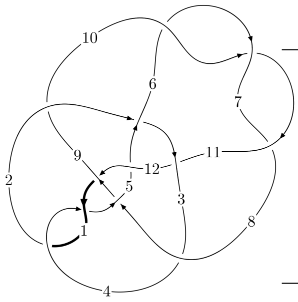
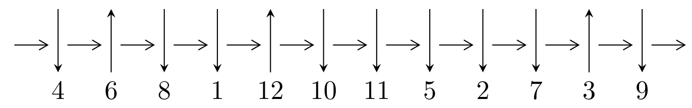
$12a_{0907}$ ($K12a_{0907}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -3.36776 \times 10^{26} u^{53} + 3.91730 \times 10^{27} u^{52} + \cdots + 2.24514 \times 10^{23} b - 9.81393 \times 10^{26}, \\
& -1.27427 \times 10^{27} u^{53} + 1.48006 \times 10^{28} u^{52} + \cdots + 4.49027 \times 10^{23} a - 3.66919 \times 10^{27}, \\
& u^{54} - 13u^{53} + \cdots + 34u - 4 \rangle \\
I_2^u = \langle & 686725223456 u^{23} a^3 - 53855889828079 u^{23} a^2 + \cdots - 122527711835341 a - 257682162174646, \\
& 7u^{23} a^3 - 30u^{23} a^2 + \cdots + 101a + 65,\ u^{24} + 3u^{23} + \cdots - 3u - 1 \rangle \\
I_3^u = \langle & -1133664 u^{29} - 7205220 u^{28} + \cdots + 38189 b - 689951, \\
& -233434 u^{29} - 944087 u^{28} + \cdots + 38189 a + 273567,\ u^{30} + 8u^{29} + \cdots + 6u + 1 \rangle \\
I_4^u = \langle & -2a^7 + 19a^6 + 18a^5 - 57a^4 - 111a^3 + 159a^2 + 55b + 6a - 61, \\
& a^8 - 3a^6 - 2a^5 + 10a^4 - 6a^3 - 2a^2 + 2a + 1,\ u - 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 188 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. $I_1^u = \langle -3.37 \times 10^{26} u^{53} + 3.92 \times 10^{27} u^{52} + \cdots + 2.25 \times 10^{23} b - 9.81 \times 10^{26},\ -1.27 \times 10^{27} u^{53} + 1.48 \times 10^{28} u^{52} + \cdots + 4.49 \times 10^{23} a - 3.67 \times 10^{27},\ u^{54} - 13u^{53} + \cdots + 34u - 4 \rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 2837.85u^{53} - 32961.4u^{52} + \cdots - 63640.3u + 8171.42 \\ 1500.03u^{53} - 17447.9u^{52} + \cdots - 33975.2u + 4371.20 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1040.34u^{53} - 12078.0u^{52} + \cdots - 23374.2u + 2997.45 \\ 1765.41u^{53} - 20426.7u^{52} + \cdots - 38653.6u + 4959.58 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 700.056u^{53} - 8023.67u^{52} + \cdots - 14095.8u + 1795.50 \\ 561.272u^{53} - 6465.23u^{52} + \cdots - 11812.3u + 1508.00 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1337.82u^{53} - 15513.4u^{52} + \cdots - 29665.1u + 3800.22 \\ 1500.03u^{53} - 17447.9u^{52} + \cdots - 33975.2u + 4371.20 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1322.69u^{53} - 15354.9u^{52} + \cdots - 29533.0u + 3779.67 \\ 1634.57u^{53} - 18951.8u^{52} + \cdots - 36197.1u + 4648.23 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1168.57u^{53} + 13437.1u^{52} + \cdots + 24303.1u - 3094.58 \\ -1266.34u^{53} + 14590.7u^{52} + \cdots + 26781.1u - 3423.17 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 264.065u^{53} - 3140.74u^{52} + \cdots - 6974.68u + 915.893 \\ -245.749u^{53} + 2782.17u^{52} + \cdots + 4432.15u - 555.135 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{5899941169745129427831147236}{1122567924570853326319 19}u^{53} - \frac{6776033072646746153986440530}{112256792457085332631919}u^{52} + \cdots - \frac{1214294717297258066507819070 0}{112256792457085332631919}u + \frac{15472029675342022173376838 90}{112256792457085332631919}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{54} - 22u^{53} + \cdots - 4312u + 448$
c_2, c_{11}	$u^{54} - u^{53} + \cdots + 13u + 2$
c_3, c_9	$u^{54} - u^{53} + \cdots + 28u - 4$
c_5	$u^{54} - 45u^{53} + \cdots - 144703488u + 8388608$
c_6, c_7, c_{10}	$u^{54} + 13u^{53} + \cdots - 34u - 4$
c_8, c_{12}	$u^{54} + u^{53} + \cdots - u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{54} + 36y^{53} + \cdots + 1750336y + 200704$
c_2, c_{11}	$y^{54} + 9y^{53} + \cdots + 83y + 4$
c_3, c_9	$y^{54} - 27y^{53} + \cdots - 896y + 16$
c_5	$y^{54} + 5y^{53} + \cdots - 532163627843584y + 70368744177664$
c_6, c_7, c_{10}	$y^{54} - 55y^{53} + \cdots - 908y + 16$
c_8, c_{12}	$y^{54} + 23y^{53} + \cdots + 31y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.441312 + 0.889865I$ $a = 0.480858 + 0.262881I$ $b = 0.365486 - 0.846526I$	$-3.91979 - 4.10130I$	0
$u = -0.441312 - 0.889865I$ $a = 0.480858 - 0.262881I$ $b = 0.365486 + 0.846526I$	$-3.91979 + 4.10130I$	0
$u = -0.570988 + 0.834174I$ $a = 0.608929 - 0.543849I$ $b = -0.84924 - 1.19743I$	$-1.0568 + 15.5175I$	0
$u = -0.570988 - 0.834174I$ $a = 0.608929 + 0.543849I$ $b = -0.84924 + 1.19743I$	$-1.0568 - 15.5175I$	0
$u = -0.637135 + 0.741301I$ $a = -0.476946 + 0.620063I$ $b = 0.809980 + 1.110120I$	$-4.60432 + 9.42368I$	0
