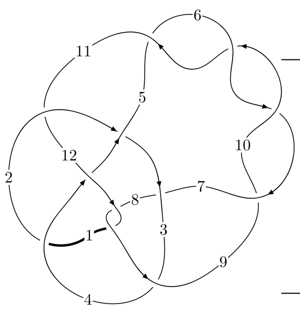
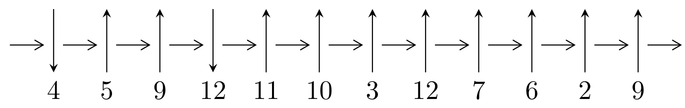
$12n_{0701}$ $(K12n_{0701})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{22} - 5u^{21} + \cdots + b - 3,\ -3u^{22} + 13u^{21} + \cdots + 2a + 22,\ u^{23} - 5u^{22} + \cdots - 18u + 2\rangle$$

$$I_2^u = \langle -u^7 - 5u^5 - 7u^3 + u^2 + b - 2u + 1,\ -u^7 - u^6 - 6u^5 - 6u^4 - 11u^3 - 8u^2 + 2a - 5u - 1,\\ u^8 + u^7 + 6u^6 + 4u^5 + 11u^4 + 4u^3 + 7u^2 + u + 2\rangle$$

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

$$I_4^u = \langle -u^3 - u^2 + b - 2u - 1,\ u^3 + a + 3u + 2,\ u^4 + u^3 + 3u^2 + 3u + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 55 representations.

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

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

I. $I^u_1 =$ $\langle u^{22}-5u^{21}+\cdots+b-3,\ -3u^{22}+13u^{21}+\cdots+2a+22,\ u^{23}-5u^{22}+\cdots-18u+2\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}\frac{3}{2}u^{22}-\frac{13}{2}u^{21}+\cdots+\frac{121}{2}u-11\\-u^{22}+5u^{21}+\cdots-18u+3\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-\frac{3}{2}u^{22}+\frac{13}{2}u^{21}+\cdots-\frac{83}{2}u+6\\u^{22}-5u^{21}+\cdots+24u-3\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}\frac{1}{2}u^{22}-\frac{3}{2}u^{21}+\cdots+\frac{63}{2}u-6\\-u^{22}+5u^{21}+\cdots-16u+3\end{pmatrix}$$
$$a_4 = \begin{pmatrix}\frac{1}{2}u^{22}-\frac{3}{2}u^{21}+\cdots+\frac{61}{2}u-6\\-u^{22}+5u^{21}+\cdots-15u+3\end{pmatrix}$$
$$a_1 = \begin{pmatrix}\frac{3}{2}u^{22}-\frac{13}{2}u^{21}+\cdots+\frac{81}{2}u-6\\-u^{22}+5u^{21}+\cdots-23u+3\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-\frac{1}{2}u^{22}+\frac{5}{2}u^{21}+\cdots-\frac{51}{2}u+4\\-u^{15}+3u^{14}+\cdots+5u-1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6u^{22}-29u^{21}+157u^{20}-513u^{19}+1582u^{18}-3829u^{17}+8406u^{16}-15713u^{15}+26319u^{14}-38607u^{13}+50328u^{12}-57710u^{11}+57948u^{10}-50468u^9+37196u^8-22606u^7+10398u^6-2892u^5-338u^4+958u^3-571u^2+212u-30$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{23} - 14u^{22} + \cdots + 212u - 58$
c_2, c_{11}	$u^{23} + u^{22} + \cdots + 11u - 1$
c_3, c_8, c_{12}	$u^{23} + 17u^{21} + \cdots + u - 1$
c_4	$u^{23} + 20u^{22} + \cdots - 7680u - 1024$
c_5, c_6, c_9 c_{10}	$u^{23} + 5u^{22} + \cdots - 18u - 2$
c_7	$u^{23} + u^{22} + \cdots + 75u - 76$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{23} - 30y^{22} + \cdots + 95172y - 3364$
