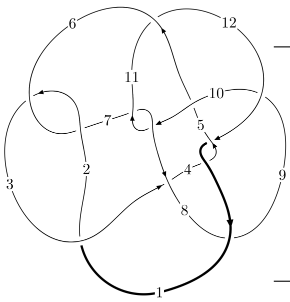
$12n_{0434}$ $(K12n_{0434})$



A knot diagram[1]

Linearized knot diagam

$$\begin{array}{cccccccccccc} \to\downarrow & \to\uparrow & \to\downarrow & \to\downarrow & \to\uparrow & \to\uparrow & \to\uparrow & \to\downarrow & \to\uparrow & \to\uparrow & \to\uparrow & \to\downarrow\to \\ 3 & 6 & 8 & 1 & 10 & 2 & 11 & 1 & 12 & 8 & 6 & 5 \end{array}$$

Solving Sequence

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

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

$$\begin{aligned} I^u_1 = \langle & 1.15244 \times 10^{89} u^{53} - 2.36305 \times 10^{89} u^{52} + \cdots + 1.14353 \times 10^{89} b + 6.98962 \times 10^{89}, \\ & - 2.35956 \times 10^{90} u^{53} + 4.56370 \times 10^{90} u^{52} + \cdots + 8.00468 \times 10^{89} a - 4.87445 \times 10^{90},\ u^{54} - 3u^{53} + \cdots - 3u - \\ I^u_2 = \langle & 13421u^{13} + 20820u^{12} + \cdots + 17217b - 11948,\ 655u^{13} + 3102u^{12} + \cdots + 5739a + 3767, \\ & u^{14} + 2u^{13} + 4u^{12} + 3u^{11} + 6u^{10} + 6u^9 + 14u^8 + 14u^7 + 19u^6 + 14u^5 + 10u^4 + 2u^3 + 3u^2 + 1\rangle \\ I^u_3 = \langle & u^3 + 2b - 3,\ u^3 + 2a - 3,\ u^4 + u^3 + 2u^2 - u + 1\rangle \\ I^u_4 = \langle & u^2 + b + 1,\ u^2 + a + 1,\ u^4 + u^3 + 2u^2 + 2u + 1\rangle \end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 76 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.
$\boldsymbol{I_1^u = \langle 1.15\times 10^{89}u^{53} - 2.36\times 10^{89}u^{52} + \cdots + 1.14\times 10^{89}b + 6.99\times 10^{89},\ -2.36\times 10^{90}u^{53} + 4.56\times 10^{90}u^{52} + \cdots + 8.00\times 10^{89}a - 4.87\times 10^{90},\ u^{54} - 3u^{53} + \cdots - 3u + 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2.94773u^{53} - 5.70129u^{52} + \cdots - 14.5124u + 6.08949 \\ -1.00780u^{53} + 2.06646u^{52} + \cdots + 15.3054u - 6.11234 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2.94773u^{53} - 5.70129u^{52} + \cdots - 14.5124u + 6.08949 \\ -0.287284u^{53} + 0.699825u^{52} + \cdots + 8.82747u - 2.97046 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -1.97603u^{53} + 4.47321u^{52} + \cdots + 27.0023u - 13.6868 \\ 0.915616u^{53} - 1.04433u^{52} + \cdots - 14.8536u + 3.07727 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 4.21790u^{53} - 8.54770u^{52} + \cdots - 22.8533u + 10.1883 \\ 0.262380u^{53} - 0.779944u^{52} + \cdots + 6.96448u - 2.01353 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 5.26626u^{53} - 18.3261u^{52} + \cdots + 62.9922u - 13.9709 \\ 0.751703u^{53} - 