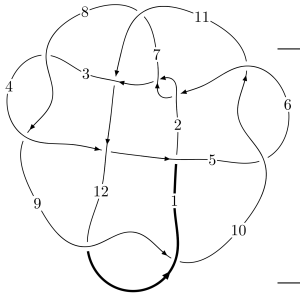
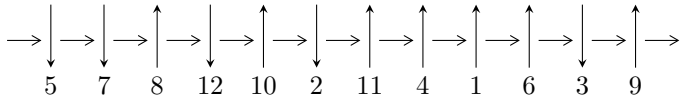
$12a_{1253}$ $(K12a_{1253})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -1.59766 \times 10^{581} u^{124} + 3.43383 \times 10^{581} u^{123} + \cdots + 2.82859 \times 10^{581} b + 5.30736 \times 10^{583}, \\
&\quad 2.20394 \times 10^{582} u^{124} - 4.77048 \times 10^{582} u^{123} + \cdots + 4.80860 \times 10^{582} a - 7.41864 \times 10^{584}, \\
&\quad u^{125} - 3u^{124} + \cdots - 1955u + 289 \rangle \\
I_2^u &= \langle 791694037 u^{18} + 148281897 u^{17} + \cdots + 2256529259 b + 2264697959, \\
&\quad -162403155 u^{18} + 758589616 u^{17} + \cdots + 2256529259 a + 24533522042, \\
&\quad u^{19} - 8u^{17} + \cdots - 15u + 1 \rangle \\
I_3^u &= \langle b + 1,\ a,\ u^2 - u - 1 \rangle \\
I_4^u &= \langle b + 1,\ a - 1,\ u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 147 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. $\boldsymbol{I_1^u = \langle -1.60 \times 10^{581} u^{124} + 3.43 \times 10^{581} u^{123} + \cdots + 2.83 \times 10^{581} b + 5.31 \times 10^{583},\ 2.20 \times 10^{582} u^{124} - 4.77 \times 10^{582} u^{123} + \cdots + 4.81 \times 10^{582} a - 7.42 \times 10^{584},\ u^{125} - 3u^{124} + \cdots - 1955u + 289 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_{10} = \begin{pmatrix} -0.458334u^{124} + 0.992072u^{123} + \cdots - 817.690u + 154.278 \\ 0.564827u^{124} - 1.21397u^{123} + \cdots + 1047.83u - 187.633 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.106493u^{124} - 0.221902u^{123} + \cdots + 230.141u - 33.3541 \\ 0.564827u^{124} - 1.21397u^{123} + \cdots + 1047.83u - 187.633 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.371742u^{124} - 0.828981u^{123} + \cdots + 745.819u - 139.719 \\ -0.191219u^{124} + 0.426785u^{123} + \cdots - 403.224u + 74.5168 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.321539u^{124} + 0.694405u^{123} + \cdots - 558.595u + 107.776 \\ 0.666292u^{124} - 1.43070u^{123} + \cdots + 1241.24u - 222.472 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.280445u^{124} + 0.624569u^{123} + \cdots - 586.063u + 112.854 \\ -0.311341u^{124} + 0.691375u^{123} + \cdots - 323.906u + 58.2541 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.843078u^{124} - 1.84273u^{123} + \cdots + 1707.88u - 304.272 \\ -0.559460u^{124} + 1.23368u^{123} + \cdots - 1142.91u + 208.255 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.650008u^{124} + 1.44187u^{123} + \cdots - 1314.29u + 240.546 \\ 0.415494u^{124} - 0.925040u^{123} + \cdots + 859.265u - 156.839 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.733999u^{124} - 1.60760u^{123} + \cdots + 1479.66u - 262.978 \\ -0.615104u^{124} + 1.36954u^{123} + \cdots - 1246.28u + 226.921 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2.20245u^{124} - 2.27856u^{123} + \cdots + 8267.63u - 1316.86$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{125}+6u^{124}+\cdots-103752u+326$
c_2, c_6	$u^{125}-3u^{124}+\cdots-1955u+289$
c_3, c_8	$u^{125}-49u^{123}+\cdots+1952u-64$
