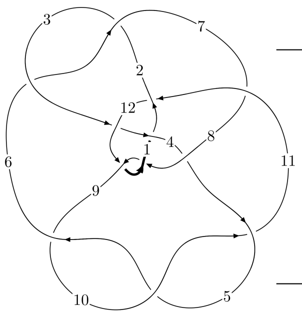
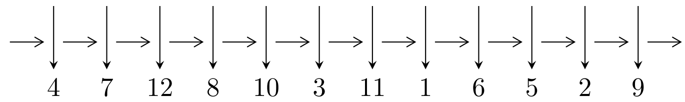
$12a_{1113}$ ($K12a_{1113}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 2.32908\times 10^{29}u^{40} + 1.73331\times 10^{30}u^{39} + \cdots + 3.94562\times 10^{29}b + 4.96788\times 10^{30},\\
& 6.00345\times 10^{29}u^{40} + 4.26908\times 10^{30}u^{39} + \cdots + 1.97281\times 10^{30}a - 8.10812\times 10^{30},\\
& u^{41} + 8u^{40} + \cdots + 194u + 20\rangle\\
I_2^u = \langle & 5.17859\times 10^{49}au^{52} - 8.79765\times 10^{49}u^{52} + \cdots + 9.52947\times 10^{49}a - 3.28551\times 10^{50},\\
& -1.62239\times 10^{46}au^{52} - 9.06685\times 10^{45}u^{52} + \cdots - 7.15132\times 10^{46}a + 1.44688\times 10^{46},\\
& u^{53} - 3u^{52} + \cdots + 6u - 1\rangle\\
I_3^u = \langle & 286u^{15}a + 870u^{15} + \cdots + 412a - 1440,\ u^{15}a - 5u^{15} + \cdots - 2a + 3,\ u^{16} - 2u^{15} + \cdots + 11u^2 + 1\rangle\\
I_4^u = \langle & -u^{12} - 3u^{11} - 10u^{10} - 19u^9 - 33u^8 - 41u^7 - 45u^6 - 34u^5 - 23u^4 - 7u^3 - 2u^2 + b + u,\\
& u^{12} + 2u^{11} + 7u^{10} + 9u^9 + 14u^8 + 8u^7 + 4u^6 - 11u^5 - 11u^4 - 16u^3 - 6u^2 + a - 3u,\\
& u^{13} + 3u^{12} + 11u^{11} + 22u^{10} + 43u^9 + 60u^8 + 78u^7 + 75u^6 + 68u^5 + 42u^4 + 26u^3 + 9u^2 + 4u + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 192 representations.

[1] The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2] All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $\boldsymbol{I_1^u} =$
$\boldsymbol{\langle 2.33\times10^{29}u^{40}+1.73\times10^{30}u^{39}+\cdots+3.95\times10^{29}b+4.97\times10^{30},\ 6.00\times10^{29}u^{40}+4.27\times10^{30}u^{39}+\cdots+1.97\times10^{30}a-8.11\times10^{30},\ u^{41}+8u^{40}+\cdots+194u+20\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_9 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}1\\u^2\end{pmatrix}$$

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

$$a_1 = \begin{pmatrix}-0.304310u^{40}-2.16396u^{39}+\cdots+7.27239u+4.10993\\-0.590294u^{40}-4.39299u^{39}+\cdots-120.424u-12.5909\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}u^2+1\\u^4+2u^2\end{pmatrix}$$

$$a_8 = \begin{pmatrix}0.232767u^{40}+1.61999u^{39}+\cdots+9.73043u+0.814296\\-0.0989378u^{40}-0.493220u^{39}+\cdots+45.4975u+5.81510\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-0.127456u^{40}-1.18041u^{39}+\cdots-60.6558u-7.42190\\0.0887872u^{40}+0.841967u^{39}+\cdots+62.8116u+7.36730\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-0.867404u^{40}-6.23818u^{39}+\cdots-84.2089u-5.14086\\-0.686402u^{40}-5.14804u^{39}+\cdots-155.965u-16.4460\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.290755u^{40}-2.42498u^{39}+\cdots-97.0747u-10.9089\\0.0561318u^{40}+0.322093u^{39}+\cdots-19.3335u-2.67658\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-0.894604u^{40}-6.55695u^{39}+\cdots-113.151u-8.48094\\-0.590294u^{40}-4.39299u^{39}+\cdots-120.424u-12.5909\end{pmatrix}$$

$$a_3 = \begin{pmatrix}0.629544u^{40}+4.44605u^{39}+\cdots+46.3823u+1.70770\\0.599880u^{40}+4.52470u^{39}+\cdots+165.072u+17.8921\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.328629u^{40}-0.785952u^{39}+\cdots+308.120u+23.6438$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{41} - u^{40} + \cdots + 7u + 1$
c_2, c_6, c_8 c_{12}	$u^{41} + u^{40} + \cdots + 16u + 8$
c_3	$u^{41} + 24u^{40} + \cdots + 23118u + 1748$
c_4, c_7	$u^{41} + u^{40} + \cdots - 11u + 1$
c_5, c_9, c_{10}	$u^{41} + 8u^{40} + \cdots + 194u + 20$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{41} + 21y^{40} + \cdots - 3y - 1$
c_2, c_6, c_8 c_{12}	$y^{41} + 35y^{40} + \cdots + 384y - 64$
c_3	$y^{41} + 4y^{40} + \cdots + 11912284y - 3055504$
c_4, c_7	$y^{41} + 37y^{40} + \cdots + 29y - 1$
c_5, c_9, c_{10}	$y^{41} + 40y^{40} + \cdots - 484y - 400$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.296481 + 0.899852I$ $a = 0.47000 + 1.47415I$ $b = 0.239416 - 0.465715I$	$-1.07101 - 1.40379I$	$-24.1033 - 2.2010I$
$u = 0.296481 - 0.899852I$ $a = 0.47000 - 1.47415I$ $b = 0.239416 + 0.465715I$	$-1.07101 + 1.40379I$	$-24.1033 + 2.2010I$
$u = -0.949933 + 0.547761I$ $a = -1.019870 - 0.650432I$ $b = -0.51711 + 1.38075I$	$7.5075 + 14.6287I$	$-6.64605 - 9.04000I$
$u = -0.949933 - 0.547761I$ $a = -1.019870 + 0.650432I$ $b = -0.51711 - 1.38075I$	$7.5075 - 14.6287I$	$-6.64605 + 9.04000I$
