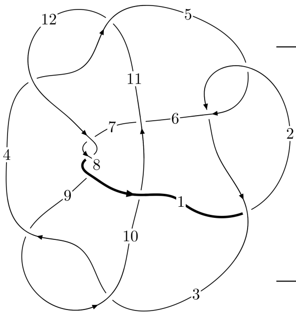
$12n_{0489}$ ($K12n_{0489}$)



A knot diagram[1]

Linearized knot diagam

$\to \downarrow_{3} \to \downarrow_{6} \to \downarrow_{10} \to \downarrow_{12} \to \downarrow_{2} \to \downarrow_{11} \to \uparrow_{12} \to \uparrow_{1} \to \downarrow_{4} \to \downarrow_{1} \to \downarrow_{5} \to \uparrow_{8} \to$

3	6	10	12	2	11	12	1	4	1	5	8
↓	↓	↓	↓	↓	↓	↑	↑	↓	↓	↓	↑

Solving Sequence

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

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

$$I_1^u = \langle -17u^{26} - 87u^{25} + \cdots + 4b - 12,\ 47u^{26} + 291u^{25} + \cdots + 8a + 260,\ u^{27} + 7u^{26} + \cdots + 44u + 8\rangle$$

$$I_2^u = \langle 58848u^7a^5 + 58468u^7a^4 + \cdots + 79844a + 35715,\ 2u^7a^5 + 15u^7a^4 + \cdots + 216a + 224,$$
$$u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1\rangle$$

$$I_3^u = \langle u^{15} - 2u^{13} + u^{12} + 6u^{11} - u^{10} - 8u^9 + 4u^8 + 11u^7 - 3u^6 - 8u^5 + 4u^4 + 6u^3 - 2u^2 + b - u,$$
$$-2u^{15} + 2u^{14} + \cdots + a - 4,$$
$$u^{16} - 3u^{14} + u^{13} + 8u^{12} - 2u^{11} - 13u^{10} + 5u^9 + 17u^8 - 6u^7 - 15u^6 + 6u^5 + 10u^4 - 4u^3 - 4u^2 + u + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 91 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. $I_1^u = \langle -17u^{26} - 87u^{25} + \cdots + 4b - 12,\ 47u^{26} + 291u^{25} + \cdots + 8a + 260,\ u^{27} + 7u^{26} + \cdots + 44u + 8\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -5.87500u^{26} - 36.3750u^{25} + \cdots - 165.250u - 32.5000 \\ \frac{17}{4}u^{26} + \frac{87}{4}u^{25} + \cdots + 34u + 3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{53}{8}u^{26} + \frac{301}{8}u^{25} + \cdots + \frac{475}{4}u + 21 \\ -\frac{3}{4}u^{26} - \frac{11}{4}u^{25} + \cdots + \frac{47}{2}u + 7 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -10.1250u^{26} - 58.1250u^{25} + \cdots - 199.250u - 35.5000 \\ \frac{17}{4}u^{26} + \frac{87}{4}u^{25} + \cdots + 34u + 3 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{75}{8}u^{26} - \frac{461}{8}u^{25} + \cdots - \frac{535}{2}u - 52 \\ \frac{15}{2}u^{26} + 40u^{25} + \cdots + \frac{165}{2}u + 11 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{19}{8}u^{26} + \frac{107}{8}u^{25} + \cdots + \frac{245}{4}u + 13 \\ \frac{1}{4}u^{26} + \frac{13}{4}u^{25} + \cdots + \frac{65}{2}u + 7 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 13.1250u^{26} + 78.6250u^{25} + \cdots + 338.750u + 63.5000 \\ -\frac{27}{4}u^{26} - \frac{121}{4}u^{25} + \cdots + 68u + 25 