868 + 3.56729I$
$u = 0.803659 + 0.647731I$ $a = 0.091655 - 0.132248I$ $b = -1.193190 - 0.680438I$	$5.35656 + 0.02685I$	$6.61609 + 1.70053I$
$u = 0.803659 + 0.647731I$ $a = 0.66010 + 2.10096I$ $b = -1.33111 + 1.04031I$	$5.35656 + 0.02685I$	$6.61609 + 1.70053I$
$u = 0.803659 - 0.647731I$ $a = 0.091655 + 0.132248I$ $b = -1.193190 + 0.680438I$	$5.35656 - 0.02685I$	$6.61609 - 1.70053I$
$u = 0.803659 - 0.647731I$ $a = 0.66010 - 2.10096I$ $b = -1.33111 - 1.04031I$	$5.35656 - 0.02685I$	$6.61609 - 1.70053I$
$u = 0.851089 + 0.590714I$ $a = 0.07497 - 1.50979I$ $b = 1.84927 - 0.00718I$	$-1.70735 - 2.34151I$	$6.14112 + 4.86696I$
$u = 0.851089 + 0.590714I$ $a = -0.93452 - 1.56224I$ $b = 1.150410 - 0.258778I$	$-1.70735 - 2.34151I$	$6.14112 + 4.86696I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.851089 - 0.590714I$ $a = 0.07497 + 1.50979I$ $b = 1.84927 + 0.00718I$	$-1.70735 + 2.34151I$	$6.14112 - 4.86696I$
$u = 0.851089 - 0.590714I$ $a = -0.93452 + 1.56224I$ $b = 1.150410 + 0.258778I$	$-1.70735 + 2.34151I$	$6.14112 - 4.86696I$
$u = -0.473872 + 0.833820I$ $a = -0.325630 - 0.110420I$ $b = 0.598560 - 0.485867I$	$2.48681 - 1.78904I$	$-1.77660 + 1.34347I$
$u = -0.473872 + 0.833820I$ $a = -0.181027 - 0.089265I$ $b = -1.054730 + 0.566967I$	$2.48681 - 1.78904I$	$-1.77660 + 1.34347I$
$u = -0.473872 - 0.833820I$ $a = -0.325630 + 0.110420I$ $b = 0.598560 + 0.485867I$	$2.48681 + 1.78904I$	$-1.77660 - 1.34347I$
$u = -0.473872 - 0.833820I$ $a = -0.181027 + 0.089265I$ $b = -1.054730 - 0.566967I$	$2.48681 + 1.78904I$	$-1.77660 - 1.34347I$
$u = -0.503143 + 0.946145I$ $a = 0.120712 - 0.412859I$ $b = 0.808803 - 0.791262I$	$5.08140 - 5.03772I$	$5.56121 + 5.67665I$
$u = -0.503143 + 0.946145I$ $a = -0.128920 - 0.292183I$ $b = -1.123420 + 0.229540I$	$5.08140 - 5.03772I$	$5.56121 + 5.67665I$
$u = -0.503143 - 0.946145I$ $a = 0.120712 + 0.412859I$ $b = 0.808803 + 0.791262I$	$5.08140 + 5.03772I$	$5.56121 - 5.67665I$
$u = -0.503143 - 0.946145I$ $a = -0.128920 + 0.292183I$ $b = -1.123420 - 0.229540I$	$5.08140 + 5.03772I$	$5.56121 - 5.67665I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.542619+0.934381I$ $a=-0.217567+0.342060I$ $b=-0.878871+0.768623I$	$5.35656-0.02685I$	$6.61609-1.70053I$
$u=-0.542619+0.934381I$ $a=\quad 0.055966+0.360352I$ $b=\quad 1.039850-0.142869I$	$5.35656-0.02685I$	$6.61609-1.70053I$
$u=-0.542619-0.934381I$ $a=-0.217567-0.342060I$ $b=-0.878871-0.768623I$	$5.35656+0.02685I$	$6.61609+1.70053I$
$u=-0.542619-0.934381I$ $a=\quad 0.055966-0.360352I$ $b=\quad 1.039850+0.142869I$	$5.35656+0.02685I$	$6.61609+1.70053I$
$u=\quad 0.892273+0.637275I$ $a=-0.798485+0.407722I$ $b=-1.70312-0.82985I$	$5.08140-5.03772I$	$5.56121+5.67665I$
$u=\quad 0.892273+0.637275I$ $a=\quad 0.79044+2.21552I$ $b=-0.931912+0.821648I$	$5.08140-5.03772I$	$5.56121+5.67665I$
