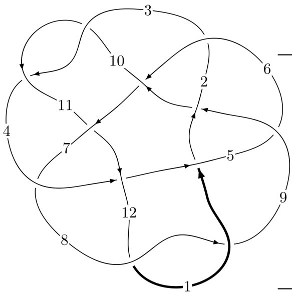
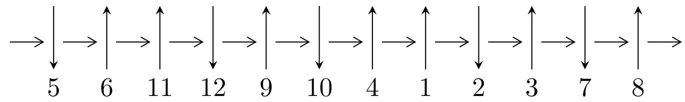
$12a_{1248}$ $(K12a_{1248})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -1.72425 \times 10^{22}u^{24} + 4.51173 \times 10^{21}u^{23} + \cdots + 3.02574 \times 10^{23}b - 2.60307 \times 10^{23}, \\
& 2.27744 \times 10^{23}u^{24} + 2.18092 \times 10^{23}u^{23} + \cdots + 3.02574 \times 10^{23}a + 5.33603 \times 10^{22},\ u^{25} + u^{24} + \cdots - 8u^2 + 1\rangle \\
I_2^u = \langle & 2.52174 \times 10^{1084}u^{129} - 1.28872 \times 10^{1085}u^{128} + \cdots + 1.26976 \times 10^{1088}b + 1.02148 \times 10^{1088}, \\
& 1.23921 \times 10^{1087}u^{129} - 6.11247 \times 10^{1087}u^{128} + \cdots + 4.57115 \times 10^{1089}a + 1.36201 \times 10^{1091}, \\
& u^{130} - 5u^{129} + \cdots + 9180u - 648\rangle \\
I_3^u = \langle & -62191u^{12} - 91437u^{11} + \cdots + 210306b - 639878, \\
& 361221u^{12} + 540029u^{11} + \cdots + 1682448a + 4563524, \\
& u^{13} + u^{12} - 5u^9 - u^8 - 5u^7 + 2u^6 + 5u^5 - 9u^4 + 17u^3 - 19u^2 + 20u - 8\rangle \\
I_4^u = \langle & -83920313227156u^{15} - 336492773056065u^{14} + \cdots + 2905108258730015b + 1338972540679108, \\
& -194022337467459u^{15} - 528242471041940u^{14} + \cdots + 20335757811111105a + 5329335757021752, \\
& u^{16} + 4u^{15} + \cdots - 42u - 7\rangle
\end{aligned}$$

$$I_1^v = \langle a,\ b - 1,\ v + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 185 representations.

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

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

I.

$$I^u_1 = \langle -1.72\times10^{22}u^{24}+4.51\times10^{21}u^{23}+\cdots+3.03\times10^{23}b-2.60\times10^{23},\ 2.28\times10^{23}u^{24}+2.18\times10^{23}u^{23}+\cdots+3.03\times10^{23}a+5.34\times10^{22},\ u^{25}+u^{24}+\cdots-8u^2+1\rangle$$

(i) Arc colorings

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

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

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

$$a_8 = \begin{pmatrix}-0.752689u^{24}-0.720788u^{23}+\cdots+6.22359u-0.176354\\0.0569861u^{24}-0.0149111u^{23}+\cdots-0.307069u+0.860306\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-0.695703u^{24}-0.735699u^{23}+\cdots+5.91652u+0.683952\\0.0569861u^{24}-0.0149111u^{23}+\cdots-0.307069u+0.860306\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-0.303537u^{24}-0.138816u^{23}+\cdots+4.13713u+0.575651\\0.0375026u^{24}+0.0458581u^{23}+\cdots+0.987489u+0.530982\end{pmatrix}$$

$$a_3 = \begin{pmatrix}0.715592u^{24}+0.997987u^{23}+\cdots-5.00417u-0.594017\\0.0903954u^{24}+0.191020u^{23}+\cdots-1.29124u-0.585932\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-0.759457u^{24}-0.728490u^{23}+\cdots+6.91929u-0.136358\\0.00953838u^{24}-0.0601964u^{23}+\cdots-0.243315u+0.789343\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-0.613557u^{24}-0.500686u^{23}+\cdots+7.58303u+0.141631\\0.0825759u^{24}+0.00720653u^{23}+\cdots-1.09086u+0.845857\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-0.330598u^{24}-0.137579u^{23}+\cdots+7.06546u-0.560275\\0.152520u^{24}+0.119684u^{23}+\cdots-0.426542u+0.792379\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.334504u^{24}-0.115567u^{23}+\cdots+4.27349u-0.183806\\0.107237u^{24}+0.0840051u^{23}+\cdots+0.198146u+0.540520\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-1.05608u^{24}-1.47895u^{23}+\cdots+4.46227u+1.24510\\-0.113686u^{24}-0.246884u^{23}+\cdots-0.542231u+0.697244\end{pmatrix}$$

