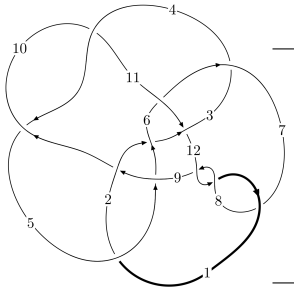
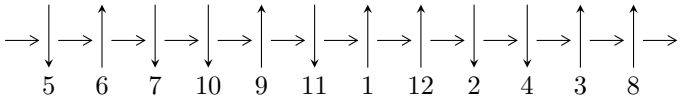
$12a_{1217}$ $(K12a_{1217})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -3.78483 \times 10^{62} u^{51} - 9.23708 \times 10^{62} u^{50} + \cdots + 3.66721 \times 10^{63} b - 9.19913 \times 10^{63}, \\
&\quad - 1.19194 \times 10^{64} u^{51} - 3.36347 \times 10^{64} u^{50} + \cdots + 1.02682 \times 10^{65} a - 4.62060 \times 10^{65}, \\
&\quad u^{52} + 3u^{51} + \cdots + 155u + 28 \rangle \\
I_2^u &= \langle -6.32395 \times 10^{29} a u^{49} - 6.85959 \times 10^{30} u^{49} + \cdots + 4.20919 \times 10^{31} a - 4.89805 \times 10^{31}, \\
&\quad 5.23973 \times 10^{32} a u^{49} - 4.49244 \times 10^{32} u^{49} + \cdots + 4.28747 \times 10^{33} a + 1.58434 \times 10^{33}, \\
&\quad u^{50} - 2u^{49} + \cdots - 60u + 19 \rangle \\
I_3^u &= \langle u^{12} a + u^{12} + \cdots - a + 11,\ 34u^{12} a + 40u^{12} + \cdots + 85a + 269, \\
&\quad u^{13} - 2u^{12} + 9u^{11} - 15u^{10} + 32u^9 - 45u^8 + 58u^7 - 66u^6 + 55u^5 - 44u^4 + 24u^3 - 8u^2 + 3u + 1 \rangle \\
I_4^u &= \langle u^7 + 3u^6 + 7u^5 + 10u^4 + 11u^3 + 8u^2 + b + 4u + 1,\ u^6 + 2u^5 + 5u^4 + 6u^3 + 7u^2 + a + 4u + 3, \\
&\quad u^8 + 2u^7 + 6u^6 + 8u^5 + 11u^4 + 9u^3 + 7u^2 + 2u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 186 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. $\boldsymbol{I_1^u = \langle -3.78 \times 10^{62} u^{51} - 9.24 \times 10^{62} u^{50} + \cdots + 3.67 \times 10^{63} b - 9.20 \times 10^{63},\ -1.19 \times 10^{64} u^{51} - 3.36 \times 10^{64} u^{50} + \cdots + 1.03 \times 10^{65} a - 4.62 \times 10^{65},\ u^{52} + 3u^{51} + \cdots + 155u + 28 \rangle}$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} 0.116080u^{51} + 0.327562u^{50} + \cdots + 24.4948u + 4.49991 \\ 0.103207u^{51} + 0.251883u^{50} + \cdots + 11.1540u + 2.50848 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.102816u^{51} + 0.276430u^{50} + \cdots + 12.5832u + 1.52396 \\ 0.168183u^{51} + 0.455833u^{50} + \cdots + 16.5012u + 3.07868 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0592969u^{51} - 0.158117u^{50} + \cdots - 23.0526u - 8.06748 \\ -0.0168503u^{51} - 0.0486054u^{50} + \cdots - 3.42539u - 2.09057 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.110268u^{51} - 0.272050u^{50} + \cdots - 30.8258u - 5.98247 \\ 0.0385349u^{51} + 0.0641253u^{50} + \cdots - 7.47331u - 1.60516 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.264232u^{51} - 0.613333u^{50} + \cdots - 41.2535u - 8.42966 \\ 0.0828615u^{51} + 0.241500u^{50} + \cdots + 18.5521u + 3.43075 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0895885u^{51} - 0.165558u^{50} + \cdots - 17.3333u - 2.73222 \\ 0.0370596u^{51} + 0.136146u^{50} + \cdots - 0.00391984u - 0.360451 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.156030u^{51} - 0.415662u^{50} + \cdots - 41.1156u - 8.35564 \\ 0.0842371u^{51} + 0.0643931u^{50} + \cdots - 1.68892u - 0.0133933 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.236976u^{51} - 0.873090u^{50} + \cdots - 17.6537u - 4.16045$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{52} - 3u^{51} + \cdots - 1044u + 68$
c_2	$u^{52} - 8u^{51} + \cdots - 50175u + 6372$
c_4, c_{10}	$17(17u^{52} + 9u^{51} + \cdots - 1024u + 512)$
c_5, c_{11}	$17(17u^{52} + 43u^{51} + \cdots + 9u + 1)$
c_6, c_9	$u^{52} + 6u^{50} + \cdots + 94u + 17$
c_7, c_8, c_{12}	$u^{52} - 3u^{51} + \cdots - 155u + 28$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{52} + y^{51} + \cdots - 78640y + 4624$
c_2	$y^{52} + 8y^{51} + \cdots - 699178473y + 40602384$
c_4, c_{10}	$289(289y^{52} + 10289y^{51} + \cdots - 393216y + 262144)$
c_5, c_{11}	$289(289y^{52} + 3931y^{51} + \cdots + 49y + 1)$
c_6, c_9	$y^{52} + 12y^{51} + \cdots - 3464y + 289$
c_7, c_8, c_{12}	$y^{52} + 45y^{51} + \cdots - 6105y + 784$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.950344+0.322119I$ $a=\ 1.36230-0.69032I$ $b=\ 0.884105+0.214283I$	$6.7763-15.3902I$	$3.50991+9.23358I$
$u=-0.950344-0.322119I$ $a=\ 1.36230+0.69032I$ $b=\ 0.884105-0.214283I$	$6.7763+15.3902I$	$3.50991-9.23358I$
$u=\ 0.611986+0.823380I$ $a=\ 0.290031+0.143467I$ $b=-0.191685+0.783395I$	$5.64694+2.40410I$	$6.40463-1.49639I$