$u=\quad 0.892273-0.637275I$ $a=-0.798485-0.407722I$ $b=-1.70312+0.82985I$	$5.08140+5.03772I$	$5.56121-5.67665I$
$u=\quad 0.892273-0.637275I$ $a=\quad 0.79044-2.21552I$ $b=-0.931912-0.821648I$	$5.08140+5.03772I$	$5.56121-5.67665I$
$u=-0.802626+0.757447I$ $a=-0.492685+1.009980I$ $b=\quad 0.379182+0.670238I$	4.62114	$5.54727+0.I$
$u=-0.802626+0.757447I$ $a=-0.458276+0.324516I$ $b=-0.733776+0.580087I$	4.62114	$5.54727+0.I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.802626-0.757447I$ $a=-0.492685-1.009980I$ $b=\ \ 0.379182-0.670238I$	4.62114	$5.54727+0.I$
$u=-0.802626-0.757447I$ $a=-0.458276-0.324516I$ $b=-0.733776-0.580087I$	4.62114	$5.54727+0.I$
$u=\ \ 0.918693+0.631895I$ $a=\ \ 1.086560-0.368999I$ $b=\ \ 1.77703+0.97307I$	$3.15038-11.06350I$	$2.31684+10.51224I$
$u=\ \ 0.918693+0.631895I$ $a=-0.79220-2.32690I$ $b=\ \ 0.801722-0.841787I$	$3.15038-11.06350I$	$2.31684+10.51224I$
$u=\ \ 0.918693-0.631895I$ $a=\ \ 1.086560+0.368999I$ $b=\ \ 1.77703-0.97307I$	$3.15038+11.06350I$	$2.31684-10.51224I$
$u=\ \ 0.918693-0.631895I$ $a=-0.79220+2.32690I$ $b=\ \ 0.801722+0.841787I$	$3.15038+11.06350I$	$2.31684-10.51224I$
$u=\ \ 1.11703$ $a=-0.559527+1.206560I$ $b=-0.064688+0.847977I$	-3.19687	-5.88290
$u=\ \ 1.11703$ $a=-0.559527-1.206560I$ $b=-0.064688-0.847977I$	-3.19687	-5.88290
$u=-0.972088+0.562819I$ $a=\ \ 1.63782-0.13643I$ $b=-0.300509-0.254450I$	$-3.73793+3.81466I$	$-6.30765-8.57961I$
$u=-0.972088+0.562819I$ $a=-0.71054+2.33938I$ $b=\ \ 1.35813+1.69326I$	$-3.73793+3.81466I$	$-6.30765-8.57961I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.972088-0.562819I$ $a=\ \ 1.63782+0.13643I$ $b=-0.300509+0.254450I$	$-3.73793-3.81466I$	$-6.30765+8.57961I$
$u=-0.972088-0.562819I$ $a=-0.71054-2.33938I$ $b=\ \ 1.35813-1.69326I$	$-3.73793-3.81466I$	$-6.30765+8.57961I$
$u=-0.714060+0.501949I$ $a=\ \ 1.34919+0.68585I$ $b=\ \ 1.59813-1.14955I$	$-2.85723+0.57531I$	$-2.18655+5.07930I$
$u=-0.714060+0.501949I$ $a=\ \ 1.59862-1.48482I$ $b=\ \ 0.0868291-0.0247619I$	$-2.85723+0.57531I$	$-2.18655+5.07930I$
$u=-0.714060-0.501949I$ $a=\ \ 1.34919-0.68585I$ $b=\ \ 1.59813+1.14955I$	$-2.85723-0.57531I$	$-2.18655-5.07930I$
$u=-0.714060-0.501949I$ $a=\ \ 1.59862+1.48482I$ $b=\ \ 0.0868291+0.0247619I$	$-2.85723-0.57531I$	$-2.18655-5.07930I$
$u=\ \ 1.182370+0.249072I$ $a=\ \ 1.33410+0.52761I$ $b=\ \ 0.716253+0.936843I$	$-3.73793+3.81466I$	$-6.30765-8.57961I$
$u=\ \ 1.182370+0.249072I$ $a=-0.04691-1.87311I$ $b=-0.139509-0.906647I$	$-3.73793+3.81466I$	$-6.30765-8.57961I$
$u=\ \ 1.182370-0.249072I$ $a=\ \ 1.33410-0.52761I$ $b=\ \ 0.716253-0.936843I$	$-3.73793-3.81466I$	$-6.30765+8.57961I$
$u=\ \ 1.182370-0.249072I$ $a=-0.04691+1.87311I$ $b=-0.139509+0.906647I$	$-3.73793-3.81466I$	$-6.30765+8.57961I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.044760+0.613681I$ $a=-0.947346+0.792517I$ $b=\ \ 0.530131+0.447375I$	$0.48539+6.82448I$	$0.-6.22925I$