(ii) Obstruction class $=-1$

(iii) Cusp Shapes $= \frac{1336750579370947806131 1}{7564358271257214286676 3}u^{24}+\frac{1319689616689266337147 9}{7564358271257214286676 3}u^{23}+\cdots-\frac{5848947929619486701854 49}{7564358271257214286676 3}u+\frac{5892051708421960622423 90}{7564358271257214286676 3}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{25} + u^{24} + \cdots - 8u^2 + 1$
c_2, c_5	$u^{25} + u^{24} + \cdots - 2u + 1$
c_3, c_8, c_{10} c_{12}	$u^{25} - 9u^{23} + \cdots - 6u + 1$
c_4, c_{11}	$u^{25} - 4u^{24} + \cdots + u - 1$
c_7	$u^{25} - 18u^{24} + \cdots - 32u - 64$
c_9	$u^{25} - 17u^{24} + \cdots + 2688u - 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{25} + 7y^{24} + \cdots + 16y - 1$
c_2, c_5	$y^{25} - 25y^{24} + \cdots + 22y - 1$
c_3, c_8, c_{10} c_{12}	$y^{25} - 18y^{24} + \cdots + 20y - 1$
c_4, c_{11}	$y^{25} - 20y^{24} + \cdots + 7y - 1$
c_7	$y^{25} - 4y^{24} + \cdots + 289792y - 4096$
c_9	$y^{25} + y^{24} + \cdots + 16384y - 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.337196 + 0.923094I$ $a = 1.49102 + 0.25772I$ $b = -1.054540 - 0.467075I$	$3.76069 + 4.58301I$	$3.19626 - 6.75184I$
$u = 0.337196 - 0.923094I$ $a = 1.49102 - 0.25772I$ $b = -1.054540 + 0.467075I$	$3.76069 - 4.58301I$	$3.19626 + 6.75184I$
$u = -0.896842 + 0.531128I$ $a = -0.778602 - 0.201190I$ $b = 0.232084 - 0.768385I$	$-2.63343 + 2.48396I$	$-2.77279 - 2.07312I$
$u = -0.896842 - 0.531128I$ $a = -0.778602 + 0.201190I$ $b = 0.232084 + 0.768385I$	$-2.63343 - 2.48396I$	$-2.77279 + 2.07312I$
$u = 0.987903 + 0.651180I$ $a = -0.0585945 + 0.0362518I$ $b = -0.271842 + 1.020150I$	$-3.54126 - 8.91433I$	$-1.59126 + 8.97639I$
$u = 0.987903 - 0.651180I$ $a = -0.0585945 - 0.0362518I$ $b = -0.271842 - 1.020150I$	$-3.54126 + 8.91433I$	$-1.59126 - 8.97639I$
$u = -0.300007 + 1.177200I$ $a = 1.45372 - 0.60162I$ $b = -0.887855 - 0.197563I$	$3.17777 + 3.62494I$	$10.69614 - 2.84346I$
$u = -0.300007 - 1.177200I$ $a = 1.45372 + 0.60162I$ $b = -0.887855 + 0.197563I$	$3.17777 - 3.62494I$	$10.69614 + 2.84346I$
$u = -0.128397 + 1.241710I$ $a = -1.023080 + 0.123269I$ $b = 1.060870 + 0.527352I$	$4.31719 + 3.20535I$	$7.46974 - 2.07775I$
$u = -0.128397 - 1.241710I$ $a = -1.023080 - 0.123269I$ $b = 1.060870 - 0.527352I$	$4.31719 - 3.20535I$	$7.46974 + 2.07775I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.363593+0.550618I$ $a=\ 0.411640-0.252068I$ $b=\ 0.079915+0.737309I$	$-0.26775+1.80895I$	$3.29877-4.11187I$
$u=-0.363593-0.550618I$ $a=\ 0.411640+0.252068I$ $b=\ 0.079915-0.737309I$	$-0.26775-1.80895I$	$3.29877+4.11187I$
$u=\ 0.656386$ $a=-4.21036$ $b=-1.09928$	3.95763	-6.81600
$u=\ 0.098619+0.544760I$ $a=\ 1.12774-1.17488I$ $b=\ 0.262728+0.108252I$	$1.20157+1.19915I$	$6.22122-0.54689I$
$u=\ 0.098619-0.544760I$ $a=\ 1.12774+1.17488I$ $b=\ 0.262728-0.108252I$	$1.20157-1.19915I$	$6.22122+0.54689I$
$u=\ 0.66908+1.30724I$ $a=-1.305070-0.147844I$ $b=\ 1.46709-0.46586I$	$9.8117-11.6056I$	$9.31205+7.19740I$
$u=\ 0.66908-1.30724I$ $a=-1.305070+0.147844I$ $b=\ 1.46709+0.46586I$	$9.8117+11.6056I$	$9.31205-7.19740I$
$u=-1.10412+1.05088I$ $a=-0.741334+0.642514I$ $b=\ 1.249090-0.135400I$	$9.09783-3.12361I$	$9.72869+2.49477I$
$u=-1.10412-1.05088I$ $a=-0.741334-0.642514I$ $b=\ 1.249090+0.135400I$	$9.09783+3.12361I$	$9.72869-2.49477I$
$u=\ 1.16476+1.20913I$ $a=\ 1.016250+0.347766I$ $b=-1.193450+0.518130I$	$3.23815-12.29240I$	$2.87610+9.11066I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.16476 - 1.20913I$ $a = 1.016250 - 0.347766I$ $b = -1.193450 - 0.518130I$	$3.23815 + 12.29240I$	$2.87610 - 9.11066I$
$u = 0.285172$ $a = 1.97738$ $b = 0.883013$	1.68210	5.46770
$u = -0.284977$ $a = -3.36690$ $b = 1.32340$	1.77900	11.4600
$u = -1.29288 + 1.12827I$ $a = 1.206260 - 0.419944I$ $b = -1.49765 - 0.50299I$	$7.6066 + 20.1752I$	$6.00932 - 10.06045I$
$u = -1.29288 - 1.12827I$ $a = 1.206260 + 0.419944I$ $b = -1.49765 + 0.50299I$	$7.6066 - 20.1752I$	$6.00932 + 10.06045I$

II. $\boldsymbol{I_2^u = \langle 2.52 \times 10^{1084}u^{129} - 1.29 \times 10^{1085}u^{128} + \cdots + 1.27 \times 10^{1088}b + 1.02 \times 10^{1088},\ 1.24 \times 10^{1087}u^{129} - 6.11 \times 10^{1087}u^{128} + \cdots + 4.57 \times 10^{1089}a + 1.36 \times 10^{1091},\ u^{130} - 5u^{129} + \cdots + 9180u - 648\rangle}$

(i) Arc colorings

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

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

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

$$a_8 = \begin{pmatrix}-0.00271095u^{129} + 0.0133719u^{128} + \cdots - 172.633u - 29.7958\\-0.000198599u^{129} + 0.00101493u^{128} + \cdots - 13.8817u - 0.804469\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-0.00290955u^{129} + 0.0143868u^{128} + \cdots - 186.515u - 30.6003\\-0.000198599u^{129} + 0.00101493u^{128} + \cdots - 13.8817u - 0.804469\end{pmatrix}$$

$$a_6 = \begin{pmatrix}0.00614959u^{129} - 0.0303924u^{128} + \cdots + 302.775u + 65.5568\\0.000189288u^{129} - 0.000965574u^{128} + \cdots + 19.6693u + 1.84031\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-0.0127234u^{129} + 0.0628511u^{128} + \cdots - 650.343u - 155.072\\-0.000436527u^{129} + 0.00215475u^{128} + \cdots - 8.88201u - 6.05167\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-0.00274753u^{129} + 0.0135520u^{128} + \cdots - 173.041u - 29.9001\\-0.000205267u^{129} + 0.00104599u^{128} + \cdots - 13.5496u - 0.820500\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}0.00305254u^{129} - 0.0150819u^{128} + \cdots + 119.477u + 43.5717\\-0.000212562u^{129} + 0.00107127u^{128} + \cdots - 13.8280u + 2.16857\end{pmatrix}$$

$$a_4 = \begin{pmatrix}0.00914264u^{129} - 0.0452008u^{128} + \cdots + 501.331u + 98.6427\\0.000501352u^{129} - 0.00251547u^{128} + \cdots + 37.8374u + 2.65284\end{pmatrix}$$