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{115}{8}u^{26} + \frac{749}{8}u^{25} + \cdots + \frac{1047}{2}u + 108 \\ -17u^{26} - \frac{185}{2}u^{25} + \cdots - \frac{455}{2}u - 35 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -23u^{26} - 150u^{25} - 376u^{24} - 261u^{23} + 729u^{22} + 1734u^{21} + 538u^{20} - 2534u^{19} - 2547u^{18} + 3058u^{17} + 6966u^{16} + 232u^{15} - 11605u^{14} - 12159u^{13} + 2392u^{12} + 15331u^{11} + 11486u^{10} - 2810u^{9} - 10111u^{8} - 4910u^{7} + 3090u^{6} + 4696u^{5} + 1095u^{4} - 1912u^{3} - 2073u^{2} - 972u - 214$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{27} + 9u^{26} + \cdots + 144u + 64$
c_2, c_5	$u^{27} + 7u^{26} + \cdots + 44u + 8$
c_3, c_4, c_9 c_{11}	$u^{27} + 4u^{25} + \cdots + 3u + 1$
c_6, c_{10}	$u^{27} - 2u^{26} + \cdots + 10u + 1$
c_7, c_8, c_{12}	$u^{27} + 15u^{26} + \cdots + 2816u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{27} + 19y^{26} + \cdots - 11008y - 4096$
c_2, c_5	$y^{27} - 9y^{26} + \cdots + 144y - 64$
c_3, c_4, c_9 c_{11}	$y^{27} + 8y^{26} + \cdots - 5y - 1$
c_6, c_{10}	$y^{27} - 18y^{26} + \cdots + 116y - 1$
c_7, c_8, c_{12}	$y^{27} - 15y^{26} + \cdots + 524288y - 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.685572+0.852680I$ $a=-0.294505+0.463699I$ $b=-0.669615-0.882383I$	$1.08424-3.42475I$	$-3.67335+3.91434I$
$u=-0.685572-0.852680I$ $a=-0.294505-0.463699I$ $b=-0.669615+0.882383I$	$1.08424+3.42475I$	$-3.67335-3.91434I$
$u=-0.627323+0.898264I$ $a=\ \ 0.159682-0.346047I$ $b=\ \ 0.73050+1.24655I$	$3.67005-10.56210I$	$-0.83521+5.59011I$
$u=-0.627323-0.898264I$ $a=\ \ 0.159682+0.346047I$ $b=\ \ 0.73050-1.24655I$	$3.67005+10.56210I$	$-0.83521-5.59011I$
$u=-0.237310+0.870614I$ $a=\ \ 0.179034+0.342963I$ $b=\ \ 0.625069-0.943841I$	$1.43533+6.41550I$	$-1.16841-7.33424I$
$u=-0.237310-0.870614I$ $a=\ \ 0.179034-0.342963I$ $b=\ \ 0.625069+0.943841I$	$1.43533-6.41550I$	$-1.16841+7.33424I$
$u=\ \ 1.098600+0.138393I$ $a=\ \ 1.98959+0.36891I$ $b=\ \ 0.870859+0.704449I$	$-5.71910-3.18007I$	$-10.81910+3.99905I$
$u=\ \ 1.098600-0.138393I$ $a=\ \ 1.98959-0.36891I$ $b=\ \ 0.870859-0.704449I$	$-5.71910+3.18007I$	$-10.81910-3.99905I$
$u=\ \ 0.693539+0.484425I$ $a=-0.697012+0.794438I$ $b=-0.093480-0.606899I$	$1.37365-1.86319I$	$-0.94665+4.18320I$
$u=\ \ 0.693539-0.484425I$ $a=-0.697012-0.794438I$ $b=-0.093480+0.606899I$	$1.37365+1.86319I$	$-0.94665-4.18320I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.024830 + 0.541180I$ $a = 0.720475 + 1.113140I$ $b = 0.938303 + 0.355958I$	$-3.31479 + 3.49091I$	$-9.36494 - 3.65965I$
