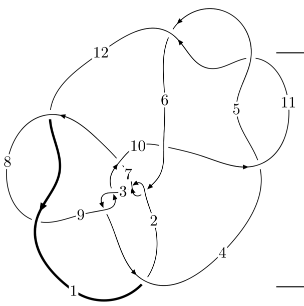
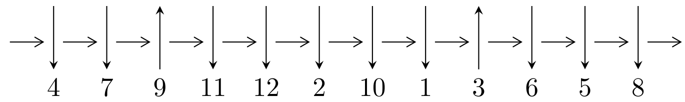
$12a_{1059}$ ($K12a_{1059}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-6.14828 \times 10^{28} u^{37} + 8.50493 \times 10^{28} u^{36} + \cdots + 2.35548 \times 10^{29} b + 4.37452 \times 10^{29}, \\
&- 9.04579 \times 10^{28} u^{37} + 6.37591 \times 10^{28} u^{36} + \cdots + 1.17774 \times 10^{30} a - 2.01495 \times 10^{30}, \\
&u^{38} - 3u^{37} + \cdots + 38u + 10\rangle \\
I_2^u = \langle &2u^{29} a - 3u^{29} + \cdots + a - 9,\ u^{29} + 2u^{28} + \cdots - a + 2,\ u^{30} + u^{29} + \cdots - u + 1\rangle \\
I_3^u = \langle &u^4 + u^3 - u^2 + 2b - u + 1,\ u^4 - 2u^2 + a + 1,\ u^6 - 3u^4 + 2u^2 + 1\rangle
\end{aligned}$$

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

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 105 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. $\boldsymbol{I_1^u = \langle -6.15 \times 10^{28} u^{37} + 8.50 \times 10^{28} u^{36} + \cdots + 2.36 \times 10^{29} b + 4.37 \times 10^{29},\ -9.05 \times 10^{28} u^{37} + 6.38 \times 10^{28} u^{36} + \cdots + 1.18 \times 10^{30} a - 2.01 \times 10^{30},\ u^{38} - 3u^{37} + \cdots + 38u + 10 \rangle}$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0768064u^{37} - 0.0541369u^{36} + \cdots + 0.400423u + 1.71086 \\ 0.261020u^{37} - 0.361070u^{36} + \cdots - 9.03543u - 1.85717 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0395912u^{37} - 0.155029u^{36} + \cdots + 2.31691u + 0.790017 \\ 0.0608242u^{37} - 0.176995u^{36} + \cdots + 0.234757u - 0.377871 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.140551u^{37} - 0.0696244u^{36} + \cdots - 1.72012u + 2.05575 \\ 0.615558u^{37} - 0.922281u^{36} + \cdots - 22.1653u - 4.52960 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.00943465u^{37} - 0.0566721u^{36} + \cdots + 2.16486u + 1.21012 \\ -0.00165545u^{37} - 0.0842333u^{36} + \cdots + 2.11565u + 0.0816969 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.100930u^{37} + 0.00413956u^{36} + \cdots + 10.2335u + 3.54732 \\ -0.209935u^{37} + 0.144189u^{36} + \cdots + 9.07278u + 1.58098 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^3 + 2u \\ -u^5 + u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0740422u^{37} - 0.0468738u^{36} + \cdots + 2.13281u + 2.06658 \\ 0.220414u^{37} - 0.290916u^{36} + \cdots - 6.68558u - 1.35661 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00842304u^{37} + 0.168232u^{36} + \cdots - 43.3018u - 18.3994$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$64(64u^{38} - 256u^{37} + \cdots + 15u - 1)$
c_2, c_6, c_8 c_{12}	$u^{38} - u^{37} + \cdots + 17u - 5$