$$a_7 = \begin{pmatrix}0.00807061u^{129} - 0.0399844u^{128} + \cdots + 459.988u + 84.9912\\0.000523481u^{129} - 0.00260365u^{128} + \cdots + 46.0324u + 1.61693\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.00925651u^{129} + 0.0457718u^{128} + \cdots - 550.967u - 103.686\\-0.000560374u^{129} + 0.00279981u^{128} + \cdots - 41.2275u - 2.74647\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.000852393u^{129} + 0.00437408u^{128} + \cdots - 95.4233u + 4.25325$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{130} - 5u^{129} + \cdots + 9180u - 648$
c_2, c_5	$36(36u^{130} - 144u^{129} + \cdots + 650230u + 245213)$
c_3, c_8, c_{10} c_{12}	$u^{130} + 2u^{129} + \cdots - 52u + 1$
c_4, c_{11}	$36(36u^{130} - 72u^{129} + \cdots + 3230u - 271)$
c_7	$(u^{65} + 10u^{64} + \cdots + 1045u + 93)^2$
c_9	$(u^{65} + 6u^{64} + \cdots + 13u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{130} - 5y^{129} + \cdots - 188070336y + 419904$
c_2, c_5	1296 $\cdot (1296y^{130} - 54648y^{129} + \cdots - 4148969485924y + 60129415369)$
c_3, c_8, c_{10} c_{12}	$y^{130} - 102y^{129} + \cdots - 32y + 1$
c_4, c_{11}	$1296(1296y^{130} + 7560y^{129} + \cdots - 4029712y + 73441)$
c_7	$(y^{65} - 24y^{64} + \cdots + 342631y - 8649)^2$
c_9	$(y^{65} - 8y^{64} + \cdots + 151y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.395435+0.921802I$ $a=-1.261370+0.120698I$ $b=\ \ 1.44528+0.52940I$	$4.81300+2.73620I$	0
$u=-0.395435-0.921802I$ $a=-1.261370-0.120698I$ $b=\ \ 1.44528-0.52940I$	$4.81300-2.73620I$	0
$u=-0.990847$ $a=\ \ 1.22238$ $b=-1.39688$	-1.93226	0
$u=\ \ 0.978863+0.081886I$ $a=-0.554763+0.216918I$ $b=-0.149553+0.817552I$	$-4.30041+2.40764I$	0
$u=\ \ 0.978863-0.081886I$ $a=-0.554763-0.216918I$ $b=-0.149553-0.817552I$	$-4.30041-2.40764I$	0
$u=\ \ 0.839840+0.580136I$ $a=-0.778737-0.865825I$ $b=\ \ 1.242750-0.644513I$	$1.97368-3.05261I$	0
$u=\ \ 0.839840-0.580136I$ $a=-0.778737+0.865825I$ $b=\ \ 1.242750+0.644513I$	$1.97368+3.05261I$	0
$u=\ \ 0.741311+0.594975I$ $a=\ \ 0.517367-0.026334I$ $b=-0.274983-1.131760I$	$0.26259-6.61421I$	0
$u=\ \ 0.741311-0.594975I$ $a=\ \ 0.517367+0.026334I$ $b=-0.274983+1.131760I$	$0.26259+6.61421I$	0
$u=\ \ 0.415423+0.964153I$ $a=-1.241100-0.408258I$ $b=\ \ 0.934964-0.699699I$	$3.82596-2.49917I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.415423 - 0.964153I$ $a = -1.241100 + 0.408258I$ $b = 0.934964 + 0.699699I$	$3.82596 + 2.49917I$	0
$u = -0.988795 + 0.360926I$ $a = 0.442714 + 0.054513I$ $b = -0.165324 + 0.664435I$	$-2.42741 + 1.37850I$	0
$u = -0.988795 - 0.360926I$ $a = 0.442714 - 0.054513I$ $b = -0.165324 - 0.664435I$	$-2.42741 - 1.37850I$	0
$u = -0.932699 + 0.022023I$ $a = 0.513466 + 0.388134I$ $b = 0.327149 + 1.104600I$	$1.04342 - 6.26787I$	0
$u = -0.932699 - 0.022023I$ $a = 0.513466 - 0.388134I$ $b = 0.327149 - 1.104600I$	$1.04342 + 6.26787I$	0
$u = 0.228185 + 0.881951I$ $a = 0.703616 - 0.244061I$ $b = 0.053350 + 0.370991I$	$1.33240 + 1.86332I$	0
$u = 0.228185 - 0.881951I$ $a = 0.703616 + 0.244061I$ $b = 0.053350 - 0.370991I$	$1.33240 - 1.86332I$	0
$u = -0.646723 + 0.633614I$ $a = 0.409333 - 0.377970I$ $b = -0.279659 - 1.091440I$	$3.60085 + 5.03367I$	0
$u = -0.646723 - 0.633614I$ $a = 0.409333 + 0.377970I$ $b = -0.279659 + 1.091440I$	$3.60085 - 5.03367I$	0
$u = -0.726213 + 0.822663I$ $a = -1.06337 + 1.56707I$ $b = 1.154510 + 0.007583I$	$3.53868 + 1.05383I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.726213 - 0.822663I$ $a = -1.06337 - 1.56707I$ $b = 1.154510 - 0.007583I$	$3.53868 - 1.05383I$	0
$u = 0.183987 + 1.093660I$ $a = 0.428679 + 0.986543I$ $b = 0.0321920 - 0.0330241I$	$5.00433 - 9.83054I$	0
$u = 0.183987 - 1.093660I$ $a = 0.428679 - 0.986543I$ $b = 0.0321920 + 0.0330241I$	$5.00433 + 9.83054I$	0
$u = 0.552425 + 0.982700I$ $a = -0.841882 + 0.696450I$ $b = 0.450844 + 0.138293I$	$4.81300 + 2.73620I$	0
$u = 0.552425 - 0.982700I$ $a = -0.841882 - 0.696450I$ $b = 0.450844 - 0.138293I$	$4.81300 - 2.73620I$	0
$u = 0.220147 + 0.841369I$ $a = 1.272580 - 0.078974I$ $b = -1.58520 + 0.71407I$	$6.97133 - 2.42746I$	0
$u = 0.220147 - 0.841369I$ $a = 1.272580 + 0.078974I$ $b = -1.58520 - 0.71407I$	$6.97133 + 2.42746I$	0
$u = -0.949879 + 0.620413I$ $a = -0.0266755 + 0.0042224I$ $b = 0.349558 + 1.213370I$	$1.8860 + 14.1381I$	0
$u = -0.949879 - 0.620413I$ $a = -0.0266755 - 0.0042224I$ $b = 0.349558 - 1.213370I$	$1.8860 - 14.1381I$	0
$u = 0.705590 + 0.478780I$ $a = -0.044272 - 0.204131I$ $b = 0.201060 - 1.194120I$	$0.01829 - 3.97089I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.705590 - 0.478780I$ $a = -0.044272 + 0.204131I$ $b = 0.201060 + 1.194120I$	$0.01829 + 3.97089I$	0
$u = 1.007200 + 0.561186I$ $a = -0.184306 + 0.012742I$ $b = 0.147273 - 0.971997I$	$-1.10302 - 6.81905I$	0
$u = 1.007200 - 0.561186I$ $a = -0.184306 - 0.012742I$ $b = 0.147273 + 0.971997I$	$-1.10302 + 6.81905I$	0
$u = -1.17072$ $a = 0.439190$ $b = -1.98790$	9.43830	0
$u = 1.174650 + 0.019186I$ $a = 0.0705133 - 0.0380614I$ $b = 0.716210 - 0.533561I$	$0.408364 + 1.264650I$	0
$u = 1.174650 - 0.019186I$ $a = 0.0705133 + 0.0380614I$ $b = 0.716210 + 0.533561I$	$0.408364 - 1.264650I$	0
$u = -0.479231 + 1.079250I$ $a = 1.16561 - 0.86245I$ $b = -1.373530 - 0.039474I$	$10.67500 + 3.52037I$	0
$u = -0.479231 - 1.079250I$ $a = 1.16561 + 0.86245I$ $b = -1.373530 + 0.039474I$	$10.67500 - 3.52037I$	0
$u = 0.734468 + 0.962562I$ $a = 1.226530 + 0.357884I$ $b = -1.54208 + 0.37003I$	$10.67500 - 3.52037I$	0
$u = 0.734468 - 0.962562I$ $a = 1.226530 - 0.357884I$ $b = -1.54208 - 0.37003I$	$10.67500 + 3.52037I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.071130+0.581541I$ $a=\ \ 0.752545-0.598403I$ $b=-1.62230-0.64145I$	$8.22437+2.08895I$	0
$u=-1.071130-0.581541I$ $a=\ \ 0.752545+0.598403I$ $b=-1.62230+0.64145I$	$8.22437-2.08895I$	0
$u=-1.158480+0.447040I$ $a=\ \ 0.0908065+0.0033433I$ $b=-0.239755-0.733270I$	$-4.30041+2.40764I$	0
$u=-1.158480-0.447040I$ $a=\ \ 0.0908065-0.0033433I$ $b=-0.239755+0.733270I$	$-4.30041-2.40764I$	0
$u=-0.986130+0.762269I$ $a=\ \ 0.213638+0.122108I$ $b=\ \ 0.107496+0.655105I$	$-1.45790+2.77446I$	0
$u=-0.986130-0.762269I$ $a=\ \ 0.213638-0.122108I$ $b=\ \ 0.107496-0.655105I$	$-1.45790-2.77446I$	0
$u=-0.247362+1.232510I$ $a=-0.236034+0.541909I$ $b=-0.0161701+0.1172470I$	$0.01829+3.97089I$	0
$u=-0.247362-1.232510I$ $a=-0.236034-0.541909I$ $b=-0.0161701-0.1172470I$	$0.01829-3.97089I$	0
$u=-0.605209+0.418175I$ $a=\ \ 0.0031809+0.0768070I$ $b=-0.23895-1.48287I$	$3.90089+3.93483I$	$3.86544-9.05050I$
$u=-0.605209-0.418175I$ $a=\ \ 0.0031809-0.0768070I$ $b=-0.23895+1.48287I$	$3.90089-3.93483I$	$3.86544+9.05050I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.529655+0.497978I$ $a=-1.172890-0.019938I$ $b=-0.491462+0.543275I$	$3.53868-1.05383I$	$6.02195+1.63666I$
$u=-0.529655-0.497978I$ $a=-1.172890+0.019938I$ $b=-0.491462-0.543275I$	$3.53868+1.05383I$	$6.02195-1.63666I$
$u=-1.30114$ $a=\ 0.584999$ $b=\ 0.339378$	-1.93226	0
$u=\ 0.696178$ $a=\ 2.89025$ $b=\ 0.491834$	3.02115	0.480760
$u=-0.553482+0.412590I$ $a=\ 1.39325-1.94666I$ $b=-0.915449-0.569375I$	$4.26240+3.31423I$	$2.00000-8.31671I$
$u=-0.553482-0.412590I$ $a=\ 1.39325+1.94666I$ $b=-0.915449+0.569375I$	$4.26240-3.31423I$	$2.00000+8.31671I$