$u = -0.637135 - 0.741301I$ $a = -0.476946 - 0.620063I$ $b = 0.809980 - 1.110120I$	$-4.60432 - 9.42368I$	0
$u = -0.608693 + 0.871804I$ $a = -0.547448 - 0.169996I$ $b = -0.448601 + 1.021030I$	$-1.09490 - 9.86752I$	0
$u = -0.608693 - 0.871804I$ $a = -0.547448 + 0.169996I$ $b = -0.448601 - 1.021030I$	$-1.09490 + 9.86752I$	0
$u = 0.900779 + 0.233525I$ $a = -0.574933 + 0.544624I$ $b = -0.019206 - 0.185995I$	$-0.294416 - 0.269624I$	0
$u = 0.900779 - 0.233525I$ $a = -0.574933 - 0.544624I$ $b = -0.019206 + 0.185995I$	$-0.294416 + 0.269624I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.990203 + 0.557417I$ $a = 0.284165 + 0.146019I$ $b = 0.714298 - 0.229702I$	$3.53531 + 5.84821I$	0
$u = -0.990203 - 0.557417I$ $a = 0.284165 - 0.146019I$ $b = 0.714298 + 0.229702I$	$3.53531 - 5.84821I$	0
$u = -0.637541 + 0.994808I$ $a = -0.267203 + 0.183692I$ $b = 0.401222 + 0.614737I$	$2.70452 + 6.50099I$	0
$u = -0.637541 - 0.994808I$ $a = -0.267203 - 0.183692I$ $b = 0.401222 - 0.614737I$	$2.70452 - 6.50099I$	0
$u = -0.232302 + 0.697717I$ $a = -0.546747 + 0.697335I$ $b = 0.822239 + 0.418863I$	$5.64709 - 1.46866I$	0
$u = -0.232302 - 0.697717I$ $a = -0.546747 - 0.697335I$ $b = 0.822239 - 0.418863I$	$5.64709 + 1.46866I$	0
$u = -0.910231 + 0.907970I$ $a = 0.175775 - 0.131869I$ $b = -0.176983 - 0.570715I$	$1.99463 + 0.20661I$	0
$u = -0.910231 - 0.907970I$ $a = 0.175775 + 0.131869I$ $b = -0.176983 + 0.570715I$	$1.99463 - 0.20661I$	0
$u = 1.339880 + 0.030929I$ $a = 1.23977 + 1.88630I$ $b = 0.465396 + 0.921605I$	$-2.39574 + 1.99510I$	0
$u = 1.339880 - 0.030929I$ $a = 1.23977 - 1.88630I$ $b = 0.465396 - 0.921605I$	$-2.39574 - 1.99510I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.476300+0.421762I$ $a=\ \ 0.402419-1.333210I$ $b=-0.886558-1.031710I$	$1.45632+3.89302I$	$6.55672-9.08244I$
$u=-0.476300-0.421762I$ $a=\ \ 0.402419+1.333210I$ $b=-0.886558+1.031710I$	$1.45632-3.89302I$	$6.55672+9.08244I$
$u=\ \ 1.378770+0.190230I$ $a=\ \ 0.08077-1.62497I$ $b=\ \ 0.582543-0.762799I$	$0.56954-1.63715I$	0
$u=\ \ 1.378770-0.190230I$ $a=\ \ 0.08077+1.62497I$ $b=\ \ 0.582543+0.762799I$	$0.56954+1.63715I$	0
$u=-0.503257+0.340699I$ $a=-0.308311-0.871589I$ $b=-0.793291-0.347440I$	$1.42449+1.40957I$	$1.24500-4.46886I$
$u=-0.503257-0.340699I$ $a=-0.308311+0.871589I$ $b=-0.793291+0.347440I$	$1.42449-1.40957I$	$1.24500+4.46886I$
$u=-1.42698+0.05858I$ $a=-0.411356-0.061254I$ $b=-1.43704-0.11906I$	$-3.13163+3.14235I$	0
$u=-1.42698-0.05858I$ $a=-0.411356+0.061254I$ $b=-1.43704+0.11906I$	$-3.13163-3.14235I$	0
$u=\ \ 0.565586$ $a=-0.656550$ $b=\ \ 0.161313$	-0.821914	-12.3890
$u=-1.44155+0.03373I$ $a=\ \ 0.431824-0.086075I$ $b=\ \ 1.50809-0.35940I$	$-3.83782-1.54660I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.44155 - 0.03373I$ $a = 0.431824 + 0.086075I$ $b = 1.50809 + 0.35940I$	$-3.83782 + 1.54660I$	0
$u = 1.44478 + 0.02804I$ $a = -0.49400 + 1.70003I$ $b = -0.407113 + 1.064940I$	$-4.61801 - 2.16208I$	0
$u = 1.44478 - 0.02804I$ $a = -0.49400 - 1.70003I$ $b = -0.407113 - 1.064940I$	$-4.61801 + 2.16208I$	0
$u = -0.502533 + 0.069201I$ $a = -1.248020 + 0.506640I$ $b = -0.866071 + 0.553290I$	$1.43237 - 1.61761I$	$1.66182 + 0.91579I$
$u = -0.502533 - 0.069201I$ $a = -1.248020 - 0.506640I$ $b = -0.866071 - 0.553290I$	$1.43237 + 1.61761I$	$1.66182 - 0.91579I$
$u = 1.52443 + 0.12641I$ $a = -0.41871 + 2.19083I$ $b = -0.89545 + 1.60801I$	$-5.24335 - 5.87061I$	0
$u = 1.52443 - 0.12641I$ $a = -0.41871 - 2.19083I$ $b = -0.89545 - 1.60801I$	$-5.24335 + 5.87061I$	0
$u = -1.56753$ $a = 0.225076$ $b = 0.905857$	-8.29018	0
$u = 1.55862 + 0.28807I$ $a = 0.04358 + 1.83178I$ $b = -1.08291 + 1.46947I$	$-8.0087 - 19.6385I$	0
$u = 1.55862 - 0.28807I$ $a = 0.04358 - 1.83178I$ $b = -1.08291 - 1.46947I$	$-8.0087 + 19.6385I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.57042 + 0.24408I$ $a = 0.09505 - 1.82694I$ $b = 1.03413 - 1.47804I$	$-11.8661 - 13.0652I$	0
$u = 1.57042 - 0.24408I$ $a = 0.09505 + 1.82694I$ $b = 1.03413 + 1.47804I$	$-11.8661 + 13.0652I$	0
$u = 1.59876 + 0.19161I$ $a = -0.293276 + 1.351160I$ $b = -0.838910 + 1.120330I$	$-6.50546 - 3.58269I$	0
$u = 1.59876 - 0.19161I$ $a = -0.293276 - 1.351160I$ $b = -0.838910 - 1.120330I$	$-6.50546 + 3.58269I$	0
$u = 1.59272 + 0.30489I$ $a = 0.060084 - 1.200020I$ $b = 0.850742 - 0.981285I$	$-4.61524 - 11.13620I$	0
$u = 1.59272 - 0.30489I$ $a = 0.060084 + 1.200020I$ $b = 0.850742 + 0.981285I$	$-4.61524 + 11.13620I$	0