$u = -0.836872 + 0.326614I$ $a = 1.123520 + 0.469004I$ $b = 0.041114 - 1.137190I$	$6.37687 - 0.34568I$	$-3.90013 + 0.61025I$
$u = -0.836872 - 0.326614I$ $a = 1.123520 - 0.469004I$ $b = 0.041114 + 1.137190I$	$6.37687 + 0.34568I$	$-3.90013 - 0.61025I$
$u = -0.123273 + 1.152850I$ $a = -0.948871 + 0.267902I$ $b = 0.280654 - 0.908325I$	$8.03704 + 3.95126I$	0
$u = -0.123273 - 1.152850I$ $a = -0.948871 - 0.267902I$ $b = 0.280654 + 0.908325I$	$8.03704 - 3.95126I$	0
$u = -0.531136 + 0.588460I$ $a = 0.37159 + 1.46239I$ $b = 0.167628 - 1.242120I$	$7.61357 + 4.79301I$	$-1.03971 - 6.50667I$
$u = -0.531136 - 0.588460I$ $a = 0.37159 - 1.46239I$ $b = 0.167628 + 1.242120I$	$7.61357 - 4.79301I$	$-1.03971 + 6.50667I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.943969 + 0.763974I$ $a = -0.284764 - 0.405342I$ $b = 0.37025 + 1.38725I$	$8.03931 - 8.34303I$	0
$u = -0.943969 - 0.763974I$ $a = -0.284764 + 0.405342I$ $b = 0.37025 - 1.38725I$	$8.03931 + 8.34303I$	0
$u = 0.698688 + 1.035400I$ $a = 0.625759 - 0.631852I$ $b = -0.095443 + 1.262590I$	$4.65670 - 2.14457I$	0
$u = 0.698688 - 1.035400I$ $a = 0.625759 + 0.631852I$ $b = -0.095443 - 1.262590I$	$4.65670 + 2.14457I$	0
$u = 0.706973 + 0.226894I$ $a = 0.900475 - 0.017853I$ $b = 0.318501 + 1.110170I$	$2.64938 - 2.74377I$	$-9.97316 + 2.99890I$
$u = 0.706973 - 0.226894I$ $a = 0.900475 + 0.017853I$ $b = 0.318501 - 1.110170I$	$2.64938 + 2.74377I$	$-9.97316 - 2.99890I$
$u = -0.576720 + 0.444424I$ $a = -0.400332 - 0.410197I$ $b = -0.877603 - 0.143803I$	$-0.34799 + 3.97887I$	$-12.7101 - 6.2808I$
$u = -0.576720 - 0.444424I$ $a = -0.400332 + 0.410197I$ $b = -0.877603 + 0.143803I$	$-0.34799 - 3.97887I$	$-12.7101 + 6.2808I$
$u = -0.086074 + 1.291790I$ $a = -0.229475 - 0.428589I$ $b = -0.480662 + 0.342994I$	$3.27172 + 1.60167I$	0
$u = -0.086074 - 1.291790I$ $a = -0.229475 + 0.428589I$ $b = -0.480662 - 0.342994I$	$3.27172 - 1.60167I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.196101 + 1.347790I$ $a = -0.92032 + 1.58873I$ $b = -0.476991 - 1.161010I$	$7.50137 - 5.89018I$	0
$u = 0.196101 - 1.347790I$ $a = -0.92032 - 1.58873I$ $b = -0.476991 + 1.161010I$	$7.50137 + 5.89018I$	0
$u = -0.494897 + 0.345381I$ $a = 0.743683 + 0.881715I$ $b = 0.627955 - 0.059094I$	$-0.380401 - 0.421487I$	$-13.78617 - 0.50090I$
$u = -0.494897 - 0.345381I$ $a = 0.743683 - 0.881715I$ $b = 0.627955 + 0.059094I$	$-0.380401 + 0.421487I$	$-13.78617 + 0.50090I$
$u = -0.218244 + 1.383970I$ $a = 0.231060 - 0.661790I$ $b = -0.619071 - 0.079852I$	$4.97466 + 2.28943I$	0
$u = -0.218244 - 1.383970I$ $a = 0.231060 + 0.661790I$ $b = -0.619071 + 0.079852I$	$4.97466 - 2.28943I$	0
$u = -0.18727 + 1.48440I$ $a = -0.566341 + 0.343477I$ $b = 1.077180 + 0.055727I$	$5.94717 + 6.75189I$	0
$u = -0.18727 - 1.48440I$ $a = -0.566341 - 0.343477I$ $b = 1.077180 - 0.055727I$	$5.94717 - 6.75189I$	0
$u = 0.08631 + 1.51704I$ $a = 0.37205 - 1.80580I$ $b = 0.76083 + 1.29417I$	$12.88760 - 5.18387I$	0
$u = 0.08631 - 1.51704I$ $a = 0.37205 + 1.80580I$ $b = 0.76083 - 1.29417I$	$12.88760 + 5.18387I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.196155 + 0.437503I$ $a = -2.40557 + 1.20349I$ $b = -0.568477 - 1.145760I$	$6.24460 - 4.01332I$	$-1.25065 + 4.31997I$
$u = 0.196155 - 0.437503I$ $a = -2.40557 - 1.20349I$ $b = -0.568477 + 1.145760I$	$6.24460 + 4.01332I$	$-1.25065 - 4.31997I$
$u = -0.19318 + 1.51184I$ $a = -0.47092 - 2.41615I$ $b = -0.165997 + 1.401930I$	$14.4132 + 7.5144I$	0
$u = -0.19318 - 1.51184I$ $a = -0.47092 + 2.41615I$ $b = -0.165997 - 1.401930I$	$14.4132 - 7.5144I$	0
$u = -0.34109 + 1.50383I$ $a = -1.04827 - 1.63552I$ $b = -0.193839 + 1.203800I$	$12.30200 + 4.04048I$	0
$u = -0.34109 - 1.50383I$ $a = -1.04827 + 1.63552I$ $b = -0.193839 - 1.203800I$	$12.30200 - 4.04048I$	0
$u = -0.33736 + 1.56810I$ $a = 0.79574 + 1.76995I$ $b = 0.62408 - 1.42736I$	$14.3689 + 19.3341I$	0
$u = -0.33736 - 1.56810I$ $a = 0.79574 - 1.76995I$ $b = 0.62408 + 1.42736I$	$14.3689 - 19.3341I$	0
$u = -0.359249$ $a = 0.959189$ $b = 0.338732$	-0.600677	-16.5800
$u = -0.18105 + 1.72191I$ $a = 0.28126 + 1.52513I$ $b = -0.18178 - 1.52324I$	$16.7725 - 3.8927I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.18105 - 1.72191I$ $a = 0.28126 - 1.52513I$ $b = -0.18178 + 1.52324I$	$16.7725 + 3.8927I$	0