$u=\ 0.611986-0.823380I$ $a=\ 0.290031-0.143467I$ $b=-0.191685-0.783395I$	$5.64694-2.40410I$	$6.40463+1.49639I$
$u=-0.681639+0.820596I$ $a=-0.531183+0.353604I$ $b=-0.207357+0.308169I$	$0.58300-2.55616I$	$0.-10.37772I$
$u=-0.681639-0.820596I$ $a=-0.531183-0.353604I$ $b=-0.207357-0.308169I$	$0.58300+2.55616I$	$0.+10.37772I$
$u=\ 0.543343+0.739525I$ $a=-0.270104-1.316570I$ $b=-0.039019-0.651155I$	$-0.43165-5.19465I$	$-2.45142+6.35490I$
$u=\ 0.543343-0.739525I$ $a=-0.270104+1.316570I$ $b=-0.039019+0.651155I$	$-0.43165+5.19465I$	$-2.45142-6.35490I$
$u=-0.120480+1.099310I$ $a=-0.218284-0.770739I$ $b=\ 1.12128-0.86767I$	$0.82652-6.20060I$	$0.+7.06936I$
$u=-0.120480-1.099310I$ $a=-0.218284+0.770739I$ $b=\ 1.12128+0.86767I$	$0.82652+6.20060I$	$0.-7.06936I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.766416 + 0.315534I$ $a = -1.80534 - 0.65677I$ $b = -0.925661 + 0.046111I$	$0.92463 + 9.67458I$	$0.95373 - 10.15291I$
$u = 0.766416 - 0.315534I$ $a = -1.80534 + 0.65677I$ $b = -0.925661 - 0.046111I$	$0.92463 - 9.67458I$	$0.95373 + 10.15291I$
$u = -0.784865 + 0.085590I$ $a = -0.781041 + 0.938598I$ $b = -0.373670 + 0.098029I$	$2.02396 - 1.07247I$	$0.35961 + 2.83019I$
$u = -0.784865 - 0.085590I$ $a = -0.781041 - 0.938598I$ $b = -0.373670 - 0.098029I$	$2.02396 + 1.07247I$	$0.35961 - 2.83019I$
$u = -0.089628 + 1.215000I$ $a = -0.506782 + 0.741949I$ $b = -1.62883 - 0.59977I$	$-0.06262 + 4.46410I$	0
$u = -0.089628 - 1.215000I$ $a = -0.506782 - 0.741949I$ $b = -1.62883 + 0.59977I$	$-0.06262 - 4.46410I$	0
$u = -0.727691 + 0.990444I$ $a = 0.248516 - 1.062610I$ $b = 0.408630 - 0.571110I$	$4.83035 + 9.64704I$	0
$u = -0.727691 - 0.990444I$ $a = 0.248516 + 1.062610I$ $b = 0.408630 + 0.571110I$	$4.83035 - 9.64704I$	0
$u = -0.248355 + 1.254680I$ $a = -0.424101 + 1.097270I$ $b = -0.12990 + 1.95024I$	$-1.52199 - 2.58358I$	0
$u = -0.248355 - 1.254680I$ $a = -0.424101 - 1.097270I$ $b = -0.12990 - 1.95024I$	$-1.52199 + 2.58358I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.596766+0.352197I$ $a=\ \ 0.061531+0.340342I$ $b=-0.775647+0.574721I$	$2.70277+3.52281I$	$-0.87054-2.02677I$
$u=-0.596766-0.352197I$ $a=\ \ 0.061531-0.340342I$ $b=-0.775647-0.574721I$	$2.70277-3.52281I$	$-0.87054+2.02677I$
$u=\ \ 1.037590+0.811762I$ $a=\ \ 0.531961+0.511091I$ $b=\ \ 0.475050+0.089805I$	$3.22572+3.55521I$	0
$u=\ \ 1.037590-0.811762I$ $a=\ \ 0.531961-0.511091I$ $b=\ \ 0.475050-0.089805I$	$3.22572-3.55521I$	0
$u=\ \ 0.558051+0.379501I$ $a=\ \ 1.164260+0.600486I$ $b=\ \ 0.547966-0.424737I$	$-1.36085+3.43390I$	$-6.76914-8.21807I$
$u=\ \ 0.558051-0.379501I$ $a=\ \ 1.164260-0.600486I$ $b=\ \ 0.547966+0.424737I$	$-1.36085-3.43390I$	$-6.76914+8.21807I$
$u=-0.122610+1.325890I$ $a=\ \ 0.708094+0.759028I$ $b=\ \ 2.33633+0.17751I$	$-1.84227-2.86744I$	0
$u=-0.122610-1.325890I$ $a=\ \ 0.708094-0.759028I$ $b=\ \ 2.33633-0.17751I$	$-1.84227+2.86744I$	0
$u=-0.549323+0.253198I$ $a=-1.21969+0.81806I$ $b=-0.465578-0.970504I$	$2.63275-6.47736I$	$-1.14133+11.11228I$
$u=-0.549323-0.253198I$ $a=-1.21969-0.81806I$ $b=-0.465578+0.970504I$	$2.63275+6.47736I$	$-1.14133-11.11228I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.377950+1.358930I$ $a=\ \ 0.699285+0.212035I$ $b=\ \ 1.70671-0.17659I$	$-2.52853-5.35110I$	0
$u=-0.377950-1.358930I$ $a=\ \ 0.699285-0.212035I$ $b=\ \ 1.70671+0.17659I$	$-2.52853+5.35110I$	0
$u=\ \ 0.252344+1.391100I$ $a=-0.430609+0.154231I$ $b=-1.58256-0.68085I$	$-6.51872+2.69482I$	0
$u=\ \ 0.252344-1.391100I$ $a=-0.430609-0.154231I$ $b=-1.58256+0.68085I$	$-6.51872-2.69482I$	0
$u=-0.22905+1.40159I$ $a=\ \ 0.720518+0.079628I$ $b=\ \ 2.99526+0.53269I$	$-2.67681-9.40242I$	0
$u=-0.22905-1.40159I$ $a=\ \ 0.720518-0.079628I$ $b=\ \ 2.99526-0.53269I$	$-2.67681+9.40242I$	0
$u=-0.19045+1.43223I$ $a=\ \ 0.257532+0.194949I$ $b=\ \ 1.25353-0.98903I$	$-3.13364+0.73826I$	0
$u=-0.19045-1.43223I$ $a=\ \ 0.257532-0.194949I$ $b=\ \ 1.25353+0.98903I$	$-3.13364-0.73826I$	0
$u=\ \ 0.472544+0.263306I$ $a=\ \ 0.087356+0.662820I$ $b=\ \ 0.584757+0.218301I$	$-1.380760-0.242567I$	$-6.94484-0.12994I$