$u=-1.044760+0.613681I$ $a=\ \ 0.34576-1.93178I$ $b=-1.17630-1.20444I$	$0.48539+6.82448I$	$0.-6.22925I$
$u=-1.044760-0.613681I$ $a=-0.947346-0.792517I$ $b=\ \ 0.530131-0.447375I$	$0.48539-6.82448I$	$0.+6.22925I$
$u=-1.044760-0.613681I$ $a=\ \ 0.34576+1.93178I$ $b=-1.17630+1.20444I$	$0.48539-6.82448I$	$0.+6.22925I$
$u=\ \ 1.215330+0.165372I$ $a=-1.025870-0.466462I$ $b=-0.541188-0.729277I$	$-2.85723-0.57531I$	0
$u=\ \ 1.215330+0.165372I$ $a=\ \ 0.04140+1.59807I$ $b=\ \ 0.156527+0.829153I$	$-2.85723-0.57531I$	0
$u=\ \ 1.215330-0.165372I$ $a=-1.025870+0.466462I$ $b=-0.541188+0.729277I$	$-2.85723+0.57531I$	0
$u=\ \ 1.215330-0.165372I$ $a=\ \ 0.04140-1.59807I$ $b=\ \ 0.156527-0.829153I$	$-2.85723+0.57531I$	0
$u=-0.695081+0.217967I$ $a=\ \ 0.305437+1.080750I$ $b=\ \ 1.56163-0.21982I$	$0.57189-7.31268I$	$-5.07151+6.33709I$
$u=-0.695081+0.217967I$ $a=\ \ 3.07338-0.83141I$ $b=\ \ 0.347865-0.007131I$	$0.57189-7.31268I$	$-5.07151+6.33709I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.695081 - 0.217967I$ $a = 0.305437 - 1.080750I$ $b = 1.56163 + 0.21982I$	$0.57189 + 7.31268I$	$-5.07151 - 6.33709I$
$u = -0.695081 - 0.217967I$ $a = 3.07338 + 0.83141I$ $b = 0.347865 + 0.007131I$	$0.57189 + 7.31268I$	$-5.07151 - 6.33709I$
$u = -1.109330 + 0.644832I$ $a = -0.65014 + 1.36464I$ $b = 0.683547 + 0.755743I$	$0.57189 + 7.31268I$	0
$u = -1.109330 + 0.644832I$ $a = 0.09902 - 1.63155I$ $b = -1.15242 - 0.87299I$	$0.57189 + 7.31268I$	0
$u = -1.109330 - 0.644832I$ $a = -0.65014 - 1.36464I$ $b = 0.683547 - 0.755743I$	$0.57189 - 7.31268I$	0
$u = -1.109330 - 0.644832I$ $a = 0.09902 + 1.63155I$ $b = -1.15242 + 0.87299I$	$0.57189 - 7.31268I$	0
$u = 1.318490 + 0.024433I$ $a = 0.150294 + 0.994451I$ $b = 0.127511 + 0.470493I$	$-1.70735 + 2.34151I$	0
$u = 1.318490 + 0.024433I$ $a = -0.274504 + 0.224235I$ $b = -0.188454 - 0.112226I$	$-1.70735 + 2.34151I$	0
$u = 1.318490 - 0.024433I$ $a = 0.150294 - 0.994451I$ $b = 0.127511 - 0.470493I$	$-1.70735 - 2.34151I$	0
$u = 1.318490 - 0.024433I$ $a = -0.274504 - 0.224235I$ $b = -0.188454 + 0.112226I$	$-1.70735 - 2.34151I$	0

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.110670+0.713391I$ $a=\ 0.113297+1.048100I$ $b=\ 1.135860+0.456326I$	$3.61742+6.06223I$	0
$u=-1.110670+0.713391I$ $a=\ 0.44380-1.68331I$ $b=-0.806935-1.052440I$	$3.61742+6.06223I$	0
$u=-1.110670-0.713391I$ $a=\ 0.113297-1.048100I$ $b=\ 1.135860-0.456326I$	$3.61742-6.06223I$	0
$u=-1.110670-0.713391I$ $a=\ 0.44380+1.68331I$ $b=-0.806935+1.052440I$	$3.61742-6.06223I$	0
$u=-0.235182+0.635023I$ $a=\ 1.24503+0.86650I$ $b=\ 0.016785+0.660631I$	$0.48539-6.82448I$	$-1.22382+6.22925I$
