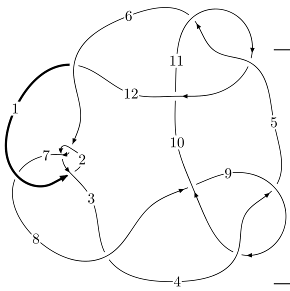
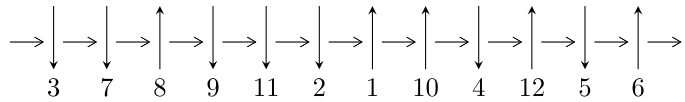
$12a_{0515}$ $(K12a_{0515})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b-u,\ u^{33}+u^{32}+\cdots+4a+1,\ u^{34}+9u^{32}+\cdots+2u+1\rangle$$
$$I_2^u = \langle -3.29206\times10^{15}u^{57}+7.29251\times10^{15}u^{56}+\cdots+6.43771\times10^{15}b+1.37987\times10^{16},\ u^{57}-u^{56}+\cdots+a-8,$$
$$u^{58}-u^{57}+\cdots-8u+1\rangle$$
$$I_3^u = \langle b+u,\ a^2+2au-a-u,\ u^2+1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}}=0$, with total 96 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. $\boldsymbol{I_1^u = \langle b - u,\ u^{33} + u^{32} + \cdots + 4a + 1,\ u^{34} + 9u^{32} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^8 + 2u^6 + 2u^4 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -\frac{1}{4}u^{33} - \frac{1}{4}u^{32} + \cdots - \frac{11}{4}u - \frac{1}{4} \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{1}{4}u^{33} - \frac{1}{4}u^{32} + \cdots - \frac{7}{4}u - \frac{1}{4} \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{4}u^{33} + \frac{1}{4}u^{32} + \cdots + \frac{1}{4}u + \frac{5}{4} \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{1}{4}u^{33} - \frac{1}{4}u^{32} + \cdots - \frac{7}{4}u - \frac{1}{4} \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{7}{4}u^{33} + \frac{5}{4}u^{32} + \cdots + \frac{23}{4}u + \frac{7}{4} \\ -\frac{1}{4}u^{33} - \frac{1}{4}u^{32} + \cdots + \frac{1}{4}u - \frac{1}{4} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{33} - \frac{1}{2}u^{32} + \cdots - \frac{7}{2}u - \frac{1}{2} \\ -\frac{1}{4}u^{33} - \frac{1}{4}u^{32} + \cdots + \frac{1}{4}u - \frac{1}{4} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -6u^{33}+u^{32}-53u^{31}+5u^{30}-234u^{29}+9u^{28}-642u^{27}-13u^{26}-1183u^{25}-104u^{24}-1454u^{23}-276u^{22}-1067u^{21}-433u^{20}-162u^{19}-423u^{18}+569u^{17}-178u^{16}+658u^{15}+134u^{14}+288u^{13}+280u^{12}-22u^{11}+188u^{10}-106u^{9}+30u^{8}-52u^{7}-40u^{6}-19u^{5}-35u^{4}-2u^{3}-11u^{2}-5u-4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{34} + 15u^{33} + \cdots - 3u + 4$
c_2, c_6	$u^{34} - 3u^{33} + \cdots - 3u + 2$
c_3, c_{12}	$u^{34} + 3u^{33} + \cdots + 48u + 32$
c_4, c_5, c_9 c_{11}	$u^{34} + 9u^{32} + \cdots + 2u + 1$
c_7	$u^{34} - 9u^{33} + \cdots - 13u + 6$
c_8, c_{10}	$u^{34} - 18u^{33} + \cdots - 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{34} + 9y^{33} + \cdots - 225y + 16$
c_2, c_6	$y^{34} - 15y^{33} + \cdots + 3y + 4$
c_3, c_{12}	$y^{34} - 29y^{33} + \cdots + 12544y + 1024$
c_4, c_5, c_9 c_{11}	$y^{34} + 18y^{33} + \cdots + 4y + 1$
c_7	$y^{34} - 3y^{33} + \cdots + 563y + 36$