$u = -1.024830 - 0.541180I$ $a = 0.720475 - 1.113140I$ $b = 0.938303 - 0.355958I$	$-3.31479 - 3.49091I$	$-9.36494 + 3.65965I$
$u = 1.179100 + 0.151427I$ $a = -1.68814 - 0.80165I$ $b = -0.832047 - 1.051930I$	$-3.55373 - 9.54122I$	$-7.19005 + 7.47977I$
$u = 1.179100 - 0.151427I$ $a = -1.68814 + 0.80165I$ $b = -0.832047 + 1.051930I$	$-3.55373 + 9.54122I$	$-7.19005 - 7.47977I$
$u = -0.777167$ $a = -0.501723$ $b = -0.408121$	-1.00831	-10.7050
$u = -1.143530 + 0.466150I$ $a = -0.139215 - 0.916449I$ $b = -0.656924 - 0.691492I$	$-1.52298 - 1.56653I$	$-6.91776 + 4.99160I$
$u = -1.143530 - 0.466150I$ $a = -0.139215 + 0.916449I$ $b = -0.656924 + 0.691492I$	$-1.52298 + 1.56653I$	$-6.91776 - 4.99160I$
$u = -0.916430 + 0.866188I$ $a = -0.479520 - 1.066450I$ $b = -0.009586 + 0.768274I$	$9.08124 + 3.20872I$	$9.49976 - 1.13015I$
$u = -0.916430 - 0.866188I$ $a = -0.479520 + 1.066450I$ $b = -0.009586 - 0.768274I$	$9.08124 - 3.20872I$	$9.49976 + 1.13015I$
$u = -1.036230 + 0.737283I$ $a = 1.67104 + 0.91689I$ $b = 0.731439 - 0.942909I$	$0.00440 + 9.36453I$	$-4.76974 - 8.14508I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.036230 - 0.737283I$ $a = 1.67104 - 0.91689I$ $b = 0.731439 + 0.942909I$	$0.00440 - 9.36453I$	$-4.76974 + 8.14508I$
$u = -1.072090 + 0.729726I$ $a = -1.92994 - 0.65272I$ $b = -0.79138 + 1.29074I$	$2.2965 + 16.5821I$	$-2.72249 - 9.74695I$
$u = -1.072090 - 0.729726I$ $a = -1.92994 + 0.65272I$ $b = -0.79138 - 1.29074I$	$2.2965 - 16.5821I$	$-2.72249 + 9.74695I$
$u = 0.931659 + 0.932655I$ $a = 0.416195 - 0.265879I$ $b = 0.053666 + 0.840001I$	$9.39926 - 3.40339I$	$4.88512 + 3.93618I$
$u = 0.931659 - 0.932655I$ $a = 0.416195 + 0.265879I$ $b = 0.053666 - 0.840001I$	$9.39926 + 3.40339I$	$4.88512 - 3.93618I$
$u = -0.271005 + 0.622370I$ $a = -0.406824 - 0.384016I$ $b = -0.692744 + 0.470458I$	$-1.39292 + 0.87413I$	$-6.12461 - 2.84895I$
$u = -0.271005 - 0.622370I$ $a = -0.406824 + 0.384016I$ $b = -0.692744 - 0.470458I$	$-1.39292 - 0.87413I$	$-6.12461 + 2.84895I$

II. $\boldsymbol{I^u_2 = \langle 58848u^7a^5 + 58468u^7a^4 + \cdots + 79844a + 35715,\ 2u^7a^5 + 15u^7a^4 + \cdots + 216a + 224,\ u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_{11} = \begin{pmatrix} a \\ -4.54670a^5u^7 - 4.51735a^4u^7 + \cdots - 6.16889a - 2.75941 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2.18697a^5u^7 + 4.03230a^4u^7 + \cdots + 11.1542a + 13.0883 \\ 1.02326a^2u^7 - 0.511628u^7 + \cdots + 0.139535a^2 - 1.06977 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 4.54670a^5u^7 + 