$u=-0.235182+0.635023I$ $a=-0.118272+0.377558I$ $b=\ 1.207550-0.716047I$	$0.48539-6.82448I$	$-1.22382+6.22925I$
$u=-0.235182-0.635023I$ $a=\ 1.24503-0.86650I$ $b=\ 0.016785-0.660631I$	$0.48539+6.82448I$	$-1.22382-6.22925I$
$u=-0.235182-0.635023I$ $a=-0.118272-0.377558I$ $b=\ 1.207550+0.716047I$	$0.48539+6.82448I$	$-1.22382-6.22925I$
$u=-1.133930+0.701691I$ $a=-0.187501-1.213320I$ $b=-1.214170-0.539939I$	$3.15038+11.06350I$	0
$u=-1.133930+0.701691I$ $a=-0.50414+1.69437I$ $b=\ 0.748726+1.033840I$	$3.15038+11.06350I$	0

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.133930-0.701691I$ $a=-0.187501+1.213320I$ $b=-1.214170+0.539939I$	$3.15038-11.06350I$	0
$u=-1.133930-0.701691I$ $a=-0.50414-1.69437I$ $b=0.748726-1.033840I$	$3.15038-11.06350I$	0
$u=-0.604720+0.161152I$ $a=-0.485397-0.758391I$ $b=-1.382110+0.218862I$	$2.48681-1.78904I$	$-1.77660+1.34347I$
$u=-0.604720+0.161152I$ $a=-3.01193+0.44916I$ $b=-0.403113-0.055546I$	$2.48681-1.78904I$	$-1.77660+1.34347I$
$u=-0.604720-0.161152I$ $a=-0.485397+0.758391I$ $b=-1.382110-0.218862I$	$2.48681+1.78904I$	$-1.77660-1.34347I$
$u=-0.604720-0.161152I$ $a=-3.01193-0.44916I$ $b=-0.403113+0.055546I$	$2.48681+1.78904I$	$-1.77660-1.34347I$
$u=-0.131617$ $a=5.64036+4.49230I$ $b=0.731173-0.579698I$	-3.19687	-5.88290
$u=-0.131617$ $a=5.64036-4.49230I$ $b=0.731173+0.579698I$	-3.19687	-5.88290

VI. $I^u_6 = \langle 3u^{15}+5u^{14}+\cdots+b-1,\ -7u^{15}-28u^{14}+\cdots+2a-22,\ u^{16}+4u^{15}+\cdots+8u+2\rangle$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_5 = \begin{pmatrix}\frac{7}{2}u^{15}+14u^{14}+\cdots+\frac{59}{2}u+11\\-3u^{15}-5u^{14}+\cdots+u+1\end{pmatrix}$$

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

$$a_9 = \begin{pmatrix}-\frac{11}{2}u^{15}-17u^{14}+\cdots-\frac{67}{2}u-8\\u^{15}+3u^{14}+\cdots+7u+1\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}\frac{13}{2}u^{15}+19u^{14}+\cdots+\frac{57}{2}u+10\\-3u^{15}-5u^{14}+\cdots+u+1\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-\frac{13}{2}u^{15}-20u^{14}+\cdots-\frac{67}{2}u-11\\4u^{15}+9u^{14}+\cdots+7u+1\end{pmatrix}$$

$$a_6 = \begin{pmatrix}\frac{17}{2}u^{15}+30u^{14}+\cdots+\frac{143}{2}u+24\\-4u^{15}-13u^{14}+\cdots-30u-9\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}u^3\\u^5-u^3+u\end{pmatrix}$$

$$a_3 = \begin{pmatrix}\frac{3}{2}u^{15}+4u^{14}+\cdots+\frac{5}{2}u+2\\-4u^{15}-11u^{14}+\cdots-18u-5\end{pmatrix}$$

$$a_2 = \begin{pmatrix}\frac{13}{2}u^{15}+26u^{14}+\cdots+\frac{139}{2}u+25\\-7u^{15}-21u^{14}+\cdots-41u-11\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -38u^{15}-69u^{14}+46u^{13}+251u^{12}+175u^{11}-71u^{10}-114u^9-26u^8-246u^7-430u^6-310u^5-60u^4-64u^3-35u^2+26u+42$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{16} - 6u^{15} + \cdots + 4u + 4$
c_2, c_7	$u^{16} + 4u^{15} + \cdots + 8u + 2$