$u=\ \ 0.472544-0.263306I$ $a=\ \ 0.087356-0.662820I$ $b=\ \ 0.584757-0.218301I$	$-1.380760+0.242567I$	$-6.94484+0.12994I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.20341 + 1.44904I$ $a = -0.755410 + 0.149534I$ $b = -2.69872 + 0.20686I$	$-7.26378 + 6.23517I$	0
$u = 0.20341 - 1.44904I$ $a = -0.755410 - 0.149534I$ $b = -2.69872 - 0.20686I$	$-7.26378 - 6.23517I$	0
$u = 0.30298 + 1.43159I$ $a = 1.052730 - 0.687104I$ $b = 3.01855 - 0.49877I$	$-4.6504 + 13.5551I$	0
$u = 0.30298 - 1.43159I$ $a = 1.052730 + 0.687104I$ $b = 3.01855 + 0.49877I$	$-4.6504 - 13.5551I$	0
$u = 0.04590 + 1.51101I$ $a = 0.842968 + 0.263947I$ $b = 2.09013 + 0.76931I$	$-8.16490 - 3.52694I$	0
$u = 0.04590 - 1.51101I$ $a = 0.842968 - 0.263947I$ $b = 2.09013 - 0.76931I$	$-8.16490 + 3.52694I$	0
$u = -0.37967 + 1.46684I$ $a = -0.971631 - 0.548746I$ $b = -2.85141 - 0.36099I$	$1.0712 - 20.1676I$	0
$u = -0.37967 - 1.46684I$ $a = -0.971631 + 0.548746I$ $b = -2.85141 + 0.36099I$	$1.0712 + 20.1676I$	0
$u = -0.358104 + 0.224691I$ $a = -2.05195 + 1.47795I$ $b = -0.730995 + 0.426246I$	$2.90602 - 1.02604I$	$-2.45090 + 4.57830I$
$u = -0.358104 - 0.224691I$ $a = -2.05195 - 1.47795I$ $b = -0.730995 - 0.426246I$	$2.90602 + 1.02604I$	$-2.45090 - 4.57830I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.11236 + 1.65989I$ $a = -0.746881 + 0.209388I$ $b = -2.02713 + 0.41841I$	$-5.77267 + 7.71312I$	0
$u = \quad 0.11236 - 1.65989I$ $a = -0.746881 - 0.209388I$ $b = -2.02713 - 0.41841I$	$-5.77267 - 7.71312I$	0

II. $I_2^u = \langle -6.32 \times 10^{29} a u^{49} - 6.86 \times 10^{30} u^{49} + \cdots + 4.21 \times 10^{31} a - 4.90 \times 10^{31},\ 5.24 \times 10^{32} a u^{49} - 4.49 \times 10^{32} u^{49} + \cdots + 4.29 \times 10^{33} a + 1.58 \times 10^{33},\ u^{50} - 2u^{49} + \cdots - 60u + 19 \rangle$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} a \\ 0.576750au^{49} + 6.25601u^{49} + \cdots - 38.3882a + 44.6707 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.469262au^{49} - 1.44273u^{49} + \cdots + 9.18875a - 26.6023 \\ -0.0309561au^{49} + 1.81285u^{49} + \cdots + 3.21660a + 19.2108 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.962384au^{49} + 0.264443u^{49} + \cdots - 25.1510a + 21.5640 \\ -1.42355au^{49} - 1.05929u^{49} + \cdots - 20.1266a + 10.7323 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2.02043au^{49} + 0.397524u^{49} + \cdots + 4.02193a + 44.8952 \\ -3.77917au^{49} + 0.173659u^{49} + \cdots - 10.9582a + 29.0254 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2.03999au^{49} - 0.314324u^{49} + \cdots + 117.548a + 22.1600 \\ 2.72020au^{49} + 0.169295u^{49} + \cdots + 189.705a + 6.65237 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -2.02043au^{49} - 0.564860u^{49} + \cdots + 4.02193a + 19.7442 \\ -3.77917au^{49} - 0.461168u^{49} + \cdots - 10.9582a + 5.02442 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.388513au^{49} - 1.01109u^{49} + \cdots + 32.7453a + 20.5741 \\ -0.509271au^{49} + 0.194193u^{49} + \cdots + 51.2128a - 27.4119 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -10.2250u^{49} + 10.1462u^{48} + \cdots + 237.491u - 95.5175$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{100} + 3u^{99} + \cdots - 2324u + 5732$
c_2	$(u^{50} + 7u^{49} + \cdots + 843u + 121)^2$
c_4, c_{10}	$(u^{50} + u^{49} + \cdots + 14u - 109)^2$
c_5, c_{11}	$u^{100} + 2u^{99} + \cdots + 44u + 1$
c_6, c_9	$u^{100} + 2u^{99} + \cdots - 23154u + 5887$
c_7, c_8, c_{12}	$(u^{50} + 2u^{49} + \cdots + 60u + 19)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{100} + 35y^{99} + \cdots + 1531073088y + 32855824$
c_2	$(y^{50} - 31y^{49} + \cdots - 433801y + 14641)^2$
c_4, c_{10}	$(y^{50} + 39y^{49} + \cdots - 91756y + 11881)^2$
c_5, c_{11}	$y^{100} - 38y^{99} + \cdots - 242y + 1$
c_6, c_9	$y^{100} + 26y^{99} + \cdots + 1584012916y + 34656769$
c_7, c_8, c_{12}	$(y^{50} + 48y^{49} + \cdots - 4094y + 361)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.853092+0.375766I$ $a=\ \ 0.463582+0.017365I$ $b=\ \ 0.431688+0.229001I$	$1.39801-3.06602I$	$3.27179+10.84309I$
$u=-0.853092+0.375766I$ $a=-1.39240+0.72586I$ $b=-0.720065+0.095569I$	$1.39801-3.06602I$	$3.27179+10.84309I$
$u=-0.853092-0.375766I$ $a=\ \ 0.463582-0.017365I$ $b=\ \ 0.431688-0.229001I$	$1.39801+3.06602I$	$3.27179-10.84309I$