$u = 1.58609 + 0.34471I$ $a = 0.413350 + 0.767749I$ $b = -0.239741 + 0.931967I$	$-10.50980 - 0.61947I$	0
$u = 1.58609 - 0.34471I$ $a = 0.413350 - 0.767749I$ $b = -0.239741 - 0.931967I$	$-10.50980 + 0.61947I$	0
$u = 0.115403 + 0.350211I$ $a = 0.91938 - 1.99231I$ $b = -0.743304 + 0.200073I$	$2.00199 - 2.00819I$	$0.25947 + 4.80616I$
$u = 0.115403 - 0.350211I$ $a = 0.91938 + 1.99231I$ $b = -0.743304 - 0.200073I$	$2.00199 + 2.00819I$	$0.25947 - 4.80616I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.62567 + 0.25031I$ $a = -0.421902 - 0.972033I$ $b = 0.145063 - 1.165550I$	$-8.62255 + 5.60885I$	0
$u = 1.62567 - 0.25031I$ $a = -0.421902 + 0.972033I$ $b = 0.145063 + 1.165550I$	$-8.62255 - 5.60885I$	0
$u = 0.143684 + 0.069902I$ $a = -7.76137 - 0.82758I$ $b = 0.951650 + 0.492495I$	$1.60698 + 1.98880I$	$0.07500 - 3.30992I$
$u = 0.143684 - 0.069902I$ $a = -7.76137 + 0.82758I$ $b = 0.951650 - 0.492495I$	$1.60698 - 1.98880I$	$0.07500 + 3.30992I$

II. $\boldsymbol{I_2^u = \langle 6.87\times 10^{11}a^3u^{23} - 5.39\times 10^{13}a^2u^{23} + \cdots - 1.23\times 10^{14}a - 2.58\times 10^{14},\ 7u^{23}a^3 - 30u^{23}a^2 + \cdots + 101a + 65,\ u^{24} + 3u^{23} + \cdots - 3u - 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_3 = \begin{pmatrix} a \\ -0.00885799a^3u^{23} + 0.694681a^2u^{23} + \cdots + 1.58047a + 3.32381 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0882291a^3u^{23} - 1.02761a^2u^{23} + \cdots - 0.472149a - 1.45990 \\ 0.0913234a^3u^{23} + 0.736611a^2u^{23} + \cdots + 1.58495a + 1.70083 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.833699a^3u^{23} - 0.114091a^2u^{23} + \cdots + 1.66166a + 0.0746337 \\ -0.127483a^3u^{23} - 0.0212748a^2u^{23} + \cdots - 0.869253a + 0.0822611 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.00885799a^3u^{23} - 0.694681a^2u^{23} + \cdots - 0.580470a - 3.32381 \\ -0.00885799a^3u^{23} + 0.694681a^2u^{23} + \cdots + 1.58047a + 3.32381 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.158340a^3u^{23} + 0.200905a^2u^{23} + \cdots - 1.35850a + 1.27461 \\ -0.228069a^3u^{23} - 0.232662a^2u^{23} + \cdots + 1.54683a + 0.596958 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.196421a^3u^{23} - 0.0357957a^2u^{23} + \cdots - 2.36347a + 2.88251 \\ -0.127483a^3u^{23} - 0.0212748a^2u^{23} + \cdots - 0.869253a - 0.917739 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.579542a^3u^{23} + 0.217953a^2u^{23} + \cdots - 2.47214a - 0.551645 \\ 0.254156a^3u^{23} - 0.103863a^2u^{23} + \cdots + 0.810479a + 0.477011 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{19766575345996}{38763058577429}u^{23}a^3 + \frac{3298705036766}{38763058577429}u^{23}a^2 + \cdots + \frac{134779543741642}{38763058577429}a - \frac{981831227284727}{38763058577429}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^{24} + 7u^{23} + \cdots + 15u + 3)^4$
c_2, c_{11}	$u^{96} - 7u^{95} + \cdots - 1069888u + 802048$
c_3, c_9	$u^{96} + u^{95} + \cdots - 364694380u + 80529475$
c_5	$(u^2 + u + 1)^{48}$
c_6, c_7, c_{10}	$(u^{24} - 3u^{23} + \cdots + 3u - 1)^4$
c_8, c_{12}	$u^{96} + u^{95} + \cdots + 44u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^{24} + 15y^{23} + \cdots + 69y + 9)^4$
c_2, c_{11}	$y^{96} + 51y^{95} + \cdots + 30481927393280y + 643280994304$
c_3, c_9	$y^{96} - 47y^{95} + \cdots - 312805919734027100y + 6484996343775625$
c_5	$(y^2 + y + 1)^{48}$
c_6, c_7, c_{10}	$(y^{24} - 25y^{23} + \cdots - 15y + 1)^4$
c_8, c_{12}	$y^{96} - 15y^{95} + \cdots - 1080y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.501824 + 0.827967I$ $a = -0.941728 - 0.506405I$ $b = 0.94344 - 1.10114I$	$-2.09646 - 5.93902I$	$-10.0595 + 11.8785I$
$u = 0.501824 + 0.827967I$ $a = 0.673618 + 0.241303I$ $b = -0.008927 + 0.741066I$	$-2.09646 - 1.87925I$	$-10.05947 + 4.95027I$
$u = 0.501824 + 0.827967I$ $a = -0.511557 + 0.274202I$ $b = -0.144242 - 1.222840I$	$-2.09646 - 1.87925I$	$-10.05947 + 4.95027I$
$u = 0.501824 + 0.827967I$ $a = 0.414257 + 0.389001I$ $b = -0.449624 + 1.209380I$	$-2.09646 - 5.93902I$	$-10.0595 + 11.8785I$
$u = 0.501824 - 0.827967I$ $a = -0.941728 + 0.506405I$ $b = 0.94344 + 1.10114I$	$-2.09646 + 5.93902I$	$-10.0595 - 11.8785I$
$u = 0.501824 - 0.827967I$ $a = 0.673618 - 0.241303I$ $b = -0.008927 - 0.741066I$	$-2.09646 + 1.87925I$	$-10.05947 - 4.95027I$
