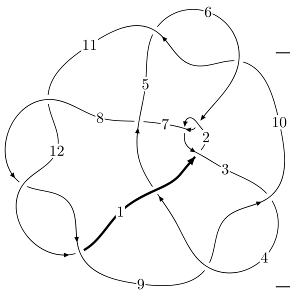
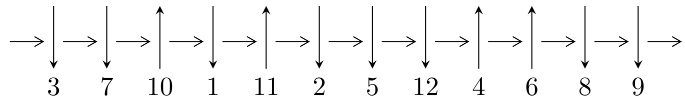
$12a_{0664}$ ($K12a_{0664}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -1185u^{34} + 14000u^{33} + \cdots + 32b + 15808,\ 3556u^{34} - 45981u^{33} + \cdots + 32a + 144096, \\
&\quad u^{35} - 14u^{34} + \cdots + 608u - 64\rangle \\
I_2^u &= \langle 1.49681 \times 10^{45}a^{11}u^5 - 5.70342 \times 10^{45}a^{10}u^5 + \cdots - 1.15780 \times 10^{47}a + 2.97901 \times 10^{46}, \\
&\quad - a^{11}u^5 - 4a^{10}u^5 + \cdots - 55a - 18,\ u^6 + u^5 - u^4 - 2u^3 + u + 1\rangle \\
I_3^u &= \langle -2u^{22} + 11u^{20} + \cdots + b - 8,\ 9u^{22} + 8u^{21} + \cdots + a + 17,\ u^{23} + u^{22} + \cdots + 3u + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 130 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. $\boldsymbol{I_1^u = \langle -1185u^{34} + 14000u^{33} + \cdots + 32b + 15808,\ 3556u^{34} - 45981u^{33} + \cdots + 32a + 144096,\ u^{35} - 14u^{34} + \cdots + 608u - 64\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -111.125u^{34} + 1436.91u^{33} + \cdots + 41697.5u - 4503 \\ \frac{1185}{32}u^{34} - \frac{875}{2}u^{33} + \cdots + 2084u - 494 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{1045}{64}u^{34} - \frac{1759}{8}u^{33} + \cdots - \frac{37185}{4}u + 1064 \\ -\frac{541}{32}u^{34} + \frac{847}{4}u^{33} + \cdots + \frac{9217}{2}u - 487 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -74.0938u^{34} + 999.406u^{33} + \cdots + 43781.5u - 4997 \\ \frac{1185}{32}u^{34} - \frac{875}{2}u^{33} + \cdots + 2084u - 494 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{37}{64}u^{34} + \frac{65}{8}u^{33} + \cdots + \frac{18751}{4}u - 576 \\ \frac{541}{32}u^{34} - \frac{847}{4}u^{33} + \cdots - \frac{9215}{2}u + 487 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{211}{8}u^{34} - \frac{11137}{32}u^{33} + \cdots - 13901u + \frac{3187}{2} \\ \frac{279}{32}u^{34} - \frac{2045}{16}u^{33} + \cdots - \frac{17517}{2}u + 1046 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{865}{64}u^{34} - \frac{1229}{8}u^{33} + \cdots - 2691u + \frac{667}{2} \\ 56.2188u^{34} - 774.938u^{33} + \cdots - 36723u + 4223 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 12.7813u^{34} - 135.594u^{33} + \cdots + 2973.50u - 394.500 \\ \frac{1685}{32}u^{34} - \frac{5693}{8}u^{33} + \cdots - \frac{58715}{2}u + 3332 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{459}{2}u^{34} + 3017u^{33} + \cdots + 110596u - 12350$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{35} + 12u^{34} + \cdots + 13312u + 4096$
c_2, c_6	$u^{35} - 14u^{34} + \cdots + 608u - 64$
c_3, c_5, c_9 c_{10}	$u^{35} + 14u^{33} + \cdots - 4u - 1$
c_4, c_7	$u^{35} - 2u^{34} + \cdots + 9u - 1$
c_8, c_{11}, c_{12}	$u^{35} + 16u^{34} + \cdots + 160u - 64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{35} + 8y^{34} + \cdots - 158334976y - 16777216$
c_2, c_6	$y^{35} - 12y^{34} + \cdots + 13312y - 4096$
c_3, c_5, c_9 c_{10}	$y^{35} + 28y^{34} + \cdots + 6y - 1$
c_4, c_7	$y^{35} - 12y^{34} + \cdots + 135y - 1$