c_3, c_8	$(u^8 + 2u^7 + 2u^6 + u^2 + u + 1)^2$
c_4, c_6, c_9 c_{12}	$u^{16} - 6u^{14} + \cdots - u^2 + 1$
c_5, c_{11}	$u^{16} - 4u^{15} + \cdots - 8u + 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{16} + 2y^{15} + \cdots + 152y + 16$
c_2, c_5, c_7 c_{11}	$y^{16} - 6y^{15} + \cdots + 4y + 4$
c_3, c_8	$(y^8 + 4y^6 + 2y^5 + 2y^4 + 4y^3 + y^2 + y + 1)^2$
c_4, c_6, c_9 c_{12}	$y^{16} - 12y^{15} + \cdots - 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.484640 + 0.846797I$ $a = -0.680045 + 0.269791I$ $b = -0.618812 - 0.101203I$	$2.47558 - 7.94608I$	$0.92481 + 5.79314I$
$u = 0.484640 - 0.846797I$ $a = -0.680045 - 0.269791I$ $b = -0.618812 + 0.101203I$	$2.47558 + 7.94608I$	$0.92481 - 5.79314I$
$u = -0.620876 + 0.837136I$ $a = 0.129335 + 0.230266I$ $b = 0.980946 - 0.677334I$	$3.68697 - 2.14875I$	$5.80448 + 2.27366I$
$u = -0.620876 - 0.837136I$ $a = 0.129335 - 0.230266I$ $b = 0.980946 + 0.677334I$	$3.68697 + 2.14875I$	$5.80448 - 2.27366I$
$u = -0.868732 + 0.620313I$ $a = 0.43706 - 1.78935I$ $b = -1.81641 - 0.27594I$	$-2.07294 + 2.43245I$	$-21.6315 - 8.0683I$
$u = -0.868732 - 0.620313I$ $a = 0.43706 + 1.78935I$ $b = -1.81641 + 0.27594I$	$-2.07294 - 2.43245I$	$-21.6315 + 8.0683I$
$u = -0.597300 + 0.462977I$ $a = 1.26482 - 0.64500I$ $b = -1.184110 + 0.133480I$	$1.66766 - 7.05131I$	$3.40216 + 4.97138I$
$u = -0.597300 - 0.462977I$ $a = 1.26482 + 0.64500I$ $b = -1.184110 - 0.133480I$	$1.66766 + 7.05131I$	$3.40216 - 4.97138I$
$u = -1.034390 + 0.719349I$ $a = -0.62644 + 1.38546I$ $b = 0.99042 + 1.11066I$	$2.47558 + 7.94608I$	$0.92481 - 5.79314I$
$u = -1.034390 - 0.719349I$ $a = -0.62644 - 1.38546I$ $b = 0.99042 - 1.11066I$	$2.47558 - 7.94608I$	$0.92481 + 5.79314I$

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.125140+0.624650I$ $a=-0.20300+1.50281I$ $b=0.927126+0.676564I$	$1.66766+7.05131I$	$3.40216-4.97138I$
$u=-1.125140-0.624650I$ $a=-0.20300-1.50281I$ $b=0.927126-0.676564I$	$1.66766-7.05131I$	$3.40216+4.97138I$
$u=0.270172+0.658282I$ $a=0.744963-0.703702I$ $b=0.764226+0.048273I$	$3.68697-2.14875I$	$5.80448+2.27366I$
$u=0.270172-0.658282I$ $a=0.744963+0.703702I$ $b=0.764226-0.048273I$	$3.68697+2.14875I$	$5.80448-2.27366I$
$u=1.49163+0.08776I$ $a=-0.066697-0.588457I$ $b=-0.043384-0.465221I$	$-2.07294+2.43245I$	$-21.6315-8.0683I$
$u=1.49163-0.08776I$ $a=-0.066697+0.588457I$ $b=-0.043384+0.465221I$	$-2.07294-2.43245I$	$-21.6315+8.0683I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.877439 + 0.744862I$ $a = 0.562133 - 1.239140I$ $b = -0.498832 - 1.001300I$	$4.40332 + 5.65624I$	$5.01951 - 5.95889I$
$u = -0.877439 + 0.744862I$ $a = 0.192744 - 0.250580I$ $b = 0.713912 - 0.305839I$	$4.40332 + 5.65624I$	$5.01951 - 5.95889I$
$u = -0.877439 - 0.744862I$ $a = 0.562133 + 1.239140I$ $b = -0.498832 + 1.001300I$	$4.40332 - 5.65624I$	$5.01951 + 5.95889I$
