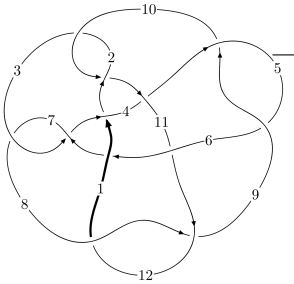
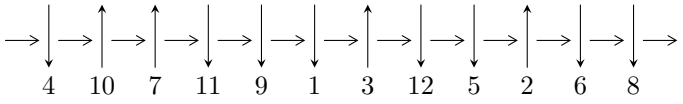
$12a_{1173}$ $(K12a_{1173})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -115544486760242u^{28} + 112064365539712u^{27} + \cdots + 3495407185462b - 11587431516889, \\
&\quad 244809699887266u^{28} - 271674151669112u^{27} + \cdots + 10486221556386a + 8547110162663, \\
&\quad 2u^{29} - 2u^{28} + \cdots + u + 1\rangle \\
I_2^u &= \langle -1.17039 \times 10^{521}u^{113} - 2.71734 \times 10^{521}u^{112} + \cdots + 6.71963 \times 10^{521}b + 1.06384 \times 10^{525}, \\
&\quad 1.20930 \times 10^{526}u^{113} + 4.51340 \times 10^{526}u^{112} + \cdots + 7.27729 \times 10^{526}a + 9.87445 \times 10^{530}, \\
&\quad 2u^{114} + 6u^{113} + \cdots + 736731u + 108299\rangle \\
I_3^u &= \langle -78u^9 - 66u^8 - 309u^7 - 66u^6 - 467u^5 - 40u^4 - 324u^3 + 16u^2 + 23b - 118u + 11, \\
&\quad 50u^9 + 60u^8 + 191u^7 + 83u^6 + 228u^5 + 74u^4 + 121u^3 - 2u^2 + 23a + 55u - 10, \\
&\quad 2u^{10} + 2u^9 + 9u^8 + 4u^7 + 16u^6 + 5u^5 + 14u^4 + 3u^3 + 7u^2 + u + 1\rangle \\
I_4^u &= \langle 3331518u^{17} + 402774u^{16} + \cdots + 504688b - 1213603, \\
&\quad 10659510u^{17} + 6709470u^{16} + \cdots + 504688a + 4961241,\ 2u^{18} + 6u^{16} + \cdots - 3u + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 171 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.

$\boldsymbol{I_1^u = \langle -1.16\times10^{14}u^{28}+1.12\times10^{14}u^{27}+\cdots+3.50\times10^{12}b-1.16\times10^{13},\ 2.45\times10^{14}u^{28}-2.72\times10^{14}u^{27}+\cdots+1.05\times10^{13}a+8.55\times10^{12},\ 2u^{29}-2u^{28}+\cdots+u+1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -23.3458u^{28} + 25.9077u^{27} + \cdots - 24.2799u - 0.815080 \\ 33.0561u^{28} - 32.0605u^{27} + \cdots + 36.7864u + 3.31504 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 6.98329u^{28} - 3.30384u^{27} + \cdots + 5.42111u + 3.00882 \\ 5.19262u^{28} - 30.1366u^{27} + \cdots - 9.99582u - 22.2338 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 9.71024u^{28} - 6.15274u^{27} + \cdots + 12.5066u + 2.49996 \\ 33.0561u^{28} - 32.0605u^{27} + \cdots + 36.7864u + 3.31504 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -6.54769u^{28} + 34.9638u^{27} + \cdots + 13.3331u + 27.2899 \\ -9.17085u^{28} + 32.9069u^{27} + \cdots + 6.34418u + 19.8937 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -9.71024u^{28} + 6.15274u^{27} + \cdots - 12.5066u - 2.49996 \\ -44.2855u^{28} + 32.3420u^{27} + \cdots - 56.2713u - 16.4508 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 10.8221u^{28} - 55.7517u^{27} + \cdots - 25.3655u - 43.2633 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u \\ 44.9296u^{28} - 43.2994u^{27} + \cdots + 49.6743u + 5.41107 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^2 - 1 \\ -9.19197u^{28} + 30.7757u^{27} + \cdots + 8.31175u + 20.7985 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= -\frac{182509966010848}{1747703592731}u^{28} + \frac{211508404855216}{1747703592731}u^{27} + \cdots - \frac{167107576397767}{1747703592731}u - \frac{1848186597135}{1747703592731}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{29} - 7u^{28} + \cdots + 288u - 88$
c_2, c_3, c_7 c_{10}	$2(2u^{29} - 2u^{28} + \cdots + u + 1)$
c_4, c_6	$u^{29} + 2u^{28} + \cdots + 28u + 2$
c_5, c_8, c_9 c_{12}	$u^{29} + 14u^{27} + \cdots + 7u + 1$
c_{11}	$4(4u^{29} + 80u^{28} + \cdots + 1844u + 104)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{29} - 13y^{28} + \cdots + 2336y - 7744$
c_2, c_3, c_7 c_{10}	$4(4y^{29} + 56y^{28} + \cdots - 11y - 1)$
c_4, c_6	$y^{29} - 2y^{28} + \cdots + 156y - 4$
c_5, c_8, c_9 c_{12}	$y^{29} + 28y^{28} + \cdots - 23y - 1$
c_{11}	$16(16y^{29} - 24y^{28} + \cdots - 5040y - 10816)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.614826 + 0.850857I$ $a = -1.81142 - 0.42202I$ $b = -0.032852 - 1.262430I$	$4.41811 + 4.54585I$	$-0.45562 - 6.52820I$
$u = 0.614826 - 0.850857I$ $a = -1.81142 + 0.42202I$ $b = -0.032852 + 1.262430I$	$4.41811 - 4.54585I$	$-0.45562 + 6.52820I$
$u = 0.655035 + 0.842071I$ $a = -1.107760 - 0.777899I$ $b = 0.21309 - 1.41045I$	$4.65613 + 5.31778I$	$0.68850 - 5.52713I$
$u = 0.655035 - 0.842071I$ $a = -1.107760 + 0.777899I$ $b = 0.21309 + 1.41045I$	$4.65613 - 5.31778I$	$0.68850 + 5.52713I$
$u = -0.523123 + 0.947153I$ $a = 2.24569 + 0.18671I$ $b = -0.57260 - 1.42544I$	$4.95066 - 10.99740I$	$-2.56166 + 11.07052I$