c_2, c_{11}	$y^{23} + 15y^{22} + \cdots + 49y - 1$
c_3, c_8, c_{12}	$y^{23} + 34y^{22} + \cdots - 13y - 1$
c_4	$y^{23} + 2y^{22} + \cdots + 1835008y - 1048576$
c_5, c_6, c_9 c_{10}	$y^{23} + 29y^{22} + \cdots + 48y - 4$
c_7	$y^{23} + 27y^{22} + \cdots + 24929y - 5776$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.642236 + 0.877944I$ $a = 0.197001 - 0.148547I$ $b = 0.793532 + 0.638924I$	$-9.94522 - 0.85971I$	$0.652008 + 0.263340I$
$u = 0.642236 - 0.877944I$ $a = 0.197001 + 0.148547I$ $b = 0.793532 - 0.638924I$	$-9.94522 + 0.85971I$	$0.652008 - 0.263340I$
$u = 0.525547 + 0.958461I$ $a = -0.231366 + 0.083953I$ $b = -1.63498 + 0.17452I$	$-10.7803 + 10.1203I$	$2.47270 - 6.58788I$
$u = 0.525547 - 0.958461I$ $a = -0.231366 - 0.083953I$ $b = -1.63498 - 0.17452I$	$-10.7803 - 10.1203I$	$2.47270 + 6.58788I$
$u = 0.808860 + 0.080850I$ $a = 0.686984 + 1.110200I$ $b = -0.207591 - 0.160006I$	$-7.60162 + 5.68429I$	$4.92336 - 4.37173I$
$u = 0.808860 - 0.080850I$ $a = 0.686984 - 1.110200I$ $b = -0.207591 + 0.160006I$	$-7.60162 - 5.68429I$	$4.92336 + 4.37173I$
$u = 0.024745 + 0.801676I$ $a = 0.174801 - 0.754525I$ $b = -0.740668 - 0.583637I$	$-2.37077 - 1.03630I$	$2.58342 + 3.76841I$
$u = 0.024745 - 0.801676I$ $a = 0.174801 + 0.754525I$ $b = -0.740668 + 0.583637I$	$-2.37077 + 1.03630I$	$2.58342 - 3.76841I$
$u = 0.180111 + 0.768204I$ $a = -0.047351 + 0.934860I$ $b = 1.47339 + 0.21993I$	$-1.38871 + 3.48902I$	$1.80255 - 2.01978I$
$u = 0.180111 - 0.768204I$ $a = -0.047351 - 0.934860I$ $b = 1.47339 - 0.21993I$	$-1.38871 - 3.48902I$	$1.80255 + 2.01978I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.140649 + 1.391640I$ $a = 0.471307 - 0.261563I$ $b = 0.444719 - 0.537456I$	$-3.65805 - 1.94631I$	$9.97208 + 4.88462I$
$u = -0.140649 - 1.391640I$ $a = 0.471307 + 0.261563I$ $b = 0.444719 + 0.537456I$	$-3.65805 + 1.94631I$	$9.97208 - 4.88462I$
$u = -0.448926$ $a = 0.547375$ $b = 0.215725$	0.770537	11.8930
$u = 0.01173 + 1.65517I$ $a = -1.58298 - 0.41772I$ $b = -2.18998 - 0.09600I$	$-10.99720 - 0.87329I$	$2.30677 + 2.57929I$
$u = 0.01173 - 1.65517I$ $a = -1.58298 + 0.41772I$ $b = -2.18998 + 0.09600I$	$-10.99720 + 0.87329I$	$2.30677 - 2.57929I$
$u = 0.04187 + 1.65682I$ $a = 2.31152 + 0.13555I$ $b = 3.10043 - 0.45940I$	$-9.94661 + 4.28907I$	$2.32600 - 1.89884I$