4.51735a^4u^7 + \cdots + 7.16889a + 2.75941 \\ -4.54670a^5u^7 - 4.51735a^4u^7 + \cdots - 6.16889a - 2.75941 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1.36213a^4u^7 + 1.69103a^3u^7 + \cdots + 4.92691a + 9.32890 \\ 1.10871a^4u^7 - 0.372093a^3u^7 + \cdots + 1.68771a + 2.68964 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -1.81264a^5u^7 - 4.09101a^4u^7 + \cdots - 8.42162a - 8.29267 \\ -0.374334a^5u^7 + 0.0587190a^4u^7 + \cdots - 2.73260a - 2.79564 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0878467a^5u^7 - 0.620335a^4u^7 + \cdots - 0.431353a - 0.271035 \\ -3.49648a^5u^7 - 2.67535a^4u^7 + \cdots - 4.68160a - 2.52963 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -2.58379a^4u^7 - 2.84385a^3u^7 + \cdots - 5.32558a - 9.18798 \\ 1.22166a^4u^7 + 2.10631a^3u^7 + \cdots + 0.538206a - 0.140926 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{113224}{12943}u^7a^4 - \frac{1880}{301}u^7a^3 + \cdots - \frac{2960}{301}a - \frac{312682}{12943}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^6$
c_2, c_5	$(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)^6$
c_3, c_4, c_9 c_{11}	$u^{48}+u^{47}+\cdots-164u+229$
c_6, c_{10}	$u^{48}-9u^{47}+\cdots+666u+661$
c_7, c_8, c_{12}	$(u^3-u^2+1)^{16}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)^6$
c_2, c_5	$(y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1)^6$
c_3, c_4, c_9 c_{11}	$y^{48} + 27y^{47} + \cdots + 832312y + 52441$
c_6, c_{10}	$y^{48} + 15y^{47} + \cdots - 734396y + 436921$
c_7, c_8, c_{12}	$(y^3 - y^2 + 2y - 1)^{16}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.570868 + 0.730671I$ $a = 0.434653 - 0.839070I$ $b = 1.149610 + 0.301433I$	$0.87002 + 3.95936I$	$-2.92498 - 3.49024I$
$u = 0.570868 + 0.730671I$ $a = -0.535134 + 0.647465I$ $b = -0.636009 - 0.805422I$	$0.87002 - 1.69689I$	$-2.92498 + 2.46866I$
$u = 0.570868 + 0.730671I$ $a = -0.120842 + 0.801190I$ $b = 0.538735 - 0.794929I$	$0.87002 - 1.69689I$	$-2.92498 + 2.46866I$
$u = 0.570868 + 0.730671I$ $a = -0.277424 - 0.743391I$ $b = -0.544694 + 1.183380I$	$0.87002 + 3.95936I$	$-2.92498 - 3.49024I$
$u = 0.570868 + 0.730671I$ $a = -0.579346 + 0.223976I$ $b = -0.004274 + 0.929917I$	$5.00760 + 1.13123I$	$3.60429 - 0.51079I$
$u = 0.570868 + 0.730671I$ $a = -0.081353 - 0.401232I$ $b = 0.676753 - 1.082970I$	$5.00760 + 1.13123I$	$3.60429 - 0.51079I$
$u = 0.570868 - 0.730671I$ $a = 0.434653 + 0.839070I$ $b = 1.149610 - 0.301433I$	$0.87002 - 3.95936I$	$-2.92498 + 3.49024I$
$u = 0.570868 - 0.730671I$ $a = -0.535134 - 0.647465I$ $b = -0.636009 + 0.805422I$	$0.87002 + 1.69689I$	$-2.92498 - 2.46866I$