c_8, c_{11}, c_{12}	$y^{35} - 34y^{34} + \cdots + 54272y - 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.998696$ $a = 0.406523$ $b = 0.811456$	-7.46368	-11.8760
$u = 0.735848 + 0.635706I$ $a = -1.072540 - 0.169141I$ $b = 0.692633 - 0.220382I$	$2.59000 - 1.09744I$	0
$u = 0.735848 - 0.635706I$ $a = -1.072540 + 0.169141I$ $b = 0.692633 + 0.220382I$	$2.59000 + 1.09744I$	0
$u = 0.388780 + 0.979792I$ $a = -0.611938 - 1.089240I$ $b = 0.49548 + 1.43787I$	$-11.7814 + 11.4404I$	0
$u = 0.388780 - 0.979792I$ $a = -0.611938 + 1.089240I$ $b = 0.49548 - 1.43787I$	$-11.7814 - 11.4404I$	0
$u = 0.331775 + 1.023800I$ $a = 0.554343 + 0.837484I$ $b = -0.415463 - 1.254440I$	$-3.76301 + 7.52599I$	0
$u = 0.331775 - 1.023800I$ $a = 0.554343 - 0.837484I$ $b = -0.415463 + 1.254440I$	$-3.76301 - 7.52599I$	0
$u = 0.897454 + 0.638918I$ $a = 0.670730 + 0.645138I$ $b = -0.663183 + 0.017922I$	$2.11864 - 3.86118I$	0
$u = 0.897454 - 0.638918I$ $a = 0.670730 - 0.645138I$ $b = -0.663183 - 0.017922I$	$2.11864 + 3.86118I$	0
$u = 0.978827 + 0.600935I$ $a = -0.829355 - 1.080510I$ $b = 0.938507 - 0.064693I$	$-3.98603 - 5.50029I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.978827 - 0.600935I$ $a = -0.829355 + 1.080510I$ $b = 0.938507 + 0.064693I$	$-3.98603 + 5.50029I$	0
$u = -0.838763$ $a = -0.220144$ $b = -0.339524$	-1.49579	-4.76650
$u = 0.557853 + 0.610862I$ $a = 1.42477 + 0.11204I$ $b = -0.890998 + 0.031259I$	$-2.81360 + 0.71268I$	$-3.56704 + 0.25723I$
$u = 0.557853 - 0.610862I$ $a = 1.42477 - 0.11204I$ $b = -0.890998 - 0.031259I$	$-2.81360 - 0.71268I$	$-3.56704 - 0.25723I$
$u = 0.875442 + 0.817929I$ $a = 0.419001 - 0.418160I$ $b = -0.069182 + 0.582688I$	$1.43497 - 3.03675I$	0
$u = 0.875442 - 0.817929I$ $a = 0.419001 + 0.418160I$ $b = -0.069182 - 0.582688I$	$1.43497 + 3.03675I$	0
$u = 0.657165 + 1.106850I$ $a = -0.261979 + 0.777037I$ $b = 0.109636 - 1.218180I$	$-9.91255 - 5.35177I$	0
$u = 0.657165 - 1.106850I$ $a = -0.261979 - 0.777037I$ $b = 0.109636 + 1.218180I$	$-9.91255 + 5.35177I$	0
$u = 0.347142 + 1.298210I$ $a = -0.190435 - 0.549260I$ $b = 0.146118 + 1.125760I$	$-2.07712 + 1.05602I$	0
$u = 0.347142 - 1.298210I$ $a = -0.190435 + 0.549260I$ $b = 0.146118 - 1.125760I$	$-2.07712 - 1.05602I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.650933$ $a = 2.00998$ $b = -0.456707$	-2.54150	4.22040
$u = 1.184660 + 0.653764I$ $a = 1.76258 + 0.22362I$ $b = -0.56794 + 1.53123I$	$-14.2397 - 17.3604I$	0
$u = 1.184660 - 0.653764I$ $a = 1.76258 - 0.22362I$ $b = -0.56794 - 1.53123I$	$-14.2397 + 17.3604I$	0
$u = -1.351080 + 0.086351I$ $a = -0.133127 + 0.458938I$ $b = -0.27517 + 1.49696I$	$-18.1528 - 7.9861I$	0
$u = -1.351080 - 0.086351I$ $a = -0.133127 - 0.458938I$ $b = -0.27517 - 1.49696I$	$-18.1528 + 7.9861I$	0
$u = 1.209310 + 0.645834I$ $a = -1.55266 - 0.28086I$ $b = 0.51192 - 1.37648I$	$-6.4732 - 13.5026I$	0
$u = 1.209310 - 0.645834I$ $a = -1.55266 + 0.28086I$ $b = 0.51192 + 1.37648I$	$-6.4732 + 13.5026I$	0
$u = -0.298877 + 0.500011I$ $a = -0.622450 + 0.276097I$ $b = 0.134554 + 0.535427I$	$-0.168508 + 1.117130I$	$-2.41743 - 5.24581I$