$u=-0.651942+0.192979I$ $a=\ 1.65481-0.63600I$ $b=-0.838881-0.324697I$	$-2.42741+1.37850I$	$-2.95884-2.12327I$
$u=-0.651942-0.192979I$ $a=\ 1.65481+0.63600I$ $b=-0.838881+0.324697I$	$-2.42741-1.37850I$	$-2.95884+2.12327I$
$u=\ 1.043850+0.833718I$ $a=\ 0.649155+0.942828I$ $b=-1.282090+0.127797I$	$9.67425-2.89595I$	0
$u=\ 1.043850-0.833718I$ $a=\ 0.649155-0.942828I$ $b=-1.282090-0.127797I$	$9.67425+2.89595I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.008555 + 0.648913I$ $a = -0.90272 - 1.93060I$ $b = 0.0675688 + 0.0417527I$	$5.37573 - 1.95373I$	$14.5397 + 0.9508I$
$u = 0.008555 - 0.648913I$ $a = -0.90272 + 1.93060I$ $b = 0.0675688 - 0.0417527I$	$5.37573 + 1.95373I$	$14.5397 - 0.9508I$
$u = 0.626976 + 0.068727I$ $a = -0.875048 + 0.085529I$ $b = 1.194100 + 0.665103I$	$2.02193 - 1.25646I$	$-0.93519 + 5.01233I$
$u = 0.626976 - 0.068727I$ $a = -0.875048 - 0.085529I$ $b = 1.194100 - 0.665103I$	$2.02193 + 1.25646I$	$-0.93519 - 5.01233I$
$u = 0.543979 + 0.252969I$ $a = -2.24165 - 1.29499I$ $b = 0.771752 - 0.399908I$	$0.60871 - 5.11474I$	$1.19356 + 9.18370I$
$u = 0.543979 - 0.252969I$ $a = -2.24165 + 1.29499I$ $b = 0.771752 + 0.399908I$	$0.60871 + 5.11474I$	$1.19356 - 9.18370I$
$u = -0.325810 + 0.494423I$ $a = -2.80544 - 0.43447I$ $b = 1.267010 + 0.184181I$	$2.02193 + 1.25646I$	$-0.93519 - 5.01233I$
$u = -0.325810 - 0.494423I$ $a = -2.80544 + 0.43447I$ $b = 1.267010 - 0.184181I$	$2.02193 - 1.25646I$	$-0.93519 + 5.01233I$
$u = 1.02335 + 0.99167I$ $a = 0.0678799 - 0.0807649I$ $b = -0.316582 + 0.031792I$	$1.97368 + 3.05261I$	0
$u = 1.02335 - 0.99167I$ $a = 0.0678799 + 0.0807649I$ $b = -0.316582 - 0.031792I$	$1.97368 - 3.05261I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.89545 + 1.11500I$ $a = -1.045140 + 0.425759I$ $b = 1.400170 - 0.062307I$	$9.67425 - 2.89595I$	0
$u = -0.89545 - 1.11500I$ $a = -1.045140 - 0.425759I$ $b = 1.400170 + 0.062307I$	$9.67425 + 2.89595I$	0
$u = -0.494900 + 0.228488I$ $a = -2.42653 + 2.17634I$ $b = 1.155690 + 0.506806I$	$3.73798 + 11.84600I$	$2.61069 - 8.43405I$
$u = -0.494900 - 0.228488I$ $a = -2.42653 - 2.17634I$ $b = 1.155690 - 0.506806I$	$3.73798 - 11.84600I$	$2.61069 + 8.43405I$
$u = -1.03879 + 1.02846I$ $a = -1.203930 + 0.439913I$ $b = 1.48560 + 0.57575I$	$9.1733 + 10.8002I$	0
$u = -1.03879 - 1.02846I$ $a = -1.203930 - 0.439913I$ $b = 1.48560 - 0.57575I$	$9.1733 - 10.8002I$	0
$u = 0.424948 + 0.301997I$ $a = 3.12746 + 1.35746I$ $b = -1.187740 + 0.395406I$	$-1.10302 - 6.81905I$	$-0.59050 + 7.48441I$
$u = 0.424948 - 0.301997I$ $a = 3.12746 - 1.35746I$ $b = -1.187740 - 0.395406I$	$-1.10302 + 6.81905I$	$-0.59050 - 7.48441I$
$u = -1.11919 + 0.97423I$ $a = -1.108120 + 0.698566I$ $b = 1.43620 + 0.46001I$	$8.92180 + 10.48110I$	0
$u = -1.11919 - 0.97423I$ $a = -1.108120 - 0.698566I$ $b = 1.43620 - 0.46001I$	$8.92180 - 10.48110I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.99301 + 1.10850I$ $a = -1.06349 - 1.04176I$ $b = 1.267980 - 0.097225I$	$8.92180 - 10.48110I$	0
$u = 0.99301 - 1.10850I$ $a = -1.06349 + 1.04176I$ $b = 1.267980 + 0.097225I$	$8.92180 + 10.48110I$	0
$u = 1.09956 + 1.01990I$ $a = 1.170100 + 0.530839I$ $b = -1.41877 + 0.50726I$	$5.00433 - 9.83054I$	0
$u = 1.09956 - 1.01990I$ $a = 1.170100 - 0.530839I$ $b = -1.41877 - 0.50726I$	$5.00433 + 9.83054I$	0
$u = 1.09692 + 1.06321I$ $a = 1.42170 + 0.50153I$ $b = -1.39155 + 0.43631I$	$3.73798 - 11.84600I$	0
$u = 1.09692 - 1.06321I$ $a = 1.42170 - 0.50153I$ $b = -1.39155 - 0.43631I$	$3.73798 + 11.84600I$	0
$u = 1.04639 + 1.16420I$ $a = 0.930949 + 0.477625I$ $b = -1.221710 - 0.070295I$	$5.37573 + 1.95373I$	0
$u = 1.04639 - 1.16420I$ $a = 0.930949 - 0.477625I$ $b = -1.221710 + 0.070295I$	$5.37573 - 1.95373I$	0
$u = 1.41612 + 0.67388I$ $a = -0.861511 - 0.274193I$ $b = 1.275750 - 0.264402I$	$0.408364 - 1.264650I$	0
$u = 1.41612 - 0.67388I$ $a = -0.861511 + 0.274193I$ $b = 1.275750 + 0.264402I$	$0.408364 + 1.264650I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.202263 + 0.369821I$ $a = -0.778526 - 0.515950I$ $b = -0.383227 + 1.248350I$	$4.12050 - 5.84327I$	$9.59365 + 9.05617I$
$u = 0.202263 - 0.369821I$ $a = -0.778526 + 0.515950I$ $b = -0.383227 - 1.248350I$	$4.12050 + 5.84327I$	$9.59365 - 9.05617I$
$u = 1.59856$ $a = -0.636266$ $b = 0.379724$	-3.78199	0
$u = -0.367235 + 0.137446I$ $a = -0.602199 - 0.938495I$ $b = 0.65764 - 1.51103I$	$3.21129 + 6.10217I$	$-2.76133 + 4.44067I$
$u = -0.367235 - 0.137446I$ $a = -0.602199 + 0.938495I$ $b = 0.65764 + 1.51103I$	$3.21129 - 6.10217I$	$-2.76133 - 4.44067I$
$u = -1.62552$ $a = 0.150830$ $b = -0.873054$	-3.78199	0
$u = -1.19058 + 1.14745I$ $a = 1.117110 - 0.333973I$ $b = -1.167110 - 0.327843I$	$0.60871 + 5.11474I$	0
$u = -1.19058 - 1.14745I$ $a = 1.117110 + 0.333973I$ $b = -1.167110 + 0.327843I$	$0.60871 - 5.11474I$	0
$u = 0.236601 + 0.221790I$ $a = 0.79592 - 1.65074I$ $b = -0.923576 - 0.864168I$	$-1.45790 - 2.77446I$	$-7.91959 + 5.52851I$
$u = 0.236601 - 0.221790I$ $a = 0.79592 + 1.65074I$ $b = -0.923576 + 0.864168I$	$-1.45790 + 2.77446I$	$-7.91959 - 5.52851I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.93361 + 1.40206I$ $a = 1.222940 - 0.708515I$ $b = -1.211980 - 0.102192I$	$3.60085 + 5.03367I$	0
$u = -0.93361 - 1.40206I$ $a = 1.222940 + 0.708515I$ $b = -1.211980 + 0.102192I$	$3.60085 - 5.03367I$	0
$u = 0.83679 + 1.47250I$ $a = 1.39278 + 0.45394I$ $b = -1.166170 - 0.047270I$	$4.26240 + 3.31423I$	0
$u = 0.83679 - 1.47250I$ $a = 1.39278 - 0.45394I$ $b = -1.166170 + 0.047270I$	$4.26240 - 3.31423I$	0
$u = -0.60415 + 1.60748I$ $a = 1.306870 - 0.156086I$ $b = -1.323450 - 0.346010I$	$4.12050 + 5.84327I$	0
$u = -0.60415 - 1.60748I$ $a = 1.306870 + 0.156086I$ $b = -1.323450 + 0.346010I$	$4.12050 - 5.84327I$	0
$u = -1.30085 + 1.12847I$ $a = -1.39248 + 0.32285I$ $b = 1.42980 + 0.31722I$	$1.04342 + 6.26787I$	0
$u = -1.30085 - 1.12847I$ $a = -1.39248 - 0.32285I$ $b = 1.42980 - 0.31722I$	$1.04342 - 6.26787I$	0
$u = 0.171181 + 0.209100I$ $a = -4.45011 - 3.25264I$ $b = 0.962455 - 0.356074I$	$1.33240 - 1.86332I$	$-1.30939 + 1.76611I$
$u = 0.171181 - 0.209100I$ $a = -4.45011 + 3.25264I$ $b = 0.962455 + 0.356074I$	$1.33240 + 1.86332I$	$-1.30939 - 1.76611I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.33486 + 1.21673I$ $a = -1.215660 - 0.370999I$ $b = 1.45229 - 0.43974I$	$1.8860 - 14.1381I$	0
$u = 1.33486 - 1.21673I$ $a = -1.215660 + 0.370999I$ $b = 1.45229 + 0.43974I$	$1.8860 + 14.1381I$	0
$u = -0.79277 + 1.64687I$ $a = 1.093700 - 0.496679I$ $b = -1.281860 + 0.120090I$	$9.1733 - 10.8002I$	0
$u = -0.79277 - 1.64687I$ $a = 1.093700 + 0.496679I$ $b = -1.281860 - 0.120090I$	$9.1733 + 10.8002I$	0
$u = 1.37358 + 1.28477I$ $a = -1.334020 - 0.101062I$ $b = 1.51526 - 0.13875I$	$8.22437 + 2.08895I$	0
$u = 1.37358 - 1.28477I$ $a = -1.334020 + 0.101062I$ $b = 1.51526 + 0.13875I$	$8.22437 - 2.08895I$	0
$u = -0.109564$ $a = 4.35338$ $b = 2.04522$	8.49952	19.0480
$u = -1.43063 + 1.30267I$ $a = -0.903001 + 0.292880I$ $b = 1.168580 + 0.356294I$	$0.26259 + 6.61421I$	0
$u = -1.43063 - 1.30267I$ $a = -0.903001 - 0.292880I$ $b = 1.168580 - 0.356294I$	$0.26259 - 6.61421I$	0
$u = 1.93794$ $a = 1.18254$ $b = -1.66058$	9.43830	0