II. $I_2^u = \langle 5.18 \times 10^{49} a u^{52} - 8.80 \times 10^{49} u^{52} + \cdots + 9.53 \times 10^{49} a - 3.29 \times 10^{50},\ -1.62 \times 10^{46} a u^{52} - 9.07 \times 10^{45} u^{52} + \cdots - 7.15 \times 10^{46} a + 1.45 \times 10^{46},\ u^{53} - 3u^{52} + \cdots + 6u - 1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} a \\ -0.861283au^{52} + 1.46319u^{52} + \cdots - 1.58490a + 5.46434 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1.93540au^{52} - 3.97835u^{52} + \cdots + 4.09334a - 10.7382 \\ -0.418054au^{52} + 0.604966u^{52} + \cdots - 0.783563a + 1.41655 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1.45012au^{52} - 4.83707u^{52} + \cdots + 3.99061a - 16.1840 \\ 0.379491au^{52} - 1.47688u^{52} + \cdots + 1.28379a - 3.21136 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.962379au^{52} + 1.24877u^{52} + \cdots - 3.12002a + 6.27204 \\ 0.435932au^{52} - 0.803691u^{52} + \cdots + 0.839841a - 4.11386 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.783563au^{52} - 1.43416u^{52} + \cdots + 1.15238a - 4.29860 \\ -0.606716au^{52} + 1.43629u^{52} + \cdots - 1.51735a + 3.57261 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.861283au^{52} + 1.46319u^{52} + \cdots - 0.584905a + 5.46434 \\ -0.861283au^{52} + 1.46319u^{52} + \cdots - 1.58490a + 5.46434 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1.58490au^{52} - 4.09334u^{52} + \cdots + 4.18730a - 11.7934 \\ 0.439415au^{52} - 0.733148u^{52} + \cdots + 0.861283a + 1.17925 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2.38328u^{52} - 7.96262u^{51} + \cdots - 15.2149u - 8.35008$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{106} - 11u^{105} + \cdots - 292365u + 34945$
c_2, c_6, c_8 c_{12}	$u^{106} - 3u^{105} + \cdots - 2223u + 1483$
c_3	$(u^{53} - 10u^{52} + \cdots + 1907u - 181)^2$
c_4, c_7	$u^{106} + 5u^{105} + \cdots - 10087462u + 1845977$
c_5, c_9, c_{10}	$(u^{53} - 3u^{52} + \cdots + 6u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{106} + 21y^{105} + \cdots + 39625037985y + 1221153025$
c_2, c_6, c_8 c_{12}	$y^{106} + 63y^{105} + \cdots + 84050135y + 2199289$
c_3	$(y^{53} + 14y^{52} + \cdots - 619023y - 32761)^2$
c_4, c_7	$y^{106} + 23y^{105} + \cdots + 310954538449436y + 3407631084529$
c_5, c_9, c_{10}	$(y^{53} + 57y^{52} + \cdots - 12y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.165800 + 1.012010I$ $a = -1.094450 - 0.095380I$ $b = -0.101040 - 1.202420I$	$6.54117 + 4.06649I$	0
$u = 0.165800 + 1.012010I$ $a = 0.433857 - 1.284040I$ $b = -0.506296 + 1.189990I$	$6.54117 + 4.06649I$	0
$u = 0.165800 - 1.012010I$ $a = -1.094450 + 0.095380I$ $b = -0.101040 + 1.202420I$	$6.54117 - 4.06649I$	0
$u = 0.165800 - 1.012010I$ $a = 0.433857 + 1.284040I$ $b = -0.506296 - 1.189990I$	$6.54117 - 4.06649I$	0
$u = -0.320431 + 0.885853I$ $a = 0.628969 + 0.703759I$ $b = 0.394636 - 1.088800I$	$1.29625 + 4.76203I$	$-12.00000 - 7.37621I$
$u = -0.320431 + 0.885853I$ $a = -0.32366 - 1.55316I$ $b = -0.485105 + 0.237839I$	$1.29625 + 4.76203I$	$-12.00000 - 7.37621I$
$u = -0.320431 - 0.885853I$ $a = 0.628969 - 0.703759I$ $b = 0.394636 + 1.088800I$	$1.29625 - 4.76203I$	$-12.00000 + 7.37621I$
$u = -0.320431 - 0.885853I$ $a = -0.32366 + 1.55316I$ $b = -0.485105 - 0.237839I$	$1.29625 - 4.76203I$	$-12.00000 + 7.37621I$
$u = 0.710053 + 0.578175I$ $a = -0.779976 + 0.261249I$ $b = -1.092580 - 0.045489I$	$3.02300 - 8.93280I$	$-12.0000 + 8.9248I$
$u = 0.710053 + 0.578175I$ $a = -1.13394 + 1.05639I$ $b = -0.485181 - 1.231800I$	$3.02300 - 8.93280I$	$-12.0000 + 8.9248I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.710053 - 0.578175I$ $a = -0.779976 - 0.261249I$ $b = -1.092580 + 0.045489I$	$3.02300 + 8.93280I$	$-12.0000 - 8.9248I$
$u = 0.710053 - 0.578175I$ $a = -1.13394 - 1.05639I$ $b = -0.485181 + 1.231800I$	$3.02300 + 8.93280I$	$-12.0000 - 8.9248I$
$u = 0.745217 + 0.349897I$ $a = 1.38397 - 0.60955I$ $b = 0.463875 + 1.229330I$	$2.91474 - 3.67297I$	$-10.77436 + 2.95919I$
$u = 0.745217 + 0.349897I$ $a = -0.165723 - 0.424108I$ $b = -0.035039 + 0.341204I$	$2.91474 - 3.67297I$	$-10.77436 + 2.95919I$
$u = 0.745217 - 0.349897I$ $a = 1.38397 + 0.60955I$ $b = 0.463875 - 1.229330I$	$2.91474 + 3.67297I$	$-10.77436 - 2.95919I$
$u = 0.745217 - 0.349897I$ $a = -0.165723 + 0.424108I$ $b = -0.035039 - 0.341204I$	$2.91474 + 3.67297I$	$-10.77436 - 2.95919I$
$u = 0.760227 + 0.235180I$ $a = 1.40140 - 0.75993I$ $b = 0.790773 - 0.648400I$	$2.33845 + 4.28571I$	$-11.32554 - 7.01776I$
$u = 0.760227 + 0.235180I$ $a = -0.235745 + 0.321056I$ $b = 0.373530 - 1.039210I$	$2.33845 + 4.28571I$	$-11.32554 - 7.01776I$