c_8, c_{10}	$y^{34} + 2y^{33} + \cdots - 12y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.325102 + 0.931137I$ $a = 3.02864 - 0.12001I$ $b = -0.325102 + 0.931137I$	$2.90695 + 0.12402I$	$1.68955 - 3.89611I$
$u = -0.325102 - 0.931137I$ $a = 3.02864 + 0.12001I$ $b = -0.325102 - 0.931137I$	$2.90695 - 0.12402I$	$1.68955 + 3.89611I$
$u = 0.379532 + 0.974939I$ $a = -2.71723 + 0.31509I$ $b = 0.379532 + 0.974939I$	$3.60419 - 5.09535I$	$3.52400 + 9.16731I$
$u = 0.379532 - 0.974939I$ $a = -2.71723 - 0.31509I$ $b = 0.379532 - 0.974939I$	$3.60419 + 5.09535I$	$3.52400 - 9.16731I$
$u = -0.545074 + 0.928759I$ $a = 1.93949 + 0.24437I$ $b = -0.545074 + 0.928759I$	$-2.30189 + 4.06636I$	$-5.42219 - 5.57604I$
$u = -0.545074 - 0.928759I$ $a = 1.93949 - 0.24437I$ $b = -0.545074 - 0.928759I$	$-2.30189 - 4.06636I$	$-5.42219 + 5.57604I$
$u = 0.578615 + 0.697678I$ $a = -1.53750 - 0.18162I$ $b = 0.578615 + 0.697678I$	$-3.69260 - 4.93095I$	$-7.79856 + 7.85932I$
$u = 0.578615 - 0.697678I$ $a = -1.53750 + 0.18162I$ $b = 0.578615 - 0.697678I$	$-3.69260 + 4.93095I$	$-7.79856 - 7.85932I$
$u = 0.512199 + 1.009370I$ $a = -2.07083 + 0.50301I$ $b = 0.512199 + 1.009370I$	$1.80817 - 6.75607I$	$1.65159 + 7.76027I$
$u = 0.512199 - 1.009370I$ $a = -2.07083 - 0.50301I$ $b = 0.512199 - 1.009370I$	$1.80817 + 6.75607I$	$1.65159 - 7.76027I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.832688 + 0.098135I$ $a = 0.991071 - 0.020370I$ $b = -0.832688 + 0.098135I$	$1.75556 - 6.53805I$	$-3.65158 + 4.76595I$
$u = -0.832688 - 0.098135I$ $a = 0.991071 + 0.020370I$ $b = -0.832688 - 0.098135I$	$1.75556 + 6.53805I$	$-3.65158 - 4.76595I$
$u = -0.558467 + 1.025310I$ $a = 1.91347 + 0.53985I$ $b = -0.558467 + 1.025310I$	$-0.53806 + 11.42870I$	$-2.07055 - 11.36920I$
$u = -0.558467 - 1.025310I$ $a = 1.91347 - 0.53985I$ $b = -0.558467 - 1.025310I$	$-0.53806 - 11.42870I$	$-2.07055 + 11.36920I$
$u = 0.818774 + 0.055314I$ $a = -0.982841 - 0.012957I$ $b = 0.818774 + 0.055314I$	$3.55824 + 1.37935I$	$-0.788316 - 0.189329I$
$u = 0.818774 - 0.055314I$ $a = -0.982841 + 0.012957I$ $b = 0.818774 - 0.055314I$	$3.55824 - 1.37935I$	$-0.788316 + 0.189329I$
$u = 0.599904 + 0.533096I$ $a = -1.259450 - 0.242292I$ $b = 0.599904 + 0.533096I$	$-3.45372 + 2.17892I$	$-8.19265 - 0.78850I$
$u = 0.599904 - 0.533096I$ $a = -1.259450 + 0.242292I$ $b = 0.599904 - 0.533096I$	$-3.45372 - 2.17892I$	$-8.19265 + 0.78850I$
$u = -0.463929 + 0.613637I$ $a = 1.43733 - 0.48756I$ $b = -0.463929 + 0.613637I$	$-0.77203 + 1.45962I$	$-3.64985 - 4.39900I$