c_3, c_9	$u^{38} - 3u^{37} + \cdots - 834u + 178$
c_4, c_5, c_{11}	$u^{38} - 3u^{37} + \cdots + 38u + 10$
c_{10}	$u^{38} + 9u^{37} + \cdots - 58478u - 6110$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$4096(4096y^{38} - 73728y^{37} + \cdots - 391y + 1)$
c_2, c_6, c_8 c_{12}	$y^{38} - 19y^{37} + \cdots - 749y + 25$
c_3, c_9	$y^{38} + 31y^{37} + \cdots - 180424y + 31684$
c_4, c_5, c_{11}	$y^{38} - 33y^{37} + \cdots + 896y + 100$
c_{10}	$y^{38} + 3y^{37} + \cdots - 52394384y + 37332100$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.832821 + 0.547125I$ $a = -0.86558 - 1.12589I$ $b = -0.800463 + 0.066461I$	$-9.55612 - 8.85033I$	$-14.7980 + 4.0064I$
$u = -0.832821 - 0.547125I$ $a = -0.86558 + 1.12589I$ $b = -0.800463 - 0.066461I$	$-9.55612 + 8.85033I$	$-14.7980 - 4.0064I$
$u = 0.758122 + 0.726911I$ $a = -0.598468 + 0.868086I$ $b = -0.909897 - 0.239586I$	$-3.21428 + 2.58317I$	$-14.0149 - 7.3951I$
$u = 0.758122 - 0.726911I$ $a = -0.598468 - 0.868086I$ $b = -0.909897 + 0.239586I$	$-3.21428 - 2.58317I$	$-14.0149 + 7.3951I$
$u = -0.254953 + 1.055630I$ $a = 0.191552 + 1.039430I$ $b = 0.408014 - 0.285100I$	$-5.53222 - 1.14690I$	$-22.5523 + 4.7902I$
$u = -0.254953 - 1.055630I$ $a = 0.191552 - 1.039430I$ $b = 0.408014 + 0.285100I$	$-5.53222 + 1.14690I$	$-22.5523 - 4.7902I$
$u = 0.377700 + 0.817120I$ $a = 0.930523 - 0.994516I$ $b = 1.103510 + 0.283151I$	$-2.13828 - 7.70452I$	$-10.95675 + 8.64865I$
$u = 0.377700 - 0.817120I$ $a = 0.930523 + 0.994516I$ $b = 1.103510 - 0.283151I$	$-2.13828 + 7.70452I$	$-10.95675 - 8.64865I$
$u = -0.304901 + 0.821700I$ $a = 1.12461 + 1.25299I$ $b = 1.316850 - 0.071626I$	$-7.8932 + 13.6180I$	$-12.3598 - 8.2723I$
$u = -0.304901 - 0.821700I$ $a = 1.12461 - 1.25299I$ $b = 1.316850 + 0.071626I$	$-7.8932 - 13.6180I$	$-12.3598 + 8.2723I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.191870 + 0.245310I$ $a = -0.597452 - 0.473091I$ $b = -1.368890 + 0.168011I$	$-0.40005 - 4.16689I$	$-6.41890 + 7.16086I$
$u = 1.191870 - 0.245310I$ $a = -0.597452 + 0.473091I$ $b = -1.368890 - 0.168011I$	$-0.40005 + 4.16689I$	$-6.41890 - 7.16086I$
$u = -1.096270 + 0.573423I$ $a = -0.932566 - 0.275848I$ $b = -1.361430 - 0.074950I$	$-8.26421 + 6.83120I$	$-17.2078 - 8.7853I$
$u = -1.096270 - 0.573423I$ $a = -0.932566 + 0.275848I$ $b = -1.361430 + 0.074950I$	$-8.26421 - 6.83120I$	$-17.2078 + 8.7853I$
$u = -1.244400 + 0.106432I$ $a = -0.500503 + 0.821730I$ $b = -1.86027 + 0.16899I$	$-2.57552 + 1.10250I$	$-12.15322 + 1.49488I$
$u = -1.244400 - 0.106432I$ $a = -0.500503 - 0.821730I$ $b = -1.86027 - 0.16899I$	$-2.57552 - 1.10250I$	$-12.15322 - 1.49488I$
$u = -0.737757$ $a = 0.738275$ $b = 0.681107$	-1.10279	-8.36790