$u = 0.760227 - 0.235180I$ $a = 1.40140 + 0.75993I$ $b = 0.790773 + 0.648400I$	$2.33845 - 4.28571I$	$-11.32554 + 7.01776I$
$u = 0.760227 - 0.235180I$ $a = -0.235745 - 0.321056I$ $b = 0.373530 + 1.039210I$	$2.33845 - 4.28571I$	$-11.32554 + 7.01776I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.142560 + 1.262400I$ $a = -1.050780 - 0.255874I$ $b = -0.120285 + 0.863933I$	$3.57551 + 1.17561I$	0
$u = -0.142560 + 1.262400I$ $a = 0.281677 - 0.588104I$ $b = -0.955485 + 0.189872I$	$3.57551 + 1.17561I$	0
$u = -0.142560 - 1.262400I$ $a = -1.050780 + 0.255874I$ $b = -0.120285 - 0.863933I$	$3.57551 - 1.17561I$	0
$u = -0.142560 - 1.262400I$ $a = 0.281677 + 0.588104I$ $b = -0.955485 - 0.189872I$	$3.57551 - 1.17561I$	0
$u = -1.183730 + 0.574246I$ $a = 0.878938 + 0.256019I$ $b = 0.57796 - 1.65346I$	$4.87494 + 4.47737I$	0
$u = -1.183730 + 0.574246I$ $a = -0.428863 - 0.749061I$ $b = -0.073896 + 1.102200I$	$4.87494 + 4.47737I$	0
$u = -1.183730 - 0.574246I$ $a = 0.878938 - 0.256019I$ $b = 0.57796 + 1.65346I$	$4.87494 - 4.47737I$	0
$u = -1.183730 - 0.574246I$ $a = -0.428863 + 0.749061I$ $b = -0.073896 - 1.102200I$	$4.87494 - 4.47737I$	0
$u = 0.383615 + 0.550853I$ $a = 0.296284 - 1.012710I$ $b = -0.305092 + 1.164560I$	$4.00302 - 0.21246I$	$-6.41251 + 2.33360I$
$u = 0.383615 + 0.550853I$ $a = 0.435115 - 0.395260I$ $b = -0.461808 - 0.062250I$	$4.00302 - 0.21246I$	$-6.41251 + 2.33360I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.383615 - 0.550853I$ $a = 0.296284 + 1.012710I$ $b = -0.305092 - 1.164560I$	$4.00302 + 0.21246I$	$-6.41251 - 2.33360I$
$u = 0.383615 - 0.550853I$ $a = 0.435115 + 0.395260I$ $b = -0.461808 + 0.062250I$	$4.00302 + 0.21246I$	$-6.41251 - 2.33360I$
$u = -0.732211 + 1.139200I$ $a = -0.379690 - 1.037050I$ $b = -0.176094 + 1.080830I$	$6.83164 + 2.79575I$	0
$u = -0.732211 + 1.139200I$ $a = 0.234424 + 0.022259I$ $b = -0.76627 - 1.47031I$	$6.83164 + 2.79575I$	0
$u = -0.732211 - 1.139200I$ $a = -0.379690 + 1.037050I$ $b = -0.176094 - 1.080830I$	$6.83164 - 2.79575I$	0
$u = -0.732211 - 1.139200I$ $a = 0.234424 - 0.022259I$ $b = -0.76627 + 1.47031I$	$6.83164 - 2.79575I$	0
$u = 0.078360 + 1.381480I$ $a = 0.031873 + 1.046050I$ $b = -0.837965 - 1.021720I$	$6.12362 - 5.69143I$	0
$u = 0.078360 + 1.381480I$ $a = -0.99155 + 3.19832I$ $b = -0.136056 - 1.049730I$	$6.12362 - 5.69143I$	0
$u = 0.078360 - 1.381480I$ $a = 0.031873 - 1.046050I$ $b = -0.837965 + 1.021720I$	$6.12362 + 5.69143I$	0
$u = 0.078360 - 1.381480I$ $a = -0.99155 - 3.19832I$ $b = -0.136056 + 1.049730I$	$6.12362 + 5.69143I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.058991+1.396780I$ $a=\ 1.062550-0.008805I$ $b=\ 0.475274-0.740829I$	$3.44261+2.00436I$	0
$u=-0.058991+1.396780I$ $a=\ 1.193410-0.396669I$ $b=-1.45822+0.09321I$	$3.44261+2.00436I$	0
$u=-0.058991-1.396780I$ $a=\ 1.062550+0.008805I$ $b=\ 0.475274+0.740829I$	$3.44261-2.00436I$	0
$u=-0.058991-1.396780I$ $a=\ 1.193410+0.396669I$ $b=-1.45822-0.09321I$	$3.44261-2.00436I$	0
$u=-0.570795+0.179775I$ $a=\ 0.945476-0.124446I$ $b=\ 0.923520+0.127555I$	$-0.70537-1.38192I$	$-15.6108+3.1019I$
$u=-0.570795+0.179775I$ $a=\ 0.836409-0.890935I$ $b=-0.189018-0.915447I$	$-0.70537-1.38192I$	$-15.6108+3.1019I$
$u=-0.570795-0.179775I$ $a=\ 0.945476+0.124446I$ $b=\ 0.923520-0.127555I$	$-0.70537+1.38192I$	$-15.6108-3.1019I$
$u=-0.570795-0.179775I$ $a=\ 0.836409+0.890935I$ $b=-0.189018+0.915447I$	$-0.70537+1.38192I$	$-15.6108-3.1019I$
$u=\ 0.16387+1.41729I$ $a=\ 1.302090-0.402861I$ $b=\ 0.404933+0.947181I$	$9.30783-8.99341I$	0
$u=\ 0.16387+1.41729I$ $a=-0.49011+2.50301I$ $b=-0.51699-1.57230I$	$9.30783-8.99341I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.16387 - 1.41729I$ $a = 1.302090 + 0.402861I$ $b = 0.404933 - 0.947181I$	$9.30783 + 8.99341I$	0
$u = 0.16387 - 1.41729I$ $a = -0.49011 - 2.50301I$ $b = -0.51699 + 1.57230I$	$9.30783 + 8.99341I$	0
$u = 0.22320 + 1.41867I$ $a = -0.495162 - 0.151068I$ $b = -0.114424 + 0.462619I$	$9.63534 - 2.43945I$	0
$u = 0.22320 + 1.41867I$ $a = -1.00514 + 2.10235I$ $b = 0.036584 - 1.212710I$	$9.63534 - 2.43945I$	0
$u = 0.22320 - 1.41867I$ $a = -0.495162 + 0.151068I$ $b = -0.114424 - 0.462619I$	$9.63534 + 2.43945I$	0
$u = 0.22320 - 1.41867I$ $a = -1.00514 - 2.10235I$ $b = 0.036584 + 1.212710I$	$9.63534 + 2.43945I$	0
$u = 0.501775 + 0.192333I$ $a = 1.42985 - 0.74793I$ $b = 0.50145 + 1.37772I$	$4.05191 - 6.64531I$	$-9.1791 + 10.7763I$