$u = -0.298877 - 0.500011I$ $a = -0.622450 - 0.276097I$ $b = 0.134554 - 0.535427I$	$-0.168508 - 1.117130I$	$-2.41743 + 5.24581I$
$u = 1.27152 + 0.65655I$ $a = 1.227090 + 0.241685I$ $b = -0.350162 + 1.222410I$	$-5.27078 - 7.68372I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.27152 - 0.65655I$ $a = 1.227090 - 0.241685I$ $b = -0.350162 - 1.222410I$	$-5.27078 + 7.68372I$	0
$u = -1.44729 + 0.08376I$ $a = 0.070621 - 0.374099I$ $b = 0.127609 - 1.345440I$	$-10.28340 - 3.40903I$	0
$u = -1.44729 - 0.08376I$ $a = 0.070621 + 0.374099I$ $b = 0.127609 + 1.345440I$	$-10.28340 + 3.40903I$	0
$u = 1.25473 + 0.80657I$ $a = -0.952835 + 0.203116I$ $b = 0.068034 - 1.227290I$	$-11.81200 - 1.77127I$	0
$u = 1.25473 - 0.80657I$ $a = -0.952835 - 0.203116I$ $b = 0.068034 + 1.227290I$	$-11.81200 + 1.77127I$	0

II. $\boldsymbol{I_2^u = \langle 1.50\times 10^{45}a^{11}u^5 - 5.70\times 10^{45}a^{10}u^5 + \cdots - 1.16\times 10^{47}a + 2.98\times 10^{46},\ -a^{11}u^5 - 4a^{10}u^5 + \cdots - 55a - 18,\ u^6 + u^5 - u^4 - 2u^3 + u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ -0.00794015a^{11}u^5 + 0.0302550a^{10}u^5 + \cdots + 0.614182a - 0.158028 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.00490869a^{11}u^5 + 0.0130821a^{10}u^5 + \cdots + 0.785397a + 0.523477 \\ -0.00830184a^{11}u^5 + 0.0195054a^{10}u^5 + \cdots - 0.000748132a - 0.539669 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.00794015a^{11}u^5 + 0.0302550a^{10}u^5 + \cdots + 1.61418a - 0.158028 \\ -0.00794015a^{11}u^5 + 0.0302550a^{10}u^5 + \cdots + 0.614182a - 0.158028 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0247380a^{11}u^5 + 0.0248517a^{10}u^5 + \cdots + 0.0454023a + 0.368349 \\ 0.00587845a^{11}u^5 + 0.0341246a^{10}u^5 + \cdots + 1.25016a - 1.03661 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00249911a^{11}u^5 - 0.00445033a^{10}u^5 + \cdots + 0.152457a + 0.669472 \\ 0.0198608a^{11}u^5 - 0.00986522a^{10}u^5 + \cdots - 1.05246a + 0.630579 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0209774a^{11}u^5 + 0.0278972a^{10}u^5 + \cdots + 0.449873a - 1.39397 \\ 0.0146417a^{11}u^5 + 0.0451106a^{10}u^5 + \cdots + 0.588854a - 0.425328 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0432844a^{11}u^5 + 0.0323424a^{10}u^5 + \cdots - 1.19997a + 0.605993 \\ -0.0459402a^{11}u^5 + 0.0636298a^{10}u^5 + \cdots + 1.26067a + 0.107121 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0983999a^{11}u^5 - 0.0411031a^{10}u^5 + \cdots - 4.19581a - 8.39076$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6 + 3u^5 + 5u^4 + 4u^3 + 2u^2 + u + 1)^{12}$
c_2, c_6	$(u^6 + u^5 - u^4 - 2u^3 + u + 1)^{12}$
c_3, c_5, c_9 c_{10}	$u^{72} + u^{71} + \cdots - 23968u + 5312$
c_4, c_7	$u^{72} - 7u^{71} + \cdots - 872320u + 141376$
c_8, c_{11}, c_{12}	$(u^6 - u^5 - 3u^4 + 2u^3 + 2u^2 + u - 1)^{12}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)^{12}$
c_2, c_6	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)^{12}$
c_3, c_5, c_9 c_{10}	$y^{72} + 63y^{71} + \cdots + 1187419136y + 28217344$
c_4, c_7	$y^{72} - 33y^{71} + \cdots - 667358056448y + 19987173376$