Solutions to I^u_2	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.0538130$ $a = -36.0083$ $b = -1.25525$	3.02115	0.480760
$u = 0.55030 + 1.87311I$ $a = -1.225970 - 0.434713I$ $b = 1.256340 + 0.029273I$	$3.90089 + 3.93483I$	0
$u = 0.55030 - 1.87311I$ $a = -1.225970 + 0.434713I$ $b = 1.256340 - 0.029273I$	$3.90089 - 3.93483I$	0
$u = 0.95249 + 1.72683I$ $a = 0.950965 + 0.221920I$ $b = -1.080530 + 0.132232I$	$3.82596 + 2.49917I$	0
$u = 0.95249 - 1.72683I$ $a = 0.950965 - 0.221920I$ $b = -1.080530 - 0.132232I$	$3.82596 - 2.49917I$	0
$u = -1.29611 + 1.65030I$ $a = 1.274860 - 0.287073I$ $b = -1.364360 - 0.263713I$	$3.21129 + 6.10217I$	0
$u = -1.29611 - 1.65030I$ $a = 1.274860 + 0.287073I$ $b = -1.364360 + 0.263713I$	$3.21129 - 6.10217I$	0
$u = 1.78883 + 1.32664I$ $a = -0.764735 - 0.443939I$ $b = 1.163260 - 0.008096I$	$6.97133 + 2.42746I$	0
$u = 1.78883 - 1.32664I$ $a = -0.764735 + 0.443939I$ $b = 1.163260 + 0.008096I$	$6.97133 - 2.42746I$	0
$u = 2.23095$ $a = 0.686994$ $b = -1.35466$	8.49952	0