$u = 0.501775 + 0.192333I$ $a = -1.69790 - 2.24036I$ $b = -0.238689 - 1.071730I$	$4.05191 - 6.64531I$	$-9.1791 + 10.7763I$
$u = 0.501775 - 0.192333I$ $a = 1.42985 + 0.74793I$ $b = 0.50145 - 1.37772I$	$4.05191 + 6.64531I$	$-9.1791 - 10.7763I$
$u = 0.501775 - 0.192333I$ $a = -1.69790 + 2.24036I$ $b = -0.238689 + 1.071730I$	$4.05191 + 6.64531I$	$-9.1791 - 10.7763I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.01462 + 1.46728I$ $a = 0.200669 + 0.640544I$ $b = -1.132310 - 0.660021I$	$4.83886 - 1.12887I$	0
$u = 0.01462 + 1.46728I$ $a = -0.26712 - 2.68797I$ $b = 0.043516 + 1.100890I$	$4.83886 - 1.12887I$	0
$u = 0.01462 - 1.46728I$ $a = 0.200669 - 0.640544I$ $b = -1.132310 + 0.660021I$	$4.83886 + 1.12887I$	0
$u = 0.01462 - 1.46728I$ $a = -0.26712 + 2.68797I$ $b = 0.043516 - 1.100890I$	$4.83886 + 1.12887I$	0
$u = 0.191180 + 0.495191I$ $a = 1.073640 + 0.709225I$ $b = 0.785121 - 0.050099I$	$-1.46223 - 0.91843I$	$-13.3729 + 7.7566I$
$u = 0.191180 + 0.495191I$ $a = 0.34506 + 2.46564I$ $b = -0.239112 - 0.649465I$	$-1.46223 - 0.91843I$	$-13.3729 + 7.7566I$
$u = 0.191180 - 0.495191I$ $a = 1.073640 - 0.709225I$ $b = 0.785121 + 0.050099I$	$-1.46223 + 0.91843I$	$-13.3729 - 7.7566I$
$u = 0.191180 - 0.495191I$ $a = 0.34506 - 2.46564I$ $b = -0.239112 + 0.649465I$	$-1.46223 + 0.91843I$	$-13.3729 - 7.7566I$
$u = -0.04064 + 1.48820I$ $a = 0.601502 - 0.231951I$ $b = 0.643761 + 0.618196I$	$8.39307 + 4.86079I$	0
$u = -0.04064 + 1.48820I$ $a = 0.05006 - 2.19788I$ $b = -0.51719 + 1.47742I$	$8.39307 + 4.86079I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.04064 - 1.48820I$ $a = 0.601502 + 0.231951I$ $b = 0.643761 - 0.618196I$	$8.39307 - 4.86079I$	0
$u = -0.04064 - 1.48820I$ $a = 0.05006 + 2.19788I$ $b = -0.51719 - 1.47742I$	$8.39307 - 4.86079I$	0
$u = 0.04043 + 1.49038I$ $a = -0.441164 - 0.164774I$ $b = 0.957149 + 0.434176I$	$10.47290 - 1.35301I$	0
$u = 0.04043 + 1.49038I$ $a = -0.07772 + 2.12151I$ $b = 0.48833 - 1.34727I$	$10.47290 - 1.35301I$	0
$u = 0.04043 - 1.49038I$ $a = -0.441164 + 0.164774I$ $b = 0.957149 - 0.434176I$	$10.47290 + 1.35301I$	0
$u = 0.04043 - 1.49038I$ $a = -0.07772 - 2.12151I$ $b = 0.48833 + 1.34727I$	$10.47290 + 1.35301I$	0
$u = 0.26409 + 1.47574I$ $a = 0.009353 + 0.281949I$ $b = 0.352757 - 0.172771I$	$8.89216 - 7.33924I$	0
$u = 0.26409 + 1.47574I$ $a = -0.86508 + 2.04217I$ $b = -0.51365 - 1.36756I$	$8.89216 - 7.33924I$	0
$u = 0.26409 - 1.47574I$ $a = 0.009353 - 0.281949I$ $b = 0.352757 + 0.172771I$	$8.89216 + 7.33924I$	0
$u = 0.26409 - 1.47574I$ $a = -0.86508 - 2.04217I$ $b = -0.51365 + 1.36756I$	$8.89216 + 7.33924I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.24922 + 1.55201I$ $a = -0.469789 - 0.422188I$ $b = 1.350200 - 0.068557I$	$10.0179 - 12.5057I$	0
$u = 0.24922 + 1.55201I$ $a = 0.69070 - 2.00160I$ $b = 0.54050 + 1.34699I$	$10.0179 - 12.5057I$	0
$u = 0.24922 - 1.55201I$ $a = -0.469789 + 0.422188I$ $b = 1.350200 + 0.068557I$	$10.0179 + 12.5057I$	0
$u = 0.24922 - 1.55201I$ $a = 0.69070 + 2.00160I$ $b = 0.54050 - 1.34699I$	$10.0179 + 12.5057I$	0
$u = 0.374085$ $a = 2.88440 + 0.51386I$ $b = -0.252055 - 0.829039I$	4.56201	-5.65850
$u = 0.374085$ $a = 2.88440 - 0.51386I$ $b = -0.252055 + 0.829039I$	4.56201	-5.65850
$u = -0.13724 + 1.62204I$ $a = -0.34113 - 1.66416I$ $b = 0.40688 + 1.71494I$	$15.9830 + 5.4339I$	0
$u = -0.13724 + 1.62204I$ $a = 0.25543 + 2.03224I$ $b = 0.335139 - 1.353430I$	$15.9830 + 5.4339I$	0
$u = -0.13724 - 1.62204I$ $a = -0.34113 + 1.66416I$ $b = 0.40688 - 1.71494I$	$15.9830 - 5.4339I$	0
$u = -0.13724 - 1.62204I$ $a = 0.25543 - 2.03224I$ $b = 0.335139 + 1.353430I$	$15.9830 - 5.4339I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.137843 + 0.321165I$ $a = -0.79809 + 1.36947I$ $b = \ \ 0.568829 - 1.166050I$	$2.04905 + 4.64753I$	$-16.1218 - 0.9894I$
$u = \ \ 0.137843 + 0.321165I$ $a = -1.04701 - 5.62813I$ $b = -0.016950 - 0.512489I$	$2.04905 + 4.64753I$	$-16.1218 - 0.9894I$
$u = \ \ 0.137843 - 0.321165I$ $a = -0.79809 - 1.36947I$ $b = \ \ 0.568829 + 1.166050I$	$2.04905 - 4.64753I$	$-16.1218 + 0.9894I$
$u = \ \ 0.137843 - 0.321165I$ $a = -1.04701 + 5.62813I$ $b = -0.016950 + 0.512489I$	$2.04905 - 4.64753I$	$-16.1218 + 0.9894I$
$u = -0.35704 + 1.62467I$ $a = -0.66966 - 1.53369I$ $b = -0.72403 + 1.51116I$	$12.1307 + 9.9759I$	0
$u = -0.35704 + 1.62467I$ $a = \ \ 0.59759 + 1.62302I$ $b = \ \ 0.260021 - 1.206480I$	$12.1307 + 9.9759I$	0