$u = 0.501824 - 0.827967I$ $a = -0.511557 - 0.274202I$ $b = -0.144242 + 1.222840I$	$-2.09646 + 1.87925I$	$-10.05947 - 4.95027I$
$u = 0.501824 - 0.827967I$ $a = 0.414257 - 0.389001I$ $b = -0.449624 - 1.209380I$	$-2.09646 + 5.93902I$	$-10.0595 - 11.8785I$
$u = 0.627517 + 0.736102I$ $a = -0.862281 - 0.115013I$ $b = -0.087494 - 0.919950I$	$-2.54142 + 0.67389I$	$-12.20233 - 4.65914I$
$u = 0.627517 + 0.736102I$ $a = 0.774125 + 0.314012I$ $b = -0.70822 + 1.26921I$	$-2.54142 - 3.38588I$	$-12.20233 + 2.26907I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.627517 + 0.736102I$ $a = -0.268923 - 0.641558I$ $b = 0.377880 - 0.920328I$	$-2.54142 - 3.38588I$	$-12.20233 + 2.26907I$
$u = 0.627517 + 0.736102I$ $a = 0.326018 - 0.158732I$ $b = 0.554803 + 1.031590I$	$-2.54142 + 0.67389I$	$-12.20233 - 4.65914I$
$u = 0.627517 - 0.736102I$ $a = -0.862281 + 0.115013I$ $b = -0.087494 + 0.919950I$	$-2.54142 - 0.67389I$	$-12.20233 + 4.65914I$
$u = 0.627517 - 0.736102I$ $a = 0.774125 - 0.314012I$ $b = -0.70822 - 1.26921I$	$-2.54142 + 3.38588I$	$-12.20233 - 2.26907I$
$u = 0.627517 - 0.736102I$ $a = -0.268923 + 0.641558I$ $b = 0.377880 + 0.920328I$	$-2.54142 + 3.38588I$	$-12.20233 - 2.26907I$
$u = 0.627517 - 0.736102I$ $a = 0.326018 + 0.158732I$ $b = 0.554803 - 1.031590I$	$-2.54142 - 0.67389I$	$-12.20233 + 4.65914I$
$u = 1.054250 + 0.290340I$ $a = -1.091580 + 0.475704I$ $b = -0.618246 - 0.144581I$	$-0.215066 - 0.620694I$	$-8.00295 - 1.70887I$
$u = 1.054250 + 0.290340I$ $a = -0.708721 + 0.161940I$ $b = 0.461816 - 0.452114I$	$-0.215066 - 0.620694I$	$-8.00295 - 1.70887I$
$u = 1.054250 + 0.290340I$ $a = 1.24279 + 0.75488I$ $b = 0.734389 + 0.963603I$	$-0.21507 + 3.43907I$	$-8.00295 - 8.63707I$
$u = 1.054250 + 0.290340I$ $a = 0.209578 + 0.485403I$ $b = -1.172930 - 0.529783I$	$-0.21507 + 3.43907I$	$-8.00295 - 8.63707I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.054250 - 0.290340I$ $a = -1.091580 - 0.475704I$ $b = -0.618246 + 0.144581I$	$-0.215066 + 0.620694I$	$-8.00295 + 1.70887I$
$u = 1.054250 - 0.290340I$ $a = -0.708721 - 0.161940I$ $b = 0.461816 + 0.452114I$	$-0.215066 + 0.620694I$	$-8.00295 + 1.70887I$
$u = 1.054250 - 0.290340I$ $a = 1.24279 - 0.75488I$ $b = 0.734389 - 0.963603I$	$-0.21507 - 3.43907I$	$-8.00295 + 8.63707I$
$u = 1.054250 - 0.290340I$ $a = 0.209578 - 0.485403I$ $b = -1.172930 + 0.529783I$	$-0.21507 - 3.43907I$	$-8.00295 + 8.63707I$
$u = 0.515675 + 0.430762I$ $a = 0.555106 + 0.172159I$ $b = -0.752740 + 1.185000I$	$-1.82150 - 3.66074I$	$-10.9992 + 8.9039I$
$u = 0.515675 + 0.430762I$ $a = -1.55196 + 0.28820I$ $b = -0.194016 - 0.676593I$	$-1.82150 + 0.39903I$	$-10.99918 + 1.97568I$
$u = 0.515675 + 0.430762I$ $a = -0.05876 - 1.74381I$ $b = 0.557900 - 0.494143I$	$-1.82150 - 3.66074I$	$-10.9992 + 8.9039I$
$u = 0.515675 + 0.430762I$ $a = -0.0572993 + 0.0677786I$ $b = 0.889737 + 0.499900I$	$-1.82150 + 0.39903I$	$-10.99918 + 1.97568I$
$u = 0.515675 - 0.430762I$ $a = 0.555106 - 0.172159I$ $b = -0.752740 - 1.185000I$	$-1.82150 + 3.66074I$	$-10.9992 - 8.9039I$
$u = 0.515675 - 0.430762I$ $a = -1.55196 - 0.28820I$ $b = -0.194016 + 0.676593I$	$-1.82150 - 0.39903I$	$-10.99918 - 1.97568I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.515675 - 0.430762I$ $a = -0.05876 + 1.74381I$ $b = 0.557900 + 0.494143I$	$-1.82150 + 3.66074I$	$-10.9992 - 8.9039I$
$u = 0.515675 - 0.430762I$ $a = -0.0572993 - 0.0677786I$ $b = 0.889737 - 0.499900I$	$-1.82150 - 0.39903I$	$-10.99918 - 1.97568I$
$u = -1.388310 + 0.136000I$ $a = -0.098431 + 1.233460I$ $b = -0.384677 + 0.209710I$	$-2.29923 + 5.09220I$	$-5.75594 - 4.07307I$
$u = -1.388310 + 0.136000I$ $a = -0.32020 - 1.60308I$ $b = -1.18550 - 1.21341I$	$-2.29923 + 5.09220I$	$-5.75594 - 4.07307I$
$u = -1.388310 + 0.136000I$ $a = 0.10983 - 2.26454I$ $b = -0.569343 - 0.430488I$	$-2.29923 + 9.15197I$	$-5.75594 - 11.00127I$
$u = -1.388310 + 0.136000I$ $a = -0.22061 + 2.81189I$ $b = 0.48520 + 2.29215I$	$-2.29923 + 9.15197I$	$-5.75594 - 11.00127I$
$u = -1.388310 - 0.136000I$ $a = -0.098431 - 1.233460I$ $b = -0.384677 - 0.209710I$	$-2.29923 - 5.09220I$	$-5.75594 + 4.07307I$
$u = -1.388310 - 0.136000I$ $a = -0.32020 + 1.60308I$ $b = -1.18550 + 1.21341I$	$-2.29923 - 5.09220I$	$-5.75594 + 4.07307I$
$u = -1.388310 - 0.136000I$ $a = 0.10983 + 2.26454I$ $b = -0.569343 + 0.430488I$	$-2.29923 - 9.15197I$	$-5.75594 + 11.00127I$