$u = 0.04187 - 1.65682I$ $a = 2.31152 - 0.13555I$ $b = 3.10043 + 0.45940I$	$-9.94661 - 4.28907I$	$2.32600 + 1.89884I$
$u = 0.286093 + 0.114349I$ $a = -0.56165 + 2.23126I$ $b = 0.330646 - 0.563761I$	$0.49230 - 1.78185I$	$2.91759 + 6.16768I$
$u = 0.286093 - 0.114349I$ $a = -0.56165 - 2.23126I$ $b = 0.330646 + 0.563761I$	$0.49230 + 1.78185I$	$2.91759 - 6.16768I$
$u = 0.14816 + 1.70012I$ $a = -2.42737 - 0.12733I$ $b = -3.34541 + 0.35416I$	$19.4914 + 12.8043I$	$0. - 5.39440I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.14816 - 1.70012I$ $a = -2.42737 + 0.12733I$ $b = -3.34541 - 0.35416I$	$19.4914 - 12.8043I$	$0. + 5.39440I$
$u = 0.19576 + 1.69910I$ $a = 1.23542 + 0.76867I$ $b = 1.86806 + 0.82472I$	$-18.7857 + 2.4887I$	0
$u = 0.19576 - 1.69910I$ $a = 1.23542 - 0.76867I$ $b = 1.86806 - 0.82472I$	$-18.7857 - 2.4887I$	0

II.

$\boldsymbol{I_2^u = \langle -u^7-5u^5-7u^3+u^2+b-2u+1,\ -u^7-u^6+\cdots+2a-1,\ u^8+u^7+\cdots+u+2\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} \frac{1}{2}u^7 + \frac{1}{2}u^6 + \cdots + \frac{5}{2}u + \frac{1}{2} \\ u^7 + 5u^5 + 7u^3 - u^2 + 2u - 1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^7 - \frac{3}{2}u^6 + \cdots - \frac{5}{2}u - \frac{3}{2} \\ -u^6 - u^5 - 3u^4 - 2u^3 - u^2 + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{1}{2}u^7 + \frac{3}{2}u^6 + \cdots + \frac{5}{2}u + \frac{3}{2} \\ u^5 + 2u^3 - u^2 - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{2}u^7 + \frac{3}{2}u^6 + \cdots + \frac{3}{2}u + \frac{3}{2} \\ u^7 + u^6 + 5u^5 + 3u^4 + 6u^3 + u^2 + u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{1}{2}u^7 - \frac{3}{2}u^6 + \cdots - \frac{3}{2}u - \frac{3}{2} \\ -u^7 - 2u^6 - 5u^5 - 6u^4 - 6u^3 - 3u^2 - u + 1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} \frac{1}{2}u^7 + \frac{1}{2}u^6 + \cdots - \frac{5}{2}u - \frac{5}{2} \\ -u^5 - 2u^4 - 4u^3 - 5u^2 - 3u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^7 - 5u^6 + 5u^5 - 22u^4 + 9u^3 - 27u^2 + 7u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^8 - 6u^7 + 16u^6 - 28u^5 + 37u^4 - 36u^3 + 26u^2 - 13u + 4$
c_2, c_{11}	$u^8 + 2u^7 + 2u^6 - 2u^5 - 3u^4 - 2u^3 + 2u^2 + u + 1$
c_3, c_8	$u^8 - u^7 + 3u^6 - 2u^5 + 2u^3 - 2u + 1$
c_4	$u^8 + u^7 + 2u^6 - 2u^5 - 3u^4 - 2u^3 + 2u^2 + 2u + 1$
c_5, c_6	$u^8 + u^7 + 6u^6 + 4u^5 + 11u^4 + 4u^3 + 7u^2 + u + 2$
c_7	$u^8 + 2u^7 + 6u^6 + 8u^5 + 11u^4 + 11u^3 + 8u^2 + 4u + 1$
c_9, c_{10}	$u^8 - u^7 + 6u^6 - 4u^5 + 11u^4 - 4u^3 + 7u^2 - u + 2$