$u = -0.35704 - 1.62467I$ $a = -0.66966 + 1.53369I$ $b = -0.72403 - 1.51116I$	$12.1307 - 9.9759I$	0
$u = -0.35704 - 1.62467I$ $a = \ \ 0.59759 - 1.62302I$ $b = \ \ 0.260021 + 1.206480I$	$12.1307 - 9.9759I$	0
$u = \ \ 0.37616 + 1.73030I$ $a = \ \ 0.34715 - 1.44958I$ $b = \ \ 0.019349 + 1.149640I$	$8.25412 - 1.33361I$	0
$u = \ \ 0.37616 + 1.73030I$ $a = \ \ 0.373776 + 0.123190I$ $b = -1.72623 + 0.70422I$	$8.25412 - 1.33361I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.37616 - 1.73030I$ $a = 0.34715 + 1.44958I$ $b = 0.019349 - 1.149640I$	$8.25412 + 1.33361I$	0
$u = 0.37616 - 1.73030I$ $a = 0.373776 - 0.123190I$ $b = -1.72623 - 0.70422I$	$8.25412 + 1.33361I$	0
$u = -0.149074 + 0.152659I$ $a = 2.39079 - 0.28224I$ $b = 1.231550 + 0.225810I$	$-1.06121 - 1.24134I$	$-33.2596 + 9.1380I$
$u = -0.149074 + 0.152659I$ $a = 8.15308 + 0.11625I$ $b = -0.248584 - 0.841284I$	$-1.06121 - 1.24134I$	$-33.2596 + 9.1380I$
$u = -0.149074 - 0.152659I$ $a = 2.39079 + 0.28224I$ $b = 1.231550 - 0.225810I$	$-1.06121 + 1.24134I$	$-33.2596 - 9.1380I$
$u = -0.149074 - 0.152659I$ $a = 8.15308 - 0.11625I$ $b = -0.248584 + 0.841284I$	$-1.06121 + 1.24134I$	$-33.2596 - 9.1380I$

III. $\boldsymbol{I_3^u = \langle 286u^{15}a + 870u^{15} + \cdots + 412a - 1440,\ u^{15}a - 5u^{15} + \cdots - 2a + 3,\ u^{16} - 2u^{15} + \cdots + 11u^2 + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} a \\ -0.311887au^{15} - 0.948746u^{15} + \cdots - 0.449291a + 1.57034 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1.94875au^{15} + 0.393675u^{15} + \cdots + 0.570338a + 1.21047 \\ 0.189749au^{15} - 1.47874u^{15} + \cdots - 1.31407a - 2.24209 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.824427au^{15} - 3.11450u^{15} + \cdots - 1.84733a + 3.53435 \\ 1.50382au^{15} - 0.236641u^{15} + \cdots - 1.35115a - 1.22901 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.849509au^{15} - 0.758997u^{15} + \cdots - 1.55943a + 4.25627 \\ 0.418757au^{15} + 2.32279u^{15} + \cdots + 0.617230a + 0.0174482 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.31407au^{15} - 0.242094u^{15} + \cdots + 0.0370774a - 1.01309 \\ 0.958561au^{15} - 1.57361u^{15} + \cdots - 1.75900a - 3.08506 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.311887au^{15} - 0.948746u^{15} + \cdots + 0.550709a + 1.57034 \\ -0.311887au^{15} - 0.948746u^{15} + \cdots - 0.449291a + 1.57034 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.449291au^{15} + 0.570338u^{15} + \cdots + 0.191930a + 3.81461 \\ 1.23010au^{15} + 3.44820u^{15} + \cdots - 0.311887a - 0.948746 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 6u^{15} - 6u^{14} + 50u^{13} - 37u^{12} + 155u^{11} - 89u^{10} + 210u^9 - 92u^8 + 73u^7 + 13u^6 - 90u^5 + 132u^4 - 63u^3 + 120u^2 - 3u + 27$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{32} - 4u^{31} + \cdots - 3u + 1$
c_2, c_8	$u^{32} + 4u^{31} + \cdots + 16u + 8$
c_3	$(u^{16} - 5u^{15} + \cdots - 4u + 1)^2$
c_4, c_7	$u^{32} + 2u^{31} + \cdots + 108u + 11$
c_5	$(u^{16} + 2u^{15} + \cdots + 11u^2 + 1)^2$
c_6, c_{12}	$u^{32} - 4u^{31} + \cdots - 16u + 8$
c_9, c_{10}	$(u^{16} - 2u^{15} + \cdots + 11u^2 + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{32} + 12y^{31} + \cdots + 19y + 1$
c_2, c_6, c_8 c_{12}	$y^{32} + 12y^{31} + \cdots + 1344y + 64$
c_3	$(y^{16} + y^{15} + \cdots - 4y + 1)^2$
c_4, c_7	$y^{32} + 6y^{31} + \cdots - 708y + 121$
c_5, c_9, c_{10}	$(y^{16} + 18y^{15} + \cdots + 22y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.885109 + 0.349966I$ $a = 1.218280 - 0.222557I$ $b = 0.63010 + 1.40168I$	$3.72418 - 4.45667I$	$-6.48074 + 7.95119I$
$u = 0.885109 + 0.349966I$ $a = -0.467582 + 0.173710I$ $b = -0.170510 - 0.913317I$	$3.72418 - 4.45667I$	$-6.48074 + 7.95119I$
$u = 0.885109 - 0.349966I$ $a = 1.218280 + 0.222557I$ $b = 0.63010 - 1.40168I$	$3.72418 + 4.45667I$	$-6.48074 - 7.95119I$
$u = 0.885109 - 0.349966I$ $a = -0.467582 - 0.173710I$ $b = -0.170510 + 0.913317I$	$3.72418 + 4.45667I$	$-6.48074 - 7.95119I$
$u = -0.028300 + 1.244790I$ $a = 0.403771 - 1.292850I$ $b = -0.749213 + 1.070340I$	$4.97809 + 4.94738I$	$-10.20424 - 5.44012I$
$u = -0.028300 + 1.244790I$ $a = -1.31270 - 1.41867I$ $b = -0.002845 - 0.642593I$	$4.97809 + 4.94738I$	$-10.20424 - 5.44012I$
$u = -0.028300 - 1.244790I$ $a = 0.403771 + 1.292850I$ $b = -0.749213 - 1.070340I$	$4.97809 - 4.94738I$	$-10.20424 + 5.44012I$