$u = -0.877439 - 0.744862I$ $a = 0.192744 + 0.250580I$ $b = 0.713912 + 0.305839I$	$4.40332 - 5.65624I$	$5.01951 + 5.95889I$
$u = 0.754878$ $a = -1.25488 + 1.95694I$ $b = 0.284920 + 1.115140I$	-3.87184	-8.03900
$u = 0.754878$ $a = -1.25488 - 1.95694I$ $b = 0.284920 - 1.115140I$	-3.87184	-8.03900

VIII. $I^u_8 =$ $\langle -u^3a-u^2a-u^3+au+2b+1,\ -u^2a+u^3+a^2+au-2u^2+a-u+2,\ u^4-u^2+1\rangle$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ \frac{1}{2}u^3a + \frac{1}{2}u^3 + \cdots - \frac{1}{2}au - \frac{1}{2} \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -\frac{1}{2}u^3a + u^3 + \cdots - \frac{1}{2}a + \frac{1}{2} \\ u^3 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -\frac{1}{2}u^3a - \frac{1}{2}u^3 + \cdots + a + \frac{1}{2} \\ \frac{1}{2}u^3a + \frac{1}{2}u^3 + \cdots - \frac{1}{2}au - \frac{1}{2} \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^3a + \frac{1}{2}u^2 + \cdots + \frac{1}{2}a - \frac{1}{2} \\ -1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} a \\ \frac{1}{2}u^3a + \frac{1}{2}u^3 + \cdots - \frac{1}{2}au - \frac{1}{2} \end{pmatrix}$$

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

(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_2	$(u-1)^8$
c_3, c_8	$u^8 - 2u^6 + 2u^5 + 2u^4 - 2u^3 + 3u^2 + 4u + 1$
c_4, c_{12}	$u^8 - 4u^7 + 10u^6 - 16u^5 + 18u^4 - 14u^3 + 7u^2 - 2u + 1$
c_5	$(u+1)^8$
c_6, c_9	$(u^2+1)^4$
c_7, c_{11}	$(u^4 - u^2 + 1)^2$
c_{10}	$(u^2 - u + 1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^8$
c_3, c_8	$y^8 - 4y^7 + 8y^6 - 6y^5 + 2y^4 - 12y^3 + 29y^2 - 10y + 1$
c_4, c_{12}	$y^8 + 4y^7 + 8y^6 + 6y^5 + 2y^4 + 12y^3 + 29y^2 + 10y + 1$
c_6, c_9	$(y+1)^8$
c_7, c_{11}	$(y^2 - y + 1)^4$
c_{10}	$(y^2 + y + 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.866025 + 0.500000I$ $a = 0.131115 + 0.786143I$ $b = -1.060940 + 0.445679I$	$-3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 0.866025 + 0.500000I$ $a = -1.49714 - 0.42012I$ $b = 0.060942 - 0.445679I$	$-3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 0.866025 - 0.500000I$ $a = 0.131115 - 0.786143I$ $b = -1.060940 - 0.445679I$	$-3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 0.866025 - 0.500000I$ $a = -1.49714 + 0.42012I$ $b = 0.060942 + 0.445679I$	$-3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = -0.866025 + 0.500000I$ $a = -0.553254 + 1.002550I$ $b = -0.69440 + 1.28601I$	$-3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = -0.866025 + 0.500000I$ $a = 0.91928 - 2.36858I$ $b = -0.305600 - 1.286010I$	$-3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = -0.866025 - 0.500000I$ $a = -0.553254 - 1.002550I$ $b = -0.69440 - 1.28601I$	$-3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$u = -0.866025 - 0.500000I$ $a = 0.91928 + 2.36858I$ $b = -0.305600 + 1.286010I$	$-3.28987 - 2.02988I$	$-6.00000 + 3.46410I$