c_{12}	$u^8 + u^7 + 3u^6 + 2u^5 - 2u^3 + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^8 - 4y^7 - 6y^6 + 20y^5 + 37y^4 + 28y^3 + 36y^2 + 39y + 16$
c_2, c_{11}	$y^8 + 6y^6 - 4y^5 + 7y^4 - 8y^3 + 2y^2 + 3y + 1$
c_3, c_8, c_{12}	$y^8 + 5y^7 + 5y^6 + 6y^4 - 6y^3 + 8y^2 - 4y + 1$
c_4	$y^8 + 3y^7 + 2y^6 - 8y^5 + 7y^4 - 4y^3 + 6y^2 + 1$
c_5, c_6, c_9 c_{10}	$y^8 + 11y^7 + 50y^6 + 122y^5 + 175y^4 + 154y^3 + 85y^2 + 27y + 4$
c_7	$y^8 + 8y^7 + 26y^6 + 40y^5 + 27y^4 + 3y^3 - 2y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.369565 + 0.771008I$ $a = -0.155753 - 0.334209I$ $b = 1.184060 + 0.040896I$	$-0.59040 - 4.34638I$	$8.24002 + 7.81362I$
$u = -0.369565 - 0.771008I$ $a = -0.155753 + 0.334209I$ $b = 1.184060 - 0.040896I$	$-0.59040 + 4.34638I$	$8.24002 - 7.81362I$
$u = 0.201988 + 0.673846I$ $a = -1.34000 + 1.00726I$ $b = -1.271480 - 0.352014I$	$-7.52705 + 0.72220I$	$2.71603 - 0.15399I$
$u = 0.201988 - 0.673846I$ $a = -1.34000 - 1.00726I$ $b = -1.271480 + 0.352014I$	$-7.52705 - 0.72220I$	$2.71603 + 0.15399I$
$u = -0.23773 + 1.39832I$ $a = -0.278315 + 0.491837I$ $b = -0.648364 + 0.685778I$	$-4.19999 - 1.68332I$	$-2.66072 - 1.09034I$
$u = -0.23773 - 1.39832I$ $a = -0.278315 - 0.491837I$ $b = -0.648364 - 0.685778I$	$-4.19999 + 1.68332I$	$-2.66072 + 1.09034I$
$u = -0.09469 + 1.65500I$ $a = 2.02407 + 0.03178I$ $b = 2.73579 + 0.57245I$	$-9.06671 - 6.06893I$	$5.70467 + 5.25665I$
$u = -0.09469 - 1.65500I$ $a = 2.02407 - 0.03178I$ $b = 2.73579 - 0.57245I$	$-9.06671 + 6.06893I$	$5.70467 - 5.25665I$

III.

$$\boldsymbol{I_3^u = \langle -u^8a + u^8 + \cdots + b + a,\ 2u^9 + 3u^8 + \cdots - 2a + 7,\ u^{10} + u^9 + \cdots + u - 1\rangle}$$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} a \\ u^8a - u^8 + \cdots - a - 2u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -u^7 + u^5a - 4u^5 + 3u^3a - 4u^3 + au - 2u^2 + a - 2u - 2 \\ -u^8a - u^8 + \cdots + a - u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^9a - u^8a + \cdots + 2a - 1 \\ -u^8 - 2u^7 - 6u^6 - 8u^5 - 10u^4 - 8u^3 + au - 4u^2 - 2u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^7 + u^5a - 4u^5 + 3u^3a - 4u^3 + au - u^2 + a - 2u - 1 \\ -u^8a - u^8 + \cdots + a - u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^9a - u^8a + \cdots + 3u + 2 \\ 2u^8a + 2u^7a + \cdots + 3au - 2a \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -2u^9a - 2u^8a + \cdots + a + 2 \\ -u^8a - u^8 + \cdots + a - u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^8 + 4u^7 + 24u^6 + 20u^5 + 44u^4 + 28u^3 + 24u^2 + 8u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{10}+9u^9+31u^8+48u^7+28u^6+5u^5+17u^4+8u^3-9u^2+5u-1)^2$