$u = -0.523123 - 0.947153I$ $a = 2.24569 - 0.18671I$ $b = -0.57260 + 1.42544I$	$4.95066 + 10.99740I$	$-2.56166 - 11.07052I$
$u = 1.075760 + 0.138675I$ $a = -0.175885 + 0.502122I$ $b = 0.352141 + 1.353960I$	$7.43832 - 7.27144I$	$1.54133 + 6.09063I$
$u = 1.075760 - 0.138675I$ $a = -0.175885 - 0.502122I$ $b = 0.352141 - 1.353960I$	$7.43832 + 7.27144I$	$1.54133 - 6.09063I$
$u = -0.415146 + 0.770962I$ $a = 1.45156 - 1.38441I$ $b = -0.123319 - 0.160384I$	$-5.19900 - 3.27887I$	$-11.5569 - 9.3645I$
$u = -0.415146 - 0.770962I$ $a = 1.45156 + 1.38441I$ $b = -0.123319 + 0.160384I$	$-5.19900 + 3.27887I$	$-11.5569 + 9.3645I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.227409 + 0.725395I$ $a = -1.31024 - 1.59568I$ $b = 0.516550 + 1.035240I$	$0.017310 + 0.877054I$	$-1.61037 - 4.73307I$
$u = 0.227409 - 0.725395I$ $a = -1.31024 + 1.59568I$ $b = 0.516550 - 1.035240I$	$0.017310 - 0.877054I$	$-1.61037 + 4.73307I$
$u = -0.025164 + 0.735565I$ $a = 0.43474 - 1.50702I$ $b = -0.513005 + 0.763820I$	$-0.77973 + 1.38398I$	$-8.48794 - 5.27599I$
$u = -0.025164 - 0.735565I$ $a = 0.43474 + 1.50702I$ $b = -0.513005 - 0.763820I$	$-0.77973 - 1.38398I$	$-8.48794 + 5.27599I$
$u = -0.059260 + 0.726815I$ $a = -0.282978 + 0.091872I$ $b = 0.25912 - 1.55543I$	$7.47471 + 4.30695I$	$-11.81657 - 0.82827I$
$u = -0.059260 - 0.726815I$ $a = -0.282978 - 0.091872I$ $b = 0.25912 + 1.55543I$	$7.47471 - 4.30695I$	$-11.81657 + 0.82827I$
$u = -0.710709 + 0.024669I$ $a = 0.487463 + 0.385541I$ $b = 0.250282 + 1.341540I$	$8.75165 - 3.48954I$	$8.31054 + 1.44290I$
$u = -0.710709 - 0.024669I$ $a = 0.487463 - 0.385541I$ $b = 0.250282 - 1.341540I$	$8.75165 + 3.48954I$	$8.31054 - 1.44290I$
$u = -0.459295 + 1.237870I$ $a = -1.184610 + 0.482592I$ $b = 1.000480 - 0.171236I$	$-7.99683 - 8.14911I$	$-10.73836 + 6.19923I$
$u = -0.459295 - 1.237870I$ $a = -1.184610 - 0.482592I$ $b = 1.000480 + 0.171236I$	$-7.99683 + 8.14911I$	$-10.73836 - 6.19923I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.250255 + 0.609768I$ $a = -0.770157 - 0.896085I$ $b = \ 0.130156 + 0.455636I$	$-0.350225 + 1.202200I$	$-4.57835 - 5.00012I$
$u = \ 0.250255 - 0.609768I$ $a = -0.770157 + 0.896085I$ $b = \ 0.130156 - 0.455636I$	$-0.350225 - 1.202200I$	$-4.57835 + 5.00012I$
$u = \ 0.318927 + 1.305940I$ $a = \ 0.787258 + 0.052338I$ $b = -0.715675 - 0.324946I$	$-5.46268 + 3.60772I$	$-9.35937 - 1.61077I$
$u = \ 0.318927 - 1.305940I$ $a = \ 0.787258 - 0.052338I$ $b = -0.715675 + 0.324946I$	$-5.46268 - 3.60772I$	$-9.35937 + 1.61077I$
$u = -0.579661$ $a = \ 0.252022$ $b = -0.638394$	-1.37550	-6.88940
$u = \ 0.69132 + 1.31132I$ $a = \ 1.48227 + 0.09504I$ $b = -0.56132 + 1.48679I$	$0.7136 + 20.0065I$	$-4.00000 - 9.96305I$
$u = \ 0.69132 - 1.31132I$ $a = \ 1.48227 - 0.09504I$ $b = -0.56132 - 1.48679I$	$0.7136 - 20.0065I$	$-4.00000 + 9.96305I$
$u = -0.85101 + 1.35931I$ $a = -0.871942 + 0.097388I$ $b = \ 0.116151 + 1.155240I$	$-0.67242 - 9.43857I$	0
$u = -0.85101 - 1.35931I$ $a = -0.871942 - 0.097388I$ $b = \ 0.116151 - 1.155240I$	$-0.67242 + 9.43857I$	0

II. $\boldsymbol{I_2^u = \langle -1.17 \times 10^{521} u^{113} - 2.72 \times 10^{521} u^{112} + \cdots + 6.72 \times 10^{521} b + 1.06 \times 10^{525},\ 1.21 \times 10^{526} u^{113} + 4.51 \times 10^{526} u^{112} + \cdots + 7.28 \times 10^{526} a + 9.87 \times 10^{530},\ 2u^{114} + 6u^{113} + \cdots + 736731u + 108299 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -0.166174u^{113} - 0.620203u^{112} + \cdots - 94124.0u - 13568.9 \\ 0.174175u^{113} + 0.404389u^{112} + \cdots + 2659.05u - 1583.19 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0792087u^{113} + 0.563456u^{112} + \cdots + 138883.u + 21254.4 \\ -0.0708924u^{113} - 0.0363600u^{112} + \cdots + 46686.7u + 8040.54 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.00800084u^{113} - 0.215814u^{112} + \cdots - 91464.9u - 15152.0 \\ 0.174175u^{113} + 0.404389u^{112} + \cdots + 2659.05u - 1583.19 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.237032u^{113} + 0.756155u^{112} + \cdots + 80973.6u + 10844.5 \\ -0.354824u^{113} - 0.838718u^{112} + \cdots - 12173.2u + 1744.06 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0419623u^{113} + 0.139445u^{112} + \cdots + 22837.0u + 3067.57 \\ -0.0385641u^{113} + 0.0531971u^{112} + \cdots + 58775.5u + 10032.2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.126488u^{113} + 0.608984u^{112} + \cdots + 116344.u + 17308.4 \\ -0.463953u^{113} - 1.07744u^{112} + \cdots + 2059.10u + 4902.34 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0639770u^{113} - 0.353488u^{112} + \cdots - 81552.2u - 12773.1 \\ 0.224024u^{113} + 0.571443u^{112} + \cdots + 24386.3u + 1371.92 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0233106u^{113} - 0.0451153u^{112} + \cdots - 30297.6u - 4858.85 \\ 0.157360u^{113} + 0.448554u^{112} + \cdots + 36582.0u + 4364.22 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.105130u^{113} + 1.38372u^{112} + \cdots + 397259.u + 62539.0$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$16(4u^{57}+6u^{56}+\cdots-22975u+8945)^2$
c_2, c_3, c_7 c_{10}	$2(2u^{114}+6u^{113}+\cdots+736731u+108299)$
c_4, c_6	$4(4u^{114}+2u^{113}+\cdots-3039724u+567304)$
c_5, c_8, c_9 c_{12}	$4(4u^{114}+14u^{113}+\cdots-637822u+54653)$
c_{11}	$4(2u^{57}-38u^{56}+\cdots+406u-92)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$256(16y^{57} - 524y^{56} + \cdots + 1.04498 \times 10^9 y - 8.00130 \times 10^7)^2$
c_2, c_3, c_7 c_{10}	$4(4y^{114} + 268y^{113} + \cdots + 3.51248 \times 10^{11} y + 1.17287 \times 10^{10})$
c_4, c_6	$16(16y^{114} - 332y^{113} + \cdots - 4.50831 \times 10^{12} y + 3.21834 \times 10^{11})$
c_5, c_8, c_9 c_{12}	$16(16y^{114} + 1428y^{113} + \cdots + 1.03421 \times 10^{11} y + 2.98695 \times 10^9)$
c_{11}	$16(4y^{57} - 528y^{56} + \cdots - 73076y - 8464)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.269847+0.952995I$ $a=\ \ 0.454417-1.171110I$ $b=-0.14876-1.41613I$	$3.17562-9.65423I$	0
$u=-0.269847-0.952995I$ $a=\ \ 0.454417+1.171110I$ $b=-0.14876+1.41613I$	$3.17562+9.65423I$	0
$u=\ \ 0.202164+0.999114I$ $a=-0.967765+0.854284I$ $b=-0.01178-1.98335I$	$0.60991+3.57237I$	0
$u=\ \ 0.202164-0.999114I$ $a=-0.967765-0.854284I$ $b=-0.01178+1.98335I$	$0.60991-3.57237I$	0
$u=-0.303790+0.974322I$ $a=\ \ 2.13848+0.98918I$ $b=\ \ 0.041504-1.128250I$	$5.72371+0.79483I$	0
$u=-0.303790-0.974322I$ $a=\ \ 2.13848-0.98918I$ $b=\ \ 0.041504+1.128250I$	$5.72371-0.79483I$	0
$u=-0.135657+1.012190I$ $a=\ \ 0.746569+0.775785I$ $b=-0.21452-1.86553I$	$-1.11782-2.58270I$	0
$u=-0.135657-1.012190I$ $a=\ \ 0.746569-0.775785I$ $b=-0.21452+1.86553I$	$-1.11782+2.58270I$	0
$u=\ \ 0.608616+0.866795I$ $a=-0.818576+0.314720I$ $b=\ \ 0.368716-0.284473I$	$-0.78988+3.41934I$	0
$u=\ \ 0.608616-0.866795I$ $a=-0.818576-0.314720I$ $b=\ \ 0.368716+0.284473I$	$-0.78988-3.41934I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.499580 + 0.794666I$ $a = 1.50559 + 0.34671I$ $b = 0.211656 + 1.076350I$	$4.66861 - 0.59103I$	0
$u = 0.499580 - 0.794666I$ $a = 1.50559 - 0.34671I$ $b = 0.211656 - 1.076350I$	$4.66861 + 0.59103I$	0
$u = 0.512449 + 0.931527I$ $a = -0.628525 - 0.989973I$ $b = 0.411271 + 0.248868I$	$-0.248444 + 0.893625I$	0
$u = 0.512449 - 0.931527I$ $a = -0.628525 + 0.989973I$ $b = 0.411271 - 0.248868I$	$-0.248444 - 0.893625I$	0
$u = -0.274156 + 0.895075I$ $a = 0.73419 - 1.38691I$ $b = -1.15128 + 1.00015I$	$-0.65089 + 1.29086I$	0
$u = -0.274156 - 0.895075I$ $a = 0.73419 + 1.38691I$ $b = -1.15128 - 1.00015I$	$-0.65089 - 1.29086I$	0
$u = -0.639775 + 0.678349I$ $a = -0.0173533 + 0.0981531I$ $b = -0.40312 + 1.47066I$	$5.79095 + 6.43815I$	0
$u = -0.639775 - 0.678349I$ $a = -0.0173533 - 0.0981531I$ $b = -0.40312 - 1.47066I$	$5.79095 - 6.43815I$	0
$u = 0.727631 + 0.781321I$ $a = 0.413931 + 0.656588I$ $b = 0.017270 + 1.375720I$	$4.66861 + 0.59103I$	0
$u = 0.727631 - 0.781321I$ $a = 0.413931 - 0.656588I$ $b = 0.017270 - 1.375720I$	$4.66861 - 0.59103I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.254184+0.893209I$ $a=\ \ 2.02221-0.02111I$ $b=-0.914814-0.962540I$	$-0.78988-3.41934I$	0
$u=-0.254184-0.893209I$ $a=\ \ 2.02221+0.02111I$ $b=-0.914814+0.962540I$	$-0.78988+3.41934I$	0
$u=-1.050570+0.219509I$ $a=-0.343700-0.403947I$ $b=\ \ 0.366121-1.147950I$	$-1.36923+7.49950I$	0
$u=-1.050570-0.219509I$ $a=-0.343700+0.403947I$ $b=\ \ 0.366121+1.147950I$	$-1.36923-7.49950I$	0
$u=-0.328697+1.027290I$ $a=-1.80051-0.83068I$ $b=\ \ 0.57225+1.38497I$	$5.79095-6.43815I$	0
$u=-0.328697-1.027290I$ $a=-1.80051+0.83068I$ $b=\ \ 0.57225-1.38497I$	$5.79095+6.43815I$	0
$u=\ \ 1.089510+0.051120I$ $a=-0.083696-0.351087I$ $b=-0.973901-0.031902I$	$-0.29771+7.90864I$	0