$u = -0.463929 - 0.613637I$ $a = 1.43733 + 0.48756I$ $b = -0.463929 - 0.613637I$	$-0.77203 - 1.45962I$	$-3.64985 + 4.39900I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.058121+0.707802I$ $a=\ \ 0.67473-2.70722I$ $b=-0.058121+0.707802I$	$1.89006+2.33981I$	$-2.06348-4.83250I$
$u=-0.058121-0.707802I$ $a=\ \ 0.67473+2.70722I$ $b=-0.058121-0.707802I$	$1.89006-2.33981I$	$-2.06348+4.83250I$
$u=\ \ 0.455016+1.223690I$ $a=-1.85829+1.30176I$ $b=\ \ 0.455016+1.223690I$	$9.41425-2.26828I$	$3.84198+1.66099I$
$u=\ \ 0.455016-1.223690I$ $a=-1.85829-1.30176I$ $b=\ \ 0.455016-1.223690I$	$9.41425+2.26828I$	$3.84198-1.66099I$
$u=\ \ 0.502151+1.208700I$ $a=-1.79600+1.13625I$ $b=\ \ 0.502151+1.208700I$	$4.92319-8.99452I$	$-0.64598+6.18414I$
$u=\ \ 0.502151-1.208700I$ $a=-1.79600-1.13625I$ $b=\ \ 0.502151-1.208700I$	$4.92319+8.99452I$	$-0.64598-6.18414I$
$u=-0.471167+1.229680I$ $a=\ \ 1.80562+1.26527I$ $b=-0.471167+1.229680I$	$10.96840+7.70284I$	$5.88314-6.31292I$
$u=-0.471167-1.229680I$ $a=\ \ 1.80562-1.26527I$ $b=-0.471167-1.229680I$	$10.96840-7.70284I$	$5.88314+6.31292I$
$u=-0.505650+1.237960I$ $a=\ \ 1.71513+1.18708I$ $b=-0.505650+1.237960I$	$10.4811+11.0888I$	$5.24755-6.29761I$
$u=-0.505650-1.237960I$ $a=\ \ 1.71513-1.18708I$ $b=-0.505650-1.237960I$	$10.4811-11.0888I$	$5.24755+6.29761I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.517793 + 1.240450I$ $a = -1.68661 + 1.16146I$ $b = 0.517793 + 1.240450I$	$8.5255 - 16.4951I$	$2.48715 + 10.53495I$
$u = 0.517793 - 1.240450I$ $a = -1.68661 - 1.16146I$ $b = 0.517793 - 1.240450I$	$8.5255 + 16.4951I$	$2.48715 - 10.53495I$
$u = -0.603784 + 0.120649I$ $a = 0.903265 - 0.081259I$ $b = -0.603784 + 0.120649I$	$-1.374120 + 0.056938I$	$-8.04181 - 0.45321I$
$u = -0.603784 - 0.120649I$ $a = 0.903265 + 0.081259I$ $b = -0.603784 - 0.120649I$	$-1.374120 - 0.056938I$	$-8.04181 + 0.45321I$

II. $\boldsymbol{I_2^u = \langle -3.29 \times 10^{15} u^{57} + 7.29 \times 10^{15} u^{56} + \cdots + 6.44 \times 10^{15} b + 1.38 \times 10^{16},\ u^{57} - u^{56} + \cdots + a - 8,\ u^{58} - u^{57} + \cdots - 8u + 1 \rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^8 + 2u^6 + 2u^4 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^{57} + u^{56} + \cdots - 24u + 8 \\ 0.511371u^{57} - 1.13278u^{56} + \cdots + 9.35148u - 2.14342 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.488629u^{57} - 0.132779u^{56} + \cdots - 14.6485u + 5.85658 \\ 0.511371u^{57} - 1.13278u^{56} + \cdots + 9.35148u - 2.14342 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2.76482u^{57} - 1.51842u^{56} + \cdots + 35.9278u - 7.28447 \\ 0.621408u^{57} + 0.113621u^{56} + \cdots - 1.94755u - 0.488629 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.601427u^{57} + 0.507022u^{56} + \cdots - 15.5095u + 5.87233 \\ 1.13360u^{57} - 1.24375u^{56} + \cdots + 12.9732u - 2.74908 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.13256u^{57} + 0.211579u^{56} + \cdots - 4.76871u - 1.87504 \\ -2.01309u^{57} + 0.873239u^{56} + \cdots - 17.7387u + 3.68030 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.51241u^{57} + 1.43774u^{56} + \cdots - 29.1091u + 8.72049 \\ 0.0761347u^{57} - 0.931485u^{56} + \cdots + 1.76325u - 1.13509 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= -\frac{19080003654706928}{6437714387382889}u^{57} + \frac{23944909507695016}{6437714387382889}u^{56} + \cdots - \frac{592292412509243776}{6437714387382889}u + \frac{107001468804774338}{6437714387382889}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{29}+13u^{28}+\cdots+3u+1)^2$
c_2, c_6	$(u^{29}+u^{28}+\cdots+u+1)^2$
c_3, c_{12}	$(u^{29}-u^{28}+\cdots-7u+1)^2$
c_4, c_5, c_9 c_{11}	$u^{58}-u^{57}+\cdots-8u+1$
c_7	$(u^{29}+3u^{28}+\cdots-u-1)^2$
c_8, c_{10}	$u^{58}-35u^{57}+\cdots+16u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{29}+7y^{28}+\cdots-17y-1)^2$
c_2, c_6	$(y^{29}-13y^{28}+\cdots+3y-1)^2$
c_3, c_{12}	$(y^{29}-29y^{28}+\cdots+19y-1)^2$
c_4, c_5, c_9 c_{11}	$y^{58}+35y^{57}+\cdots-16y+1$
c_7	$(y^{29}-y^{28}+\cdots+31y-1)^2$
c_8, c_{10}	$y^{58}-25y^{57}+\cdots-84y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.451687 + 0.902213I$ $a = -0.443696 - 0.886253I$ $b = 0.596507 + 0.373464I$	$0.04989 + 2.39104I$	$-1.72606 - 3.37022I$
$u = -0.451687 - 0.902213I$ $a = -0.443696 + 0.886253I$ $b = 0.596507 - 0.373464I$	$0.04989 - 2.39104I$	$-1.72606 + 3.37022I$
$u = -0.355580 + 0.921167I$ $a = -0.364702 - 0.944801I$ $b = -0.148977 - 1.212380I$	$2.70580 + 4.33232I$	$0.72516 - 7.80862I$
$u = -0.355580 - 0.921167I$ $a = -0.364702 + 0.944801I$ $b = -0.148977 + 1.212380I$	$2.70580 - 4.33232I$	$0.72516 + 7.80862I$
$u = -0.136657 + 0.974285I$ $a = -0.141188 - 1.006590I$ $b = 0.241604 + 0.089146I$	$1.78353 + 2.08825I$	$0.67041 - 4.01921I$
$u = -0.136657 - 0.974285I$ $a = -0.141188 + 1.006590I$ $b = 0.241604 - 0.089146I$	$1.78353 - 2.08825I$	$0.67041 + 4.01921I$
$u = 0.537066 + 0.794398I$ $a = 0.584080 - 0.863939I$ $b = -0.613212 + 0.531150I$	$-3.41971 + 0.47843I$	$-8.05109 - 0.53373I$
$u = 0.537066 - 0.794398I$ $a = 0.584080 + 0.863939I$ $b = -0.613212 - 0.531150I$	$-3.41971 - 0.47843I$	$-8.05109 + 0.53373I$
$u = 0.274360 + 1.012700I$ $a = 0.249230 - 0.919941I$ $b = 0.193653 - 1.136220I$	$4.30269 - 0.27837I$	$6.00481 + 1.83311I$
$u = 0.274360 - 1.012700I$ $a = 0.249230 + 0.919941I$ $b = 0.193653 + 1.136220I$	$4.30269 + 0.27837I$	$6.00481 - 1.83311I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.533835 + 0.932703I$ $a = 0.462229 - 0.807594I$ $b = -0.698762 + 0.398387I$	$-2.32632 - 6.65351I$	$-5.43843 + 7.12693I$