$u = -1.388310 - 0.136000I$ $a = -0.22061 - 2.81189I$ $b = 0.48520 - 2.29215I$	$-2.29923 - 9.15197I$	$-5.75594 + 11.00127I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.134959 + 0.586695I$ $a = 0.467337 - 0.398311I$ $b = -0.912342 + 0.692340I$	$2.51254 - 2.68858I$	$-0.20958 + 2.79925I$
$u = 0.134959 + 0.586695I$ $a = -0.517171 - 0.284910I$ $b = 0.63884 - 1.43472I$	$2.51254 - 6.74834I$	$-0.20958 + 9.72745I$
$u = 0.134959 + 0.586695I$ $a = -0.48427 - 1.51429I$ $b = 0.100913 + 0.196536I$	$2.51254 - 2.68858I$	$-0.20958 + 2.79925I$
$u = 0.134959 + 0.586695I$ $a = 2.18199 + 1.22655I$ $b = -1.002920 + 0.287562I$	$2.51254 - 6.74834I$	$-0.20958 + 9.72745I$
$u = 0.134959 - 0.586695I$ $a = 0.467337 + 0.398311I$ $b = -0.912342 - 0.692340I$	$2.51254 + 2.68858I$	$-0.20958 - 2.79925I$
$u = 0.134959 - 0.586695I$ $a = -0.517171 + 0.284910I$ $b = 0.63884 + 1.43472I$	$2.51254 + 6.74834I$	$-0.20958 - 9.72745I$
$u = 0.134959 - 0.586695I$ $a = -0.48427 + 1.51429I$ $b = 0.100913 - 0.196536I$	$2.51254 + 2.68858I$	$-0.20958 - 2.79925I$
$u = 0.134959 - 0.586695I$ $a = 2.18199 - 1.22655I$ $b = -1.002920 - 0.287562I$	$2.51254 + 6.74834I$	$-0.20958 - 9.72745I$
$u = 1.47990 + 0.06437I$ $a = -1.14142 - 1.07909I$ $b = 0.568701 - 0.551179I$	$-5.91170 - 8.68883I$	$-13.6665 + 11.0201I$
$u = 1.47990 + 0.06437I$ $a = -0.02579 + 1.94910I$ $b = 0.37013 + 1.41279I$	$-5.91170 - 4.62906I$	$-13.6665 + 4.0919I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.47990 + 0.06437I$ $a = -0.45472 + 1.94082I$ $b = -1.20015 + 1.27309I$	$-5.91170 - 4.62906I$	$-13.6665 + 4.0919I$
$u = 1.47990 + 0.06437I$ $a = -1.98710 - 1.28200I$ $b = -2.47973 - 1.51058I$	$-5.91170 - 8.68883I$	$-13.6665 + 11.0201I$
$u = 1.47990 - 0.06437I$ $a = -1.14142 + 1.07909I$ $b = 0.568701 + 0.551179I$	$-5.91170 + 8.68883I$	$-13.6665 - 11.0201I$
$u = 1.47990 - 0.06437I$ $a = -0.02579 - 1.94910I$ $b = 0.37013 - 1.41279I$	$-5.91170 + 4.62906I$	$-13.6665 - 4.0919I$
$u = 1.47990 - 0.06437I$ $a = -0.45472 - 1.94082I$ $b = -1.20015 - 1.27309I$	$-5.91170 + 4.62906I$	$-13.6665 - 4.0919I$
$u = 1.47990 - 0.06437I$ $a = -1.98710 + 1.28200I$ $b = -2.47973 + 1.51058I$	$-5.91170 + 8.68883I$	$-13.6665 - 11.0201I$
$u = 1.48763$ $a = 0.78072 + 1.74517I$ $b = -0.371914 + 0.809926I$	$-10.05140 - 2.02988I$	$-19.8585 + 3.4641I$
$u = 1.48763$ $a = 0.78072 - 1.74517I$ $b = -0.371914 - 0.809926I$	$-10.05140 + 2.02988I$	$-19.8585 - 3.4641I$
$u = 1.48763$ $a = 1.41142 + 2.05173I$ $b = 1.96212 + 1.94440I$	$-10.05140 - 2.02988I$	$-19.8585 + 3.4641I$
$u = 1.48763$ $a = 1.41142 - 2.05173I$ $b = 1.96212 - 1.94440I$	$-10.05140 + 2.02988I$	$-19.8585 - 3.4641I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.50771+0.06276I$ $a=-0.583794+1.007180I$ $b=\ \ 0.437480+0.686134I$	$-8.56715+1.04981I$	$-15.6111-1.4870I$
$u=-1.50771+0.06276I$ $a=\ \ 1.08772-1.08882I$ $b=\ \ 1.44525-1.12148I$	$-8.56715+1.04981I$	$-15.6111-1.4870I$
$u=-1.50771+0.06276I$ $a=\ \ 0.50300+1.78783I$ $b=\ \ 0.097892+0.721670I$	$-8.56715+5.10957I$	$-15.6111-8.4152I$
$u=-1.50771+0.06276I$ $a=-0.82567-2.18343I$ $b=-1.41628-2.13449I$	$-8.56715+5.10957I$	$-15.6111-8.4152I$
$u=-1.50771-0.06276I$ $a=-0.583794-1.007180I$ $b=\ \ 0.437480-0.686134I$	$-8.56715-1.04981I$	$-15.6111+1.4870I$
$u=-1.50771-0.06276I$ $a=\ \ 1.08772+1.08882I$ $b=\ \ 1.44525+1.12148I$	$-8.56715-1.04981I$	$-15.6111+1.4870I$
$u=-1.50771-0.06276I$ $a=\ \ 0.50300-1.78783I$ $b=\ \ 0.097892-0.721670I$	$-8.56715-5.10957I$	$-15.6111+8.4152I$
$u=-1.50771-0.06276I$ $a=-0.82567+2.18343I$ $b=-1.41628+2.13449I$	$-8.56715-5.10957I$	$-15.6111+8.4152I$
$u=-1.53906+0.29450I$ $a=\ \ 0.468849-1.130790I$ $b=-0.401363-0.868130I$	$-8.75286+5.99693I$	$-11.10804-4.58319I$
$u=-1.53906+0.29450I$ $a=-0.536018+1.286150I$ $b=\ \ 0.33129+1.54241I$	$-8.75286+5.99693I$	$-11.10804-4.58319I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.53906 + 0.29450I$ $a = -0.10981 + 1.71530I$ $b = 1.22120 + 1.26198I$	$-8.75286 + 10.05670I$	$-11.1080 - 11.5114I$
$u = -1.53906 + 0.29450I$ $a = 0.27794 - 1.73481I$ $b = -0.60222 - 1.53843I$	$-8.75286 + 10.05670I$	$-11.1080 - 11.5114I$
$u = -1.53906 - 0.29450I$ $a = 0.468849 + 1.130790I$ $b = -0.401363 + 0.868130I$	$-8.75286 - 5.99693I$	$-11.10804 + 4.58319I$
$u = -1.53906 - 0.29450I$ $a = -0.536018 - 1.286150I$ $b = 0.33129 - 1.54241I$	$-8.75286 - 5.99693I$	$-11.10804 + 4.58319I$
$u = -1.53906 - 0.29450I$ $a = -0.10981 - 1.71530I$ $b = 1.22120 - 1.26198I$	$-8.75286 - 10.05670I$	$-11.1080 + 11.5114I$