1.91257u^{52} + \cdots + 2.33641u - 1.75467 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -11.3826u^{53} + 30.2001u^{52} + \cdots + 7.41660u - 26.3662 \\ 0.520213u^{53} - 0.0746840u^{52} + \cdots - 27.1247u + 3.86789 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -8.72344u^{53} + 33.9754u^{52} + \cdots - 130.452u + 31.2985 \\ 3.58969u^{53} - 10.8714u^{52} + \cdots + 6.78177u + 2.52277 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 12.7906u^{53} - 37.1295u^{52} + \cdots + 18.7277u + 3.70834 \\ 1.17501u^{53} - 4.52802u^{52} + \cdots + 14.7445u - 5.03833 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 1.14333u^{53} - 0.924812u^{52} + \cdots - 6.63399u + 6.45142$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{54} + 43u^{53} + \cdots + 3692u + 441$
c_2, c_6	$u^{54} - u^{53} + \cdots - 26u + 21$
c_3	$u^{54} - 25u^{52} + \cdots + 2432u + 1856$
c_4, c_{12}	$u^{54} - 3u^{53} + \cdots - 3u + 1$
c_5	$u^{54} + 2u^{53} + \cdots + 153u + 47$
c_7, c_{10}	$u^{54} + u^{53} + \cdots - 2486u + 121$
c_8	$u^{54} + 5u^{53} + \cdots - 17089u + 1801$
c_9	$u^{54} + 9u^{53} + \cdots + 3712u + 768$
c_{11}	$u^{54} + u^{53} + \cdots + 1004850u + 134807$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{54} - 49y^{53} + \cdots + 4263152y + 194481$
c_2, c_6	$y^{54} + 43y^{53} + \cdots + 3692y + 441$
c_3	$y^{54} - 50y^{53} + \cdots - 42856448y + 3444736$
c_4, c_{12}	$y^{54} + 11y^{53} + \cdots + 41y + 1$
c_5	$y^{54} - 6y^{53} + \cdots + 27633y + 2209$
c_7, c_{10}	$y^{54} + 65y^{53} + \cdots - 587818y + 14641$
c_8	$y^{54} - 63y^{53} + \cdots + 140310537y + 3243601$
c_9	$y^{54} + 31y^{53} + \cdots - 9355264y + 589824$
c_{11}	$y^{54} + 75y^{53} + \cdots - 92128132162y + 18172927249$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.037373 + 1.006010I$ $a = 1.030200 + 0.062419I$ $b = -0.490474 - 0.580472I$	$2.85970 + 0.80963I$	$6.77195 + 0.29503I$
$u = -0.037373 - 1.006010I$ $a = 1.030200 - 0.062419I$ $b = -0.490474 + 0.580472I$	$2.85970 - 0.80963I$	$6.77195 - 0.29503I$
$u = -0.543124 + 0.777830I$ $a = -0.471157 + 0.381929I$ $b = -0.50611 + 1.96562I$	$-7.74259 + 6.23460I$	$-0.70370 - 6.97900I$
$u = -0.543124 - 0.777830I$ $a = -0.471157 - 0.381929I$ $b = -0.50611 - 1.96562I$	$-7.74259 - 6.23460I$	$-0.70370 + 6.97900I$
$u = -0.431004 + 0.822553I$ $a = -1.029580 + 0.012079I$ $b = -0.807592 + 0.331900I$	$-0.65107 + 2.00888I$	$0.23679 - 4.07426I$
$u = -0.431004 - 0.822553I$ $a = -1.029580 - 0.012079I$ $b = -0.807592 - 0.331900I$	$-0.65107 - 2.00888I$	$0.23679 + 4.07426I$