$u = 0.533835 - 0.932703I$ $a = 0.462229 + 0.807594I$ $b = -0.698762 - 0.398387I$	$-2.32632 + 6.65351I$	$-5.43843 - 7.12693I$
$u = 0.897586 + 0.099606I$ $a = 1.100550 - 0.122128I$ $b = -0.501810 + 1.214960I$	$5.07686 + 11.39320I$	$-0.48604 - 7.74456I$
$u = 0.897586 - 0.099606I$ $a = 1.100550 + 0.122128I$ $b = -0.501810 - 1.214960I$	$5.07686 - 11.39320I$	$-0.48604 + 7.74456I$
$u = -0.881384 + 0.080515I$ $a = -1.125190 - 0.102787I$ $b = 0.483040 + 1.216550I$	$6.99366 - 6.09123I$	$2.35632 + 3.37420I$
$u = -0.881384 - 0.080515I$ $a = -1.125190 + 0.102787I$ $b = 0.483040 - 1.216550I$	$6.99366 + 6.09123I$	$2.35632 - 3.37420I$
$u = 0.193653 + 1.136220I$ $a = 0.145769 - 0.855267I$ $b = 0.274360 - 1.012700I$	$4.30269 + 0.27837I$	0
$u = 0.193653 - 1.136220I$ $a = 0.145769 + 0.855267I$ $b = 0.274360 + 1.012700I$	$4.30269 - 0.27837I$	0
$u = -0.839368 + 0.022570I$ $a = -1.190510 - 0.032012I$ $b = 0.431178 + 1.224900I$	$7.36652 - 3.00599I$	$2.90218 + 3.08222I$
$u = -0.839368 - 0.022570I$ $a = -1.190510 + 0.032012I$ $b = 0.431178 - 1.224900I$	$7.36652 + 3.00599I$	$2.90218 - 3.08222I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.820017 + 0.108595I$ $a = \ \ 1.198470 - 0.158714I$ $b = -0.464569 + 1.169820I$	$1.65953 + 4.16530I$	$-3.77294 - 3.16142I$
$u = \ \ 0.820017 - 0.108595I$ $a = \ \ 1.198470 + 0.158714I$ $b = -0.464569 - 1.169820I$	$1.65953 - 4.16530I$	$-3.77294 + 3.16142I$
$u = -0.031586 + 1.172780I$ $a = -0.022949 - 0.852059I$ $b = -0.201393 - 0.714310I$	$1.84033 + 1.50061I$	0
$u = -0.031586 - 1.172780I$ $a = -0.022949 + 0.852059I$ $b = -0.201393 + 0.714310I$	$1.84033 - 1.50061I$	0
$u = \ \ 0.819192 + 0.008052I$ $a = \ \ 1.220600 - 0.011997I$ $b = -0.405561 - 1.230110I$	$5.76313 + 2.27350I$	$0.56508 - 1.80235I$
$u = \ \ 0.819192 - 0.008052I$ $a = \ \ 1.220600 + 0.011997I$ $b = -0.405561 + 1.230110I$	$5.76313 - 2.27350I$	$0.56508 + 1.80235I$
$u = -0.613212 + 0.531150I$ $a = -0.931721 - 0.807036I$ $b = \ \ 0.537066 + 0.794398I$	$-3.41971 + 0.47843I$	$-8.05109 - 0.53373I$
$u = -0.613212 - 0.531150I$ $a = -0.931721 + 0.807036I$ $b = \ \ 0.537066 - 0.794398I$	$-3.41971 - 0.47843I$	$-8.05109 + 0.53373I$
$u = -0.698762 + 0.398387I$ $a = -1.080040 - 0.615764I$ $b = \ \ 0.533835 + 0.932703I$	$-2.32632 - 6.65351I$	$-5.43843 + 7.12693I$
$u = -0.698762 - 0.398387I$ $a = -1.080040 + 0.615764I$ $b = \ \ 0.533835 - 0.932703I$	$-2.32632 + 6.65351I$	$-5.43843 - 7.12693I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.148977+1.212380I$ $a=-0.099847-0.812557I$ $b=-0.355580-0.921167I$	$2.70580-4.33232I$	0