$u = 1.288170 + 0.175763I$ $a = 0.202837 - 0.012188I$ $b = 0.693144 + 1.009580I$	$-4.92002 - 2.79762I$	$-16.6701 + 3.7773I$
$u = 1.288170 - 0.175763I$ $a = 0.202837 + 0.012188I$ $b = 0.693144 - 1.009580I$	$-4.92002 + 2.79762I$	$-16.6701 - 3.7773I$
$u = 0.062119 + 0.674628I$ $a = -1.066350 - 0.720953I$ $b = -0.548733 - 0.123939I$	$3.02249 + 0.79229I$	$-0.26606 - 2.46888I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.062119 - 0.674628I$ $a = -1.066350 + 0.720953I$ $b = -0.548733 + 0.123939I$	$3.02249 - 0.79229I$	$-0.26606 + 2.46888I$
$u = -1.307770 + 0.250331I$ $a = 0.089765 + 0.665827I$ $b = -0.340750 + 0.653216I$	$-1.25101 + 2.53582I$	$-5.26256 - 1.09268I$
$u = -1.307770 - 0.250331I$ $a = 0.089765 - 0.665827I$ $b = -0.340750 - 0.653216I$	$-1.25101 - 2.53582I$	$-5.26256 + 1.09268I$
$u = 1.376180 + 0.215614I$ $a = -0.007963 - 1.118930I$ $b = -0.93586 - 1.62045I$	$-4.46084 - 3.77438I$	$-17.8969 + 4.8599I$
$u = 1.376180 - 0.215614I$ $a = -0.007963 + 1.118930I$ $b = -0.93586 + 1.62045I$	$-4.46084 + 3.77438I$	$-17.8969 - 4.8599I$
$u = -0.181936 + 0.531158I$ $a = -2.10293 + 1.17618I$ $b = -0.852184 + 0.229977I$	$0.533620 + 0.994797I$	$-12.5887 - 7.1482I$
$u = -0.181936 - 0.531158I$ $a = -2.10293 - 1.17618I$ $b = -0.852184 - 0.229977I$	$0.533620 - 0.994797I$	$-12.5887 + 7.1482I$
$u = 1.43812 + 0.32819I$ $a = 1.024740 + 0.167678I$ $b = 3.38065 - 0.99960I$	$-13.4573 - 17.7785I$	$-15.9854 + 8.9050I$
$u = 1.43812 - 0.32819I$ $a = 1.024740 - 0.167678I$ $b = 3.38065 + 0.99960I$	$-13.4573 + 17.7785I$	$-15.9854 - 8.9050I$
$u = -1.46219 + 0.31744I$ $a = 0.886952 - 0.098679I$ $b = 3.18286 + 0.68484I$	$-8.0205 + 11.8161I$	$-14.4580 - 8.0646I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.46219 - 0.31744I$ $a = 0.886952 + 0.098679I$ $b = 3.18286 - 0.68484I$	$-8.0205 - 11.8161I$	$-14.4580 + 8.0646I$
$u = 1.53956 + 0.03471I$ $a = -0.926435 + 0.236128I$ $b = -3.32141 + 0.36741I$	$-17.7030 + 7.3147I$	$-19.0498 - 4.2883I$
$u = 1.53956 - 0.03471I$ $a = -0.926435 - 0.236128I$ $b = -3.32141 - 0.36741I$	$-17.7030 - 7.3147I$	$-19.0498 + 4.2883I$
$u = 1.51262 + 0.38346I$ $a = 0.770644 - 0.138564I$ $b = 2.50061 - 0.54552I$	$-11.37270 - 4.09288I$	$-21.9706 + 0.I$
$u = 1.51262 - 0.38346I$ $a = 0.770644 + 0.138564I$ $b = 2.50061 + 0.54552I$	$-11.37270 + 4.09288I$	$-21.9706 + 0.I$
$u = -1.61211$ $a = -0.778308$ $b = -3.05374$	-12.1718	-21.8720
$u = -0.184289 + 0.301680I$ $a = 1.096640 - 0.014738I$ $b = -0.099433 - 0.437896I$	$-0.612808 + 0.881258I$	$-10.27041 - 7.59569I$
$u = -0.184289 - 0.301680I$ $a = 1.096640 + 0.014738I$ $b = -0.099433 + 0.437896I$	$-0.612808 - 0.881258I$	$-10.27041 + 7.59569I$

II.