$u=\ \ 1.089510-0.051120I$ $a=-0.083696+0.351087I$ $b=-0.973901+0.031902I$	$-0.29771-7.90864I$	0
$u=\ \ 0.805306+0.407746I$ $a=-0.120067+0.511777I$ $b=\ \ 0.086599+1.188460I$	$3.71620+0.56369I$	0
$u=\ \ 0.805306-0.407746I$ $a=-0.120067-0.511777I$ $b=\ \ 0.086599-1.188460I$	$3.71620-0.56369I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.227588 + 0.863126I$ $a = 1.33275 - 1.26196I$ $b = -0.126336 - 1.235830I$	$-0.730066 + 1.121040I$	0
$u = 0.227588 - 0.863126I$ $a = 1.33275 + 1.26196I$ $b = -0.126336 + 1.235830I$	$-0.730066 - 1.121040I$	0
$u = 0.714360 + 0.848060I$ $a = -1.38194 - 1.45675I$ $b = 0.046355 - 1.090810I$	$1.22961 + 1.97843I$	0
$u = 0.714360 - 0.848060I$ $a = -1.38194 + 1.45675I$ $b = 0.046355 + 1.090810I$	$1.22961 - 1.97843I$	0
$u = 0.152596 + 0.854738I$ $a = 1.72987 - 1.74019I$ $b = -0.23289 + 1.97407I$	$1.22961 - 1.97843I$	0
$u = 0.152596 - 0.854738I$ $a = 1.72987 + 1.74019I$ $b = -0.23289 - 1.97407I$	$1.22961 + 1.97843I$	0
$u = 0.438304 + 1.051400I$ $a = 0.663069 + 1.003590I$ $b = -0.117070 - 0.637643I$	$-1.11782 + 2.58270I$	0
$u = 0.438304 - 1.051400I$ $a = 0.663069 - 1.003590I$ $b = -0.117070 + 0.637643I$	$-1.11782 - 2.58270I$	0
$u = 0.476627 + 0.703719I$ $a = -0.491422 - 0.767595I$ $b = 0.153379 + 0.368263I$	$-0.307545 + 1.204730I$	0
$u = 0.476627 - 0.703719I$ $a = -0.491422 + 0.767595I$ $b = 0.153379 - 0.368263I$	$-0.307545 - 1.204730I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.134989+0.833016I$ $a=-0.70388+1.62429I$ $b=\ \ 0.116285+1.396530I$	$6.63050-2.78915I$	0
$u=-0.134989-0.833016I$ $a=-0.70388-1.62429I$ $b=\ \ 0.116285-1.396530I$	$6.63050+2.78915I$	0
$u=\ \ 0.262181+0.800519I$ $a=\ \ 1.32511-2.02014I$ $b=-0.309262+0.843087I$	$-0.65089+1.29086I$	0
$u=\ \ 0.262181-0.800519I$ $a=\ \ 1.32511+2.02014I$ $b=-0.309262-0.843087I$	$-0.65089-1.29086I$	0
$u=-0.138708+1.154120I$ $a=-1.57473+0.14596I$ $b=\ \ 0.516994-0.353868I$	$-7.43093+1.19734I$	0
$u=-0.138708-1.154120I$ $a=-1.57473-0.14596I$ $b=\ \ 0.516994+0.353868I$	$-7.43093-1.19734I$	0
$u=-0.290673+0.784882I$ $a=-2.92369-1.31324I$ $b=-0.153537+1.114890I$	$3.71183+7.16441I$	0
$u=-0.290673-0.784882I$ $a=-2.92369+1.31324I$ $b=-0.153537-1.114890I$	$3.71183-7.16441I$	0
$u=-0.396517+1.109790I$ $a=\ \ 1.36733-0.55826I$ $b=-0.804615-0.047505I$	$-4.35688-3.64176I$	0
$u=-0.396517-1.109790I$ $a=\ \ 1.36733+0.55826I$ $b=-0.804615+0.047505I$	$-4.35688+3.64176I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.507893 + 1.105140I$ $a = -1.69396 + 0.25491I$ $b = 0.312508 - 1.122750I$	$1.45770 + 4.31135I$	0
$u = 0.507893 - 1.105140I$ $a = -1.69396 - 0.25491I$ $b = 0.312508 + 1.122750I$	$1.45770 - 4.31135I$	0
$u = 0.776862 + 0.044248I$ $a = -0.031768 + 0.204009I$ $b = 0.770286 - 0.232540I$	$2.50837 + 3.21519I$	0
$u = 0.776862 - 0.044248I$ $a = -0.031768 - 0.204009I$ $b = 0.770286 + 0.232540I$	$2.50837 - 3.21519I$	0
$u = -1.100660 + 0.558488I$ $a = -0.228560 + 0.314432I$ $b = -0.53991 + 1.37972I$	$5.72371 + 0.79483I$	0
$u = -1.100660 - 0.558488I$ $a = -0.228560 - 0.314432I$ $b = -0.53991 - 1.37972I$	$5.72371 - 0.79483I$	0
$u = -0.723958 + 0.240961I$ $a = 0.327411 + 0.783316I$ $b = -0.248028 + 1.247630I$	$2.50837 + 3.21519I$	0
$u = -0.723958 - 0.240961I$ $a = 0.327411 - 0.783316I$ $b = -0.248028 - 1.247630I$	$2.50837 - 3.21519I$	0
$u = -0.752146 + 0.001836I$ $a = -0.565476 + 0.655596I$ $b = 0.651317 + 0.132198I$	$-4.35688 + 3.64176I$	0
$u = -0.752146 - 0.001836I$ $a = -0.565476 - 0.655596I$ $b = 0.651317 - 0.132198I$	$-4.35688 - 3.64176I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.692654 + 1.038870I$ $a = \quad 1.28910 + 0.98304I$ $b = -0.111811 + 1.134040I$	$0.60991 + 3.57237I$	0
$u = \quad 0.692654 - 1.038870I$ $a = \quad 1.28910 - 0.98304I$ $b = -0.111811 - 1.134040I$	$0.60991 - 3.57237I$	0
$u = -0.135858 + 1.263750I$ $a = -1.39930 + 0.46166I$ $b = \quad 1.82874 - 0.63070I$	$-0.730066 - 1.121040I$	0
$u = -0.135858 - 1.263750I$ $a = -1.39930 - 0.46166I$ $b = \quad 1.82874 + 0.63070I$	$-0.730066 + 1.121040I$	0
$u = -0.506423 + 1.176940I$ $a = \quad 1.82707 + 0.09466I$ $b = -0.382588 - 1.277370I$	$-0.29771 - 7.90864I$	0
$u = -0.506423 - 1.176940I$ $a = \quad 1.82707 - 0.09466I$ $b = -0.382588 + 1.277370I$	$-0.29771 + 7.90864I$	0
$u = -0.332530 + 1.241660I$ $a = -1.71797 - 0.47619I$ $b = \quad 0.279984 + 1.140460I$	$-4.93312 - 1.87905I$	0