c_8, c_{11}, c_{12}	$(y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1)^{12}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.002190 + 0.295542I$ $a = -0.045030 - 1.035750I$ $b = -0.10013 - 1.43609I$	$-7.56426 - 0.92430I$	$-19.1335 + 0.7942I$
$u = 1.002190 + 0.295542I$ $a = -0.721644 - 0.877823I$ $b = 0.848818 + 0.662123I$	$-3.86516 + 1.04811I$	$-10.29244 - 2.89055I$
$u = 1.002190 + 0.295542I$ $a = -1.168660 + 0.122739I$ $b = -0.37920 - 2.05278I$	$-14.4855 - 0.9243I$	$-17.9862 + 0.7942I$
$u = 1.002190 + 0.295542I$ $a = 0.741656 + 0.239875I$ $b = 0.27706 + 1.71064I$	$-7.56426 - 0.92430I$	$-19.1335 + 0.7942I$
$u = 1.002190 + 0.295542I$ $a = 0.373622 + 1.169080I$ $b = -1.22553 - 0.89354I$	$-10.52100 + 3.66782I$	$-14.2979 - 2.4106I$
$u = 1.002190 + 0.295542I$ $a = 1.141790 + 0.545399I$ $b = -0.374590 - 0.529377I$	$-3.86516 - 2.89672I$	$-10.29244 + 4.47900I$
$u = 1.002190 + 0.295542I$ $a = -1.53781 - 0.18013I$ $b = -0.039851 + 0.586857I$	$-10.52100 - 5.51643I$	$-14.2979 + 3.9990I$
$u = 1.002190 + 0.295542I$ $a = -0.30369 + 1.55938I$ $b = 0.00525 + 1.47250I$	$-14.4855 - 0.9243I$	$-17.9862 + 0.7942I$
$u = 1.002190 + 0.295542I$ $a = 1.47028 + 1.26859I$ $b = -0.386282 + 1.150280I$	$-3.86516 - 2.89672I$	$-10.29244 + 4.47900I$
$u = 1.002190 + 0.295542I$ $a = -1.61023 - 1.18452I$ $b = 0.71298 - 1.40512I$	$-10.52100 - 5.51643I$	$-14.2979 + 3.9990I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.002190 + 0.295542I$ $a = -1.42223 - 1.47106I$ $b = 0.030964 - 1.098510I$	$-3.86516 + 1.04811I$	$-10.29244 - 2.89055I$
$u = 1.002190 + 0.295542I$ $a = 1.39583 + 1.77056I$ $b = 0.202269 + 1.168480I$	$-10.52100 + 3.66782I$	$-14.2979 - 2.4106I$
$u = 1.002190 - 0.295542I$ $a = -0.045030 + 1.035750I$ $b = -0.10013 + 1.43609I$	$-7.56426 + 0.92430I$	$-19.1335 - 0.7942I$
$u = 1.002190 - 0.295542I$ $a = -0.721644 + 0.877823I$ $b = 0.848818 - 0.662123I$	$-3.86516 - 1.04811I$	$-10.29244 + 2.89055I$
$u = 1.002190 - 0.295542I$ $a = -1.168660 - 0.122739I$ $b = -0.37920 + 2.05278I$	$-14.4855 + 0.9243I$	$-17.9862 - 0.7942I$
$u = 1.002190 - 0.295542I$ $a = 0.741656 - 0.239875I$ $b = 0.27706 - 1.71064I$	$-7.56426 + 0.92430I$	$-19.1335 - 0.7942I$
$u = 1.002190 - 0.295542I$ $a = 0.373622 - 1.169080I$ $b = -1.22553 + 0.89354I$	$-10.52100 - 3.66782I$	$-14.2979 + 2.4106I$
$u = 1.002190 - 0.295542I$ $a = 1.141790 - 0.545399I$ $b = -0.374590 + 0.529377I$	$-3.86516 + 2.89672I$	$-10.29244 - 4.47900I$
$u = 1.002190 - 0.295542I$ $a = -1.53781 + 0.18013I$ $b = -0.039851 - 0.586857I$	$-10.52100 + 5.51643I$	$-14.2979 - 3.9990I$
$u = 1.002190 - 0.295542I$ $a = -0.30369 - 1.55938I$ $b = 0.00525 - 1.47250I$	$-14.4855 + 0.9243I$	$-17.9862 - 0.7942I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.002190 - 0.295542I$ $a = 1.47028 - 1.26859I$ $b = -0.386282 - 1.150280I$	$-3.86516 + 2.89672I$	$-10.29244 - 4.47900I$
$u = 1.002190 - 0.295542I$ $a = -1.61023 + 1.18452I$ $b = 0.71298 + 1.40512I$	$-10.52100 + 5.51643I$	$-14.2979 - 3.9990I$
$u = 1.002190 - 0.295542I$ $a = -1.42223 + 1.47106I$ $b = 0.030964 + 1.098510I$	$-3.86516 - 1.04811I$	$-10.29244 + 2.89055I$