$u = -1.53906 - 0.29450I$ $a = 0.27794 + 1.73481I$ $b = -0.60222 + 1.53843I$	$-8.75286 - 10.05670I$	$-11.1080 + 11.5114I$
$u = -1.55630 + 0.23462I$ $a = -0.392822 + 1.170440I$ $b = 0.498753 + 1.040900I$	$-9.71144 + 2.85087I$	$-13.61294 + 3.46181I$
$u = -1.55630 + 0.23462I$ $a = 0.551496 - 1.212510I$ $b = 0.083179 - 1.359070I$	$-9.71144 + 2.85087I$	$-13.61294 + 3.46181I$
$u = -1.55630 + 0.23462I$ $a = -0.10432 + 1.70199I$ $b = 0.551562 + 1.277580I$	$-9.71144 + 6.91064I$	$-13.61294 - 3.46639I$
$u = -1.55630 + 0.23462I$ $a = -0.01145 - 1.81837I$ $b = -1.11807 - 1.62246I$	$-9.71144 + 6.91064I$	$-13.61294 - 3.46639I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.55630-0.23462I$ $a=-0.392822-1.170440I$ $b=\ \ 0.498753-1.040900I$	$-9.71144-2.85087I$	$-13.61294-3.46181I$
$u=-1.55630-0.23462I$ $a=\ \ 0.551496+1.212510I$ $b=\ \ 0.083179+1.359070I$	$-9.71144-2.85087I$	$-13.61294-3.46181I$
$u=-1.55630-0.23462I$ $a=-0.10432-1.70199I$ $b=\ \ 0.551562-1.277580I$	$-9.71144-6.91064I$	$-13.61294+3.46639I$
$u=-1.55630-0.23462I$ $a=-0.01145+1.81837I$ $b=-1.11807+1.62246I$	$-9.71144-6.91064I$	$-13.61294+3.46639I$
$u=-0.381299+0.182721I$ $a=\ \ 1.024320+0.205900I$ $b=-1.34020+1.14539I$	$0.27813+7.73674I$	$-13.1616-14.7688I$
$u=-0.381299+0.182721I$ $a=-1.00657-1.70526I$ $b=-0.128729-1.076670I$	$0.27813+3.67697I$	$-13.1616-7.8406I$
$u=-0.381299+0.182721I$ $a=\ \ 1.52126-1.96163I$ $b=-0.798346-0.897976I$	$0.27813+3.67697I$	$-13.1616-7.8406I$
$u=-0.381299+0.182721I$ $a=-4.45729+1.18181I$ $b=\ \ 0.093646+0.644800I$	$0.27813+7.73674I$	$-13.1616-14.7688I$
$u=-0.381299-0.182721I$ $a=\ \ 1.024320-0.205900I$ $b=-1.34020-1.14539I$	$0.27813-7.73674I$	$-13.1616+14.7688I$
$u=-0.381299-0.182721I$ $a=-1.00657+1.70526I$ $b=-0.128729+1.076670I$	$0.27813-3.67697I$	$-13.1616+7.8406I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.381299 - 0.182721I$ $a = 1.52126 + 1.96163I$ $b = -0.798346 + 0.897976I$	$0.27813 - 3.67697I$	$-13.1616 + 7.8406I$
$u = -0.381299 - 0.182721I$ $a = -4.45729 - 1.18181I$ $b = 0.093646 - 0.644800I$	$0.27813 - 7.73674I$	$-13.1616 + 14.7688I$
$u = -0.370541$ $a = -0.975477 + 0.794014I$ $b = 1.06082 + 1.25813I$	$-3.81259 - 2.02988I$	$-23.3624 + 3.4641I$
$u = -0.370541$ $a = -0.975477 - 0.794014I$ $b = 1.06082 - 1.25813I$	$-3.81259 + 2.02988I$	$-23.3624 - 3.4641I$
$u = -0.370541$ $a = 3.22436 + 3.10117I$ $b = 0.081252 + 0.720006I$	$-3.81259 - 2.02988I$	$-23.3624 + 3.4641I$
$u = -0.370541$ $a = 3.22436 - 3.10117I$ $b = 0.081252 - 0.720006I$	$-3.81259 + 2.02988I$	$-23.3624 - 3.4641I$

III.
$\boldsymbol{I^u_3 = \langle -1.13\times 10^6u^{29} - 7.21\times 10^6u^{28} + \cdots + 3.82\times 10^4b - 6.90\times 10^5,\ -2.33\times 10^5u^{29} - 9.44\times 10^5u^{28} + \cdots + 3.82\times 10^4a + 2.74\times 10^5,\ u^{30} + 8u^{29} + \cdots + 6u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}6.11260u^{29} + 24.7214u^{28} + \cdots - 20.4687u - 7.16350\\29.6856u^{29} + 188.673u^{28} + \cdots + 95.1244u + 18.0667\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}4.53989u^{29} + 21.0029u^{28} + \cdots - 10.8574u - 5.66119\\-15.2280u^{29} - 111.435u^{28} + \cdots - 82.3008u - 15.8717\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-52.5830u^{29} - 340.295u^{28} + \cdots - 193.529u - 34.2780\\-45.4567u^{29} - 289.745u^{28} + \cdots - 147.412u - 27.7861\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-23.5730u^{29} - 163.951u^{28} + \cdots - 115.593u - 25.2302\\29.6856u^{29} + 188.673u^{28} + \cdots + 95.1244u + 18.0667\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-84.0584u^{29} - 549.976u^{28} + \cdots - 306.194u - 64.0743\\-40.6236u^{29} - 263.315u^{28} + \cdots - 143.881u - 25.7792\end{pmatrix}$$
$$a_5 = \begin{pmatrix}259.328u^{29} + 1680.90u^{28} + \cdots + 926.254u + 175.912\\161.259u^{29} + 1048.40u^{28} + \cdots + 568.927u + 105.945\end{pmatrix}$$
$$a_9 = \begin{pmatrix}26.4432u^{29} + 177.739u^{28} + \cdots + 90.6277u + 19.2857\\6.46073u^{29} + 45.4625u^{28} + \cdots + 37.2660u + 7.12632\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{6206476}{38189}u^{29} - \frac{44334803}{38189}u^{28} + \cdots - \frac{29935284}{38189}u - \frac{5980763}{38189}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} - 13u^{29} + \cdots - 85u + 13$
c_2, c_{11}	$u^{30} + 3u^{29} + \cdots + 6u + 1$