$$\boldsymbol{I_2^u = \langle 2u^{29}a - 3u^{29} + \cdots + a - 9,\ u^{29} + 2u^{28} + \cdots - a + 2,\ u^{30} + u^{29} + \cdots - u + 1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a \\ -\frac{2}{5}u^{29}a + \frac{3}{5}u^{29} + \cdots - \frac{1}{5}a + \frac{9}{5} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{29} + u^{28} + \cdots + 3u - 1 \\ \frac{6}{5}u^{29}a - \frac{1}{5}u^{29} + \cdots + \frac{3}{5}a - \frac{3}{5} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^{20} - 9u^{18} + 33u^{16} - 60u^{14} + 48u^{12} + 3u^{10} - 25u^8 + 2u^6 + 9u^4 - u^2 - 1 \\ u^{20} - 8u^{18} + 26u^{16} - 42u^{14} + 31u^{12} - 2u^{10} - 8u^8 - 2u^6 + 5u^4 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{5}u^{29}a + \frac{9}{5}u^{29} + \cdots + \frac{3}{5}a + \frac{2}{5} \\ \frac{4}{5}u^{29}a + \frac{6}{5}u^{29} + \cdots + \frac{2}{5}a + \frac{3}{5} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{21} - 10u^{19} + \cdots - 6u^3 - u \\ u^{23} - 9u^{21} + \cdots - 2u^3 - u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^3 + 2u \\ -u^5 + u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{3}{5}u^{29}a + \frac{3}{5}u^{29} + \cdots + \frac{9}{5}a - \frac{1}{5} \\ \frac{7}{5}u^{29}a + \frac{2}{5}u^{29} + \cdots + \frac{6}{5}a + \frac{6}{5} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{28} - 52u^{26} + 4u^{25} + 292u^{24} - 48u^{23} - 912u^{22} + 244u^{21} + 1684u^{20} - 672u^{19} - 1752u^{18} + 1056u^{17} + 752u^{16} - 896u^{15} + 212u^{14} + 332u^{13} - 180u^{12} - 64u^{11} - 156u^{10} + 112u^9 + 96u^8 - 64u^7 + 20u^6 + 8u^5 - 8u^4 - 20u^3 + 12u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$25(25u^{60} + 175u^{59} + \cdots - 6914990u + 533119)$
c_2, c_6, c_8 c_{12}	$u^{60} - u^{59} + \cdots + 2u^2 + 1$
c_3, c_9	$(u^{30} + u^{29} + \cdots + u + 1)^2$
c_4, c_5, c_{11}	$(u^{30} + u^{29} + \cdots - u + 1)^2$
c_{10}	$(u^{30} - 3u^{29} + \cdots - u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	625 $\cdot (625y^{60} - 20625y^{59} + \cdots - 3671828841416y + 284215868161)$
c_2, c_6, c_8 c_{12}	$y^{60} - 41y^{59} + \cdots + 4y + 1$
c_3, c_9	$(y^{30} + 25y^{29} + \cdots + 3y + 1)^2$
c_4, c_5, c_{11}	$(y^{30} - 27y^{29} + \cdots + 3y + 1)^2$
c_{10}	$(y^{30} + y^{29} + \cdots - y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.006930 + 0.206480I$ $a = 1.106440 + 0.089649I$ $b = 0.700491 + 0.212708I$	$-4.85148 - 3.89629I$	$-11.54228 + 4.15365I$
$u = 1.006930 + 0.206480I$ $a = -0.062835 - 0.576338I$ $b = 0.716396 + 0.426617I$	$-4.85148 - 3.89629I$	$-11.54228 + 4.15365I$
$u = 1.006930 - 0.206480I$ $a = 1.106440 - 0.089649I$ $b = 0.700491 - 0.212708I$	$-4.85148 + 3.89629I$	$-11.54228 - 4.15365I$