$u = -0.795980 + 0.436234I$ $a = -0.277873 + 0.419648I$ $b = -0.318797 - 0.205145I$	$-1.27040 + 1.87667I$	$-3.97787 - 4.44520I$
$u = -0.795980 - 0.436234I$ $a = -0.277873 - 0.419648I$ $b = -0.318797 + 0.205145I$	$-1.27040 - 1.87667I$	$-3.97787 + 4.44520I$
$u = 0.527527 + 1.001810I$ $a = 1.149730 - 0.365464I$ $b = 1.53010 - 0.50566I$	$-2.71697 - 1.97809I$	$0. + 2.58049I$
$u = 0.527527 - 1.001810I$ $a = 1.149730 + 0.365464I$ $b = 1.53010 + 0.50566I$	$-2.71697 + 1.97809I$	$0. - 2.58049I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.918205+0.762698I$ $a=-1.118580-0.397034I$ $b=-1.122090+0.488407I$	$-2.04155+2.12181I$	0
$u=-0.918205-0.762698I$ $a=-1.118580+0.397034I$ $b=-1.122090-0.488407I$	$-2.04155-2.12181I$	0
$u=-0.364190+1.145600I$ $a=-0.442213+0.376301I$ $b=\ \ 0.400143-0.343043I$	$3.58333+4.89977I$	$0.-7.27006I$
$u=-0.364190-1.145600I$ $a=-0.442213-0.376301I$ $b=\ \ 0.400143+0.343043I$	$3.58333-4.89977I$	$0.+7.27006I$
$u=\ \ 0.960632+0.774462I$ $a=\ \ 1.13070-0.89501I$ $b=\ \ 1.59243+0.09416I$	$-7.46820+0.80208I$	0
$u=\ \ 0.960632-0.774462I$ $a=\ \ 1.13070+0.89501I$ $b=\ \ 1.59243-0.09416I$	$-7.46820-0.80208I$	0
$u=\ \ 0.600991+0.467590I$ $a=\ \ 0.158333-0.973691I$ $b=\ \ 0.100996+0.808006I$	$-3.72491-3.82211I$	$6.70276+1.18963I$
$u=\ \ 0.600991-0.467590I$ $a=\ \ 0.158333+0.973691I$ $b=\ \ 0.100996-0.808006I$	$-3.72491+3.82211I$	$6.70276-1.18963I$
$u=\ \ 0.979992+0.797814I$ $a=-1.43891+0.26324I$ $b=-1.97461-0.43491I$	$-15.3307-5.7207I$	0
$u=\ \ 0.979992-0.797814I$ $a=-1.43891-0.26324I$ $b=-1.97461+0.43491I$	$-15.3307+5.7207I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.187854 + 1.250900I$ $a = -0.186276 + 0.095635I$ $b = -0.859056 + 0.377021I$	$-0.658796 + 0.749765I$	0
$u = 0.187854 - 1.250900I$ $a = -0.186276 - 0.095635I$ $b = -0.859056 - 0.377021I$	$-0.658796 - 0.749765I$	0
$u = -0.247033 + 0.676299I$ $a = -0.301606 + 0.279111I$ $b = -0.365687 + 0.725077I$	$-0.05790 + 1.76249I$	$0.05580 - 5.36659I$
$u = -0.247033 - 0.676299I$ $a = -0.301606 - 0.279111I$ $b = -0.365687 - 0.725077I$	$-0.05790 - 1.76249I$	$0.05580 + 5.36659I$
$u = 1.098870 + 0.656535I$ $a = 1.55286 - 0.44234I$ $b = 1.158690 + 0.463793I$	$-4.13666 - 6.24317I$	0
$u = 1.098870 - 0.656535I$ $a = 1.55286 + 0.44234I$ $b = 1.158690 - 0.463793I$	$-4.13666 + 6.24317I$	0
$u = -0.697329 + 0.022686I$ $a = -1.38730 + 3.11746I$ $b = 0.181432 + 0.532548I$	$-9.05440 - 2.92567I$	$-6.42699 + 0.09398I$
$u = -0.697329 - 0.022686I$ $a = -1.38730 - 3.11746I$ $b = 0.181432 - 0.532548I$	$-9.05440 + 2.92567I$	$-6.42699 - 0.09398I$