$u = -0.332530 - 1.241660I$ $a = -1.71797 + 0.47619I$ $b = \quad 0.279984 - 1.140460I$	$-4.93312 + 1.87905I$	0
$u = -0.084997 + 1.286250I$ $a = -0.373159 + 0.455872I$ $b = \quad 0.348667 + 0.426737I$	$0.89150 - 1.17997I$	0
$u = -0.084997 - 1.286250I$ $a = -0.373159 - 0.455872I$ $b = \quad 0.348667 - 0.426737I$	$0.89150 + 1.17997I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.251140 + 0.337108I$ $a = 0.067057 - 0.443266I$ $b = -0.49018 - 1.34558I$	$3.88006 - 13.20040I$	0
$u = 1.251140 - 0.337108I$ $a = 0.067057 + 0.443266I$ $b = -0.49018 + 1.34558I$	$3.88006 + 13.20040I$	0
$u = 0.414775 + 1.244710I$ $a = -1.39266 - 0.31965I$ $b = 1.123500 - 0.249487I$	$-1.36923 + 7.49950I$	0
$u = 0.414775 - 1.244710I$ $a = -1.39266 + 0.31965I$ $b = 1.123500 + 0.249487I$	$-1.36923 - 7.49950I$	0
$u = -0.032205 + 0.686320I$ $a = -1.37618 - 0.97227I$ $b = 0.159236 + 0.794796I$	$-0.307545 + 1.204730I$	0
$u = -0.032205 - 0.686320I$ $a = -1.37618 + 0.97227I$ $b = 0.159236 - 0.794796I$	$-0.307545 - 1.204730I$	0
$u = -0.695730 + 1.149490I$ $a = 1.59345 - 0.21527I$ $b = -0.59579 - 1.54513I$	$3.71183 - 7.16441I$	0
$u = -0.695730 - 1.149490I$ $a = 1.59345 + 0.21527I$ $b = -0.59579 + 1.54513I$	$3.71183 + 7.16441I$	0
$u = 0.201141 + 1.333930I$ $a = 1.234210 + 0.028659I$ $b = -0.987852 - 0.168281I$	$-7.13509 + 2.80115I$	0
$u = 0.201141 - 1.333930I$ $a = 1.234210 - 0.028659I$ $b = -0.987852 + 0.168281I$	$-7.13509 - 2.80115I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.348460+0.535286I$ $a=-1.51376-0.80378I$ $b=\ \ 0.032339+1.285790I$	$-0.248444+0.893625I$	$-4.00000+0.I$
$u=-0.348460-0.535286I$ $a=-1.51376+0.80378I$ $b=\ \ 0.032339-1.285790I$	$-0.248444-0.893625I$	$-4.00000+0.I$
$u=-0.619940+0.068269I$ $a=-0.94263-1.29838I$ $b=-0.786565+0.165405I$	$1.45770-4.31135I$	$0.+2.19517I$
$u=-0.619940-0.068269I$ $a=-0.94263+1.29838I$ $b=-0.786565-0.165405I$	$1.45770+4.31135I$	$0.-2.19517I$
$u=-0.566183+1.256020I$ $a=-1.026750+0.457633I$ $b=\ \ 0.576607+0.746191I$	$-7.43093-1.19734I$	0
$u=-0.566183-1.256020I$ $a=-1.026750-0.457633I$ $b=\ \ 0.576607-0.746191I$	$-7.43093+1.19734I$	0
$u=-1.332700+0.380742I$ $a=\ \ 0.229638-0.353499I$ $b=\ \ 0.677129-1.124840I$	$6.63050+2.78915I$	0
$u=-1.332700-0.380742I$ $a=\ \ 0.229638+0.353499I$ $b=\ \ 0.677129+1.124840I$	$6.63050-2.78915I$	0
$u=-0.606113+1.262540I$ $a=-1.63703+0.01704I$ $b=\ \ 0.486686+1.244560I$	$-4.6052-13.3959I$	0
$u=-0.606113-1.262540I$ $a=-1.63703-0.01704I$ $b=\ \ 0.486686-1.244560I$	$-4.6052+13.3959I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.50486 + 1.32907I$ $a = 1.236840 + 0.406522I$ $b = -1.370800 + 0.225505I$	$-4.6052 + 13.3959I$	0
$u = 0.50486 - 1.32907I$ $a = 1.236840 - 0.406522I$ $b = -1.370800 - 0.225505I$	$-4.6052 - 13.3959I$	0
$u = -0.49072 + 1.33493I$ $a = -0.295303 - 0.100102I$ $b = 0.042947 - 0.432534I$	$-2.96286 - 8.46461I$	0
$u = -0.49072 - 1.33493I$ $a = -0.295303 + 0.100102I$ $b = 0.042947 + 0.432534I$	$-2.96286 + 8.46461I$	0
$u = 0.59484 + 1.29443I$ $a = -1.54923 + 0.08614I$ $b = 0.49258 - 1.44320I$	$3.88006 + 13.20040I$	0
$u = 0.59484 - 1.29443I$ $a = -1.54923 - 0.08614I$ $b = 0.49258 + 1.44320I$	$3.88006 - 13.20040I$	0
$u = -0.23247 + 1.41057I$ $a = -0.472843 + 0.423277I$ $b = 0.430530 - 0.795028I$	$-7.13509 + 2.80115I$	0
$u = -0.23247 - 1.41057I$ $a = -0.472843 - 0.423277I$ $b = 0.430530 + 0.795028I$	$-7.13509 - 2.80115I$	0
$u = 1.40634 + 0.27473I$ $a = 0.010854 - 0.360046I$ $b = -0.260719 - 0.957000I$	$0.89150 - 1.17997I$	0
$u = 1.40634 - 0.27473I$ $a = 0.010854 + 0.360046I$ $b = -0.260719 + 0.957000I$	$0.89150 + 1.17997I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.63917+1.33471I$ $a=-1.306030+0.061707I$ $b=\ \ 0.72964+1.50955I$	$3.17562-9.65423I$	0
$u=-0.63917-1.33471I$ $a=-1.306030-0.061707I$ $b=\ \ 0.72964-1.50955I$	$3.17562+9.65423I$	0
$u=\ \ 0.48292+1.42125I$ $a=\ \ 1.198890-0.267219I$ $b=-0.501146+1.233500I$	$-3.80319+8.07552I$	0
$u=\ \ 0.48292-1.42125I$ $a=\ \ 1.198890+0.267219I$ $b=-0.501146-1.233500I$	$-3.80319-8.07552I$	0
$u=-0.01154+1.52929I$ $a=\ \ 0.582044+0.231167I$ $b=-0.648913-0.933133I$	$-3.80319-8.07552I$	0
$u=-0.01154-1.52929I$ $a=\ \ 0.582044-0.231167I$ $b=-0.648913+0.933133I$	$-3.80319+8.07552I$	0
$u=\ \ 0.67099+1.38880I$ $a=\ \ 1.069500+0.040208I$ $b=-0.521165+1.171010I$	$-2.96286+8.46461I$	0