III.
$\boldsymbol{I_3^u = \langle -6.22\times 10^4u^{12} - 9.14\times 10^4u^{11} + \cdots + 2.10\times 10^5 b - 6.40\times 10^5,\ 3.61\times 10^5u^{12} + 5.40\times 10^5u^{11} + \cdots + 1.68\times 10^6 a + 4.56\times 10^6,\ u^{13} + u^{12} + \cdots + 20u - 8\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.214700u^{12} - 0.320978u^{11} + \cdots + 2.52230u - 2.71243\\ 0.295717u^{12} + 0.434781u^{11} + \cdots - 3.50969u + 3.04260\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.0810171u^{12} + 0.113803u^{11} + \cdots - 0.987395u + 0.330174\\ 0.295717u^{12} + 0.434781u^{11} + \cdots - 3.50969u + 3.04260\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.0401816u^{12} - 0.0999921u^{11} + \cdots + 0.303440u - 0.370825\\ -0.132419u^{12} - 0.235559u^{11} + \cdots + 2.16492u - 1.12662\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.156866u^{12} + 0.309533u^{11} + \cdots - 1.77645u + 2.00139\\ 0.196011u^{12} + 0.327469u^{11} + \cdots - 2.23122u + 1.54279\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.232735u^{12} - 0.326651u^{11} + \cdots + 2.51472u - 2.45015\\ 0.302859u^{12} + 0.370940u^{11} + \cdots - 3.48569u + 2.02900\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.221462u^{12} - 0.397123u^{11} + \cdots + 2.68759u - 2.70748\\ 0.0806349u^{12} + 0.123877u^{11} + \cdots - 1.26739u + 2.05585\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.132396u^{12} + 0.210242u^{11} + \cdots - 1.38827u + 2.22269\\ -0.278801u^{12} - 0.479684u^{11} + \cdots + 4.24353u - 3.83105\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-0.134097u^{12} - 0.204801u^{11} + \cdots + 2.50800u - 2.23271\\ -0.0643372u^{12} - 0.190330u^{11} + \cdots - 1.86325u + 1.29625\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.176298u^{12} - 0.311015u^{11} + \cdots + 1.45490u - 1.17633\\ 0.0357646u^{12} - 0.0455004u^{11} + \cdots + 0.00546347u + 0.422087\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{1033283}{420612}u^{12} - \frac{1432969}{420612}u^{11} + \cdots + \frac{5204925}{140204}u - \frac{6077497}{210306}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{13}+u^{12}-5u^9-u^8-5u^7+2u^6+5u^5-9u^4+17u^3-19u^2+20u-8$
c_2, c_5	$4(4u^{13}-4u^{12}+\cdots+5u-1)$
c_3, c_{12}	$u^{13}+u^{12}+\cdots-5u+1$
c_4, c_{11}	$4(4u^{13}+4u^{12}+\cdots-2u+1)$
c_7	$u^{13}+5u^{12}+\cdots+6u-4$
c_8, c_{10}	$u^{13}-u^{12}+\cdots-5u-1$
c_9	$u^{13}-3u^{12}+\cdots-2u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{13} - y^{12} + \cdots + 96y - 64$
c_2, c_5	$16(16y^{13} - 104y^{12} + \cdots + 27y - 1)$
c_3, c_8, c_{10} c_{12}	$y^{13} - 13y^{12} + \cdots + 31y - 1$
c_4, c_{11}	$16(16y^{13} - 72y^{12} + \cdots + 12y - 1)$
c_7	$y^{13} - 3y^{12} + \cdots + 60y - 16$
c_9	$y^{13} - y^{12} + \cdots + 46y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.959414$ $a = 0.174476$ $b = -1.57470$	11.7766	13.4920
$u = 0.543205 + 0.733999I$ $a = 0.195393 - 0.204204I$ $b = -0.203670 - 0.781207I$	$-0.60005 - 3.16973I$	$1.33144 + 7.21605I$
$u = 0.543205 - 0.733999I$ $a = 0.195393 + 0.204204I$ $b = -0.203670 + 0.781207I$	$-0.60005 + 3.16973I$	$1.33144 - 7.21605I$
$u = -0.239973 + 1.160450I$ $a = 1.223010 + 0.028017I$ $b = -1.098240 + 0.611717I$	$4.72534 - 4.38147I$	$10.79713 + 5.92666I$
$u = -0.239973 - 1.160450I$ $a = 1.223010 - 0.028017I$ $b = -1.098240 - 0.611717I$	$4.72534 + 4.38147I$	$10.79713 - 5.92666I$
$u = 0.139616 + 1.276470I$ $a = -1.308880 - 0.210044I$ $b = 0.843036 - 0.339731I$	$2.57788 - 3.86066I$	$-2.11736 + 7.14801I$
$u = 0.139616 - 1.276470I$ $a = -1.308880 + 0.210044I$ $b = 0.843036 + 0.339731I$	$2.57788 + 3.86066I$	$-2.11736 - 7.14801I$
$u = -0.777627 + 1.138280I$ $a = -1.44155 + 0.61815I$ $b = 1.241310 + 0.478776I$	$5.98521 + 12.71410I$	$7.13610 - 10.54617I$
$u = -0.777627 - 1.138280I$ $a = -1.44155 - 0.61815I$ $b = 1.241310 - 0.478776I$	$5.98521 - 12.71410I$	$7.13610 + 10.54617I$
$u = 1.39357$ $a = -0.663516$ $b = 0.189578$	-4.85110	-9.33550