$u=-0.853092-0.375766I$ $a=-1.39240-0.72586I$ $b=-0.720065-0.095569I$	$1.39801+3.06602I$	$3.27179-10.84309I$
$u=\ \ 0.044252+1.114680I$ $a=\ \ 1.183460-0.165449I$ $b=\ \ 4.34484+0.02560I$	$5.20918-4.43480I$	$4.65491+2.25442I$
$u=\ \ 0.044252+1.114680I$ $a=-0.341028-1.172380I$ $b=-0.010640-0.375629I$	$5.20918-4.43480I$	$4.65491+2.25442I$
$u=\ \ 0.044252-1.114680I$ $a=\ \ 1.183460+0.165449I$ $b=\ \ 4.34484-0.02560I$	$5.20918+4.43480I$	$4.65491-2.25442I$
$u=\ \ 0.044252-1.114680I$ $a=-0.341028+1.172380I$ $b=-0.010640+0.375629I$	$5.20918+4.43480I$	$4.65491-2.25442I$
$u=\ \ 1.142970+0.129346I$ $a=\ \ 1.153980+0.810410I$ $b=\ \ 1.068290-0.191524I$	$4.30836+5.93955I$	$0.-19.3318I$
$u=\ \ 1.142970+0.129346I$ $a=-0.317165-0.294089I$ $b=-0.197641-0.018529I$	$4.30836+5.93955I$	$0.-19.3318I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.142970 - 0.129346I$ $a = 1.153980 - 0.810410I$ $b = 1.068290 + 0.191524I$	$4.30836 - 5.93955I$	$0. + 19.3318I$
$u = 1.142970 - 0.129346I$ $a = -0.317165 + 0.294089I$ $b = -0.197641 + 0.018529I$	$4.30836 - 5.93955I$	$0. + 19.3318I$
$u = -0.678868 + 0.459434I$ $a = 0.354346 + 0.922133I$ $b = -0.140136 + 0.662804I$	$5.87358 + 2.21185I$	$8.08574 - 3.74028I$
$u = -0.678868 + 0.459434I$ $a = -0.43873 - 1.46624I$ $b = -0.687287 + 0.630136I$	$5.87358 + 2.21185I$	$8.08574 - 3.74028I$
$u = -0.678868 - 0.459434I$ $a = 0.354346 - 0.922133I$ $b = -0.140136 - 0.662804I$	$5.87358 - 2.21185I$	$8.08574 + 3.74028I$
$u = -0.678868 - 0.459434I$ $a = -0.43873 + 1.46624I$ $b = -0.687287 - 0.630136I$	$5.87358 - 2.21185I$	$8.08574 + 3.74028I$
$u = -0.112980 + 0.786145I$ $a = 0.637797 + 0.810591I$ $b = 0.441663 + 0.645929I$	$-1.24215 - 2.05779I$	$-5.13529 + 4.01837I$
$u = -0.112980 + 0.786145I$ $a = -0.861384 + 0.661693I$ $b = 0.108824 + 0.340962I$	$-1.24215 - 2.05779I$	$-5.13529 + 4.01837I$
$u = -0.112980 - 0.786145I$ $a = 0.637797 - 0.810591I$ $b = 0.441663 - 0.645929I$	$-1.24215 + 2.05779I$	$-5.13529 - 4.01837I$
$u = -0.112980 - 0.786145I$ $a = -0.861384 - 0.661693I$ $b = 0.108824 - 0.340962I$	$-1.24215 + 2.05779I$	$-5.13529 - 4.01837I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.005335 + 1.206560I$ $a = -0.406736 + 1.318270I$ $b = -0.59428 + 1.36940I$	$4.38592 + 4.77177I$	0
$u = 0.005335 + 1.206560I$ $a = 0.0174261 + 0.0722519I$ $b = -4.73862 + 0.89005I$	$4.38592 + 4.77177I$	0
$u = 0.005335 - 1.206560I$ $a = -0.406736 - 1.318270I$ $b = -0.59428 - 1.36940I$	$4.38592 - 4.77177I$	0
$u = 0.005335 - 1.206560I$ $a = 0.0174261 - 0.0722519I$ $b = -4.73862 - 0.89005I$	$4.38592 - 4.77177I$	0
$u = 0.125803 + 1.220000I$ $a = -0.003607 - 0.764728I$ $b = 0.146091 + 1.147280I$	$2.80415 + 1.36558I$	0
$u = 0.125803 + 1.220000I$ $a = 0.222241 + 1.245950I$ $b = 0.74351 + 1.94444I$	$2.80415 + 1.36558I$	0
$u = 0.125803 - 1.220000I$ $a = -0.003607 + 0.764728I$ $b = 0.146091 - 1.147280I$	$2.80415 - 1.36558I$	0
$u = 0.125803 - 1.220000I$ $a = 0.222241 - 1.245950I$ $b = 0.74351 - 1.94444I$	$2.80415 - 1.36558I$	0
$u = 0.048382 + 1.268830I$ $a = 0.248925 + 1.072820I$ $b = 0.329224 + 0.922712I$	$-1.59254 - 1.81613I$	0
$u = 0.048382 + 1.268830I$ $a = 0.0448583 + 0.1175780I$ $b = 1.54639 + 0.12552I$	$-1.59254 - 1.81613I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.048382 - 1.268830I$ $a = 0.248925 - 1.072820I$ $b = 0.329224 - 0.922712I$	$-1.59254 + 1.81613I$	0
$u = 0.048382 - 1.268830I$ $a = 0.0448583 - 0.1175780I$ $b = 1.54639 - 0.12552I$	$-1.59254 + 1.81613I$	0
$u = 0.670397 + 0.276080I$ $a = -1.76420 - 0.28526I$ $b = -0.917938 + 0.521667I$	$7.01035 + 7.12560I$	$8.18906 - 7.44187I$
$u = 0.670397 + 0.276080I$ $a = -1.02274 + 2.04880I$ $b = -0.662347 - 0.212692I$	$7.01035 + 7.12560I$	$8.18906 - 7.44187I$
$u = 0.670397 - 0.276080I$ $a = -1.76420 + 0.28526I$ $b = -0.917938 - 0.521667I$	$7.01035 - 7.12560I$	$8.18906 + 7.44187I$
$u = 0.670397 - 0.276080I$ $a = -1.02274 - 2.04880I$ $b = -0.662347 + 0.212692I$	$7.01035 - 7.12560I$	$8.18906 + 7.44187I$
$u = -0.617921 + 0.375337I$ $a = 1.009360 + 0.092506I$ $b = 1.77235 - 0.76889I$	$5.94348 - 6.22168I$	$9.7112 + 10.3014I$
$u = -0.617921 + 0.375337I$ $a = -1.85217 + 0.38036I$ $b = -0.585915 - 0.406234I$	$5.94348 - 6.22168I$	$9.7112 + 10.3014I$