$u = 1.002190 - 0.295542I$ $a = 1.39583 - 1.77056I$ $b = 0.202269 - 1.168480I$	$-10.52100 - 3.66782I$	$-14.2979 + 2.4106I$
$u = -0.428243 + 0.664531I$ $a = -0.906890 + 0.398788I$ $b = 0.372111 + 0.435873I$	$-0.083952 + 1.048110I$	$-2.85901 - 2.89055I$
$u = -0.428243 + 0.664531I$ $a = 0.916379 - 0.467414I$ $b = -0.441756 + 1.285690I$	$-6.73977 - 5.51643I$	$-6.86442 + 3.99904I$
$u = -0.428243 + 0.664531I$ $a = 0.080865 - 0.896345I$ $b = 0.423579 - 0.174074I$	$-6.73977 + 3.66782I$	$-6.86442 - 2.41059I$
$u = -0.428243 + 0.664531I$ $a = 1.036340 + 0.768690I$ $b = -0.391103 - 1.225920I$	$-6.73977 + 3.66782I$	$-6.86442 - 2.41059I$
$u = -0.428243 + 0.664531I$ $a = -0.542048 + 0.338506I$ $b = 0.370059 - 1.107460I$	$-0.08395 - 2.89672I$	$-2.85901 + 4.47900I$
$u = -0.428243 + 0.664531I$ $a = -0.68548 + 1.41030I$ $b = 0.065036 - 1.074080I$	$-3.78305 - 0.92430I$	$-11.70006 + 0.79423I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.428243 + 0.664531I$ $a = 1.43827 - 0.87053I$ $b = -0.874028 - 0.088656I$	$-0.08395 - 2.89672I$	$-2.85901 + 4.47900I$
$u = -0.428243 + 0.664531I$ $a = 0.79454 - 1.49935I$ $b = 0.170377 + 1.190830I$	$-10.70430 - 0.92430I$	$-10.55278 + 0.79423I$
$u = -0.428243 + 0.664531I$ $a = 0.54295 - 1.72628I$ $b = -0.479092 + 1.196190I$	$-3.78305 - 0.92430I$	$-11.70006 + 0.79423I$
$u = -0.428243 + 0.664531I$ $a = -0.0851151 - 0.0791252I$ $b = -0.146420 + 0.842310I$	$-0.083952 + 1.048110I$	$-2.85901 - 2.89055I$
$u = -0.428243 + 0.664531I$ $a = -1.75154 + 1.22038I$ $b = 1.228680 - 0.127334I$	$-6.73977 - 5.51643I$	$-6.86442 + 3.99904I$
$u = -0.428243 + 0.664531I$ $a = -0.49331 + 2.16719I$ $b = 0.70475 - 1.44890I$	$-10.70430 - 0.92430I$	$-10.55278 + 0.79423I$
$u = -0.428243 - 0.664531I$ $a = -0.906890 - 0.398788I$ $b = 0.372111 - 0.435873I$	$-0.083952 - 1.048110I$	$-2.85901 + 2.89055I$
$u = -0.428243 - 0.664531I$ $a = 0.916379 + 0.467414I$ $b = -0.441756 - 1.285690I$	$-6.73977 + 5.51643I$	$-6.86442 - 3.99904I$
$u = -0.428243 - 0.664531I$ $a = 0.080865 + 0.896345I$ $b = 0.423579 + 0.174074I$	$-6.73977 - 3.66782I$	$-6.86442 + 2.41059I$
$u = -0.428243 - 0.664531I$ $a = 1.036340 - 0.768690I$ $b = -0.391103 + 1.225920I$	$-6.73977 - 3.66782I$	$-6.86442 + 2.41059I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.428243-0.664531I$ $a=-0.542048-0.338506I$ $b=\ \ 0.370059+1.107460I$	$-0.08395+2.89672I$	$-2.85901-4.47900I$
$u=-0.428243-0.664531I$ $a=-0.68548-1.41030I$ $b=\ \ 0.065036+1.074080I$	$-3.78305+0.92430I$	$-11.70006-0.79423I$
$u=-0.428243-0.664531I$ $a=\ \ 1.43827+0.87053I$ $b=-0.874028+0.088656I$	$-0.08395+2.89672I$	$-2.85901-4.47900I$
$u=-0.428243-0.664531I$ $a=\ \ 0.79454+1.49935I$ $b=\ \ 0.170377-1.190830I$	$-10.70430+0.92430I$	$-10.55278-0.79423I$
$u=-0.428243-0.664531I$ $a=\ \ 0.54295+1.72628I$ $b=-0.479092-1.196190I$	$-3.78305+0.92430I$	$-11.70006-0.79423I$
$u=-0.428243-0.664531I$ $a=-0.0851151+0.0791252I$ $b=-0.146420-0.842310I$	$-0.083952-1.048110I$	$-2.85901+2.89055I$
$u=-0.428243-0.664531I$ $a=-1.75154-1.22038I$ $b=\ \ 1.228680+0.127334I$	$-6.73977+5.51643I$	$-6.86442-3.99904I$
$u=-0.428243-0.664531I$ $a=-0.49331-2.16719I$ $b=\ \ 0.70475+1.44890I$	$-10.70430+0.92430I$	$-10.55278-0.79423I$