$u = 1.026470 + 0.845684I$ $a = -1.40395 + 1.00681I$ $b = -1.220970 - 0.303738I$	$-4.13120 - 4.24024I$	0
$u = 1.026470 - 0.845684I$ $a = -1.40395 - 1.00681I$ $b = -1.220970 + 0.303738I$	$-4.13120 + 4.24024I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.837598 + 1.066200I$ $a = -1.124140 + 0.742986I$ $b = -1.77532 - 0.42316I$	$-6.55172 - 7.42273I$	0
$u = 0.837598 - 1.066200I$ $a = -1.124140 - 0.742986I$ $b = -1.77532 + 0.42316I$	$-6.55172 + 7.42273I$	0
$u = 0.815947 + 1.102350I$ $a = 0.53489 - 1.31244I$ $b = 1.53981 - 0.09220I$	$-14.3214 - 0.9597I$	0
$u = 0.815947 - 1.102350I$ $a = 0.53489 + 1.31244I$ $b = 1.53981 + 0.09220I$	$-14.3214 + 0.9597I$	0
$u = -1.131240 + 0.821749I$ $a = 1.105120 + 0.458003I$ $b = 1.61964 - 0.06450I$	$-10.58060 - 0.64727I$	0
$u = -1.131240 - 0.821749I$ $a = 1.105120 - 0.458003I$ $b = 1.61964 + 0.06450I$	$-10.58060 + 0.64727I$	0
$u = -0.090452 + 0.526330I$ $a = 1.120460 + 0.305656I$ $b = 0.74665 - 1.44801I$	$1.157250 - 0.155163I$	$7.37161 - 1.36723I$
$u = -0.090452 - 0.526330I$ $a = 1.120460 - 0.305656I$ $b = 0.74665 + 1.44801I$	$1.157250 + 0.155163I$	$7.37161 + 1.36723I$
$u = -0.93222 + 1.15582I$ $a = -0.936289 - 0.829653I$ $b = -1.54017 + 0.35175I$	$-9.48565 + 8.12595I$	0
$u = -0.93222 - 1.15582I$ $a = -0.936289 + 0.829653I$ $b = -1.54017 - 0.35175I$	$-9.48565 - 8.12595I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.94640 + 1.15434I$ $a = 0.757645 + 0.359126I$ $b = 0.951028 - 0.386906I$	$-0.63092 + 4.66377I$	0
$u = -0.94640 - 1.15434I$ $a = 0.757645 - 0.359126I$ $b = 0.951028 + 0.386906I$	$-0.63092 - 4.66377I$	0
$u = -0.055729 + 0.503312I$ $a = -1.96871 - 3.65912I$ $b = 0.886771 + 0.795520I$	$-8.54356 - 3.22703I$	$3.94778 - 2.72438I$
$u = -0.055729 - 0.503312I$ $a = -1.96871 + 3.65912I$ $b = 0.886771 - 0.795520I$	$-8.54356 + 3.22703I$	$3.94778 + 2.72438I$
$u = 0.99851 + 1.13262I$ $a = 1.34755 - 0.60244I$ $b = 1.70196 + 0.68361I$	$-14.2209 - 14.9873I$	0
$u = 0.99851 - 1.13262I$ $a = 1.34755 + 0.60244I$ $b = 1.70196 - 0.68361I$	$-14.2209 + 14.9873I$	0
$u = 1.19097 + 0.94277I$ $a = -0.950142 + 0.775950I$ $b = -1.54086 + 0.39585I$	$-14.9446 + 7.1061I$	0
$u = 1.19097 - 0.94277I$ $a = -0.950142 - 0.775950I$ $b = -1.54086 - 0.39585I$	$-14.9446 - 7.1061I$	0
$u = -0.79135 + 1.35810I$ $a = 0.524839 + 0.318013I$ $b = 0.921922 - 0.092922I$	$-0.47705 + 4.55318I$	0