$u = -0.617921 - 0.375337I$ $a = 1.009360 - 0.092506I$ $b = 1.77235 + 0.76889I$	$5.94348 + 6.22168I$	$9.7112 - 10.3014I$
$u = -0.617921 - 0.375337I$ $a = -1.85217 - 0.38036I$ $b = -0.585915 + 0.406234I$	$5.94348 + 6.22168I$	$9.7112 - 10.3014I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.526791 + 0.459769I$ $a = 0.84206 - 1.22209I$ $b = -0.061240 - 0.451389I$	$6.14716 - 3.57703I$	$10.00737 + 1.70187I$
$u = 0.526791 + 0.459769I$ $a = 1.37409 - 0.61960I$ $b = 1.69522 + 0.95920I$	$6.14716 - 3.57703I$	$10.00737 + 1.70187I$
$u = 0.526791 - 0.459769I$ $a = 0.84206 + 1.22209I$ $b = -0.061240 + 0.451389I$	$6.14716 + 3.57703I$	$10.00737 - 1.70187I$
$u = 0.526791 - 0.459769I$ $a = 1.37409 + 0.61960I$ $b = 1.69522 - 0.95920I$	$6.14716 + 3.57703I$	$10.00737 - 1.70187I$
$u = -0.174909 + 1.320300I$ $a = -0.907411 - 0.914447I$ $b = -3.37304 - 1.13903I$	$-2.73234 - 2.38787I$	0
$u = -0.174909 + 1.320300I$ $a = 0.10701 - 1.52004I$ $b = -0.65165 - 1.95690I$	$-2.73234 - 2.38787I$	0
$u = -0.174909 - 1.320300I$ $a = -0.907411 + 0.914447I$ $b = -3.37304 + 1.13903I$	$-2.73234 + 2.38787I$	0
$u = -0.174909 - 1.320300I$ $a = 0.10701 + 1.52004I$ $b = -0.65165 + 1.95690I$	$-2.73234 + 2.38787I$	0
$u = 0.181356 + 1.346230I$ $a = -1.116740 + 0.490263I$ $b = -3.37696 + 0.71430I$	$-2.78326 + 6.40427I$	0
$u = 0.181356 + 1.346230I$ $a = 0.276595 - 0.652660I$ $b = 0.551421 + 0.750472I$	$-2.78326 + 6.40427I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.181356 - 1.346230I$ $a = -1.116740 - 0.490263I$ $b = -3.37696 - 0.71430I$	$-2.78326 - 6.40427I$	0
$u = 0.181356 - 1.346230I$ $a = 0.276595 + 0.652660I$ $b = 0.551421 - 0.750472I$	$-2.78326 - 6.40427I$	0
$u = -0.483100 + 1.288460I$ $a = -0.461572 + 1.154570I$ $b = -0.318050 + 1.152110I$	$-0.94231 - 2.57657I$	0
$u = -0.483100 + 1.288460I$ $a = -0.0824832 + 0.0764807I$ $b = -0.382551 + 0.298574I$	$-0.94231 - 2.57657I$	0
$u = -0.483100 - 1.288460I$ $a = -0.461572 - 1.154570I$ $b = -0.318050 - 1.152110I$	$-0.94231 + 2.57657I$	0
$u = -0.483100 - 1.288460I$ $a = -0.0824832 - 0.0764807I$ $b = -0.382551 - 0.298574I$	$-0.94231 + 2.57657I$	0
$u = 0.219024 + 1.376470I$ $a = -1.163940 + 0.421303I$ $b = -2.69240 + 0.43625I$	$0.90247 + 3.77376I$	0
$u = 0.219024 + 1.376470I$ $a = 0.276091 - 0.249385I$ $b = 2.78869 + 0.01106I$	$0.90247 + 3.77376I$	0
$u = 0.219024 - 1.376470I$ $a = -1.163940 - 0.421303I$ $b = -2.69240 - 0.43625I$	$0.90247 - 3.77376I$	0
$u = 0.219024 - 1.376470I$ $a = 0.276091 + 0.249385I$ $b = 2.78869 - 0.01106I$	$0.90247 - 3.77376I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.545636 + 0.174349I$ $a = -1.033890 + 0.176796I$ $b = -1.11182 + 0.94368I$	$5.88007 + 0.94320I$	$11.80952 - 4.74435I$
$u = 0.545636 + 0.174349I$ $a = 2.09585 + 1.00488I$ $b = 0.131818 - 0.052740I$	$5.88007 + 0.94320I$	$11.80952 - 4.74435I$
$u = 0.545636 - 0.174349I$ $a = -1.033890 - 0.176796I$ $b = -1.11182 - 0.94368I$	$5.88007 - 0.94320I$	$11.80952 + 4.74435I$
$u = 0.545636 - 0.174349I$ $a = 2.09585 - 1.00488I$ $b = 0.131818 + 0.052740I$	$5.88007 - 0.94320I$	$11.80952 + 4.74435I$
$u = 0.27087 + 1.40747I$ $a = 0.742204 - 0.592227I$ $b = 2.91164 - 0.67398I$	$1.64321 + 10.58060I$	0
$u = 0.27087 + 1.40747I$ $a = -0.59359 - 1.29306I$ $b = -0.95440 - 1.80716I$	$1.64321 + 10.58060I$	0
$u = 0.27087 - 1.40747I$ $a = 0.742204 + 0.592227I$ $b = 2.91164 + 0.67398I$	$1.64321 - 10.58060I$	0
$u = 0.27087 - 1.40747I$ $a = -0.59359 + 1.29306I$ $b = -0.95440 + 1.80716I$	$1.64321 - 10.58060I$	0
$u = -0.24739 + 1.43867I$ $a = 0.988248 + 0.467520I$ $b = 3.00664 + 0.74404I$	$0.15005 - 9.43660I$	0
$u = -0.24739 + 1.43867I$ $a = -0.169282 - 0.539428I$ $b = -0.83416 + 1.37577I$	$0.15005 - 9.43660I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.24739-1.43867I$ $a=\ 0.988248-0.467520I$ $b=\ 3.00664-0.74404I$	$0.15005+9.43660I$	0
$u=-0.24739-1.43867I$ $a=-0.169282+0.539428I$ $b=-0.83416-1.37577I$	$0.15005+9.43660I$	0
$u=-0.05270+1.48053I$ $a=\ 0.943169-0.175611I$ $b=\ 2.41240-0.70289I$	$-8.39115-2.77998I$	0
$u=-0.05270+1.48053I$ $a=-0.650925-0.232981I$ $b=-2.29835-0.82686I$	$-8.39115-2.77998I$	0
$u=-0.05270-1.48053I$ $a=\ 0.943169+0.175611I$ $b=\ 2.41240+0.70289I$	$-8.39115+2.77998I$	0