c_2, c_{11}	$u^{20}+9u^{19}+\cdots+55u+14$
c_3, c_8, c_{12}	$u^{20}-u^{19}+\cdots-109u+142$
c_4	$(u-1)^{20}$
c_5, c_6, c_9 c_{10}	$(u^{10}-u^9+7u^8-6u^7+16u^6-11u^5+13u^4-6u^3+3u^2-u-1)^2$
c_7	$u^{20}+u^{19}+\cdots-2452u+1723$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{10} - 19y^9 + \cdots - 7y + 1)^2$
c_2, c_{11}	$y^{20} - y^{19} + \cdots + 2771y + 196$
c_3, c_8, c_{12}	$y^{20} + 27y^{19} + \cdots + 125859y + 20164$
c_4	$(y-1)^{20}$
c_5, c_6, c_9 c_{10}	$(y^{10} + 13y^9 + \cdots - 7y + 1)^2$
c_7	$y^{20} + 23y^{19} + \cdots + 12716706y + 2968729$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.420834 + 0.842935I$ $a = 0.198910 - 0.456820I$ $b = 1.075440 - 0.460885I$	$-1.99815 - 3.55946I$	$1.64226 + 4.06361I$
$u = -0.420834 + 0.842935I$ $a = 0.291275 - 0.161939I$ $b = -1.021720 - 0.224140I$	$-1.99815 - 3.55946I$	$1.64226 + 4.06361I$
$u = -0.420834 - 0.842935I$ $a = 0.198910 + 0.456820I$ $b = 1.075440 + 0.460885I$	$-1.99815 + 3.55946I$	$1.64226 - 4.06361I$
$u = -0.420834 - 0.842935I$ $a = 0.291275 + 0.161939I$ $b = -1.021720 + 0.224140I$	$-1.99815 + 3.55946I$	$1.64226 - 4.06361I$
$u = 0.153406 + 0.833677I$ $a = 0.02090 - 1.60050I$ $b = 0.877616 + 0.641363I$	$-8.43900 + 1.60532I$	$-3.05654 - 5.03395I$
$u = 0.153406 + 0.833677I$ $a = -1.42752 + 1.20623I$ $b = -2.23360 + 1.38307I$	$-8.43900 + 1.60532I$	$-3.05654 - 5.03395I$
$u = 0.153406 - 0.833677I$ $a = 0.02090 + 1.60050I$ $b = 0.877616 - 0.641363I$	$-8.43900 - 1.60532I$	$-3.05654 + 5.03395I$
$u = 0.153406 - 0.833677I$ $a = -1.42752 - 1.20623I$ $b = -2.23360 - 1.38307I$	$-8.43900 - 1.60532I$	$-3.05654 + 5.03395I$
$u = -0.635590$ $a = 0.447489 + 0.710048I$ $b = 0.228085 - 0.214031I$	0.553628	6.04860
$u = -0.635590$ $a = 0.447489 - 0.710048I$ $b = 0.228085 + 0.214031I$	0.553628	6.04860

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.10787 + 1.66265I$ $a = 1.69613 - 0.79881I$ $b = 2.25201 - 0.48002I$	$-10.67790 - 5.55652I$	$-0.20810 + 2.88175I$
$u = -0.10787 + 1.66265I$ $a = -2.12347 - 0.22802I$ $b = -3.08847 - 0.66832I$	$-10.67790 - 5.55652I$	$-0.20810 + 2.88175I$