$u = -0.028300 - 1.244790I$ $a = -1.31270 + 1.41867I$ $b = -0.002845 + 0.642593I$	$4.97809 - 4.94738I$	$-10.20424 + 5.44012I$
$u = -0.350680 + 1.261700I$ $a = -0.105470 + 0.969664I$ $b = 0.167778 - 0.811319I$	$6.41137 + 2.01073I$	$-3.72582 + 1.88569I$
$u = -0.350680 + 1.261700I$ $a = 0.044675 - 0.456439I$ $b = -0.795291 - 0.798520I$	$6.41137 + 2.01073I$	$-3.72582 + 1.88569I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.350680-1.261700I$ $a=-0.105470-0.969664I$ $b=\ \ 0.167778+0.811319I$	$6.41137-2.01073I$	$-3.72582-1.88569I$
$u=-0.350680-1.261700I$ $a=\ \ 0.044675+0.456439I$ $b=-0.795291+0.798520I$	$6.41137-2.01073I$	$-3.72582-1.88569I$
$u=-0.040347+1.317260I$ $a=\ \ 0.880036-0.606283I$ $b=-1.244970+0.297003I$	$2.67693+1.72947I$	$-15.1210-2.2121I$
$u=-0.040347+1.317260I$ $a=-1.261780+0.312098I$ $b=-0.352705+0.765126I$	$2.67693+1.72947I$	$-15.1210-2.2121I$
$u=-0.040347-1.317260I$ $a=\ \ 0.880036+0.606283I$ $b=-1.244970-0.297003I$	$2.67693-1.72947I$	$-15.1210+2.2121I$
$u=-0.040347-1.317260I$ $a=-1.261780-0.312098I$ $b=-0.352705-0.765126I$	$2.67693-1.72947I$	$-15.1210+2.2121I$
$u=\ \ 0.041332+0.605390I$ $a=\ \ 0.654840-0.834249I$ $b=\ \ 0.579131+1.181470I$	$2.51143-4.84190I$	$-0.95877+6.52369I$
$u=\ \ 0.041332+0.605390I$ $a=-2.02957+3.61356I$ $b=-0.023092-0.730181I$	$2.51143-4.84190I$	$-0.95877+6.52369I$
$u=\ \ 0.041332-0.605390I$ $a=\ \ 0.654840+0.834249I$ $b=\ \ 0.579131-1.181470I$	$2.51143+4.84190I$	$-0.95877-6.52369I$
$u=\ \ 0.041332-0.605390I$ $a=-2.02957-3.61356I$ $b=-0.023092+0.730181I$	$2.51143+4.84190I$	$-0.95877-6.52369I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.22711 + 1.45555I$ $a = 0.743816 - 0.475853I$ $b = 0.287983 + 0.711932I$	$9.68939 - 7.99529I$	$-1.24986 + 5.38298I$
$u = 0.22711 + 1.45555I$ $a = -0.75447 + 2.17487I$ $b = -0.56213 - 1.45146I$	$9.68939 - 7.99529I$	$-1.24986 + 5.38298I$
$u = 0.22711 - 1.45555I$ $a = 0.743816 + 0.475853I$ $b = 0.287983 - 0.711932I$	$9.68939 + 7.99529I$	$-1.24986 - 5.38298I$
$u = 0.22711 - 1.45555I$ $a = -0.75447 - 2.17487I$ $b = -0.56213 + 1.45146I$	$9.68939 + 7.99529I$	$-1.24986 - 5.38298I$
$u = 0.38691 + 1.59563I$ $a = -0.53938 + 1.51502I$ $b = -0.008035 - 1.140650I$	$7.93298 - 1.46735I$	$-8.76314 + 4.88302I$
$u = 0.38691 + 1.59563I$ $a = 0.266507 + 0.100955I$ $b = -1.30677 + 0.74563I$	$7.93298 - 1.46735I$	$-8.76314 + 4.88302I$
$u = 0.38691 - 1.59563I$ $a = -0.53938 - 1.51502I$ $b = -0.008035 + 1.140650I$	$7.93298 + 1.46735I$	$-8.76314 - 4.88302I$
$u = 0.38691 - 1.59563I$ $a = 0.266507 - 0.100955I$ $b = -1.30677 - 0.74563I$	$7.93298 + 1.46735I$	$-8.76314 - 4.88302I$
$u = -0.121140 + 0.310338I$ $a = 1.249810 + 0.520105I$ $b = 1.303160 + 0.228621I$	$-0.91335 - 1.19226I$	$16.0035 - 7.2037I$
$u = -0.121140 + 0.310338I$ $a = -4.99079 - 2.40986I$ $b = 0.247408 + 0.863493I$	$-0.91335 - 1.19226I$	$16.0035 - 7.2037I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.121140-0.310338I$ $a=1.249810-0.520105I$ $b=1.303160-0.228621I$	$-0.91335+1.19226I$	$16.0035+7.2037I$
$u=-0.121140-0.310338I$ $a=-4.99079+2.40986I$ $b=0.247408-0.863493I$	$-0.91335+1.19226I$	$16.0035+7.2037I$

IV.

$$\boldsymbol{I_4^u = \langle -u^{12}-3u^{11}+\cdots+b+u,\ u^{12}+2u^{11}+\cdots+a-3u,\ u^{13}+3u^{12}+\cdots+4u+1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -u^{12}-2u^{11}+\cdots+6u^2+3u \\ u^{12}+3u^{11}+\cdots+2u^2-u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{10}+2u^9+6u^8+7u^7+9u^6+3u^5-8u^3-5u^2-5u \\ -u^{10}-3u^9-9u^8-16u^7-25u^6-27u^5-26u^4-15u^3-8u^2-u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^{11}-3u^{10}+\cdots-9u-3 \\ -u^{12}-3u^{11}+\cdots-12u^2-2u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{12}-2u^{11}+\cdots-3u^2+4u \\ u^{12}+3u^{11}+\cdots+5u+1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^9-3u^8-9u^7-16u^6-25u^5-27u^4-26u^3-15u^2-8u-1 \\ -u^{10}-3u^9-9u^8-16u^7-24u^6-26u^5-23u^4-13u^3-6u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^{11}+3u^{10}+\cdots+8u^2+2u \\ u^{12}+3u^{11}+\cdots+2u^2-u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{11}+3u^{10}+\cdots+2u-1 \\ u^{12}+3u^{11}+\cdots+8u^3+2u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -2u^{12}-3u^{11}-21u^{10}-31u^9-84u^8-100u^7-157u^6-130u^5-153u^4-70u^3-77u^2-16u-18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{13} + u^{12} + \cdots + 3u^2 - 1$