$u = 1.006930 - 0.206480I$ $a = -0.062835 + 0.576338I$ $b = 0.716396 - 0.426617I$	$-4.85148 + 3.89629I$	$-11.54228 - 4.15365I$
$u = -0.832034 + 0.169903I$ $a = 0.837632 + 0.478792I$ $b = 0.728628 - 0.013221I$	$-1.081760 - 0.029483I$	$-7.62798 - 0.47071I$
$u = -0.832034 + 0.169903I$ $a = 0.541539 - 0.269552I$ $b = 0.764830 - 0.085001I$	$-1.081760 - 0.029483I$	$-7.62798 - 0.47071I$
$u = -0.832034 - 0.169903I$ $a = 0.837632 - 0.478792I$ $b = 0.728628 + 0.013221I$	$-1.081760 + 0.029483I$	$-7.62798 + 0.47071I$
$u = -0.832034 - 0.169903I$ $a = 0.541539 + 0.269552I$ $b = 0.764830 + 0.085001I$	$-1.081760 + 0.029483I$	$-7.62798 + 0.47071I$
$u = 0.266850 + 0.721202I$ $a = 1.39335 + 0.53326I$ $b = 0.755461 + 0.165673I$	$-3.58803 - 7.69168I$	$-9.96957 + 6.90287I$
$u = 0.266850 + 0.721202I$ $a = -1.34228 + 1.44900I$ $b = -1.176110 + 0.077817I$	$-3.58803 - 7.69168I$	$-9.96957 + 6.90287I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.266850 - 0.721202I$ $a = 1.39335 - 0.53326I$ $b = 0.755461 - 0.165673I$	$-3.58803 + 7.69168I$	$-9.96957 - 6.90287I$
$u = 0.266850 - 0.721202I$ $a = -1.34228 - 1.44900I$ $b = -1.176110 - 0.077817I$	$-3.58803 + 7.69168I$	$-9.96957 - 6.90287I$
$u = 0.703536 + 0.310326I$ $a = 0.375402 + 1.132660I$ $b = 0.726738 + 0.185162I$	$-5.20234 + 3.85600I$	$-12.77500 - 2.05029I$
$u = 0.703536 + 0.310326I$ $a = 1.35245 - 1.17888I$ $b = 0.727398 - 0.288938I$	$-5.20234 + 3.85600I$	$-12.77500 - 2.05029I$
$u = 0.703536 - 0.310326I$ $a = 0.375402 - 1.132660I$ $b = 0.726738 - 0.185162I$	$-5.20234 - 3.85600I$	$-12.77500 + 2.05029I$
$u = 0.703536 - 0.310326I$ $a = 1.35245 + 1.17888I$ $b = 0.727398 + 0.288938I$	$-5.20234 - 3.85600I$	$-12.77500 + 2.05029I$
$u = -0.228391 + 0.710789I$ $a = 0.824807 - 0.489046I$ $b = 0.348965 + 0.017513I$	$0.89469 + 3.64220I$	$-4.89571 - 4.72167I$
$u = -0.228391 + 0.710789I$ $a = -0.98019 - 1.20859I$ $b = -1.058380 + 0.072042I$	$0.89469 + 3.64220I$	$-4.89571 - 4.72167I$
$u = -0.228391 - 0.710789I$ $a = 0.824807 + 0.489046I$ $b = 0.348965 - 0.017513I$	$0.89469 - 3.64220I$	$-4.89571 + 4.72167I$
$u = -0.228391 - 0.710789I$ $a = -0.98019 + 1.20859I$ $b = -1.058380 - 0.072042I$	$0.89469 - 3.64220I$	$-4.89571 + 4.72167I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.169829 + 0.699155I$ $a = -0.27507 + 1.43355I$ $b = -0.982543 + 0.271641I$	$-2.35081 + 0.37332I$	$-7.79326 + 0.53471I$
$u = 0.169829 + 0.699155I$ $a = -0.129943 - 0.165869I$ $b = -0.264670 - 0.891458I$	$-2.35081 + 0.37332I$	$-7.79326 + 0.53471I$
$u = 0.169829 - 0.699155I$ $a = -0.27507 - 1.43355I$ $b = -0.982543 - 0.271641I$	$-2.35081 - 0.37332I$	$-7.79326 - 0.53471I$
$u = 0.169829 - 0.699155I$ $a = -0.129943 + 0.165869I$ $b = -0.264670 + 0.891458I$	$-2.35081 - 0.37332I$	$-7.79326 - 0.53471I$