$u = -0.79135 - 1.35810I$ $a = 0.524839 - 0.318013I$ $b = 0.921922 + 0.092922I$	$-0.47705 - 4.55318I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.124133 + 0.402569I$ $a = 0.92386 + 1.37352I$ $b = 0.575765 - 0.613700I$	$1.34934 - 0.45303I$	$8.18333 + 1.54346I$
$u = 0.124133 - 0.402569I$ $a = 0.92386 - 1.37352I$ $b = 0.575765 + 0.613700I$	$1.34934 + 0.45303I$	$8.18333 - 1.54346I$
$u = 0.132130 + 0.214010I$ $a = -4.29946 + 0.59400I$ $b = -1.385600 - 0.232769I$	$-0.15771 - 3.49876I$	$0.819601 - 0.411516I$
$u = 0.132130 - 0.214010I$ $a = -4.29946 - 0.59400I$ $b = -1.385600 + 0.232769I$	$-0.15771 + 3.49876I$	$0.819601 + 0.411516I$

II. $I_2^u = \langle 13421u^{13} + 20820u^{12} + \cdots + 17217b - 11948,\ 655u^{13} + 3102u^{12} + \cdots + 5739a + 3767,\ u^{14} + 2u^{13} + \cdots + 3u^2 + 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.114131u^{13} - 0.540512u^{12} + \cdots - 4.39449u - 0.656386 \\ -0.779520u^{13} - 1.20927u^{12} + \cdots - 0.757507u + 0.693965 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.114131u^{13} - 0.540512u^{12} + \cdots - 4.39449u - 0.656386 \\ -0.369518u^{13} - 0.334727u^{12} + \cdots - 0.871638u + 0.381716 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1.42975u^{13} + 3.35738u^{12} + \cdots + 4.06354u + 0.526514 \\ 0.404310u^{13} + 1.03537u^{12} + \cdots + 0.381716u + 1.36952 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.448220u^{13} + 0.508974u^{12} + \cdots - 3.72910u - 1.31841 \\ -0.217169u^{13} - 0.159784u^{12} + \cdots - 0.0921183u + 0.0319452 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1.04374u^{13} + 2.01934u^{12} + \cdots - 1.69768u - 1.46297 \\ 0.349771u^{13} + 0.851891u^{12} + \cdots + 0.693965u + 0.779520 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2.37672u^{13} + 6.11082u^{12} + \cdots + 6.79526u + 0.653598 \\ -0.0935703u^{13} + 0.0622060u^{12} + \cdots - 0.144799u + 1.79927 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -1.98949u^{13} - 3.59296u^{12} + \cdots + 6.07400u + 5.76122 \\ -0.589998u^{13} - 1.12546u^{12} + \cdots - 4.11413u - 0.312250 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1.79427u^{13} - 4.66998u^{12} + \cdots - 2.77847u + 1.07324 \\ 0.562351u^{13} + 1.04949u^{12} + \cdots + 0.665389u - 0.662020 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{2746}{5739}u^{13} + \frac{4976}{1913}u^{12} + \cdots + \frac{19957}{5739}u + \frac{38557}{5739}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} - 10u^{13} + \cdots - 16u + 1$
c_2	$u^{14} - 4u^{13} + \cdots - 2u + 1$
c_3	$u^{14} - u^{12} + u^{11} - u^{10} + 5u^8 - 3u^7 - 5u^6 + 3u^5 + 4u^4 - u^3 - 3u^2 + 1$