$u=-1.073950+0.558752I$ $a=\ \ 0.999012+0.168429I$ $b=\ \ 0.192395-1.365660I$	$-8.63038+1.10090I$	$-10.58114-2.30575I$
$u=-1.073950+0.558752I$ $a=-1.021630+0.646962I$ $b=\ \ 1.181040+0.045156I$	$-1.97456+7.66543I$	$-6.57572-9.19535I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.073950 + 0.558752I$ $a = -0.505352 - 0.550072I$ $b = 0.081749 - 0.233521I$	$-8.63038 + 1.10090I$	$-10.58114 - 2.30575I$
$u = -1.073950 + 0.558752I$ $a = 0.694450 - 0.231550I$ $b = -0.723174 + 0.173853I$	$-1.97456 + 3.72061I$	$-6.57572 - 1.82579I$
$u = -1.073950 + 0.558752I$ $a = -1.212640 + 0.488384I$ $b = 0.182527 + 1.229450I$	$-1.97456 + 3.72061I$	$-6.57572 - 1.82579I$
$u = -1.073950 + 0.558752I$ $a = 1.29217 - 0.93526I$ $b = -1.55698 - 0.23708I$	$-8.63038 + 10.28510I$	$-10.58114 - 8.71539I$
$u = -1.073950 + 0.558752I$ $a = 1.58392 - 0.78228I$ $b = -0.342193 - 1.293310I$	$-1.97456 + 7.66543I$	$-6.57572 - 9.19535I$
$u = -1.073950 + 0.558752I$ $a = -1.93207 + 0.16164I$ $b = 0.72494 + 1.35910I$	$-5.67365 + 5.69302I$	$-15.4168 - 5.5106I$
$u = -1.073950 + 0.558752I$ $a = 1.99770 + 0.01917I$ $b = -0.281236 - 1.128250I$	$-5.67365 + 5.69302I$	$-15.4168 - 5.5106I$
$u = -1.073950 + 0.558752I$ $a = -1.91569 + 0.95908I$ $b = 0.40477 + 1.37943I$	$-8.63038 + 10.28510I$	$-10.58114 - 8.71539I$
$u = -1.073950 + 0.558752I$ $a = 2.13763 - 0.17492I$ $b = -0.97229 - 1.66325I$	$-12.59490 + 5.69302I$	$-14.2695 - 5.5106I$
$u = -1.073950 + 0.558752I$ $a = -2.27632 - 0.20723I$ $b = 0.034497 + 1.175340I$	$-12.59490 + 5.69302I$	$-14.2695 - 5.5106I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.073950-0.558752I$ $a=\ \ 0.999012-0.168429I$ $b=\ \ 0.192395+1.365660I$	$-8.63038-1.10090I$	$-10.58114+2.30575I$
$u=-1.073950-0.558752I$ $a=-1.021630-0.646962I$ $b=\ \ 1.181040-0.045156I$	$-1.97456-7.66543I$	$-6.57572+9.19535I$
$u=-1.073950-0.558752I$ $a=-0.505352+0.550072I$ $b=\ \ 0.081749+0.233521I$	$-8.63038-1.10090I$	$-10.58114+2.30575I$
$u=-1.073950-0.558752I$ $a=\ \ 0.694450+0.231550I$ $b=-0.723174-0.173853I$	$-1.97456-3.72061I$	$-6.57572+1.82579I$
$u=-1.073950-0.558752I$ $a=-1.212640-0.488384I$ $b=\ \ 0.182527-1.229450I$	$-1.97456-3.72061I$	$-6.57572+1.82579I$
$u=-1.073950-0.558752I$ $a=\ \ 1.29217+0.93526I$ $b=-1.55698+0.23708I$	$-8.63038-10.28510I$	$-10.58114+8.71539I$
$u=-1.073950-0.558752I$ $a=\ \ 1.58392+0.78228I$ $b=-0.342193+1.293310I$	$-1.97456-7.66543I$	$-6.57572+9.19535I$
$u=-1.073950-0.558752I$ $a=-1.93207-0.16164I$ $b=\ \ 0.72494-1.35910I$	$-5.67365-5.69302I$	$-15.4168+5.5106I$
$u=-1.073950-0.558752I$ $a=\ \ 1.99770-0.01917I$ $b=-0.281236+1.128250I$	$-5.67365-5.69302I$	$-15.4168+5.5106I$
$u=-1.073950-0.558752I$ $a=-1.91569-0.95908I$ $b=\ \ 0.40477-1.37943I$	$-8.63038-10.28510I$	$-10.58114+8.71539I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.073950 - 0.558752I$ $a = 2.13763 + 0.17492I$ $b = -0.97229 + 1.66325I$	$-12.59490 - 5.69302I$	$-14.2695 + 5.5106I$
$u = -1.073950 - 0.558752I$ $a = -2.27632 + 0.20723I$ $b = 0.034497 - 1.175340I$	$-12.59490 - 5.69302I$	$-14.2695 + 5.5106I$

III.