$u = -0.379833 + 0.540597I$ $a = 1.91795 + 1.04697I$ $b = 1.285490 + 0.431592I$	$-8.44109 + 1.73295I$	$-15.3118 - 4.0988I$
$u = -0.379833 + 0.540597I$ $a = -0.70200 - 2.19064I$ $b = -0.195589 - 0.222195I$	$-8.44109 + 1.73295I$	$-15.3118 - 4.0988I$
$u = -0.379833 - 0.540597I$ $a = 1.91795 - 1.04697I$ $b = 1.285490 - 0.431592I$	$-8.44109 - 1.73295I$	$-15.3118 + 4.0988I$
$u = -0.379833 - 0.540597I$ $a = -0.70200 + 2.19064I$ $b = -0.195589 + 0.222195I$	$-8.44109 - 1.73295I$	$-15.3118 + 4.0988I$
$u = 1.351750 + 0.104838I$ $a = 0.918606 - 0.092731I$ $b = 3.58585 - 0.17980I$	$-6.82103 - 0.39832I$	$-11.93478 - 1.62643I$
$u = 1.351750 + 0.104838I$ $a = -0.387734 + 0.353048I$ $b = 0.384313 - 0.303024I$	$-6.82103 - 0.39832I$	$-11.93478 - 1.62643I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.351750 - 0.104838I$ $a = 0.918606 + 0.092731I$ $b = 3.58585 + 0.17980I$	$-6.82103 + 0.39832I$	$-11.93478 + 1.62643I$
$u = 1.351750 - 0.104838I$ $a = -0.387734 - 0.353048I$ $b = 0.384313 + 0.303024I$	$-6.82103 + 0.39832I$	$-11.93478 + 1.62643I$
$u = -1.363600 + 0.194579I$ $a = -0.776181 - 0.304313I$ $b = -3.24492 + 0.96961I$	$-8.06303 + 3.51597I$	$-14.7951 - 5.1228I$
$u = -1.363600 + 0.194579I$ $a = 0.815095 - 0.090094I$ $b = 3.99423 + 2.25543I$	$-8.06303 + 3.51597I$	$-14.7951 - 5.1228I$
$u = -1.363600 - 0.194579I$ $a = -0.776181 + 0.304313I$ $b = -3.24492 - 0.96961I$	$-8.06303 - 3.51597I$	$-14.7951 + 5.1228I$
$u = -1.363600 - 0.194579I$ $a = 0.815095 + 0.090094I$ $b = 3.99423 - 2.25543I$	$-8.06303 - 3.51597I$	$-14.7951 + 5.1228I$
$u = -1.360050 + 0.270550I$ $a = -0.801459 - 0.128170I$ $b = -3.02150 - 2.03985I$	$-7.18585 + 3.12979I$	$-12.91872 - 1.86186I$
$u = -1.360050 + 0.270550I$ $a = 0.231493 - 0.068682I$ $b = -0.845504 + 1.046880I$	$-7.18585 + 3.12979I$	$-12.91872 - 1.86186I$
$u = -1.360050 - 0.270550I$ $a = -0.801459 + 0.128170I$ $b = -3.02150 + 2.03985I$	$-7.18585 - 3.12979I$	$-12.91872 + 1.86186I$
$u = -1.360050 - 0.270550I$ $a = 0.231493 + 0.068682I$ $b = -0.845504 - 1.046880I$	$-7.18585 - 3.12979I$	$-12.91872 + 1.86186I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.39028 + 0.28253I$ $a = -0.893925 - 0.133521I$ $b = -3.12549 + 0.97945I$	$-4.25247 - 7.24749I$	$-9.92864 + 5.63452I$
$u = 1.39028 + 0.28253I$ $a = 0.082294 + 0.578132I$ $b = 0.382082 + 0.552723I$	$-4.25247 - 7.24749I$	$-9.92864 + 5.63452I$
$u = 1.39028 - 0.28253I$ $a = -0.893925 + 0.133521I$ $b = -3.12549 - 0.97945I$	$-4.25247 + 7.24749I$	$-9.92864 - 5.63452I$
$u = 1.39028 - 0.28253I$ $a = 0.082294 - 0.578132I$ $b = 0.382082 - 0.552723I$	$-4.25247 + 7.24749I$	$-9.92864 - 5.63452I$