c_2, c_8	$u^{13} + u^{12} + \cdots - u^2 - 1$
c_3	$u^{13} + 7u^{12} + \cdots + 30u + 11$
c_4, c_7	$u^{13} - u^{12} - u^{11} + 2u^{10} - 6u^8 - 4u^7 + u^6 + 10u^5 + 9u^4 + 2u^3 - 4u^2 - 1$
c_5	$u^{13} - 3u^{12} + \cdots + 4u - 1$
c_6, c_{12}	$u^{13} - u^{12} + \cdots + u^2 + 1$
c_9, c_{10}	$u^{13} + 3u^{12} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{13} - 7y^{12} + \cdots + 6y - 1$
c_2, c_6, c_8 c_{12}	$y^{13} + 13y^{12} + \cdots - 2y - 1$
c_3	$y^{13} + 5y^{12} + \cdots + 20y - 121$
c_4, c_7	$y^{13} - 3y^{12} + \cdots - 8y - 1$
c_5, c_9, c_{10}	$y^{13} + 13y^{12} + \cdots - 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.343544 + 0.921866I$ $a = 0.62202 - 1.56996I$ $b = 0.150421 + 0.585473I$	$-0.81818 + 1.45542I$	$6.61897 - 3.82327I$
$u = -0.343544 - 0.921866I$ $a = 0.62202 + 1.56996I$ $b = 0.150421 - 0.585473I$	$-0.81818 - 1.45542I$	$6.61897 + 3.82327I$
$u = -0.947385 + 0.780952I$ $a = 0.506075 + 0.646149I$ $b = 0.058701 - 1.324110I$	$5.42036 + 3.32162I$	$-2.61851 - 4.59404I$
$u = -0.947385 - 0.780952I$ $a = 0.506075 - 0.646149I$ $b = 0.058701 + 1.324110I$	$5.42036 - 3.32162I$	$-2.61851 + 4.59404I$
$u = 0.095927 + 1.286340I$ $a = -1.20827 + 1.74531I$ $b = -0.422793 - 1.243340I$	$8.20996 - 6.82298I$	$-2.15916 + 7.91462I$
$u = 0.095927 - 1.286340I$ $a = -1.20827 - 1.74531I$ $b = -0.422793 + 1.243340I$	$8.20996 + 6.82298I$	$-2.15916 - 7.91462I$
$u = -0.085790 + 1.341900I$ $a = 0.0993100 - 0.0234426I$ $b = -0.660490 + 0.270566I$	$2.26746 + 1.44605I$	$-14.1870 - 1.9161I$
$u = -0.085790 - 1.341900I$ $a = 0.0993100 + 0.0234426I$ $b = -0.660490 - 0.270566I$	$2.26746 - 1.44605I$	$-14.1870 + 1.9161I$
$u = 0.140856 + 0.497451I$ $a = -1.73165 + 0.18003I$ $b = 0.301110 - 1.268970I$	$5.28281 + 5.83734I$	$-4.39076 - 6.29666I$
$u = 0.140856 - 0.497451I$ $a = -1.73165 - 0.18003I$ $b = 0.301110 + 1.268970I$	$5.28281 - 5.83734I$	$-4.39076 + 6.29666I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.19091+1.57579I$ $a=-0.35933-2.03612I$ $b=-0.17604+1.43575I$	$13.5564+7.0066I$	$-4.60599-3.77657I$
$u=-0.19091-1.57579I$ $a=-0.35933+2.03612I$ $b=-0.17604-1.43575I$	$13.5564-7.0066I$	$-4.60599+3.77657I$
$u=-0.338303$ $a=-0.856316$ $b=\ \ 0.498180$	-2.04028	-20.3150

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$(u^{13}+u^{12}+\cdots+3u^2-1)(u^{32}-4u^{31}+\cdots-3u+1)$ $\cdot(u^{41}-u^{40}+\cdots+7u+1)(u^{106}-11u^{105}+\cdots-292365u+34945)$
c_2, c_8	$(u^{13}+u^{12}+\cdots-u^2-1)(u^{32}+4u^{31}+\cdots+16u+8)$ $\cdot(u^{41}+u^{40}+\cdots+16u+8)(u^{106}-3u^{105}+\cdots-2223u+1483)$
c_3	$(u^{13}+7u^{12}+\cdots+30u+11)(u^{16}-5u^{15}+\cdots-4u+1)^2$ $\cdot(u^{41}+24u^{40}+\cdots+23118u+1748)$ $\cdot(u^{53}-10u^{52}+\cdots+1907u-181)^2$
c_4, c_7	$(u^{13}-u^{12}-u^{11}+2u^{10}-6u^8-4u^7+u^6+10u^5+9u^4+2u^3-4u^2-1)$ $\cdot(u^{32}+2u^{31}+\cdots+108u+11)(u^{41}+u^{40}+\cdots-11u+1)$ $\cdot(u^{106}+5u^{105}+\cdots-10087462u+1845977)$
c_5	$(u^{13}-3u^{12}+\cdots+4u-1)(u^{16}+2u^{15}+\cdots+11u^2+1)^2$ $\cdot(u^{41}+8u^{40}+\cdots+194u+20)(u^{53}-3u^{52}+\cdots+6u-1)^2$
c_6, c_{12}	$(u^{13}-u^{12}+\cdots+u^2+1)(u^{32}-4u^{31}+\cdots-16u+8)$ $\cdot(u^{41}+u^{40}+\cdots+16u+8)(u^{106}-3u^{105}+\cdots-2223u+1483)$
c_9, c_{10}	$(u^{13}+3u^{12}+\cdots+4u+1)(u^{16}-2u^{15}+\cdots+11u^2+1)^2$ $\cdot(u^{41}+8u^{40}+\cdots+194u+20)(u^{53}-3u^{52}+\cdots+6u-1)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$(y^{13} - 7y^{12} + \cdots + 6y - 1)(y^{32} + 12y^{31} + \cdots + 19y + 1)$ $\cdot (y^{41} + 21y^{40} + \cdots - 3y - 1)$ $\cdot (y^{106} + 21y^{105} + \cdots + 39625037985y + 1221153025)$
c_2, c_6, c_8 c_{12}	$(y^{13} + 13y^{12} + \cdots - 2y - 1)(y^{32} + 12y^{31} + \cdots + 1344y + 64)$ $\cdot (y^{41} + 35y^{40} + \cdots + 384y - 64)$ $\cdot (y^{106} + 63y^{105} + \cdots + 84050135y + 2199289)$
c_3	$(y^{13} + 5y^{12} + \cdots + 20y - 121)(y^{16} + y^{15} + \cdots - 4y + 1)^2$ $\cdot (y^{41} + 4y^{40} + \cdots + 11912284y - 3055504)$ $\cdot (y^{53} + 14y^{52} + \cdots - 619023y - 32761)^2$
c_4, c_7	$(y^{13} - 3y^{12} + \cdots - 8y - 1)(y^{32} + 6y^{31} + \cdots - 708y + 121)$ $\cdot (y^{41} + 37y^{40} + \cdots + 29y - 1)$ $\cdot (y^{106} + 23y^{105} + \cdots + 310954538449436y + 3407631084529)$
c_5, c_9, c_{10}	$(y^{13} + 13y^{12} + \cdots - 2y - 1)(y^{16} + 18y^{15} + \cdots + 22y + 1)^2$ $\cdot (y^{41} + 40y^{40} + \cdots - 484y - 400)(y^{53} + 57y^{52} + \cdots - 12y - 1)^2$