$u = -0.10787 - 1.66265I$ $a = 1.69613 + 0.79881I$ $b = 2.25201 + 0.48002I$	$-10.67790 + 5.55652I$	$-0.20810 - 2.88175I$
$u = -0.10787 - 1.66265I$ $a = -2.12347 + 0.22802I$ $b = -3.08847 + 0.66832I$	$-10.67790 + 5.55652I$	$-0.20810 - 2.88175I$
$u = 0.03425 + 1.67211I$ $a = 1.66374 + 1.57382I$ $b = 2.49623 + 2.91801I$	$-17.3000 + 2.2863I$	$-3.60221 - 2.91176I$
$u = 0.03425 + 1.67211I$ $a = -3.01845 + 1.45580I$ $b = -3.46263 + 1.43734I$	$-17.3000 + 2.2863I$	$-3.60221 - 2.91176I$
$u = 0.03425 - 1.67211I$ $a = 1.66374 - 1.57382I$ $b = 2.49623 - 2.91801I$	$-17.3000 - 2.2863I$	$-3.60221 + 2.91176I$
$u = 0.03425 - 1.67211I$ $a = -3.01845 - 1.45580I$ $b = -3.46263 - 1.43734I$	$-17.3000 - 2.2863I$	$-3.60221 + 2.91176I$
$u = 0.317683$ $a = 2.25101 + 3.10693I$ $b = -0.622963 + 0.916801I$	-5.97021	8.40060
$u = 0.317683$ $a = 2.25101 - 3.10693I$ $b = -0.622963 - 0.916801I$	-5.97021	8.40060

IV. $\boldsymbol{I_4^u = \langle -u^3 - u^2 + b - 2u - 1,\ u^3 + a + 3u + 2,\ u^4 + u^3 + 3u^2 + 3u + 1 \rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^3 - 3u - 2 \\ u^3 + u^2 + 2u + 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^3 - u^2 - 2u - 1 \\ -u^2 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ u^3 + u + 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^2 - u \\ 2u^3 + 2u^2 + 4u + 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^3 - 2u^2 - 2u - 1 \\ -u^3 - 3u^2 - 2u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + u + 1 \\ u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^3 + 2u^2 - 3u + 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^4-5u^3+9u^2-7u+3$
c_2, c_{11}	u^4-u^3+1
c_3, c_5, c_6 c_8	$u^4+u^3+3u^2+3u+1$
c_4	u^4-u+1
c_7	$u^4-3u^3+6u^2-4u+1$
c_9, c_{10}, c_{12}	$u^4-u^3+3u^2-3u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^4 - 7y^3 + 17y^2 + 5y + 9$
c_2, c_{11}	$y^4 - y^3 + 2y^2 + 1$
c_3, c_5, c_6 c_8, c_9, c_{10} c_{12}	$y^4 + 5y^3 + 5y^2 - 3y + 1$
c_4	$y^4 + 2y^2 - y + 1$
c_7	$y^4 + 3y^3 + 14y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.552038 + 0.242275I$ $a = -0.272864 - 0.934099I$ $b = 0.070951 + 0.424335I$	$1.07586 + 1.18968I$	$10.21923 - 1.46908I$
$u = -0.552038 - 0.242275I$ $a = -0.272864 + 0.934099I$ $b = 0.070951 - 0.424335I$	$1.07586 - 1.18968I$	$10.21923 + 1.46908I$
$u = 0.05204 + 1.65794I$ $a = -1.72714 - 0.43001I$ $b = -2.07095 - 1.05537I$	$-15.8803 + 1.6928I$	$2.78077 - 0.08491I$