$u = -1.42059 + 0.09196I$ $a = 1.085040 + 0.253869I$ $b = 3.38504 + 0.97196I$	$-11.61500 - 2.69486I$	$-17.4134 + 2.4278I$
$u = -1.42059 + 0.09196I$ $a = -0.272288 - 0.773726I$ $b = 0.134709 - 1.163670I$	$-11.61500 - 2.69486I$	$-17.4134 + 2.4278I$
$u = -1.42059 - 0.09196I$ $a = 1.085040 - 0.253869I$ $b = 3.38504 - 0.97196I$	$-11.61500 + 2.69486I$	$-17.4134 - 2.4278I$
$u = -1.42059 - 0.09196I$ $a = -0.272288 + 0.773726I$ $b = 0.134709 + 1.163670I$	$-11.61500 + 2.69486I$	$-17.4134 - 2.4278I$
$u = -1.40881 + 0.28598I$ $a = 0.178934 - 0.868467I$ $b = 1.10783 - 1.01091I$	$-8.9306 + 11.3520I$	$-14.5534 - 7.3132I$
$u = -1.40881 + 0.28598I$ $a = -1.104570 + 0.226478I$ $b = -3.42336 - 0.88023I$	$-8.9306 + 11.3520I$	$-14.5534 - 7.3132I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.40881 - 0.28598I$ $a = 0.178934 + 0.868467I$ $b = 1.10783 + 1.01091I$	$-8.9306 - 11.3520I$	$-14.5534 + 7.3132I$
$u = -1.40881 - 0.28598I$ $a = -1.104570 - 0.226478I$ $b = -3.42336 + 0.88023I$	$-8.9306 - 11.3520I$	$-14.5534 + 7.3132I$
$u = 1.42434 + 0.20546I$ $a = 1.029910 + 0.423098I$ $b = 3.20762 - 0.64618I$	$-14.1830 - 4.4767I$	$-19.0263 + 3.5734I$
$u = 1.42434 + 0.20546I$ $a = -1.070140 + 0.500011I$ $b = -2.72487 + 1.14691I$	$-14.1830 - 4.4767I$	$-19.0263 + 3.5734I$
$u = 1.42434 - 0.20546I$ $a = 1.029910 - 0.423098I$ $b = 3.20762 + 0.64618I$	$-14.1830 + 4.4767I$	$-19.0263 - 3.5734I$
$u = 1.42434 - 0.20546I$ $a = -1.070140 - 0.500011I$ $b = -2.72487 - 1.14691I$	$-14.1830 + 4.4767I$	$-19.0263 - 3.5734I$
$u = 0.179795 + 0.471439I$ $a = 1.11876 - 1.63717I$ $b = 1.72380 - 0.44845I$	$-3.15470 - 0.99510I$	$-9.51394 + 6.82295I$
$u = 0.179795 + 0.471439I$ $a = -0.51110 + 2.18288I$ $b = -0.096933 - 0.875944I$	$-3.15470 - 0.99510I$	$-9.51394 + 6.82295I$
$u = 0.179795 - 0.471439I$ $a = 1.11876 + 1.63717I$ $b = 1.72380 + 0.44845I$	$-3.15470 + 0.99510I$	$-9.51394 - 6.82295I$
$u = 0.179795 - 0.471439I$ $a = -0.51110 - 2.18288I$ $b = -0.096933 + 0.875944I$	$-3.15470 + 0.99510I$	$-9.51394 - 6.82295I$

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

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^4 + 2u^2 - 1 \\ -\frac{1}{2}u^4 - \frac{1}{2}u^3 + \cdots + \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -2u^4 + 4u^2 - 2 \\ -2u^4 - u^3 + 2u^2 + u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -2u^5 + 6u^3 - u^2 - 4u + 1 \\ -2u^5 - u^4 + 4u^3 + u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^3 + 2u \\ -u^5 + u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^4 + \frac{1}{2}u^3 + 2u^2 - u - \frac{1}{2} \\ \frac{1}{2}u^5 - u^4 - u^3 + \frac{3}{2}u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$64(64u^6 - 192u^5 + 256u^4 - 192u^3 + 92u^2 - 28u + 5)$