c_4	$u^{14} + 2u^{13} + \cdots + 3u^2 + 1$
c_5	$u^{14} - 3u^{12} + u^{11} + 4u^{10} - 3u^9 - 5u^8 + 3u^7 + 5u^6 - u^4 - u^3 - u^2 + 1$
c_6	$u^{14} + 4u^{13} + \cdots + 2u + 1$
c_7	$u^{14} + 6u^{12} + \cdots - 2u + 1$
c_8	$u^{14} + 4u^{13} + \cdots + 55u + 19$
c_9	$u^{14} + 2u^{13} + \cdots + 1130u + 325$
c_{10}	$u^{14} + 6u^{12} + \cdots + 2u + 1$
c_{11}	$u^{14} - 3u^{11} + \cdots - 121u + 19$
c_{12}	$u^{14} - 2u^{13} + \cdots + 3u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 2y^{13} + \cdots - 36y + 1$
c_2, c_6	$y^{14} + 10y^{13} + \cdots + 16y + 1$
c_3	$y^{14} - 2y^{13} + \cdots - 6y + 1$
c_4, c_{12}	$y^{14} + 4y^{13} + \cdots + 6y + 1$
c_5	$y^{14} - 6y^{13} + \cdots - 2y + 1$
c_7, c_{10}	$y^{14} + 12y^{13} + \cdots + 10y + 1$
c_8	$y^{14} - 16y^{13} + \cdots + 1269y + 361$
c_9	$y^{14} + 6y^{13} + \cdots - 62700y + 105625$
c_{11}	$y^{14} - 24y^{12} + \cdots - 5065y + 361$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.819607 + 0.515589I$ $a = -0.642113 - 0.758617I$ $b = -0.465178 + 0.621015I$	$-4.31778 + 3.99647I$	$-6.54046 - 4.82744I$
$u = -0.819607 - 0.515589I$ $a = -0.642113 + 0.758617I$ $b = -0.465178 - 0.621015I$	$-4.31778 - 3.99647I$	$-6.54046 + 4.82744I$
$u = 0.157391 + 1.079850I$ $a = 0.799329 + 0.677674I$ $b = -0.803174 + 0.138913I$	$1.96129 + 2.14587I$	$2.42560 - 2.43593I$
$u = 0.157391 - 1.079850I$ $a = 0.799329 - 0.677674I$ $b = -0.803174 - 0.138913I$	$1.96129 - 2.14587I$	$2.42560 + 2.43593I$
$u = -0.522544 + 1.221350I$ $a = -0.021609 + 0.753511I$ $b = 0.794322 - 0.068763I$	$2.62934 + 4.67740I$	$-0.17980 - 4.29340I$
$u = -0.522544 - 1.221350I$ $a = -0.021609 - 0.753511I$ $b = 0.794322 + 0.068763I$	$2.62934 - 4.67740I$	$-0.17980 + 4.29340I$
$u = -0.163995 + 0.636516I$ $a = 0.790950 - 0.043131I$ $b = -0.014726 - 1.396170I$	$1.00700 + 1.01107I$	$3.78201 - 5.56453I$
$u = -0.163995 - 0.636516I$ $a = 0.790950 + 0.043131I$ $b = -0.014726 + 1.396170I$	$1.00700 - 1.01107I$	$3.78201 + 5.56453I$
$u = 1.065560 + 0.835049I$ $a = -1.52550 + 0.63079I$ $b = -1.195830 - 0.385658I$	$-3.10509 - 6.09159I$	$2.11795 + 6.25265I$
$u = 1.065560 - 0.835049I$ $a = -1.52550 - 0.63079I$ $b = -1.195830 + 0.385658I$	$-3.10509 + 6.09159I$	$2.11795 - 6.25265I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.350432 + 0.386096I$ $a = 0.71355 - 4.60985I$ $b = 0.789643 + 0.752742I$	$-8.76271 - 3.69641I$	$-2.70956 + 11.15415I$
$u = 0.350432 - 0.386096I$ $a = 0.71355 + 4.60985I$ $b = 0.789643 - 0.752742I$	$-8.76271 + 3.69641I$	$-2.70956 - 11.15415I$