$u=\ \ 0.67099-1.38880I$ $a=\ \ 1.069500-0.040208I$ $b=-0.521165-1.171010I$	$-2.96286-8.46461I$	0
$u=\ \ 0.45543+1.48247I$ $a=\ \ 0.949508+0.232591I$ $b=-1.089000+0.682494I$	$-4.93312-1.87905I$	0
$u=\ \ 0.45543-1.48247I$ $a=\ \ 0.949508-0.232591I$ $b=-1.089000-0.682494I$	$-4.93312+1.87905I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.267353+0.250510I$ $a=\ \ 2.27623-0.16376I$ $b=\ \ 0.502235+0.318054I$	$3.71620-0.56369I$	$3.06900+2.63313I$
$u=-0.267353-0.250510I$ $a=\ \ 2.27623+0.16376I$ $b=\ \ 0.502235-0.318054I$	$3.71620+0.56369I$	$3.06900-2.63313I$
$u=-2.48003+2.46203I$ $a=\ \ 0.0988792-0.0264387I$ $b=-0.006974-1.029580I$	1.71324	0
$u=-2.48003-2.46203I$ $a=\ \ 0.0988792+0.0264387I$ $b=-0.006974+1.029580I$	1.71324	0

III. $I_3^u = \langle -78u^9 - 66u^8 + \cdots + 23b + 11,\ 50u^9 + 60u^8 + \cdots + 23a - 10,\ 2u^{10} + 2u^9 + \cdots + u + 1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -2.17391u^9 - 2.60870u^8 + \cdots - 2.39130u + 0.434783 \\ 3.39130u^9 + 2.86957u^8 + \cdots + 5.13043u - 0.478261 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1.21739u^9 - 0.260870u^8 + \cdots - 2.73913u + 0.0434783 \\ 0.347826u^9 + 1.21739u^8 + \cdots + 2.78261u + 3.13043 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1.21739u^9 + 0.260870u^8 + \cdots + 2.73913u - 0.0434783 \\ 3.39130u^9 + 2.86957u^8 + \cdots + 5.13043u - 0.478261 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ -1.56522u^9 - 1.47826u^8 + \cdots - 3.52174u - 3.08696 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.21739u^9 - 0.260870u^8 + \cdots - 2.73913u + 0.0434783 \\ 5.39130u^9 + 4.86957u^8 + \cdots + 12.1304u + 0.521739 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ 2.26087u^9 + 5.91304u^8 + \cdots + 4.08696u + 5.34783 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u \\ 3.65217u^9 + 2.78261u^8 + \cdots + 5.21739u - 1.13043 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^2 - 1 \\ 1.39130u^9 + 2.86957u^8 + \cdots + 1.13043u + 3.52174 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$$= -\frac{156}{23}u^9 + \frac{282}{23}u^8 - \frac{342}{23}u^7 + \frac{1317}{23}u^6 - \frac{865}{23}u^5 + \frac{1990}{23}u^4 - \frac{602}{23}u^3 + \frac{1067}{23}u^2 - \frac{236}{23}u + \frac{321}{23}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{10}+2u^9-u^8-3u^7+2u^6+2u^5+11u^4+6u^3-20u^2-7u+23$
c_2, c_7	$2(2u^{10}+2u^9+9u^8+4u^7+16u^6+5u^5+14u^4+3u^3+7u^2+u+1)$
c_3, c_{10}	$2(2u^{10}-2u^9+9u^8-4u^7+16u^6-5u^5+14u^4-3u^3+7u^2-u+1)$
c_4, c_6	$u^{10}-2u^9+3u^8-5u^7+5u^6-7u^5+7u^4-9u^3+9u^2+2$
c_5, c_8	$u^{10}+4u^8-2u^7+7u^6-4u^5+8u^4-3u^3+3u^2+u+1$
c_9, c_{12}	$u^{10}+4u^8+2u^7+7u^6+4u^5+8u^4+3u^3+3u^2-u+1$
c_{11}	$4(4u^{10}+20u^9+\cdots+10u+1)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{10} - 6y^9 + \cdots - 969y + 529$
c_2, c_3, c_7 c_{10}	$4(4y^{10} + 32y^9 + \cdots + 13y + 1)$
c_4, c_6	$y^{10} + 2y^9 - y^8 - 9y^7 - 21y^6 - 11y^5 + 25y^4 + 65y^3 + 109y^2 + 36y + 4$
c_5, c_8, c_9 c_{12}	$y^{10} + 8y^9 + \cdots + 5y + 1$
c_{11}	$16(16y^{10} + 24y^9 + \cdots + 158y^2 + 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.431854 + 0.831893I$ $a = -1.52947 - 0.07298I$ $b = 0.721595 - 0.610328I$	$-0.33257 + 3.89498I$	$-0.30852 - 8.02734I$
$u = 0.431854 - 0.831893I$ $a = -1.52947 + 0.07298I$ $b = 0.721595 + 0.610328I$	$-0.33257 - 3.89498I$	$-0.30852 + 8.02734I$
$u = 0.254819 + 1.050750I$ $a = 0.939956 + 0.605767I$ $b = -0.620568 - 1.248150I$	$-1.30189 + 1.68166I$	$-4.66605 - 4.03286I$
$u = 0.254819 - 1.050750I$ $a = 0.939956 - 0.605767I$ $b = -0.620568 + 1.248150I$	$-1.30189 - 1.68166I$	$-4.66605 + 4.03286I$
$u = -0.439885 + 0.804957I$ $a = 1.53896 - 1.35778I$ $b = -0.274494 - 0.376479I$	$-5.13373 - 3.53785I$	$-4.1096 + 19.1811I$
$u = -0.439885 - 0.804957I$ $a = 1.53896 + 1.35778I$ $b = -0.274494 + 0.376479I$	$-5.13373 + 3.53785I$	$-4.1096 - 19.1811I$
$u = -0.096409 + 0.457489I$ $a = 0.395843 - 0.855762I$ $b = -0.27689 + 1.50033I$	$7.88010 + 4.38705I$	$7.35957 - 4.51608I$
$u = -0.096409 - 0.457489I$ $a = 0.395843 + 0.855762I$ $b = -0.27689 - 1.50033I$	$7.88010 - 4.38705I$	$7.35957 + 4.51608I$
$u = -0.65038 + 1.49126I$ $a = -0.845283 - 0.119165I$ $b = 0.450354 + 0.968258I$	$-2.75684 - 10.10800I$	$-4.77544 + 10.51016I$
$u = -0.65038 - 1.49126I$ $a = -0.845283 + 0.119165I$ $b = 0.450354 - 0.968258I$	$-2.75684 + 10.10800I$	$-4.77544 - 10.51016I$

IV.