$\boldsymbol{I_3^u = \langle -2u^{22}+11u^{20}+\cdots+b-8,\ 9u^{22}+8u^{21}+\cdots+a+17,\ u^{23}+u^{22}+\cdots+3u+1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -9u^{22} - 8u^{21} + \cdots - 22u - 17 \\ 2u^{22} - 11u^{20} + \cdots + 16u + 8 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 3u^{22} + 2u^{21} + \cdots + 2u + 5 \\ -u^{22} + 4u^{20} + \cdots - 3u - 2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -7u^{22} - 8u^{21} + \cdots - 6u - 9 \\ 2u^{22} - 11u^{20} + \cdots + 16u + 8 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2u^{22} + 2u^{21} + \cdots - u + 4 \\ -u^{22} + 4u^{20} + \cdots - 4u - 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -6u^{22} - 5u^{21} + \cdots - u - 4 \\ -u^{22} - 3u^{21} + \cdots + 6u + 2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 3u^{22} + 3u^{21} + \cdots - 9u - 7 \\ 3u^{21} + 3u^{20} + \cdots - 13u - 3 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -7u^{22} + 2u^{21} + \cdots - 30u - 12 \\ 5u^{22} + 4u^{21} + \cdots - 15u^2 + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= -10u^{22} - u^{21} + 36u^{20} + 8u^{19} - 87u^{18} - 17u^{17} + 117u^{16} + 43u^{15} - 108u^{14} - 85u^{13} + 12u^{12} + 164u^{11} + 57u^{10} - 222u^9 - 83u^8 + 240u^7 + 28u^6 - 163u^5 - u^4 + 77u^3 - 7u^2 - 18u - 7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{23} - 9u^{22} + \cdots + 11u - 1$
c_2	$u^{23} - u^{22} + \cdots + 3u - 1$
c_3, c_{10}	$u^{23} + 13u^{21} + \cdots + 4u + 1$
c_4, c_7	$u^{23} + 2u^{22} + \cdots + 11u + 3$
c_5, c_9	$u^{23} + 13u^{21} + \cdots + 4u - 1$
c_6	$u^{23} + u^{22} + \cdots + 3u + 1$
c_8	$u^{23} + 3u^{22} + \cdots - 3u - 1$
c_{11}, c_{12}	$u^{23} - 3u^{22} + \cdots - 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{23} + 7y^{22} + \cdots - 9y - 1$
c_2, c_6	$y^{23} - 9y^{22} + \cdots + 11y - 1$
c_3, c_5, c_9 c_{10}	$y^{23} + 26y^{22} + \cdots - 16y - 1$
c_4, c_7	$y^{23} - 6y^{22} + \cdots + 121y - 9$
c_8, c_{11}, c_{12}	$y^{23} - 27y^{22} + \cdots + 9y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.956576 + 0.287626I$ $a = \ \ 0.398737 + 0.689027I$ $b = \ \ 0.13596 + 1.56669I$	$-7.00840 - 1.12592I$	$-3.10503 + 6.73164I$
$u = \ \ 0.956576 - 0.287626I$ $a = \ \ 0.398737 - 0.689027I$ $b = \ \ 0.13596 - 1.56669I$	$-7.00840 + 1.12592I$	$-3.10503 - 6.73164I$
$u = \ \ 0.897512 + 0.352142I$ $a = -0.549378 - 0.779464I$ $b = -0.10030 - 1.77152I$	$-13.44170 - 1.47646I$	$-9.68435 + 4.96102I$
$u = \ \ 0.897512 - 0.352142I$ $a = -0.549378 + 0.779464I$ $b = -0.10030 + 1.77152I$	$-13.44170 + 1.47646I$	$-9.68435 - 4.96102I$
$u = \ \ 0.559518 + 0.687683I$ $a = -0.531744 - 0.404398I$ $b = \ \ 0.376776 - 0.936496I$	$-7.70856 - 5.26009I$	$-9.20604 + 6.12251I$
$u = \ \ 0.559518 - 0.687683I$ $a = -0.531744 + 0.404398I$ $b = \ \ 0.376776 + 0.936496I$	$-7.70856 + 5.26009I$	$-9.20604 - 6.12251I$
$u = -0.217566 + 1.097960I$ $a = \ \ 0.371257 - 0.594299I$ $b = -0.142171 + 1.047860I$	$-1.77403 - 0.61945I$	$-6.40574 - 3.09121I$
$u = -0.217566 - 1.097960I$ $a = \ \ 0.371257 + 0.594299I$ $b = -0.142171 - 1.047860I$	$-1.77403 + 0.61945I$	$-6.40574 + 3.09121I$
$u = -1.031950 + 0.486269I$ $a = \ \ 2.32947 - 0.53696I$ $b = -0.751813 - 1.095870I$	$-9.86216 + 7.58052I$	$-11.58301 - 7.49782I$