$u=-0.148977-1.212380I$ $a=-0.099847+0.812557I$ $b=-0.355580+0.921167I$	$2.70580+4.33232I$	0
$u=-0.201393+0.714310I$ $a=-0.365639-1.296860I$ $b=-0.031586-1.172780I$	$1.84033-1.50061I$	$-3.01904+0.45145I$
$u=-0.201393-0.714310I$ $a=-0.365639+1.296860I$ $b=-0.031586+1.172780I$	$1.84033+1.50061I$	$-3.01904-0.45145I$
$u=-0.464569+1.169820I$ $a=-0.293234-0.738384I$ $b=\ \ 0.820017+0.108595I$	$1.65953+4.16530I$	0
$u=-0.464569-1.169820I$ $a=-0.293234+0.738384I$ $b=\ \ 0.820017-0.108595I$	$1.65953-4.16530I$	0
$u=\ \ 0.401017+1.217560I$ $a=\ \ 0.244038-0.740940I$ $b=\ \ 0.401017-1.217560I$	5.63906	0
$u=\ \ 0.401017-1.217560I$ $a=\ \ 0.244038+0.740940I$ $b=\ \ 0.401017+1.217560I$	5.63906	0
$u=-0.405561+1.230110I$ $a=-0.241745-0.733235I$ $b=\ \ 0.819192-0.008052I$	$5.76313-2.27350I$	0
$u=-0.405561-1.230110I$ $a=-0.241745+0.733235I$ $b=\ \ 0.819192+0.008052I$	$5.76313+2.27350I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.596507 + 0.373464I$ $a = 1.20434 - 0.75402I$ $b = -0.451687 + 0.902213I$	$0.04989 + 2.39104I$	$-1.72606 - 3.37022I$
$u = 0.596507 - 0.373464I$ $a = 1.20434 + 0.75402I$ $b = -0.451687 - 0.902213I$	$0.04989 - 2.39104I$	$-1.72606 + 3.37022I$
$u = 0.431178 + 1.224900I$ $a = 0.255695 - 0.726386I$ $b = -0.839368 + 0.022570I$	$7.36652 - 3.00599I$	0
$u = 0.431178 - 1.224900I$ $a = 0.255695 + 0.726386I$ $b = -0.839368 - 0.022570I$	$7.36652 + 3.00599I$	0
$u = 0.462658 + 1.222210I$ $a = 0.270900 - 0.715642I$ $b = 0.404660 - 1.277940I$	$9.35892 - 6.86231I$	0
$u = 0.462658 - 1.222210I$ $a = 0.270900 + 0.715642I$ $b = 0.404660 + 1.277940I$	$9.35892 + 6.86231I$	0
$u = 0.483040 + 1.216550I$ $a = 0.281933 - 0.710054I$ $b = -0.881384 + 0.080515I$	$6.99366 - 6.09123I$	0
$u = 0.483040 - 1.216550I$ $a = 0.281933 + 0.710054I$ $b = -0.881384 - 0.080515I$	$6.99366 + 6.09123I$	0
$u = -0.448712 + 1.234520I$ $a = -0.260066 - 0.715506I$ $b = -0.417116 - 1.264920I$	$11.13090 + 1.55857I$	0
$u = -0.448712 - 1.234520I$ $a = -0.260066 + 0.715506I$ $b = -0.417116 + 1.264920I$	$11.13090 - 1.55857I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.501810 + 1.214960I$ $a = -0.290411 - 0.703128I$ $b = 0.897586 + 0.099606I$	$5.07686 + 11.39320I$	0
$u = -0.501810 - 1.214960I$ $a = -0.290411 + 0.703128I$ $b = 0.897586 - 0.099606I$	$5.07686 - 11.39320I$	0
$u = -0.417116 + 1.264920I$ $a = -0.235126 - 0.713028I$ $b = -0.448712 - 1.234520I$	$11.13090 - 1.55857I$	0
$u = -0.417116 - 1.264920I$ $a = -0.235126 + 0.713028I$ $b = -0.448712 + 1.234520I$	$11.13090 + 1.55857I$	0
$u = 0.404660 + 1.277940I$ $a = 0.225201 - 0.711199I$ $b = 0.462658 - 1.222210I$	$9.35892 + 6.86231I$	0