$u = 0.570868 - 0.730671I$ $a = -0.120842 - 0.801190I$ $b = 0.538735 + 0.794929I$	$0.87002 + 1.69689I$	$-2.92498 - 2.46866I$
$u = 0.570868 - 0.730671I$ $a = -0.277424 + 0.743391I$ $b = -0.544694 - 1.183380I$	$0.87002 - 3.95936I$	$-2.92498 + 3.49024I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.570868 - 0.730671I$ $a = -0.579346 - 0.223976I$ $b = -0.004274 - 0.929917I$	$5.00760 - 1.13123I$	$3.60429 + 0.51079I$
$u = 0.570868 - 0.730671I$ $a = -0.081353 + 0.401232I$ $b = 0.676753 + 1.082970I$	$5.00760 - 1.13123I$	$3.60429 + 0.51079I$
$u = -0.855237 + 0.665892I$ $a = 0.842747 - 0.830266I$ $b = 0.090666 + 0.885994I$	$4.07009 + 5.40662I$	$0.21317 - 6.54740I$
$u = -0.855237 + 0.665892I$ $a = -0.494638 - 0.291001I$ $b = -0.786177 - 1.031780I$	$4.07009 - 0.24963I$	$0.213168 - 0.588510I$
$u = -0.855237 + 0.665892I$ $a = 1.57064 + 0.15400I$ $b = 0.08193 - 1.92144I$	$8.20767 + 2.57849I$	$6.74243 - 3.56796I$
$u = -0.855237 + 0.665892I$ $a = -1.43317 - 1.40899I$ $b = -0.02034 + 1.49548I$	$8.20767 + 2.57849I$	$6.74243 - 3.56796I$
$u = -0.855237 + 0.665892I$ $a = 2.08795 + 0.67193I$ $b = 0.909681 - 0.905479I$	$4.07009 + 5.40662I$	$0.21317 - 6.54740I$
$u = -0.855237 + 0.665892I$ $a = -2.33228 - 0.49803I$ $b = -0.167674 + 0.729716I$	$4.07009 - 0.24963I$	$0.213168 - 0.588510I$
$u = -0.855237 - 0.665892I$ $a = 0.842747 + 0.830266I$ $b = 0.090666 - 0.885994I$	$4.07009 - 5.40662I$	$0.21317 + 6.54740I$
$u = -0.855237 - 0.665892I$ $a = -0.494638 + 0.291001I$ $b = -0.786177 + 1.031780I$	$4.07009 + 0.24963I$	$0.213168 + 0.588510I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.855237 - 0.665892I$ $a = \quad 1.57064 - 0.15400I$ $b = \quad 0.08193 + 1.92144I$	$8.20767 - 2.57849I$	$6.74243 + 3.56796I$
$u = -0.855237 - 0.665892I$ $a = -1.43317 + 1.40899I$ $b = -0.02034 - 1.49548I$	$8.20767 - 2.57849I$	$6.74243 + 3.56796I$
$u = -0.855237 - 0.665892I$ $a = \quad 2.08795 - 0.67193I$ $b = \quad 0.909681 + 0.905479I$	$4.07009 - 5.40662I$	$0.21317 + 6.54740I$
$u = -0.855237 - 0.665892I$ $a = -2.33228 + 0.49803I$ $b = -0.167674 - 0.729716I$	$4.07009 + 0.24963I$	$0.213168 + 0.588510I$
$u = -1.09818$ $a = -0.352337 + 1.063250I$ $b = -0.390626 + 0.540817I$	-0.454474	$-2.84453 + 0.I$
$u = -1.09818$ $a = -0.352337 - 1.063250I$ $b = -0.390626 - 0.540817I$	-0.454474	$-2.84453 + 0.I$
$u = -1.09818$ $a = -1.87930 + 0.47836I$ $b = -1.035690 + 0.728269I$	$-4.59206 - 2.82812I$	$-9.37379 + 2.97945I$
$u = -1.09818$ $a = -1.87930 - 0.47836I$ $b = -1.035690 - 0.728269I$	$-4.59206 + 2.82812I$	$-9.37379 - 2.97945I$