c_3, c_9	$u^{30} - u^{29} + \cdots - 2u + 4$
c_4	$u^{30} + 13u^{29} + \cdots + 85u + 13$
c_5	$u^{30} + 10u^{29} + \cdots + 8u + 4$
c_6, c_7	$u^{30} + 8u^{29} + \cdots + 6u + 1$
c_8, c_{12}	$u^{30} - u^{29} + \cdots + u + 1$
c_{10}	$u^{30} - 8u^{29} + \cdots - 6u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{30} + 23y^{29} + \cdots + 4163y + 169$
c_2, c_{11}	$y^{30} + 19y^{29} + \cdots + 18y + 1$
c_3, c_9	$y^{30} - 13y^{29} + \cdots + 36y + 16$
c_5	$y^{30} + 4y^{29} + \cdots + 216y + 16$
c_6, c_7, c_{10}	$y^{30} - 32y^{29} + \cdots - 4y + 1$
c_8, c_{12}	$y^{30} - 3y^{29} + \cdots - 13y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.642245 + 0.763853I$ $a = -0.555321 - 0.043797I$ $b = -0.185269 - 0.989682I$	$-2.27847 - 0.51362I$	$-10.61612 + 0.72082I$
$u = 0.642245 - 0.763853I$ $a = -0.555321 + 0.043797I$ $b = -0.185269 + 0.989682I$	$-2.27847 + 0.51362I$	$-10.61612 - 0.72082I$
$u = 0.527835 + 0.820250I$ $a = 0.642437 + 0.412311I$ $b = -0.609373 + 1.138350I$	$-1.94765 - 4.85354I$	$-7.71248 + 4.30986I$
$u = 0.527835 - 0.820250I$ $a = 0.642437 - 0.412311I$ $b = -0.609373 - 1.138350I$	$-1.94765 + 4.85354I$	$-7.71248 - 4.30986I$
$u = 0.879905 + 0.235691I$ $a = 0.461677 + 0.226265I$ $b = 0.590853 + 0.662007I$	$-0.44942 + 1.73476I$	$-9.02190 - 3.44309I$
$u = 0.879905 - 0.235691I$ $a = 0.461677 - 0.226265I$ $b = 0.590853 - 0.662007I$	$-0.44942 - 1.73476I$	$-9.02190 + 3.44309I$
$u = -0.801178 + 0.792132I$ $a = -0.349606 - 0.004829I$ $b = 0.272753 + 0.170612I$	$2.74186 + 5.92630I$	$-8.64032 - 1.11570I$
$u = -0.801178 - 0.792132I$ $a = -0.349606 + 0.004829I$ $b = 0.272753 - 0.170612I$	$2.74186 - 5.92630I$	$-8.64032 + 1.11570I$
$u = -0.985363 + 0.781065I$ $a = 0.270446 + 0.170416I$ $b = -0.039680 - 0.311474I$	$2.21624 - 0.05351I$	$0. + 9.20699I$
$u = -0.985363 - 0.781065I$ $a = 0.270446 - 0.170416I$ $b = -0.039680 + 0.311474I$	$2.21624 + 0.05351I$	$0. - 9.20699I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.365490 + 0.075077I$ $a = \quad 1.02354 - 2.23453I$ $b = \quad 0.214666 - 1.235630I$	$-3.29773 + 8.08131I$	$0. - 5.40847I$
$u = -1.365490 - 0.075077I$ $a = \quad 1.02354 + 2.23453I$ $b = \quad 0.214666 + 1.235630I$	$-3.29773 - 8.08131I$	$0. + 5.40847I$
$u = \quad 0.375697 + 0.392763I$ $a = -0.79229 - 1.46902I$ $b = \quad 0.723248 - 1.077650I$	$1.00820 - 4.13658I$	$-5.7915 + 14.7595I$
$u = \quad 0.375697 - 0.392763I$ $a = -0.79229 + 1.46902I$ $b = \quad 0.723248 + 1.077650I$	$1.00820 + 4.13658I$	$-5.7915 - 14.7595I$
$u = -1.48400 + 0.06467I$ $a = -0.41893 + 1.93998I$ $b = -0.05224 + 1.43862I$	$-8.66650 + 3.37784I$	0
$u = -1.48400 - 0.06467I$ $a = -0.41893 - 1.93998I$ $b = -0.05224 - 1.43862I$	$-8.66650 - 3.37784I$	0
$u = \quad 1.50386 + 0.04313I$ $a = \quad 0.316735 + 0.074482I$ $b = \quad 1.179190 + 0.335072I$	$-5.60166 - 7.25627I$	0
$u = \quad 1.50386 - 0.04313I$ $a = \quad 0.316735 - 0.074482I$ $b = \quad 1.179190 - 0.335072I$	$-5.60166 + 7.25627I$	0
$u = -1.51308 + 0.11947I$ $a = \quad 0.33672 + 2.25100I$ $b = \quad 0.80151 + 1.63388I$	$-5.40316 + 5.95865I$	0
$u = -1.51308 - 0.11947I$ $a = \quad 0.33672 - 2.25100I$ $b = \quad 0.80151 - 1.63388I$	$-5.40316 - 5.95865I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.52723 + 0.07696I$ $a = -0.243823 + 0.082893I$ $b = -0.965498 + 0.243372I$	$-8.79839 + 0.44060I$	0
$u = 1.52723 - 0.07696I$ $a = -0.243823 - 0.082893I$ $b = -0.965498 - 0.243372I$	$-8.79839 - 0.44060I$	0
$u = -1.54602 + 0.23911I$ $a = -0.419980 + 1.278380I$ $b = 0.308955 + 1.216150I$	$-9.45733 + 4.02263I$	0
$u = -1.54602 - 0.23911I$ $a = -0.419980 - 1.278380I$ $b = 0.308955 - 1.216150I$	$-9.45733 - 4.02263I$	0
$u = -1.54315 + 0.28532I$ $a = 0.21164 - 1.70333I$ $b = -0.85375 - 1.41497I$	$-8.70767 + 8.89911I$	0
$u = -1.54315 - 0.28532I$ $a = 0.21164 + 1.70333I$ $b = -0.85375 + 1.41497I$	$-8.70767 - 8.89911I$	0
$u = 0.010566 + 0.322840I$ $a = -1.86779 + 1.71826I$ $b = -0.391718 - 0.776480I$	$-3.11479 - 2.03526I$	$-8.49725 + 3.17405I$
$u = 0.010566 - 0.322840I$ $a = -1.86779 - 1.71826I$ $b = -0.391718 + 0.776480I$	$-3.11479 + 2.03526I$	$-8.49725 - 3.17405I$
$u = -0.229059 + 0.123829I$ $a = -1.11546 - 4.35585I$ $b = 0.506364 + 0.761147I$	$0.76351 - 7.25820I$	$-2.86716 + 4.27850I$
$u = -0.229059 - 0.123829I$ $a = -1.11546 + 4.35585I$ $b = 0.506364 - 0.761147I$	$0.76351 + 7.25820I$	$-2.86716 - 4.27850I$

IV.