$u=-0.05270-1.48053I$ $a=-0.650925+0.232981I$ $b=-2.29835+0.82686I$	$-8.39115+2.77998I$	0
$u=\ 0.509032+0.082967I$ $a=-1.241340-0.406845I$ $b=-0.733130-0.966411I$	$1.77592+3.92629I$	$5.93998-7.39122I$
$u=\ 0.509032+0.082967I$ $a=\ 2.23928+1.54842I$ $b=\ 0.606279-0.373631I$	$1.77592+3.92629I$	$5.93998-7.39122I$
$u=\ 0.509032-0.082967I$ $a=-1.241340+0.406845I$ $b=-0.733130+0.966411I$	$1.77592-3.92629I$	$5.93998+7.39122I$
$u=\ 0.509032-0.082967I$ $a=\ 2.23928-1.54842I$ $b=\ 0.606279+0.373631I$	$1.77592-3.92629I$	$5.93998+7.39122I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.31394+1.45260I$ $a=\ \ 1.060920+0.562240I$ $b=\ \ 2.80199+0.37238I$	$-4.42525-7.21278I$	0
$u=-0.31394+1.45260I$ $a=-0.391186-0.309239I$ $b=-1.57316-0.08193I$	$-4.42525-7.21278I$	0
$u=-0.31394-1.45260I$ $a=\ \ 1.060920-0.562240I$ $b=\ \ 2.80199-0.37238I$	$-4.42525+7.21278I$	0
$u=-0.31394-1.45260I$ $a=-0.391186+0.309239I$ $b=-1.57316+0.08193I$	$-4.42525+7.21278I$	0
$u=\ \ 0.35794+1.44478I$ $a=\ \ 0.166068+0.890628I$ $b=\ \ 0.317764-0.036538I$	$-0.499183-0.060271I$	0
$u=\ \ 0.35794+1.44478I$ $a=-0.463721+0.167701I$ $b=-0.922676+0.152184I$	$-0.499183-0.060271I$	0
$u=\ \ 0.35794-1.44478I$ $a=\ \ 0.166068-0.890628I$ $b=\ \ 0.317764+0.036538I$	$-0.499183+0.060271I$	0
$u=\ \ 0.35794-1.44478I$ $a=-0.463721-0.167701I$ $b=-0.922676-0.152184I$	$-0.499183+0.060271I$	0
$u=\ \ 0.44541+1.43777I$ $a=-0.924400+0.519011I$ $b=-2.74553+0.12658I$	$-0.77358+11.45920I$	0
$u=\ \ 0.44541+1.43777I$ $a=\ \ 0.504235-0.292630I$ $b=\ \ 1.259920-0.160589I$	$-0.77358+11.45920I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.44541 - 1.43777I$ $a = -0.924400 - 0.519011I$ $b = -2.74553 - 0.12658I$	$-0.77358 - 11.45920I$	0
$u = 0.44541 - 1.43777I$ $a = 0.504235 + 0.292630I$ $b = 1.259920 + 0.160589I$	$-0.77358 - 11.45920I$	0
$u = -0.490689$ $a = 3.23420 + 1.30418I$ $b = 1.038740 - 0.216776I$	1.48420	3.80140
$u = -0.490689$ $a = 3.23420 - 1.30418I$ $b = 1.038740 + 0.216776I$	1.48420	3.80140
$u = -0.484703$ $a = -2.08878 + 0.14937I$ $b = -0.585405 + 0.408865I$	1.82789	6.46830
$u = -0.484703$ $a = -2.08878 - 0.14937I$ $b = -0.585405 - 0.408865I$	1.82789	6.46830
$u = -0.07060 + 1.57371I$ $a = -0.163936 + 0.993992I$ $b = -0.537368 + 0.431012I$	$-1.27490 - 1.07364I$	0
$u = -0.07060 + 1.57371I$ $a = 0.298943 + 0.086182I$ $b = 0.951356 - 0.070277I$	$-1.27490 - 1.07364I$	0
$u = -0.07060 - 1.57371I$ $a = -0.163936 - 0.993992I$ $b = -0.537368 - 0.431012I$	$-1.27490 + 1.07364I$	0
$u = -0.07060 - 1.57371I$ $a = 0.298943 - 0.086182I$ $b = 0.951356 + 0.070277I$	$-1.27490 + 1.07364I$	0

III. $I_3^u =$
$\langle u^{12}a+u^{12}+\cdots-a+11,\ 34u^{12}a+40u^{12}+\cdots+85a+269,\ u^{13}-2u^{12}+\cdots+3u+1\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ -\frac{1}{3}u^{12}a - \frac{1}{3}u^{12} + \cdots + \frac{1}{3}a - \frac{11}{3} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^2+1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{1}{3}u^{12}a + \frac{1}{3}u^{12} + \cdots + \frac{2}{3}a + \frac{5}{3} \\ \frac{1}{3}u^{12}a - \frac{2}{3}u^{12} + \cdots - \frac{1}{3}a - \frac{10}{3} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{11}a - \frac{5}{17}u^{12} + \cdots - 2a - \frac{40}{17} \\ \frac{2}{3}u^{12}a + \frac{73}{51}u^{12} + \cdots - \frac{2}{3}a + \frac{74}{51} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{3}u^{12}a - \frac{5}{3}u^{12} + \cdots - \frac{7}{3}a - \frac{22}{3} \\ \frac{2}{3}u^{12}a - \frac{1}{3}u^{12} + \cdots + \frac{1}{3}a + \frac{7}{3} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{2}{3}u^{12}a + \frac{2}{3}u^{12} + \cdots + \frac{4}{3}a + \frac{16}{3} \\ 2u^{11}a - u^{12} + \cdots + a - 3 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{1}{3}u^{12}a - \frac{5}{3}u^{12} + \cdots - \frac{7}{3}a - \frac{28}{3} \\ \frac{2}{3}u^{12}a + \frac{2}{3}u^{12} + \cdots + \frac{1}{3}a + \frac{4}{3} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{11}a + 2u^{12} + \cdots + a + 8 \\ u^{12}a - 2u^{12} + \cdots - a - 3u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^{12} + 10u^{11} - 32u^{10} + 71u^9 - 126u^8 + 194u^7 - 240u^6 + 249u^5 - 217u^4 + 134u^3 - 59u^2 + 11u + 12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{26} + 2u^{25} + \cdots + 352u^2 + 68$