c_2, c_3, c_6 c_8, c_9, c_{12}	$(u^2 + 1)^3$
c_4, c_5, c_{11}	$u^6 - 3u^4 + 2u^2 + 1$
c_{10}	$u^6 + u^4 + 2u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$4096(4096y^6 - 4096y^5 + 3584y^4 + 128y^3 + 272y^2 + 136y + 25)$
c_2, c_3, c_6 c_8, c_9, c_{12}	$(y+1)^6$
c_4, c_5, c_{11}	$(y^3 - 3y^2 + 2y + 1)^2$
c_{10}	$(y^3 + y^2 + 2y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.307140 + 0.215080I$ $a = -0.122561 - 0.744862I$ $b = -1.26489 - 1.09229I$	$-3.02413 - 2.82812I$	$-11.50976 + 2.97945I$
$u = 1.307140 - 0.215080I$ $a = -0.122561 + 0.744862I$ $b = -1.26489 + 1.09229I$	$-3.02413 + 2.82812I$	$-11.50976 - 2.97945I$
$u = -1.307140 + 0.215080I$ $a = -0.122561 + 0.744862I$ $b = -0.520029 + 0.214851I$	$-3.02413 + 2.82812I$	$-11.50976 - 2.97945I$
$u = -1.307140 - 0.215080I$ $a = -0.122561 - 0.744862I$ $b = -0.520029 - 0.214851I$	$-3.02413 - 2.82812I$	$-11.50976 + 2.97945I$
$u = 0.569840I$ $a = -1.75488$ $b = -0.715080 + 0.377439I$	1.11345	-4.98050
$u = -0.569840I$ $a = -1.75488$ $b = -0.715080 - 0.377439I$	1.11345	-4.98050

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = 1.00000$	-3.28987	-12.0000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$102400(u-1)(64u^6 - 192u^5 + 256u^4 - 192u^3 + 92u^2 - 28u + 5)$ $\cdot (64u^{38} - 256u^{37} + \cdots + 15u - 1)$ $\cdot (25u^{60} + 175u^{59} + \cdots - 6914990u + 533119)$
c_2, c_8	$(u-1)(u^2+1)^3(u^{38} - u^{37} + \cdots + 17u - 5)(u^{60} - u^{59} + \cdots + 2u^2 + 1)$
c_3, c_9	$u(u^2+1)^3(u^{30} + u^{29} + \cdots + u + 1)^2(u^{38} - 3u^{37} + \cdots - 834u + 178)$
c_4, c_5, c_{11}	$u(u^6 - 3u^4 + 2u^2 + 1)(u^{30} + u^{29} + \cdots - u + 1)^2$ $\cdot (u^{38} - 3u^{37} + \cdots + 38u + 10)$
c_6, c_{12}	$(u+1)(u^2+1)^3(u^{38} - u^{37} + \cdots + 17u - 5)(u^{60} - u^{59} + \cdots + 2u^2 + 1)$
c_{10}	$u(u^6 + u^4 + 2u^2 + 1)(u^{30} - 3u^{29} + \cdots - u + 1)^2$ $\cdot (u^{38} + 9u^{37} + \cdots - 58478u - 6110)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$10485760000(y-1)$ $\cdot (4096y^6 - 4096y^5 + 3584y^4 + 128y^3 + 272y^2 + 136y + 25)$ $\cdot (4096y^{38} - 73728y^{37} + \cdots - 391y + 1)$ $\cdot (625y^{60} - 20625y^{59} + \cdots - 3671828841416y + 284215868161)$
c_2, c_6, c_8 c_{12}	$(y-1)(y+1)^6(y^{38} - 19y^{37} + \cdots - 749y + 25)$ $\cdot (y^{60} - 41y^{59} + \cdots + 4y + 1)$
c_3, c_9	$y(y+1)^6(y^{30} + 25y^{29} + \cdots + 3y + 1)^2$ $\cdot (y^{38} + 31y^{37} + \cdots - 180424y + 31684)$
c_4, c_5, c_{11}	$y(y^3 - 3y^2 + 2y + 1)^2(y^{30} - 27y^{29} + \cdots + 3y + 1)^2$ $\cdot (y^{38} - 33y^{37} + \cdots + 896y + 100)$
c_{10}	$y(y^3 + y^2 + 2y + 1)^2(y^{30} + y^{29} + \cdots - y + 1)^2$ $\cdot (y^{38} + 3y^{37} + \cdots - 52394384y + 37332100)$