$u = -1.06723 + 1.10388I$ $a = 0.885391 + 0.210981I$ $b = 0.894938 - 0.522276I$	$-0.92659 + 4.05089I$	$-1.39574 - 1.45833I$
$u = -1.06723 - 1.10388I$ $a = 0.885391 - 0.210981I$ $b = 0.894938 + 0.522276I$	$-0.92659 - 4.05089I$	$-1.39574 + 1.45833I$

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

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{1}{2}u^3 + \frac{3}{2} \\ -\frac{1}{2}u^3 + \frac{3}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{2}u^3 + \frac{3}{2} \\ -u^3 - u + 2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{1}{2}u^3 - \frac{3}{2} \\ u^3 + u - 3 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^3 + \frac{3}{2} \\ -\frac{1}{2}u^3 + \frac{3}{2} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^3 - \frac{3}{2} \\ \frac{1}{2}u^3 - \frac{5}{2} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^3 - u^2 - 2u - \frac{1}{2} \\ -\frac{1}{2}u^3 - 2u^2 - 2u - \frac{3}{2} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^3 + u^2 + 2u + \frac{1}{2} \\ \frac{1}{2}u^3 + u^2 + 3u + \frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 7u^3 + 11u^2 + 17u + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6 c_7, c_8, c_{10}	$(y^2 + y + 1)^2$
c_3, c_5	$(y^2 - 3y + 1)^2$
c_4, c_{11}, c_{12}	$y^4 + 3y^3 + 8y^2 + 3y + 1$
c_9	y^4

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.309017 + 0.535233I$ $a = 1.61803$ $b = 1.61803$	$-4.05977I$	$5.50000 + 12.73768I$
$u = 0.309017 - 0.535233I$ $a = 1.61803$ $b = 1.61803$	$4.05977I$	$5.50000 - 12.73768I$
$u = -0.80902 + 1.40126I$ $a = -0.618034$ $b = -0.618034$	$4.05977I$	$5.50000 - 1.11873I$
$u = -0.80902 - 1.40126I$ $a = -0.618034$ $b = -0.618034$	$-4.05977I$	$5.50000 + 1.11873I$

IV. $\boldsymbol{I^u_4 = \langle u^2+b+1,\ u^2+a+1,\ u^4+u^3+2u^2+2u+1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_9 = \begin{pmatrix} -u^2-1 \\ -u^2-1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^2-1 \\ -u^3-2u^2-2u-2 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} -u^2-1 \\ -u^2-1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3+2u+1 \\ u^3+2u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^2-1 \\ -2u^3-2u^2-2u-3 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3+2u+1 \\ u^3+3u+1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.621744 + 0.440597I$ $a = -1.192440 + 0.547877I$ $b = -1.192440 + 0.547877I$	0	$-1.07732 - 0.95444I$
$u = -0.621744 - 0.440597I$ $a = -1.192440 - 0.547877I$ $b = -1.192440 - 0.547877I$	0	$-1.07732 + 0.95444I$