$u = -1.09818$ $a = \quad 1.61333 + 1.13807I$ $b = \quad 0.740815 + 1.063820I$	$-4.59206 - 2.82812I$	$-9.37379 + 2.97945I$
$u = -1.09818$ $a = \quad 1.61333 - 1.13807I$ $b = \quad 0.740815 - 1.063820I$	$-4.59206 + 2.82812I$	$-9.37379 - 2.97945I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.031810 + 0.655470I$ $a = 0.012794 - 0.843235I$ $b = 0.798211 - 0.789739I$	$-0.46900 - 3.61542I$	$-4.93820 + 2.31472I$
$u = 1.031810 + 0.655470I$ $a = -0.655325 + 1.142960I$ $b = -1.323150 + 0.413843I$	$-0.46900 - 9.27166I$	$-4.93820 + 8.27362I$
$u = 1.031810 + 0.655470I$ $a = 1.57349 + 0.39663I$ $b = 0.140651 + 0.792574I$	$3.66858 - 6.44354I$	$1.59106 + 5.29417I$
$u = 1.031810 + 0.655470I$ $a = -1.65798 + 0.26104I$ $b = -0.901119 - 0.974313I$	$3.66858 - 6.44354I$	$1.59106 + 5.29417I$
$u = 1.031810 + 0.655470I$ $a = -1.55331 + 0.89766I$ $b = -0.668354 - 1.023270I$	$-0.46900 - 3.61542I$	$-4.93820 + 2.31472I$
$u = 1.031810 + 0.655470I$ $a = 2.13206 - 0.70093I$ $b = 0.619236 + 1.261980I$	$-0.46900 - 9.27166I$	$-4.93820 + 8.27362I$
$u = 1.031810 - 0.655470I$ $a = 0.012794 + 0.843235I$ $b = 0.798211 + 0.789739I$	$-0.46900 + 3.61542I$	$-4.93820 - 2.31472I$
$u = 1.031810 - 0.655470I$ $a = -0.655325 - 1.142960I$ $b = -1.323150 - 0.413843I$	$-0.46900 + 9.27166I$	$-4.93820 - 8.27362I$
$u = 1.031810 - 0.655470I$ $a = 1.57349 - 0.39663I$ $b = 0.140651 - 0.792574I$	$3.66858 + 6.44354I$	$1.59106 - 5.29417I$
$u = 1.031810 - 0.655470I$ $a = -1.65798 - 0.26104I$ $b = -0.901119 + 0.974313I$	$3.66858 + 6.44354I$	$1.59106 - 5.29417I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.031810 - 0.655470I$ $a = -1.55331 - 0.89766I$ $b = -0.668354 + 1.023270I$	$-0.46900 + 3.61542I$	$-4.93820 - 2.31472I$
$u = 1.031810 - 0.655470I$ $a = 2.13206 + 0.70093I$ $b = 0.619236 - 1.261980I$	$-0.46900 + 9.27166I$	$-4.93820 - 8.27362I$
$u = 0.603304$ $a = -1.01626 + 1.44968I$ $b = -0.374836 - 0.929425I$	$1.06564 - 2.82812I$	$-7.40422 + 2.97945I$
$u = 0.603304$ $a = -1.01626 - 1.44968I$ $b = -0.374836 + 0.929425I$	$1.06564 + 2.82812I$	$-7.40422 - 2.97945I$
$u = 0.603304$ $a = -1.03439 + 2.13156I$ $b = 0.13210 + 1.44648I$	5.20322	$-6 - 0.874953 + 0.10I$
$u = 0.603304$ $a = -1.03439 - 2.13156I$ $b = 0.13210 - 1.44648I$	5.20322	$-6 - 0.874953 + 0.10I$
$u = 0.603304$ $a = 0.23542 + 3.29584I$ $b = 0.474556 + 0.323382I$	$1.06564 - 2.82812I$	$-7.40422 + 2.97945I$
$u = 0.603304$ $a = 0.23542 - 3.29584I$ $b = 0.474556 - 0.323382I$	$1.06564 + 2.82812I$	$-7.40422 - 2.97945I$

III.