$\boldsymbol{I_4^u = \langle 3.33\times 10^6 u^{17} + 4.03\times 10^5 u^{16} + \cdots + 5.05\times 10^5 b - 1.21\times 10^6,\ 1.07\times 10^7 u^{17} + 6.71\times 10^6 u^{16} + \cdots + 5.05\times 10^5 a + 4.96\times 10^6,\ 2u^{18} + 6u^{16} + \cdots - 3u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -21.1210u^{17} - 13.2943u^{16} + \cdots - 15.7898u - 9.83031 \\ -6.60114u^{17} - 0.798065u^{16} + \cdots - 18.3506u + 2.40466 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.59311u^{17} - 7.84358u^{16} + \cdots - 5.42476u + 0.738603 \\ 3.83759u^{17} - 2.90683u^{16} + \cdots + 12.4540u - 2.20450 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -27.7221u^{17} - 14.0924u^{16} + \cdots - 34.1404u - 7.42565 \\ -6.60114u^{17} - 0.798065u^{16} + \cdots - 18.3506u + 2.40466 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.66945u^{17} + 8.20920u^{16} + \cdots - 1.24826u - 2.64727 \\ 2.43364u^{17} - 2.40023u^{16} + \cdots + 3.84227u - 3.10022 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 9.88211u^{17} - 4.44784u^{16} + \cdots + 40.9123u - 4.55430 \\ -5.22509u^{17} - 5.92277u^{16} + \cdots + 15.4415u - 6.18370 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 6.31429u^{17} + 8.33043u^{16} + \cdots - 12.4340u + 11.2752 \\ 7.36927u^{17} - 1.59556u^{16} + \cdots + 16.5171u - 1.55656 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -18.0753u^{17} - 9.82555u^{16} + \cdots - 19.9286u - 6.68222 \\ -4.57844u^{17} + 0.440030u^{16} + \cdots - 18.8091u + 3.81838 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 26.0954u^{17} + 16.2682u^{16} + \cdots + 27.8077u + 6.65337 \\ 16.0768u^{17} + 3.80150u^{16} + \cdots + 24.9163u - 3.47607 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{36934373}{2018752}u^{17} - \frac{30983119}{2018752}u^{16} + \cdots + \frac{44159023}{2018752}u - \frac{74588385}{4037504}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$16(4u^9 - 26u^8 + \cdots + u + 1)^2$
c_2, c_7	$2(2u^{18} + 6u^{16} + \cdots - 3u + 1)$
c_3, c_{10}	$2(2u^{18} + 6u^{16} + \cdots + 3u + 1)$
c_4, c_6	$4(4u^{18} + 22u^{17} + \cdots + 28u + 8)$
c_5, c_8	$4(4u^{18} + 6u^{17} + \cdots - 20u + 47)$
c_9, c_{12}	$4(4u^{18} - 6u^{17} + \cdots + 20u + 47)$
c_{11}	$4(2u^9 - 6u^8 + \cdots + 22u - 4)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$256(16y^9 - 188y^8 + \cdots - 31y - 1)^2$
c_2, c_3, c_7 c_{10}	$4(4y^{18} + 24y^{17} + \cdots + 15y + 1)$
c_4, c_6	$16(16y^{18} + 4y^{17} + \cdots + 784y + 64)$
c_5, c_8, c_9 c_{12}	$16(16y^{18} + 420y^{17} + \cdots + 24792y + 2209)$
c_{11}	$16(4y^9 + 32y^8 + \cdots + 76y - 16)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.421718 + 0.776594I$ $a = -0.49304 - 2.42958I$ $b = 0.030940 + 0.709490I$	$-0.230088 + 1.347860I$	$1.9443 - 25.9345I$
$u = 0.421718 - 0.776594I$ $a = -0.49304 + 2.42958I$ $b = 0.030940 - 0.709490I$	$-0.230088 - 1.347860I$	$1.9443 + 25.9345I$
$u = 0.117736 + 0.826368I$ $a = 0.59010 - 2.40128I$ $b = 0.21427 + 2.19046I$	$-0.230088 - 1.347860I$	$1.9443 + 25.9345I$
$u = 0.117736 - 0.826368I$ $a = 0.59010 + 2.40128I$ $b = 0.21427 - 2.19046I$	$-0.230088 + 1.347860I$	$1.9443 - 25.9345I$
$u = 1.195750 + 0.014001I$ $a = 0.344612 + 0.335405I$ $b = 0.094610 + 1.037910I$	$1.43408 - 0.41359I$	$-2.48523 - 1.22365I$
$u = 1.195750 - 0.014001I$ $a = 0.344612 - 0.335405I$ $b = 0.094610 - 1.037910I$	$1.43408 + 0.41359I$	$-2.48523 + 1.22365I$
$u = -1.171500 + 0.377550I$ $a = -0.360257 + 0.333036I$ $b = -0.615349 + 1.195200I$	$7.07414 + 2.62441I$	$6.92252 - 0.06689I$
$u = -1.171500 - 0.377550I$ $a = -0.360257 - 0.333036I$ $b = -0.615349 - 1.195200I$	$7.07414 - 2.62441I$	$6.92252 + 0.06689I$
$u = -0.366033 + 1.219850I$ $a = -1.279270 + 0.190010I$ $b = 0.436357 + 0.454408I$	-6.88433	$-7.65162 + 0.I$