$u = 0.121744 + 1.306620I$ $a = 0.692440 - 0.318148I$ $b = 0.692440 - 0.318148I$	0	$4.57732 + 1.64363I$
$u = 0.121744 - 1.306620I$ $a = 0.692440 + 0.318148I$ $b = 0.692440 + 0.318148I$	0	$4.57732 - 1.64363I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^4)(u^{14}-10u^{13}+\cdots-16u+1)$ $\cdot(u^{54}+43u^{53}+\cdots+3692u+441)$
c_2	$((u^2+u+1)^4)(u^{14}-4u^{13}+\cdots-2u+1)(u^{54}-u^{53}+\cdots-26u+21)$
c_3	$(u^2-u-1)^2(u^4+u^3-u^2-u+1)$ $\cdot(u^{14}-u^{12}+u^{11}-u^{10}+5u^8-3u^7-5u^6+3u^5+4u^4-u^3-3u^2+1)$ $\cdot(u^{54}-25u^{52}+\cdots+2432u+1856)$
c_4	$(u^4+u^3+2u^2-u+1)(u^4+u^3+2u^2+2u+1)(u^{14}+2u^{13}+\cdots+3u^2+1)$ $\cdot(u^{54}-3u^{53}+\cdots-3u+1)$
c_5	$(u^2-u-1)^2(u^4+u^3-u^2-u+1)$ $\cdot(u^{14}-3u^{12}+u^{11}+4u^{10}-3u^9-5u^8+3u^7+5u^6-u^4-u^3-u^2+1)$ $\cdot(u^{54}+2u^{53}+\cdots+153u+47)$
c_6	$((u^2-u+1)^4)(u^{14}+4u^{13}+\cdots+2u+1)(u^{54}-u^{53}+\cdots-26u+21)$
c_7	$((u^2+u+1)^4)(u^{14}+6u^{12}+\cdots-2u+1)$ $\cdot(u^{54}+u^{53}+\cdots-2486u+121)$
c_8	$((u^2-u+1)^4)(u^{14}+4u^{13}+\cdots+55u+19)$ $\cdot(u^{54}+5u^{53}+\cdots-17089u+1801)$
c_9	$u^8(u^{14}+2u^{13}+\cdots+1130u+325)(u^{54}+9u^{53}+\cdots+3712u+768)$
c_{10}	$((u^2-u+1)^4)(u^{14}+6u^{12}+\cdots+2u+1)$ $\cdot(u^{54}+u^{53}+\cdots-2486u+121)$
c_{11}	$(u^4-u^3+2u^2-2u+1)(u^4-u^3+2u^2+u+1)$ $\cdot(u^{14}-3u^{11}+\cdots-121u+19)(u^{54}+u^{53}+\cdots+1004850u+134807)$
c_{12}	$(u^4-u^3+2u^2-2u+1)(u^4-u^3+2u^2+u+1)(u^{14}-2u^{13}+\cdots+3u^2+1)$ $\cdot(u^{54}-3u^{53}+\cdots-3u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^4)(y^{14}-2y^{13}+\cdots-36y+1)$ $\cdot(y^{54}-49y^{53}+\cdots+4263152y+194481)$
c_2, c_6	$((y^2+y+1)^4)(y^{14}+10y^{13}+\cdots+16y+1)$ $\cdot(y^{54}+43y^{53}+\cdots+3692y+441)$
c_3	$((y^2-3y+1)^2)(y^4-3y^3+\cdots-3y+1)(y^{14}-2y^{13}+\cdots-6y+1)$ $\cdot(y^{54}-50y^{53}+\cdots-42856448y+3444736)$
c_4, c_{12}	$(y^4+3y^3+2y^2+1)(y^4+3y^3+\cdots+3y+1)(y^{14}+4y^{13}+\cdots+6y+1)$ $\cdot(y^{54}+11y^{53}+\cdots+41y+1)$
c_5	$((y^2-3y+1)^2)(y^4-3y^3+\cdots-3y+1)(y^{14}-6y^{13}+\cdots-2y+1)$ $\cdot(y^{54}-6y^{53}+\cdots+27633y+2209)$
c_7, c_{10}	$((y^2+y+1)^4)(y^{14}+12y^{13}+\cdots+10y+1)$ $\cdot(y^{54}+65y^{53}+\cdots-587818y+14641)$
c_8	$((y^2+y+1)^4)(y^{14}-16y^{13}+\cdots+1269y+361)$ $\cdot(y^{54}-63y^{53}+\cdots+140310537y+3243601)$
c_9	$y^8(y^{14}+6y^{13}+\cdots-62700y+105625)$ $\cdot(y^{54}+31y^{53}+\cdots-9355264y+589824)$
c_{11}	$(y^4+3y^3+2y^2+1)(y^4+3y^3+8y^2+3y+1)$ $\cdot(y^{14}-24y^{12}+\cdots-5065y+361)$ $\cdot(y^{54}+75y^{53}+\cdots-92128132162y+18172927249)$