$\boldsymbol{I_3^u = \langle u^{15} - 2u^{13} + \cdots + b - u,\ -2u^{15} + 2u^{14} + \cdots + a - 4,\ u^{16} - 3u^{14} + \cdots + u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2u^{15} - 2u^{14} + \cdots - 17u^2 + 4 \\ -u^{15} + 2u^{13} + \cdots + 2u^2 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{15} + 2u^{14} + \cdots - 5u + 1 \\ u^{13} - 2u^{11} + u^{10} + 5u^9 - u^8 - 6u^7 + 3u^6 + 6u^5 - 2u^4 - 3u^3 + 2u^2 + u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 3u^{15} - 2u^{14} + \cdots - u + 4 \\ -u^{15} + 2u^{13} + \cdots + 2u^2 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2u^{15} - 6u^{13} + \cdots - 2u + 4 \\ u^{14} + u^{13} + \cdots - u - 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -2u^{15} + 6u^{13} + \cdots + 4u - 2 \\ -u^{14} + 3u^{12} + \cdots + 2u + 2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 2u^{15} - 2u^{14} + \cdots + u + 4 \\ -u^{15} + 2u^{13} + \cdots + u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2u^{15} - 6u^{13} + \cdots - 2u + 4 \\ u^{14} + u^{13} + \cdots - u - 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^{15} + 11u^{14} + 12u^{13} - 34u^{12} - 20u^{11} + 84u^{10} + 32u^9 - 132u^8 - 18u^7 + 158u^6 + 10u^5 - 120u^4 + 9u^3 + 70u^2 - 11u - 17$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 6u^{15} + \cdots - 9u + 1$
c_2	$u^{16} - 3u^{14} + \cdots - u + 1$
c_3, c_{11}	$u^{16} + 8u^{14} + \cdots - u + 1$
c_4, c_9	$u^{16} + 8u^{14} + \cdots + u + 1$
c_5	$u^{16} - 3u^{14} + \cdots + u + 1$
c_6, c_{10}	$u^{16} + 4u^{15} + \cdots + 8u + 3$
c_7, c_8	$u^{16} + 4u^{15} + \cdots - 6u^2 + 1$
c_{12}	$u^{16} - 4u^{15} + \cdots - 6u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} + 14y^{15} + \cdots + 7y + 1$
c_2, c_5	$y^{16} - 6y^{15} + \cdots - 9y + 1$
c_3, c_4, c_9 c_{11}	$y^{16} + 16y^{15} + \cdots + 11y + 1$
c_6, c_{10}	$y^{16} + 6y^{15} + \cdots + 14y + 9$
c_7, c_8, c_{12}	$y^{16} - 14y^{15} + \cdots - 12y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.697088 + 0.669632I$ $a = 0.872141 - 0.419345I$ $b = 0.555602 - 0.792024I$	$3.31760 + 1.95723I$	$-1.91125 - 3.50456I$
$u = 0.697088 - 0.669632I$ $a = 0.872141 + 0.419345I$ $b = 0.555602 + 0.792024I$	$3.31760 - 1.95723I$	$-1.91125 + 3.50456I$
$u = -0.858913 + 0.641497I$ $a = 1.57955 + 0.75916I$ $b = 0.04461 - 1.68746I$	$7.46435 + 2.50164I$	$-6.64418 - 2.34827I$
$u = -0.858913 - 0.641497I$ $a = 1.57955 - 0.75916I$ $b = 0.04461 + 1.68746I$	$7.46435 - 2.50164I$	$-6.64418 + 2.34827I$
$u = -1.083430 + 0.218721I$ $a = 0.063889 - 1.037280I$ $b = -0.397891 - 0.465672I$	$-0.441697 - 1.082400I$	$-2.31411 + 4.80071I$
$u = -1.083430 - 0.218721I$ $a = 0.063889 + 1.037280I$ $b = -0.397891 + 0.465672I$	$-0.441697 + 1.082400I$	$-2.31411 - 4.80071I$