$u = 0.05204 - 1.65794I$ $a = -1.72714 + 0.43001I$ $b = -2.07095 + 1.05537I$	$-15.8803 - 1.6928I$	$2.78077 + 0.08491I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^4-5u^3+9u^2-7u+3)$ $\cdot(u^8-6u^7+16u^6-28u^5+37u^4-36u^3+26u^2-13u+4)$ $\cdot(u^{10}+9u^9+31u^8+48u^7+28u^6+5u^5+17u^4+8u^3-9u^2+5u-1)^2$ $\cdot(u^{23}-14u^{22}+\cdots+212u-58)$
c_2, c_{11}	$(u^4-u^3+1)(u^8+2u^7+2u^6-2u^5-3u^4-2u^3+2u^2+u+1)$ $\cdot(u^{20}+9u^{19}+\cdots+55u+14)(u^{23}+u^{22}+\cdots+11u-1)$
c_3, c_8	$(u^4+u^3+3u^2+3u+1)(u^8-u^7+3u^6-2u^5+2u^3-2u+1)$ $\cdot(u^{20}-u^{19}+\cdots-109u+142)(u^{23}+17u^{21}+\cdots+u-1)$
c_4	$((u-1)^{20})(u^4-u+1)(u^8+u^7+\cdots+2u+1)$ $\cdot(u^{23}+20u^{22}+\cdots-7680u-1024)$
c_5, c_6	$(u^4+u^3+3u^2+3u+1)(u^8+u^7+\cdots+u+2)$ $\cdot(u^{10}-u^9+7u^8-6u^7+16u^6-11u^5+13u^4-6u^3+3u^2-u-1)^2$ $\cdot(u^{23}+5u^{22}+\cdots-18u-2)$
c_7	$(u^4-3u^3+6u^2-4u+1)$ $\cdot(u^8+2u^7+6u^6+8u^5+11u^4+11u^3+8u^2+4u+1)$ $\cdot(u^{20}+u^{19}+\cdots-2452u+1723)(u^{23}+u^{22}+\cdots+75u-76)$
c_9, c_{10}	$(u^4-u^3+3u^2-3u+1)(u^8-u^7+\cdots-u+2)$ $\cdot(u^{10}-u^9+7u^8-6u^7+16u^6-11u^5+13u^4-6u^3+3u^2-u-1)^2$ $\cdot(u^{23}+5u^{22}+\cdots-18u-2)$
c_{12}	$(u^4-u^3+3u^2-3u+1)(u^8+u^7+3u^6+2u^5-2u^3+2u+1)$ $\cdot(u^{20}-u^{19}+\cdots-109u+142)(u^{23}+17u^{21}+\cdots+u-1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^4 - 7y^3 + 17y^2 + 5y + 9)$ $\cdot (y^8 - 4y^7 - 6y^6 + 20y^5 + 37y^4 + 28y^3 + 36y^2 + 39y + 16)$ $\cdot ((y^{10} - 19y^9 + \cdots - 7y + 1)^2)(y^{23} - 30y^{22} + \cdots + 95172y - 3364)$
c_2, c_{11}	$(y^4 - y^3 + 2y^2 + 1)(y^8 + 6y^6 - 4y^5 + 7y^4 - 8y^3 + 2y^2 + 3y + 1)$ $\cdot (y^{20} - y^{19} + \cdots + 2771y + 196)(y^{23} + 15y^{22} + \cdots + 49y - 1)$
c_3, c_8, c_{12}	$(y^4 + 5y^3 + 5y^2 - 3y + 1)(y^8 + 5y^7 + \cdots - 4y + 1)$ $\cdot (y^{20} + 27y^{19} + \cdots + 125859y + 20164)(y^{23} + 34y^{22} + \cdots - 13y - 1)$
c_4	$((y-1)^{20})(y^4 + 2y^2 - y + 1)(y^8 + 3y^7 + \cdots + 6y^2 + 1)$ $\cdot (y^{23} + 2y^{22} + \cdots + 1835008y - 1048576)$
c_5, c_6, c_9 c_{10}	$(y^4 + 5y^3 + 5y^2 - 3y + 1)$ $\cdot (y^8 + 11y^7 + 50y^6 + 122y^5 + 175y^4 + 154y^3 + 85y^2 + 27y + 4)$ $\cdot ((y^{10} + 13y^9 + \cdots - 7y + 1)^2)(y^{23} + 29y^{22} + \cdots + 48y - 4)$
c_7	$(y^4 + 3y^3 + 14y^2 - 4y + 1)$ $\cdot (y^8 + 8y^7 + 26y^6 + 40y^5 + 27y^4 + 3y^3 - 2y^2 + 1)$ $\cdot (y^{20} + 23y^{19} + \cdots + 12716706y + 2968729)$ $\cdot (y^{23} + 27y^{22} + \cdots + 24929y - 5776)$