$u = 0.404660 - 1.277940I$ $a = 0.225201 + 0.711199I$ $b = 0.462658 + 1.222210I$	$9.35892 - 6.86231I$	0
$u = 0.241604 + 0.089146I$ $a = 3.64303 - 1.34418I$ $b = -0.136657 + 0.974285I$	$1.78353 + 2.08825I$	$0.67041 - 4.01921I$
$u = 0.241604 - 0.089146I$ $a = 3.64303 + 1.34418I$ $b = -0.136657 - 0.974285I$	$1.78353 - 2.08825I$	$0.67041 + 4.01921I$

III. $I_3^u = \langle b + u,\ a^2 + 2au - a - u,\ u^2 + 1 \rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ -u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a - u \\ -u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -au \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a \\ -u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -au - a + u + 1 \\ -a \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2a + u \\ a \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a + 4u + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+y+1)^2$
c_2, c_6, c_7	$(y^2-y+1)^2$
c_3, c_{12}	y^4
c_4, c_5, c_9 c_{11}	$(y+1)^4$
c_8, c_{10}	$(y-1)^4$

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.000000I$		
$a =$	$0.500000 - 0.133975I$	$3.28987 - 2.02988I$	$6.00000 + 3.46410I$
$b =$	$-1.000000I$		
$u =$	$1.000000I$		
$a =$	$0.50000 - 1.86603I$	$3.28987 + 2.02988I$	$6.00000 - 3.46410I$
$b =$	$-1.000000I$		
$u =$	$-1.000000I$		
$a =$	$0.500000 + 0.133975I$	$3.28987 + 2.02988I$	$6.00000 - 3.46410I$
$b =$	$1.000000I$		
$u =$	$-1.000000I$		
$a =$	$0.50000 + 1.86603I$	$3.28987 - 2.02988I$	$6.00000 + 3.46410I$
$b =$	$1.000000I$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^2)(u^{29}+13u^{28}+\cdots+3u+1)^2$ $\cdot\,(u^{34}+15u^{33}+\cdots-3u+4)$
c_2, c_6	$(u^4-u^2+1)(u^{29}+u^{28}+\cdots+u+1)^2(u^{34}-3u^{33}+\cdots-3u+2)$
c_3, c_{12}	$u^4(u^{29}-u^{28}+\cdots-7u+1)^2(u^{34}+3u^{33}+\cdots+48u+32)$
c_4, c_5, c_9 c_{11}	$((u^2+1)^2)(u^{34}+9u^{32}+\cdots+2u+1)(u^{58}-u^{57}+\cdots-8u+1)$
c_7	$(u^4-u^2+1)(u^{29}+3u^{28}+\cdots-u-1)^2(u^{34}-9u^{33}+\cdots-13u+6)$
c_8, c_{10}	$((u+1)^4)(u^{34}-18u^{33}+\cdots-4u+1)(u^{58}-35u^{57}+\cdots+16u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^2)(y^{29}+7y^{28}+\cdots-17y-1)^2$ $\cdot(y^{34}+9y^{33}+\cdots-225y+16)$
c_2, c_6	$((y^2-y+1)^2)(y^{29}-13y^{28}+\cdots+3y-1)^2$ $\cdot(y^{34}-15y^{33}+\cdots+3y+4)$
c_3, c_{12}	$y^4(y^{29}-29y^{28}+\cdots+19y-1)^2$ $\cdot(y^{34}-29y^{33}+\cdots+12544y+1024)$
c_4, c_5, c_9 c_{11}	$((y+1)^4)(y^{34}+18y^{33}+\cdots+4y+1)(y^{58}+35y^{57}+\cdots-16y+1)$
c_7	$((y^2-y+1)^2)(y^{29}-y^{28}+\cdots+31y-1)^2$ $\cdot(y^{34}-3y^{33}+\cdots+563y+36)$
c_8, c_{10}	$((y-1)^4)(y^{34}+2y^{33}+\cdots-12y+1)(y^{58}-25y^{57}+\cdots-84y+1)$