c_2	$(u^{13} - 8u^{12} + \cdots + 11u + 7)^2$
c_4, c_{10}	$17(17u^{26} + 317u^{24} + \cdots + 75887u^2 + 11131)$
c_5, c_{11}	$17(17u^{26} - 51u^{25} + \cdots - 4u + 1)$
c_6, c_9	$u^{26} - 3u^{25} + \cdots + 113u^2 + 17$
c_7, c_8	$(u^{13} - 2u^{12} + \cdots + 3u + 1)^2$
c_{12}	$(u^{13} + 2u^{12} + \cdots + 3u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{26} + 16y^{25} + \cdots + 47872y + 4624$
c_2	$(y^{13} - 8y^{12} + \cdots + 303y - 49)^2$
c_4, c_{10}	$289(17y^{13} + 317y^{12} + \cdots + 75887y + 11131)^2$
c_5, c_{11}	$289(289y^{26} - 3383y^{25} + \cdots - 12y + 1)$
c_6, c_9	$y^{26} + 5y^{25} + \cdots + 3842y + 289$
c_7, c_8, c_{12}	$(y^{13} + 14y^{12} + \cdots + 25y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.908624 + 0.142085I$ $a = 1.27668 + 0.78464I$ $b = 0.956911 - 0.389604I$	$4.49130 + 5.51584I$	$6.31451 - 2.47719I$
$u = 0.908624 + 0.142085I$ $a = -0.381290 + 0.003958I$ $b = -0.330401 - 0.431738I$	$4.49130 + 5.51584I$	$6.31451 - 2.47719I$
$u = 0.908624 - 0.142085I$ $a = 1.27668 - 0.78464I$ $b = 0.956911 + 0.389604I$	$4.49130 - 5.51584I$	$6.31451 + 2.47719I$
$u = 0.908624 - 0.142085I$ $a = -0.381290 - 0.003958I$ $b = -0.330401 + 0.431738I$	$4.49130 - 5.51584I$	$6.31451 + 2.47719I$
$u = 0.011602 + 1.218530I$ $a = 0.346263 + 1.261500I$ $b = 0.302325 + 1.122330I$	$4.08814 - 4.55288I$	$-6.51388 - 1.38146I$
$u = 0.011602 + 1.218530I$ $a = 0.533525 - 0.196381I$ $b = 4.85984 + 0.38998I$	$4.08814 - 4.55288I$	$-6.51388 - 1.38146I$
$u = 0.011602 - 1.218530I$ $a = 0.346263 - 1.261500I$ $b = 0.302325 - 1.122330I$	$4.08814 + 4.55288I$	$-6.51388 + 1.38146I$
$u = 0.011602 - 1.218530I$ $a = 0.533525 + 0.196381I$ $b = 4.85984 - 0.38998I$	$4.08814 + 4.55288I$	$-6.51388 + 1.38146I$
$u = 0.087631 + 0.681880I$ $a = 0.648174 + 0.318711I$ $b = -2.42238 + 0.66316I$	$6.21876 + 4.83799I$	$10.45135 - 6.26851I$
$u = 0.087631 + 0.681880I$ $a = 0.91097 - 1.54991I$ $b = 0.360359 - 0.591792I$	$6.21876 + 4.83799I$	$10.45135 - 6.26851I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.087631 - 0.681880I$ $a = 0.648174 - 0.318711I$ $b = -2.42238 - 0.66316I$	$6.21876 - 4.83799I$	$10.45135 + 6.26851I$
$u = 0.087631 - 0.681880I$ $a = 0.91097 + 1.54991I$ $b = 0.360359 + 0.591792I$	$6.21876 - 4.83799I$	$10.45135 + 6.26851I$
$u = -0.366787 + 1.313730I$ $a = -0.600079 + 1.161840I$ $b = -0.64225 + 1.51319I$	$-0.87585 - 2.29682I$	$2.24764 - 6.91415I$
$u = -0.366787 + 1.313730I$ $a = 0.295205 - 0.422005I$ $b = 0.483790 - 0.782453I$	$-0.87585 - 2.29682I$	$2.24764 - 6.91415I$
$u = -0.366787 - 1.313730I$ $a = -0.600079 - 1.161840I$ $b = -0.64225 - 1.51319I$	$-0.87585 + 2.29682I$	$2.24764 + 6.91415I$
$u = -0.366787 - 1.313730I$ $a = 0.295205 + 0.422005I$ $b = 0.483790 + 0.782453I$	$-0.87585 + 2.29682I$	$2.24764 + 6.91415I$
$u = 0.27490 + 1.40809I$ $a = -0.894460 + 0.429020I$ $b = -3.03409 + 0.54029I$	$-0.65452 + 9.44192I$	$-2.27737 - 7.35211I$
$u = 0.27490 + 1.40809I$ $a = 0.001485 - 0.491007I$ $b = -0.164012 + 0.562372I$	$-0.65452 + 9.44192I$	$-2.27737 - 7.35211I$
$u = 0.27490 - 1.40809I$ $a = -0.894460 - 0.429020I$ $b = -3.03409 - 0.54029I$	$-0.65452 - 9.44192I$	$-2.27737 + 7.35211I$
$u = 0.27490 - 1.40809I$ $a = 0.001485 + 0.491007I$ $b = -0.164012 - 0.562372I$	$-0.65452 - 9.44192I$	$-2.27737 + 7.35211I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.17411 + 1.55291I$ $a = -0.059473 + 0.931053I$ $b = -0.361402 + 0.069098I$	$-1.090940 - 0.479706I$	$-4.73923 - 1.66529I$
$u = \quad 0.17411 + 1.55291I$ $a = -0.227461 + 0.160748I$ $b = -0.842787 - 0.023903I$	$-1.090940 - 0.479706I$	$-4.73923 - 1.66529I$
$u = \quad 0.17411 - 1.55291I$ $a = -0.059473 - 0.931053I$ $b = -0.361402 - 0.069098I$	$-1.090940 + 0.479706I$	$-4.73923 + 1.66529I$
$u = \quad 0.17411 - 1.55291I$ $a = -0.227461 - 0.160748I$ $b = -0.842787 + 0.023903I$	$-1.090940 + 0.479706I$	$-4.73923 + 1.66529I$
$u = -0.180166$ $a = -4.84954 + 1.75128I$ $b = \quad 0.334095 - 0.912061I$	5.25505	7.03400
$u = -0.180166$ $a = -4.84954 - 1.75128I$ $b = \quad 0.334095 + 0.912061I$	5.25505	7.03400

IV. $I_4^u =$