IX. $\boldsymbol{I_9^u = \langle 7.93 \times 10^6 b - 7.18 \times 10^4 a^7 + \cdots - 9.81 \times 10^6 a + 3.14 \times 10^6,\ a^8 + 6a^6 + \cdots - 60a + 73,\ u - 1\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ 0.00904756a^7 + 0.00216843a^6 + \cdots + 1.23707a - 0.396120 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -0.00216843a^7 - 0.00652609a^6 + \cdots - 0.146733a + 1.66047 \\ 0.00216843a^7 + 0.00652609a^6 + \cdots + 0.146733a + 1.33953 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.00904756a^7 - 0.00216843a^6 + \cdots - 0.237070a + 0.396120 \\ 0.00904756a^7 + 0.00216843a^6 + \cdots + 1.23707a - 0.396120 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.00216843a^7 + 0.00652609a^6 + \cdots + 0.146733a - 0.660472 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.000900759a^7 + 0.0124795a^6 + \cdots + 0.0865369a + 3.18407 \\ 0.00867371a^7 + 0.0261044a^6 + \cdots + 0.586933a + 1.35811 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -0.0271427a^7 - 0.00650529a^6 + \cdots - 1.71121a + 1.18836 \\ -0.00904756a^7 - 0.00216843a^6 + \cdots - 0.237070a + 0.396120 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0242196a^7 - 0.0533541a^6 + \cdots - 1.58772a - 0.706203 \\ -0.00994138a^7 - 0.0201510a^6 + \cdots - 0.647129a - 0.513573 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= -\frac{864}{10477}a^7 - \frac{144}{10477}a^6 - \frac{5208}{10477}a^5 + \frac{4316}{10477}a^4 - \frac{14760}{10477}a^3 + \frac{13092}{10477}a^2 - \frac{52032}{10477}a - \frac{40648}{10477}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)^4$
c_2, c_5	$(u^4-u^2+1)^2$
c_3, c_8	$u^8-2u^6+2u^5+2u^4-2u^3+3u^2+4u+1$
c_4, c_{12}	$(u^2+1)^4$
c_6, c_9	$u^8-4u^7+10u^6-16u^5+18u^4-14u^3+7u^2-2u+1$
c_7, c_{10}	$(u-1)^8$
c_{11}	$(u+1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+y+1)^4$
c_2, c_5	$(y^2-y+1)^4$
c_3, c_8	$y^8-4y^7+8y^6-6y^5+2y^4-12y^3+29y^2-10y+1$
c_4, c_{12}	$(y+1)^8$
c_6, c_9	$y^8+4y^7+8y^6+6y^5+2y^4+12y^3+29y^2+10y+1$
c_7, c_{10}, c_{11}	$(y-1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.445679 + 0.939058I$ $b = 1.000000I$	$-3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 1.00000$ $a = 0.445679 - 0.939058I$ $b = -1.000000I$	$-3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 1.00000$ $a = 1.28601 + 1.30560I$ $b = 1.000000I$	$-3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 1.00000$ $a = 1.28601 - 1.30560I$ $b = -1.000000I$	$-3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 1.00000$ $a = -0.44568 + 2.06094I$ $b = 1.000000I$	$-3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 1.00000$ $a = -0.44568 - 2.06094I$ $b = -1.000000I$	$-3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 1.00000$ $a = -1.28601 + 1.69440I$ $b = 1.000000I$	$-3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 1.00000$ $a = -1.28601 - 1.69440I$ $b = -1.000000I$	$-3.28987 + 2.02988I$	$-6.00000 - 3.46410I$

X. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$(u-1)^8(u^2-u+1)^4(u^3+u^2+2u+1)^2$ $\cdot\,(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $\cdot\,((u^6+3u^5+5u^4+4u^3+2u^2+u+1)^2)(u^{16}-6u^{15}+\cdots+4u+4)$ $\cdot\,(u^{18}+7u^{17}+\cdots-4u+4)(u^{44}+19u^{43}+\cdots+70u+1)^2$ $\cdot\,(u^{50}+19u^{49}+\cdots+5099u+169)$
c_2, c_7	$(u-1)^8(u^3-u^2+1)^2(u^4-u^2+1)^2(u^6-u^5-u^4+2u^3-u+1)^2$ $\cdot\,(u^6+u^5-u^4-2u^3+u+1)(u^{16}+4u^{15}+\cdots+8u+2)$ $\cdot\,(u^{18}+3u^{17}+\cdots+6u+2)(u^{44}-3u^{43}+\cdots+14u-1)^2$ $\cdot\,(u^{50}+11u^{49}+\cdots+165u+13)$
c_3, c_8	$(u+1)^6(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $\cdot\,(u^8-2u^6+2u^5+2u^4-2u^3+3u^2+4u+1)^2$ $\cdot\,((u^8+2u^7+2u^6+u^2+u+1)^2)(u^{12}-9u^{11}+\cdots-104u+17)$ $\cdot\,(u^{18}-9u^{17}+\cdots-16u+8)(u^{25}+4u^{24}+\cdots+3u+1)^2$ $\cdot\,(u^{44}+u^{43}+\cdots+840u+271)^2$
c_4, c_6, c_9 c_{12}	$((u^2+1)^4)(u^6-u^5+\cdots-u+1)(u^6+u^5+\cdots+2u+1)$ $\cdot\,(u^8-4u^7+10u^6-16u^5+18u^4-14u^3+7u^2-2u+1)$ $\cdot\,(u^{12}+u^{11}+2u^{10}-2u^9+3u^8-3u^7+17u^6-9u^5+19u^4-5u^3+6u^2+1)$ $\cdot\,(u^{16}-6u^{14}+\cdots-u^2+1)(u^{18}+5u^{16}+\cdots+u+1)$ $\cdot\,(u^{50}+5u^{49}+\cdots+4u+1)(u^{88}+11u^{87}+\cdots+20u+1)$
c_5, c_{11}	$(u+1)^8(u^3-u^2+1)^2(u^4-u^2+1)^2(u^6-u^5-u^4+2u^3-u+1)^3$ $\cdot\,(u^{16}-4u^{15}+\cdots-8u+2)(u^{18}+3u^{17}+\cdots+6u+2)$ $\cdot\,((u^{44}-3u^{43}+\cdots+14u-1)^2)(u^{50}+11u^{49}+\cdots+165u+13)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$(y-1)^8(y^2+y+1)^4(y^3+3y^2+2y-1)^2$ $\cdot((y^6+y^5+5y^4+6y^2+3y+1)^3)(y^{16}+2y^{15}+\cdots+152y+16)$ $\cdot(y^{18}+13y^{17}+\cdots-272y+16)(y^{44}+17y^{43}+\cdots-3330y+1)^2$ $\cdot(y^{50}+13y^{49}+\cdots-3709039y+28561)$
c_2, c_5, c_7 c_{11}	$(y-1)^8(y^2-y+1)^4(y^3-y^2+2y-1)^2$ $\cdot((y^6-3y^5+5y^4-4y^3+2y^2-y+1)^3)(y^{16}-6y^{15}+\cdots+4y+4)$ $\cdot(y^{18}-7y^{17}+\cdots+4y+4)(y^{44}-19y^{43}+\cdots-70y+1)^2$ $\cdot(y^{50}-19y^{49}+\cdots-5099y+169)$
c_3, c_8	$(y-1)^6(y^6+y^5+5y^4+6y^2+3y+1)$ $\cdot(y^8+4y^6+2y^5+2y^4+4y^3+y^2+y+1)^2$ $\cdot(y^8-4y^7+8y^6-6y^5+2y^4-12y^3+29y^2-10y+1)^2$ $\cdot(y^{12}+3y^{11}+\cdots+64y+289)(y^{18}-9y^{17}+\cdots-480y+64)$ $\cdot(y^{25}-8y^{24}+\cdots+y-1)^2$ $\cdot(y^{44}-7y^{43}+\cdots-1090962y+73441)^2$
c_4, c_6, c_9 c_{12}	$((y+1)^8)(y^6-3y^5+\cdots-y+1)(y^6+3y^5+\cdots+2y^3+1)$ $\cdot(y^8+4y^7+8y^6+6y^5+2y^4+12y^3+29y^2+10y+1)$ $\cdot(y^{12}+3y^{11}+\cdots+12y+1)(y^{16}-12y^{15}+\cdots-2y+1)$ $\cdot(y^{18}+10y^{17}+\cdots+y+1)(y^{50}+21y^{49}+\cdots+52y+1)$ $\cdot(y^{88}-39y^{87}+\cdots-250y+1)$