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.605970$ $a = -1.85205$ $b = 1.46884$	1.44757	-12.6450
$u = -1.52754$ $a = 0.961958$ $b = -1.81382$	8.67340	1.97370
$u = -1.76185$ $a = 0.293178$ $b = -0.834772$	-2.94480	9.22010

IV. $I^u_4 = \langle -8.39\times 10^{13}u^{15} - 3.36\times 10^{14}u^{14} + \cdots + 2.91\times 10^{14}b + 1.34\times 10^{15},\ -1.94\times 10^{14}u^{15} - 5.28\times 10^{14}u^{14} + \cdots + 2.03\times 10^{15}a + 5.33\times 10^{15},\ u^{16} + 4u^{15} + \cdots - 42u - 7\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.0954094u^{15} + 0.259760u^{14} + \cdots - 9.79084u - 2.62067\\ 0.288872u^{15} + 1.15828u^{14} + \cdots - 21.0505u - 4.60903\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.384281u^{15} + 1.41804u^{14} + \cdots - 30.8414u - 7.22970\\ 0.288872u^{15} + 1.15828u^{14} + \cdots - 21.0505u - 4.60903\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.220335u^{15} + 0.721107u^{14} + \cdots - 15.7537u - 2.12004\\ 0.333648u^{15} + 0.913267u^{14} + \cdots - 4.76971u + 0.00714541\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.278621u^{15} + 1.10853u^{14} + \cdots - 18.0158u - 3.99088\\ 0.604472u^{15} + 2.16321u^{14} + \cdots - 38.2260u - 9.05521\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.114129u^{15} + 0.389435u^{14} + \cdots - 12.1024u - 3.45426\\ 0.386081u^{15} + 1.35864u^{14} + \cdots - 20.7574u - 4.24500\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.470250u^{15} + 1.39373u^{14} + \cdots - 8.22302u - 0.458057\\ -0.469229u^{15} - 1.05599u^{14} + \cdots - 6.85269u - 4.35453\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.188380u^{15} + 0.543078u^{14} + \cdots - 2.04815u - 0.280245\\ -0.249348u^{15} - 0.670300u^{14} + \cdots + 8.58201u + 3.24932\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-0.196763u^{15} - 0.747398u^{14} + \cdots + 13.4515u + 3.19746\\ 1.47598u^{15} + 5.17144u^{14} + \cdots - 79.0543u - 17.0748\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0.0567623u^{15} - 0.00757436u^{14} + \cdots + 8.14800u + 2.44631\\ -0.544486u^{15} - 1.86232u^{14} + \cdots + 33.0844u + 8.48296\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{16076929699768976}{2033575781111105}u^{15} + \frac{11800360206848280}{406715156222221}u^{14} + \cdots - \frac{156144298567052528}{290510825873015}u - \frac{33451639400575064}{290510825873015}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{16} + 4u^{15} + \cdots - 42u - 7$
c_2, c_5	$7(7u^{16} + 28u^{15} + \cdots - 6u - 1)$
c_3, c_{12}	$u^{16} - u^{15} + \cdots - 4u + 1$
c_4, c_{11}	$7(7u^{16} - 7u^{15} + \cdots + 8u - 1)$
c_7	$(u^8 - u^6 + 2u^5 + 3u^4 + 2u^3 - u^2 + 1)^2$
c_8, c_{10}	$u^{16} + u^{15} + \cdots + 4u + 1$
c_9	$(u^8 + u^7 + u^6 - u^5 - 2u^4 + u^3 - 3u^2 + 2u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{16} + 18y^{14} + \cdots - 98y + 49$
c_2, c_5	$49(49y^{16} - 196y^{15} + \cdots - 60y + 1)$
c_3, c_8, c_{10} c_{12}	$y^{16} - 11y^{15} + \cdots + 54y + 1$
c_4, c_{11}	$49(49y^{16} + 147y^{15} + \cdots - 56y + 1)$
c_7	$(y^8 - 2y^7 + 7y^6 - 12y^5 + 5y^4 - 12y^3 + 7y^2 - 2y + 1)^2$
c_9	$(y^8 + y^7 - y^6 - 13y^5 - 6y^4 + 13y^3 + 9y^2 + 2y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.770750 + 0.649988I$ $a = -0.990425 - 0.985675I$ $b = 1.144790 - 0.525264I$	$1.66720 - 2.99663I$	$-4.79553 + 4.48232I$
$u = 0.770750 - 0.649988I$ $a = -0.990425 + 0.985675I$ $b = 1.144790 + 0.525264I$	$1.66720 + 2.99663I$	$-4.79553 - 4.48232I$
$u = -0.875289$ $a = -1.32085$ $b = 1.89545$	7.98708	1.68040
$u = -0.800860 + 0.871134I$ $a = -0.486214 + 0.113518I$ $b = 0.043738 + 0.164083I$	$1.66720 - 2.99663I$	$-4.79553 + 4.48232I$
$u = -0.800860 - 0.871134I$ $a = -0.486214 - 0.113518I$ $b = 0.043738 - 0.164083I$	$1.66720 + 2.99663I$	$-4.79553 - 4.48232I$
$u = -1.20480$ $a = 1.13631$ $b = -1.24493$	-1.40735	6.31960
$u = 1.33376$ $a = 0.300544$ $b = 0.709448$	-1.40735	6.31960
$u = -0.254592 + 0.533302I$ $a = 1.78589 - 1.39113I$ $b = -0.791069 - 0.709265I$	$4.91254 + 2.99663I$	$12.79553 - 4.48232I$
$u = -0.254592 - 0.533302I$ $a = 1.78589 + 1.39113I$ $b = -0.791069 + 0.709265I$	$4.91254 - 2.99663I$	$12.79553 + 4.48232I$
$u = -0.461018 + 0.289514I$ $a = 0.1083480 + 0.0094698I$ $b = 0.32272 - 1.68261I$	$3.28987 + 6.39156I$	$4.0000 - 20.9743I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.461018-0.289514I$ $a=\ \ 0.1083480-0.0094698I$ $b=\ \ 0.32272+1.68261I$	$3.28987-6.39156I$	$4.0000+20.9743I$
$u=-1.83588$ $a=\ \ 0.619937$ $b=-1.49537$	7.98708	1.68040
$u=-1.09318+1.69730I$ $a=-1.104940+0.378816I$ $b=\ \ 1.189440-0.019296I$	$4.91254-2.99663I$	$12.79553+4.48232I$
$u=-1.09318-1.69730I$ $a=-1.104940-0.378816I$ $b=\ \ 1.189440+0.019296I$	$4.91254+2.99663I$	$12.79553-4.48232I$
$u=\ \ 1.13000+1.79940I$ $a=\ \ 1.319370+0.268466I$ $b=-1.341910+0.247920I$	$3.28987-6.39156I$	$4.0000+20.9743I$
$u=\ \ 1.13000-1.79940I$ $a=\ \ 1.319370-0.268466I$ $b=-1.341910-0.247920I$	$3.28987+6.39156I$	$4.0000-20.9743I$