$u = -0.366033 - 1.219850I$ $a = -1.279270 - 0.190010I$ $b = 0.436357 - 0.454408I$	-6.88433	$-7.65162 + 0.I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.034200 + 1.292780I$ $a = 0.280279 - 0.037043I$ $b = -0.390022 + 0.723001I$	$1.43408 + 0.41359I$	$-2.48523 + 1.22365I$
$u = 0.034200 - 1.292780I$ $a = 0.280279 + 0.037043I$ $b = -0.390022 - 0.723001I$	$1.43408 - 0.41359I$	$-2.48523 - 1.22365I$
$u = -0.587556 + 1.169110I$ $a = 1.59947 - 0.01046I$ $b = -0.65122 - 1.52267I$	$4.21116 - 8.47072I$	$-1.83702 + 7.19956I$
$u = -0.587556 - 1.169110I$ $a = 1.59947 + 0.01046I$ $b = -0.65122 + 1.52267I$	$4.21116 + 8.47072I$	$-1.83702 - 7.19956I$
$u = 0.170563 + 0.638981I$ $a = 0.95135 + 2.15558I$ $b = -0.138217 + 1.360040I$	$7.07414 + 2.62441I$	$6.92252 - 0.06689I$
$u = 0.170563 - 0.638981I$ $a = 0.95135 - 2.15558I$ $b = -0.138217 - 1.360040I$	$7.07414 - 2.62441I$	$6.92252 + 0.06689I$
$u = 0.185122 + 0.417776I$ $a = -2.38324 - 3.23985I$ $b = 0.268633 - 1.308700I$	$4.21116 + 8.47072I$	$-1.83702 - 7.19956I$
$u = 0.185122 - 0.417776I$ $a = -2.38324 + 3.23985I$ $b = 0.268633 + 1.308700I$	$4.21116 - 8.47072I$	$-1.83702 + 7.19956I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$256 \cdot (4u^9 - 26u^8 + 61u^7 - 65u^6 + 25u^5 + 32u^4 - 47u^3 + 16u^2 + u + 1)^2 \cdot (u^{10} + 2u^9 - u^8 - 3u^7 + 2u^6 + 2u^5 + 11u^4 + 6u^3 - 20u^2 - 7u + 23) \cdot (u^{29} - 7u^{28} + \cdots + 288u - 88)(4u^{57} + 6u^{56} + \cdots - 22975u + 8945)^2$
c_2, c_7	$16(2u^{10} + 2u^9 + 9u^8 + 4u^7 + 16u^6 + 5u^5 + 14u^4 + 3u^3 + 7u^2 + u + 1) \cdot (2u^{18} + 6u^{16} + \cdots - 3u + 1)(2u^{29} - 2u^{28} + \cdots + u + 1) \cdot (2u^{114} + 6u^{113} + \cdots + 736731u + 108299)$
c_3, c_{10}	$16(2u^{10} - 2u^9 + 9u^8 - 4u^7 + 16u^6 - 5u^5 + 14u^4 - 3u^3 + 7u^2 - u + 1) \cdot (2u^{18} + 6u^{16} + \cdots + 3u + 1)(2u^{29} - 2u^{28} + \cdots + u + 1) \cdot (2u^{114} + 6u^{113} + \cdots + 736731u + 108299)$
c_4, c_6	$16(u^{10} - 2u^9 + 3u^8 - 5u^7 + 5u^6 - 7u^5 + 7u^4 - 9u^3 + 9u^2 + 2) \cdot (4u^{18} + 22u^{17} + \cdots + 28u + 8)(u^{29} + 2u^{28} + \cdots + 28u + 2) \cdot (4u^{114} + 2u^{113} + \cdots - 3039724u + 567304)$
c_5, c_8	$16(u^{10} + 4u^8 - 2u^7 + 7u^6 - 4u^5 + 8u^4 - 3u^3 + 3u^2 + u + 1) \cdot (4u^{18} + 6u^{17} + \cdots - 20u + 47)(u^{29} + 14u^{27} + \cdots + 7u + 1) \cdot (4u^{114} + 14u^{113} + \cdots - 637822u + 54653)$
c_9, c_{12}	$16(u^{10} + 4u^8 + 2u^7 + 7u^6 + 4u^5 + 8u^4 + 3u^3 + 3u^2 - u + 1) \cdot (4u^{18} - 6u^{17} + \cdots + 20u + 47)(u^{29} + 14u^{27} + \cdots + 7u + 1) \cdot (4u^{114} + 14u^{113} + \cdots - 637822u + 54653)$
c_{11}	$256 \cdot (2u^9 - 6u^8 + 17u^7 - 32u^6 + 50u^5 - 63u^4 + 64u^3 - 51u^2 + 22u - 4)^2 \cdot (4u^{10} + 20u^9 + \cdots + 10u + 1)(4u^{29} + 80u^{28} + \cdots + 1844u + 104) \cdot (2u^{57} - 38u^{56} + \cdots + 406u - 92)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$65536(16y^9 - 188y^8 + \cdots - 31y - 1)^2$ $\cdot (y^{10} - 6y^9 + \cdots - 969y + 529)(y^{29} - 13y^{28} + \cdots + 2336y - 7744)$ $\cdot (16y^{57} - 524y^{56} + \cdots + 1044978965y - 80013025)^2$
c_2, c_3, c_7 c_{10}	$256(4y^{10} + 32y^9 + \cdots + 13y + 1)(4y^{18} + 24y^{17} + \cdots + 15y + 1)$ $\cdot (4y^{29} + 56y^{28} + \cdots - 11y - 1)$ $\cdot (4y^{114} + 268y^{113} + \cdots + 351248241323y + 11728673401)$
c_4, c_6	256 $\cdot (y^{10} + 2y^9 - y^8 - 9y^7 - 21y^6 - 11y^5 + 25y^4 + 65y^3 + 109y^2 + 36y + 4)$ $\cdot (16y^{18} + 4y^{17} + \cdots + 784y + 64)(y^{29} - 2y^{28} + \cdots + 156y - 4)$ $\cdot (16y^{114} - 332y^{113} + \cdots - 4508313907312y + 321833828416)$
c_5, c_8, c_9 c_{12}	$256(y^{10} + 8y^9 + \cdots + 5y + 1)$ $\cdot (16y^{18} + 420y^{17} + \cdots + 24792y + 2209)(y^{29} + 28y^{28} + \cdots - 23y - 1)$ $\cdot (16y^{114} + 1428y^{113} + \cdots + 103420880972y + 2986950409)$
c_{11}	$65536(4y^9 + 32y^8 + \cdots + 76y - 16)^2$ $\cdot (16y^{10} + 24y^9 + \cdots + 158y^2 + 1)$ $\cdot (16y^{29} - 24y^{28} + \cdots - 5040y - 10816)$ $\cdot (4y^{57} - 528y^{56} + \cdots - 73076y - 8464)^2$