$\boldsymbol{I_4^u = \langle -2a^7+55b+\cdots+6a-61,\ a^8-3a^6-2a^5+10a^4-6a^3-2a^2+2a+1,\ u-1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ 0.0363636a^7 - 0.345455a^6 + \cdots - 0.109091a + 1.10909 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ 0.0363636a^7 - 0.345455a^6 + \cdots + 0.890909a + 1.10909 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.345455a^7 - 0.218182a^6 + \cdots + 1.03636a - 1.03636 \\ 0.618182a^7 + 0.127273a^6 + \cdots + 0.145455a + 0.854545 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0363636a^7 + 0.345455a^6 + \cdots + 1.10909a - 1.10909 \\ 0.0363636a^7 - 0.345455a^6 + \cdots - 0.109091a + 1.10909 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.127273a^7 + 0.709091a^6 + \cdots + 1.38182a - 1.38182 \\ 0.563636a^7 + 0.145455a^6 + \cdots + 0.309091a + 0.690909 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.709091a^7 + 0.236364a^6 + \cdots + 0.127273a - 0.127273 \\ 0.618182a^7 + 0.127273a^6 + \cdots + 0.145455a - 0.145455 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1.30909a^7 + 0.563636a^6 + \cdots - 1.92727a + 0.927273 \\ -0.963636a^7 - 0.345455a^6 + \cdots + 0.890909a + 0.109091 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{136}{55}a^7 - \frac{28}{55}a^6 + \frac{344}{55}a^5 + \frac{304}{55}a^4 - \frac{1168}{55}a^3 + \frac{692}{55}a^2 - \frac{32}{55}a - \frac{408}{55}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y+1)^8$
c_2, c_{11}	$(y^2-y+1)^4$
c_3, c_9	$y^8-6y^7+29y^6-68y^5+90y^4-74y^3+48y^2-8y+1$
c_5	$(y^2+y+1)^4$
c_6, c_7, c_{10}	$(y-1)^8$
c_8, c_{12}	$y^8+6y^7+29y^6+68y^5+90y^4+74y^3+48y^2+8y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.750055 + 0.630141I$ $b = -0.866025 - 0.500000I$	$2.02988I$	$-6.00000 - 3.46410I$
$u = 1.00000$ $a = 0.750055 - 0.630141I$ $b = -0.866025 + 0.500000I$	$-2.02988I$	$-6.00000 + 3.46410I$
$u = 1.00000$ $a = 1.225300 + 0.302085I$ $b = 0.866025 + 0.500000I$	$2.02988I$	$-6.00000 - 3.46410I$
$u = 1.00000$ $a = 1.225300 - 0.302085I$ $b = 0.866025 - 0.500000I$	$-2.02988I$	$-6.00000 + 3.46410I$
$u = 1.00000$ $a = -0.359271 + 0.197915I$ $b = 0.866025 + 0.500000I$	$2.02988I$	$-6.00000 - 3.46410I$
$u = 1.00000$ $a = -0.359271 - 0.197915I$ $b = 0.866025 - 0.500000I$	$-2.02988I$	$-6.00000 + 3.46410I$
$u = 1.00000$ $a = -1.61608 + 1.13014I$ $b = -0.866025 + 0.500000I$	$-2.02988I$	$-6.00000 + 3.46410I$
$u = 1.00000$ $a = -1.61608 - 1.13014I$ $b = -0.866025 - 0.500000I$	$2.02988I$	$-6.00000 - 3.46410I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+1)^4)(u^{24}+7u^{23}+\cdots+15u+3)^4(u^{30}-13u^{29}+\cdots-85u+13)$ $\cdot(u^{54}-22u^{53}+\cdots-4312u+448)$
c_2, c_{11}	$((u^4-u^2+1)^2)(u^{30}+3u^{29}+\cdots+6u+1)(u^{54}-u^{53}+\cdots+13u+2)$ $\cdot(u^{96}-7u^{95}+\cdots-1069888u+802048)$
c_3, c_9	$(u^8-3u^6+\cdots+2u+1)(u^{30}-u^{29}+\cdots-2u+4)$ $\cdot(u^{54}-u^{53}+\cdots+28u-4)$ $\cdot(u^{96}+u^{95}+\cdots-364694380u+80529475)$
c_4	$((u^2+1)^4)(u^{24}+7u^{23}+\cdots+15u+3)^4(u^{30}+13u^{29}+\cdots+85u+13)$ $\cdot(u^{54}-22u^{53}+\cdots-4312u+448)$
c_5	$((u^2-u+1)^4)(u^2+u+1)^{48}(u^{30}+10u^{29}+\cdots+8u+4)$ $\cdot(u^{54}-45u^{53}+\cdots-144703488u+8388608)$
c_6, c_7	$((u-1)^8)(u^{24}-3u^{23}+\cdots+3u-1)^4(u^{30}+8u^{29}+\cdots+6u+1)$ $\cdot(u^{54}+13u^{53}+\cdots-34u-4)$
c_8, c_{12}	$(u^8+2u^7+\cdots+2u+1)(u^{30}-u^{29}+\cdots+u+1)$ $\cdot(u^{54}+u^{53}+\cdots-u-1)(u^{96}+u^{95}+\cdots+44u+4)$
c_{10}	$((u+1)^8)(u^{24}-3u^{23}+\cdots+3u-1)^4(u^{30}-8u^{29}+\cdots-6u+1)$ $\cdot(u^{54}+13u^{53}+\cdots-34u-4)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y+1)^8)(y^{24}+15y^{23}+\cdots+69y+9)^4$ $\cdot(y^{30}+23y^{29}+\cdots+4163y+169)$ $\cdot(y^{54}+36y^{53}+\cdots+1750336y+200704)$
c_2, c_{11}	$((y^2-y+1)^4)(y^{30}+19y^{29}+\cdots+18y+1)(y^{54}+9y^{53}+\cdots+83y+4)$ $\cdot(y^{96}+51y^{95}+\cdots+30481927393280y+643280994304)$
c_3, c_9	$(y^8-6y^7+29y^6-68y^5+90y^4-74y^3+48y^2-8y+1)$ $\cdot(y^{30}-13y^{29}+\cdots+36y+16)(y^{54}-27y^{53}+\cdots-896y+16)$ $\cdot(y^{96}-47y^{95}+\cdots-312805919734027100y+6484996343775625)$
c_5	$((y^2+y+1)^{52})(y^{30}+4y^{29}+\cdots+216y+16)$ $\cdot(y^{54}+5y^{53}+\cdots-532163627843584y+70368744177664)$
c_6, c_7, c_{10}	$((y-1)^8)(y^{24}-25y^{23}+\cdots-15y+1)^4(y^{30}-32y^{29}+\cdots-4y+1)$ $\cdot(y^{54}-55y^{53}+\cdots-908y+16)$
c_8, c_{12}	$(y^8+6y^7+29y^6+68y^5+90y^4+74y^3+48y^2+8y+1)$ $\cdot(y^{30}-3y^{29}+\cdots-13y+1)(y^{54}+23y^{53}+\cdots+31y+1)$ $\cdot(y^{96}-15y^{95}+\cdots-1080y+16)$