V. $\boldsymbol{I_1^v = \langle a,\ b-1,\ v+1 \rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = \quad 0$ $b = \quad 1.00000$	1.64493	6.00000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$u(u^{13} + u^{12} + \cdots + 20u - 8)$ $\cdot (u^{16} + 4u^{15} + \cdots - 42u - 7)(u^{25} + u^{24} + \cdots - 8u^2 + 1)$ $\cdot (u^{130} - 5u^{129} + \cdots + 9180u - 648)$
c_2, c_5	$1008(u-1)(4u^{13} - 4u^{12} + \cdots + 5u - 1)(7u^{16} + 28u^{15} + \cdots - 6u - 1)$ $\cdot (u^{25} + u^{24} + \cdots - 2u + 1)$ $\cdot (36u^{130} - 144u^{129} + \cdots + 650230u + 245213)$
c_3, c_{12}	$(u-1)(u^{13} + u^{12} + \cdots - 5u + 1)(u^{16} - u^{15} + \cdots - 4u + 1)$ $\cdot (u^{25} - 9u^{23} + \cdots - 6u + 1)(u^{130} + 2u^{129} + \cdots - 52u + 1)$
c_4, c_{11}	$1008(u-1)(4u^{13} + 4u^{12} + \cdots - 2u + 1)(7u^{16} - 7u^{15} + \cdots + 8u - 1)$ $\cdot (u^{25} - 4u^{24} + \cdots + u - 1)(36u^{130} - 72u^{129} + \cdots + 3230u - 271)$
c_7	$u(u^8 - u^6 + \cdots - u^2 + 1)^2(u^{13} + 5u^{12} + \cdots + 6u - 4)$ $\cdot (u^{25} - 18u^{24} + \cdots - 32u - 64)(u^{65} + 10u^{64} + \cdots + 1045u + 93)^2$
c_8, c_{10}	$(u-1)(u^{13} - u^{12} + \cdots - 5u - 1)(u^{16} + u^{15} + \cdots + 4u + 1)$ $\cdot (u^{25} - 9u^{23} + \cdots - 6u + 1)(u^{130} + 2u^{129} + \cdots - 52u + 1)$
c_9	$(u-1)(u^8 + u^7 + u^6 - u^5 - 2u^4 + u^3 - 3u^2 + 2u - 1)^2$ $\cdot (u^{13} - 3u^{12} + \cdots - 2u - 1)(u^{25} - 17u^{24} + \cdots + 2688u - 256)$ $\cdot (u^{65} + 6u^{64} + \cdots + 13u - 1)^2$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y(y^{13} - y^{12} + \cdots + 96y - 64)(y^{16} + 18y^{14} + \cdots - 98y + 49)$ $\cdot\,(y^{25} + 7y^{24} + \cdots + 16y - 1)$ $\cdot\,(y^{130} - 5y^{129} + \cdots - 188070336y + 419904)$
c_2, c_5	$1016064(y - 1)(16y^{13} - 104y^{12} + \cdots + 27y - 1)$ $\cdot\,(49y^{16} - 196y^{15} + \cdots - 60y + 1)(y^{25} - 25y^{24} + \cdots + 22y - 1)$ $\cdot\,(1296y^{130} - 54648y^{129} + \cdots - 4148969485924y + 60129415369)$
c_3, c_8, c_{10} c_{12}	$(y - 1)(y^{13} - 13y^{12} + \cdots + 31y - 1)(y^{16} - 11y^{15} + \cdots + 54y + 1)$ $\cdot\,(y^{25} - 18y^{24} + \cdots + 20y - 1)(y^{130} - 102y^{129} + \cdots - 32y + 1)$
c_4, c_{11}	$1016064(y - 1)(16y^{13} - 72y^{12} + \cdots + 12y - 1)$ $\cdot\,(49y^{16} + 147y^{15} + \cdots - 56y + 1)(y^{25} - 20y^{24} + \cdots + 7y - 1)$ $\cdot\,(1296y^{130} + 7560y^{129} + \cdots - 4029712y + 73441)$
c_7	$y(y^8 - 2y^7 + 7y^6 - 12y^5 + 5y^4 - 12y^3 + 7y^2 - 2y + 1)^2$ $\cdot\,(y^{13} - 3y^{12} + \cdots + 60y - 16)(y^{25} - 4y^{24} + \cdots + 289792y - 4096)$ $\cdot\,(y^{65} - 24y^{64} + \cdots + 342631y - 8649)^2$
c_9	$(y - 1)(y^8 + y^7 - y^6 - 13y^5 - 6y^4 + 13y^3 + 9y^2 + 2y + 1)^2$ $\cdot\,(y^{13} - y^{12} + \cdots + 46y - 1)(y^{25} + y^{24} + \cdots + 16384y - 65536)$ $\cdot\,(y^{65} - 8y^{64} + \cdots + 151y - 1)^2$