$u = -1.031950 - 0.486269I$ $a = \ \ 2.32947 + 0.53696I$ $b = -0.751813 + 1.095870I$	$-9.86216 - 7.58052I$	$-11.58301 + 7.49782I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.878382 + 0.763757I$ $a = \ \ 0.1069300 + 0.0577565I$ $b = -0.007554 + 0.286744I$	$1.76332 - 2.88443I$	$3.57102 - 2.01988I$
$u = \ \ 0.878382 - 0.763757I$ $a = \ \ 0.1069300 - 0.0577565I$ $b = -0.007554 - 0.286744I$	$1.76332 + 2.88443I$	$3.57102 + 2.01988I$
$u = -0.822424$ $a = -1.57474$ $b = \ \ 0.229980$	-2.89205	-19.3640
$u = -0.662280 + 0.421621I$ $a = -0.85366 + 2.50451I$ $b = \ \ 0.685404 - 0.888568I$	$-8.53739 - 3.73593I$	$-8.68609 + 1.54144I$
$u = -0.662280 - 0.421621I$ $a = -0.85366 - 2.50451I$ $b = \ \ 0.685404 + 0.888568I$	$-8.53739 + 3.73593I$	$-8.68609 - 1.54144I$
$u = \ \ 1.153480 + 0.425129I$ $a = -0.346734 - 0.333839I$ $b = -0.329283 - 1.256390I$	$-10.02580 + 0.64452I$	$-14.1605 - 0.5003I$
$u = \ \ 1.153480 - 0.425129I$ $a = -0.346734 + 0.333839I$ $b = -0.329283 + 1.256390I$	$-10.02580 - 0.64452I$	$-14.1605 + 0.5003I$
$u = -1.108380 + 0.545841I$ $a = -1.74217 + 0.24886I$ $b = \ \ 0.475079 + 1.112810I$	$-4.61610 + 5.65139I$	$-6.42575 - 4.91795I$
$u = -1.108380 - 0.545841I$ $a = -1.74217 - 0.24886I$ $b = \ \ 0.475079 - 1.112810I$	$-4.61610 - 5.65139I$	$-6.42575 + 4.91795I$
$u = -0.992546 + 0.763032I$ $a = \ \ 1.172960 + 0.738243I$ $b = -0.136689 - 1.316940I$	$-10.87890 + 3.03878I$	$-12.25845 - 3.57862I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.992546-0.763032I$ $a=\quad 1.172960-0.738243I$ $b=-0.136689+1.316940I$	$-10.87890-3.03878I$	$-12.25845+3.57862I$
$u=-0.521544+0.258479I$ $a=\quad 0.93170-2.30337I$ $b=-0.320395+0.718289I$	$-2.13122-1.63396I$	$-4.87426+4.06305I$
$u=-0.521544-0.258479I$ $a=\quad 0.93170+2.30337I$ $b=-0.320395-0.718289I$	$-2.13122+1.63396I$	$-4.87426-4.06305I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^6+3u^5+5u^4+4u^3+2u^2+u+1)^{12})(u^{23}-9u^{22}+\cdots+11u-1)$ $\cdot(u^{35}+12u^{34}+\cdots+13312u+4096)$
c_2	$((u^6+u^5-u^4-2u^3+u+1)^{12})(u^{23}-u^{22}+\cdots+3u-1)$ $\cdot(u^{35}-14u^{34}+\cdots+608u-64)$
c_3, c_{10}	$(u^{23}+13u^{21}+\cdots+4u+1)(u^{35}+14u^{33}+\cdots-4u-1)$ $\cdot(u^{72}+u^{71}+\cdots-23968u+5312)$
c_4, c_7	$(u^{23}+2u^{22}+\cdots+11u+3)(u^{35}-2u^{34}+\cdots+9u-1)$ $\cdot(u^{72}-7u^{71}+\cdots-872320u+141376)$
c_5, c_9	$(u^{23}+13u^{21}+\cdots+4u-1)(u^{35}+14u^{33}+\cdots-4u-1)$ $\cdot(u^{72}+u^{71}+\cdots-23968u+5312)$
c_6	$((u^6+u^5-u^4-2u^3+u+1)^{12})(u^{23}+u^{22}+\cdots+3u+1)$ $\cdot(u^{35}-14u^{34}+\cdots+608u-64)$
c_8	$((u^6-u^5-3u^4+2u^3+2u^2+u-1)^{12})(u^{23}+3u^{22}+\cdots-3u-1)$ $\cdot(u^{35}+16u^{34}+\cdots+160u-64)$
c_{11}, c_{12}	$((u^6-u^5-3u^4+2u^3+2u^2+u-1)^{12})(u^{23}-3u^{22}+\cdots-3u+1)$ $\cdot(u^{35}+16u^{34}+\cdots+160u-64)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^6+y^5+5y^4+6y^2+3y+1)^{12})(y^{23}+7y^{22}+\cdots-9y-1)$ $\cdot(y^{35}+8y^{34}+\cdots-158334976y-16777216)$
c_2, c_6	$((y^6-3y^5+5y^4-4y^3+2y^2-y+1)^{12})(y^{23}-9y^{22}+\cdots+11y-1)$ $\cdot(y^{35}-12y^{34}+\cdots+13312y-4096)$
c_3, c_5, c_9 c_{10}	$(y^{23}+26y^{22}+\cdots-16y-1)(y^{35}+28y^{34}+\cdots+6y-1)$ $\cdot(y^{72}+63y^{71}+\cdots+1187419136y+28217344)$
c_4, c_7	$(y^{23}-6y^{22}+\cdots+121y-9)(y^{35}-12y^{34}+\cdots+135y-1)$ $\cdot(y^{72}-33y^{71}+\cdots-667358056448y+19987173376)$
c_8, c_{11}, c_{12}	$((y^6-7y^5+\cdots-5y+1)^{12})(y^{23}-27y^{22}+\cdots+9y-1)$ $\cdot(y^{35}-34y^{34}+\cdots+54272y-4096)$