$u = 0.993253 + 0.639630I$ $a = -1.76311 + 0.05393I$ $b = -0.670393 - 0.715848I$	$2.38716 - 7.06415I$	$-5.02024 + 8.84090I$
$u = 0.993253 - 0.639630I$ $a = -1.76311 - 0.05393I$ $b = -0.670393 + 0.715848I$	$2.38716 + 7.06415I$	$-5.02024 - 8.84090I$
$u = 0.764991 + 0.200725I$ $a = -0.19627 - 1.80468I$ $b = 0.08665 - 1.47695I$	$5.12690 - 0.82457I$	$-2.88269 + 8.96873I$
$u = 0.764991 - 0.200725I$ $a = -0.19627 + 1.80468I$ $b = 0.08665 + 1.47695I$	$5.12690 + 0.82457I$	$-2.88269 - 8.96873I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.904876+0.830651I$ $a=-0.816305-0.414345I$ $b=\ \ 0.015954+1.301360I$	$11.24100+3.09873I$	$4.47651-2.43200I$
$u=-0.904876-0.830651I$ $a=-0.816305+0.414345I$ $b=\ \ 0.015954-1.301360I$	$11.24100-3.09873I$	$4.47651+2.43200I$
$u=\ \ 0.921176+0.893488I$ $a=\ \ 0.327921-0.754564I$ $b=\ \ 0.029313+0.666177I$	$8.63862-3.28911I$	$-10.02068+3.66308I$
$u=\ \ 0.921176-0.893488I$ $a=\ \ 0.327921+0.754564I$ $b=\ \ 0.029313-0.666177I$	$8.63862+3.28911I$	$-10.02068-3.66308I$
$u=-0.529286+0.266978I$ $a=-0.06782+2.71225I$ $b=\ \ 0.336156-0.719208I$	$1.74451+3.30158I$	$2.81664-9.31541I$
$u=-0.529286-0.266978I$ $a=-0.06782-2.71225I$ $b=\ \ 0.336156+0.719208I$	$1.74451-3.30158I$	$2.81664+9.31541I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^6$ $\cdot(u^{16}-6u^{15}+\cdots-9u+1)(u^{27}+9u^{26}+\cdots+144u+64)$
c_2	$((u^8-u^7+\cdots+2u-1)^6)(u^{16}-3u^{14}+\cdots-u+1)$ $\cdot(u^{27}+7u^{26}+\cdots+44u+8)$
c_3, c_{11}	$(u^{16}+8u^{14}+\cdots-u+1)(u^{27}+4u^{25}+\cdots+3u+1)$ $\cdot(u^{48}+u^{47}+\cdots-164u+229)$
c_4, c_9	$(u^{16}+8u^{14}+\cdots+u+1)(u^{27}+4u^{25}+\cdots+3u+1)$ $\cdot(u^{48}+u^{47}+\cdots-164u+229)$
c_5	$((u^8-u^7+\cdots+2u-1)^6)(u^{16}-3u^{14}+\cdots+u+1)$ $\cdot(u^{27}+7u^{26}+\cdots+44u+8)$
c_6, c_{10}	$(u^{16}+4u^{15}+\cdots+8u+3)(u^{27}-2u^{26}+\cdots+10u+1)$ $\cdot(u^{48}-9u^{47}+\cdots+666u+661)$
c_7, c_8	$((u^3-u^2+1)^{16})(u^{16}+4u^{15}+\cdots-6u^2+1)$ $\cdot(u^{27}+15u^{26}+\cdots+2816u+256)$
c_{12}	$((u^3-u^2+1)^{16})(u^{16}-4u^{15}+\cdots-6u^2+1)$ $\cdot(u^{27}+15u^{26}+\cdots+2816u+256)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)^6$ $\cdot(y^{16}+14y^{15}+\cdots+7y+1)(y^{27}+19y^{26}+\cdots-11008y-4096)$
c_2, c_5	$(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)^6$ $\cdot(y^{16}-6y^{15}+\cdots-9y+1)(y^{27}-9y^{26}+\cdots+144y-64)$
c_3, c_4, c_9 c_{11}	$(y^{16}+16y^{15}+\cdots+11y+1)(y^{27}+8y^{26}+\cdots-5y-1)$ $\cdot(y^{48}+27y^{47}+\cdots+832312y+52441)$
c_6, c_{10}	$(y^{16}+6y^{15}+\cdots+14y+9)(y^{27}-18y^{26}+\cdots+116y-1)$ $\cdot(y^{48}+15y^{47}+\cdots-734396y+436921)$
c_7, c_8, c_{12}	$((y^3-y^2+2y-1)^{16})(y^{16}-14y^{15}+\cdots-12y+1)$ $\cdot(y^{27}-15y^{26}+\cdots+524288y-65536)$