$\langle u^7+3u^6+\cdots+b+1,\ u^6+2u^5+5u^4+6u^3+7u^2+a+4u+3,\ u^8+2u^7+\cdots+2u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^7-5u^6-14u^5-6u^4+2u^3+7u^2+13u+2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^8 - 3u^7 + 6u^6 - 9u^5 + 12u^4 - 11u^3 + 8u^2 - 4u + 1$
c_2	$u^8 + 5u^7 + 13u^6 + 20u^5 + 22u^4 + 18u^3 + 12u^2 + 5u + 1$
c_4, c_{10}	u^8
c_5, c_{11}	$u^8 - u^7 + 2u^6 - u^5 + 2u^4 - u^3 + 2u^2 + 1$
c_6, c_9	$u^8 + 2u^6 + u^5 + 2u^4 + u^3 + 2u^2 + u + 1$
c_7, c_8	$u^8 + 2u^7 + 6u^6 + 8u^5 + 11u^4 + 9u^3 + 7u^2 + 2u + 1$
c_{12}	$u^8 - 2u^7 + 6u^6 - 8u^5 + 11u^4 - 9u^3 + 7u^2 - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^8 + 3y^7 + 6y^6 + 13y^5 + 20y^4 + 11y^3 + 1$
c_2	$y^8 + y^7 + 13y^6 + 16y^5 + 28y^4 + 30y^3 + 8y^2 - y + 1$
c_4, c_{10}	y^8
c_5, c_{11}	$y^8 + 3y^7 + 6y^6 + 9y^5 + 12y^4 + 11y^3 + 8y^2 + 4y + 1$
c_6, c_9	$y^8 + 4y^7 + 8y^6 + 11y^5 + 12y^4 + 9y^3 + 6y^2 + 3y + 1$
c_7, c_8, c_{12}	$y^8 + 8y^7 + 26y^6 + 46y^5 + 55y^4 + 53y^3 + 35y^2 + 10y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.768546+0.720795I$ $a=-0.619652+0.420583I$ $b=-0.273444+0.137229I$	$0.48271-2.83701I$	$-8.2706+14.3943I$
$u=-0.768546-0.720795I$ $a=-0.619652-0.420583I$ $b=-0.273444-0.137229I$	$0.48271+2.83701I$	$-8.2706-14.3943I$
$u=0.024235+1.274500I$ $a=-0.562390+0.690938I$ $b=-1.85858-0.33685I$	$-2.47121+3.78237I$	$-4.61511-8.17766I$
$u=0.024235-1.274500I$ $a=-0.562390-0.690938I$ $b=-1.85858+0.33685I$	$-2.47121-3.78237I$	$-4.61511+8.17766I$
$u=-0.057100+0.488588I$ $a=-1.58676-1.06304I$ $b=0.279299-0.676679I$	$0.43885-3.70343I$	$-0.37256+5.31223I$
$u=-0.057100-0.488588I$ $a=-1.58676+1.06304I$ $b=0.279299+0.676679I$	$0.43885+3.70343I$	$-0.37256-5.31223I$
$u=-0.19859+1.50044I$ $a=0.768803+0.157397I$ $b=2.35273+0.22857I$	$-6.67501-5.79166I$	$-2.74175+2.84036I$
$u=-0.19859-1.50044I$ $a=0.768803-0.157397I$ $b=2.35273-0.22857I$	$-6.67501+5.79166I$	$-2.74175-2.84036I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3	$(u^8-3u^7+6u^6-9u^5+12u^4-11u^3+8u^2-4u+1)$ $\cdot(u^{26}+2u^{25}+\cdots+352u^2+68)(u^{52}-3u^{51}+\cdots-1044u+68)$ $\cdot(u^{100}+3u^{99}+\cdots-2324u+5732)$
c_2	$(u^8+5u^7+13u^6+20u^5+22u^4+18u^3+12u^2+5u+1)$ $\cdot((u^{13}-8u^{12}+\cdots+11u+7)^2)(u^{50}+7u^{49}+\cdots+843u+121)^2$ $\cdot(u^{52}-8u^{51}+\cdots-50175u+6372)$
c_4, c_{10}	$289u^8(17u^{26}+317u^{24}+\cdots+75887u^2+11131)$ $\cdot((u^{50}+u^{49}+\cdots+14u-109)^2)(17u^{52}+9u^{51}+\cdots-1024u+512)$
c_5, c_{11}	$289(u^8-u^7+2u^6-u^5+2u^4-u^3+2u^2+1)$ $\cdot(17u^{26}-51u^{25}+\cdots-4u+1)(17u^{52}+43u^{51}+\cdots+9u+1)$ $\cdot(u^{100}+2u^{99}+\cdots+44u+1)$
c_6, c_9	$(u^8+2u^6+\cdots+u+1)(u^{26}-3u^{25}+\cdots+113u^2+17)$ $\cdot(u^{52}+6u^{50}+\cdots+94u+17)(u^{100}+2u^{99}+\cdots-23154u+5887)$
c_7, c_8	$(u^8+2u^7+6u^6+8u^5+11u^4+9u^3+7u^2+2u+1)$ $\cdot((u^{13}-2u^{12}+\cdots+3u+1)^2)(u^{50}+2u^{49}+\cdots+60u+19)^2$ $\cdot(u^{52}-3u^{51}+\cdots-155u+28)$
c_{12}	$(u^8-2u^7+6u^6-8u^5+11u^4-9u^3+7u^2-2u+1)$ $\cdot((u^{13}+2u^{12}+\cdots+3u-1)^2)(u^{50}+2u^{49}+\cdots+60u+19)^2$ $\cdot(u^{52}-3u^{51}+\cdots-155u+28)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y^8+3y^7+6y^6+13y^5+20y^4+11y^3+1)$ $\cdot(y^{26}+16y^{25}+\cdots+47872y+4624)$ $\cdot(y^{52}+y^{51}+\cdots-78640y+4624)$ $\cdot(y^{100}+35y^{99}+\cdots+1531073088y+32855824)$
c_2	$(y^8+y^7+13y^6+16y^5+28y^4+30y^3+8y^2-y+1)$ $\cdot(y^{13}-8y^{12}+\cdots+303y-49)^2$ $\cdot(y^{50}-31y^{49}+\cdots-433801y+14641)^2$ $\cdot(y^{52}+8y^{51}+\cdots-699178473y+40602384)$
c_4, c_{10}	$83521y^8(17y^{13}+317y^{12}+\cdots+75887y+11131)^2$ $\cdot(y^{50}+39y^{49}+\cdots-91756y+11881)^2$ $\cdot(289y^{52}+10289y^{51}+\cdots-393216y+262144)$
c_5, c_{11}	$83521(y^8+3y^7+6y^6+9y^5+12y^4+11y^3+8y^2+4y+1)$ $\cdot(289y^{26}-3383y^{25}+\cdots-12y+1)$ $\cdot(289y^{52}+3931y^{51}+\cdots+49y+1)(y^{100}-38y^{99}+\cdots-242y+1)$
c_6, c_9	$(y^8+4y^7+8y^6+11y^5+12y^4+9y^3+6y^2+3y+1)$ $\cdot(y^{26}+5y^{25}+\cdots+3842y+289)(y^{52}+12y^{51}+\cdots-3464y+289)$ $\cdot(y^{100}+26y^{99}+\cdots+1584012916y+34656769)$
c_7, c_8, c_{12}	$(y^8+8y^7+26y^6+46y^5+55y^4+53y^3+35y^2+10y+1)$ $\cdot((y^{13}+14y^{12}+\cdots+25y-1)^2)(y^{50}+48y^{49}+\cdots-4094y+361)^2$ $\cdot(y^{52}+45y^{51}+\cdots-6105y+784)$