c_4	$u^{125}+11u^{124}+\cdots+5083935u+755075$
c_5, c_{10}	$u^{125}+15u^{124}+\cdots+1470u+223$
c_7	$u^{125}-3u^{124}+\cdots-1329u-1097$
c_9, c_{12}	$u^{125}+2u^{124}+\cdots-3u+1$
c_{11}	$u^{125}+11u^{124}+\cdots-19u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{125} + 26y^{124} + \cdots + 11898756036y - 106276$
c_2, c_6	$y^{125} - 85y^{124} + \cdots - 9039053y - 83521$
c_3, c_8	$y^{125} - 98y^{124} + \cdots + 891904y - 4096$
c_4	$y^{125} - 51y^{124} + \cdots - 11330459493975y - 570138255625$
c_5, c_{10}	$y^{125} - 179y^{124} + \cdots + 4984526y - 49729$
c_7	$y^{125} - 23y^{124} + \cdots + 199287673y - 1203409$
c_9, c_{12}	$y^{125} - 106y^{124} + \cdots - 155y - 1$
c_{11}	$y^{125} - 99y^{124} + \cdots + 589y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.942487 + 0.335420I$ $a = -1.31065 - 0.55928I$ $b = 0.949578 - 0.100314I$	$1.073150 - 0.413455I$	0
$u = 0.942487 - 0.335420I$ $a = -1.31065 + 0.55928I$ $b = 0.949578 + 0.100314I$	$1.073150 + 0.413455I$	0
$u = -0.998836$ $a = 0.104757$ $b = -8.54734$	-0.00222811	0
$u = -0.984421 + 0.123698I$ $a = 1.85676 - 1.50641I$ $b = -1.338110 - 0.348323I$	$2.57285 + 3.74721I$	0
$u = -0.984421 - 0.123698I$ $a = 1.85676 + 1.50641I$ $b = -1.338110 + 0.348323I$	$2.57285 - 3.74721I$	0
$u = -1.006450 + 0.082045I$ $a = -1.41830 + 0.84737I$ $b = 1.243520 + 0.340332I$	$-2.02666 + 1.11572I$	0
$u = -1.006450 - 0.082045I$ $a = -1.41830 - 0.84737I$ $b = 1.243520 - 0.340332I$	$-2.02666 - 1.11572I$	0
$u = 0.969937 + 0.142867I$ $a = -0.025056 - 0.679227I$ $b = -0.92183 - 1.61532I$	$4.14076 + 0.37848I$	0
$u = 0.969937 - 0.142867I$ $a = -0.025056 + 0.679227I$ $b = -0.92183 + 1.61532I$	$4.14076 - 0.37848I$	0
$u = 0.999678 + 0.255939I$ $a = -0.295500 - 0.549772I$ $b = 1.33355 - 0.68586I$	$3.57785 - 0.70217I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.999678 - 0.255939I$ $a = -0.295500 + 0.549772I$ $b = 1.33355 + 0.68586I$	$3.57785 + 0.70217I$	0
$u = -0.728834 + 0.747827I$ $a = -1.39852 + 0.79835I$ $b = 0.993598 + 0.529369I$	$3.46231 + 3.84978I$	0
$u = -0.728834 - 0.747827I$ $a = -1.39852 - 0.79835I$ $b = 0.993598 - 0.529369I$	$3.46231 - 3.84978I$	0
$u = 0.947940$ $a = 0.411989$ $b = -3.26607$	4.49095	0
$u = -0.201015 + 0.900653I$ $a = -2.01584 - 0.72120I$ $b = 1.41913 + 0.13506I$	$11.14340 - 2.83478I$	0
$u = -0.201015 - 0.900653I$ $a = -2.01584 + 0.72120I$ $b = 1.41913 - 0.13506I$	$11.14340 + 2.83478I$	0
$u = 0.763397 + 0.778071I$ $a = 0.764289 - 0.538999I$ $b = -0.245655 + 0.161369I$	$5.66067 + 3.97448I$	0
$u = 0.763397 - 0.778071I$ $a = 0.764289 + 0.538999I$ $b = -0.245655 - 0.161369I$	$5.66067 - 3.97448I$	0
$u = -0.905059 + 0.026507I$ $a = 0.028804 + 1.057240I$ $b = -0.715124 + 0.404762I$	$-1.42504 + 0.49524I$	0
$u = -0.905059 - 0.026507I$ $a = 0.028804 - 1.057240I$ $b = -0.715124 - 0.404762I$	$-1.42504 - 0.49524I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.248411 + 0.848307I$ $a = 1.50680 + 0.58991I$ $b = -1.346860 - 0.320768I$	$7.43042 + 3.38208I$	0
$u = 0.248411 - 0.848307I$ $a = 1.50680 - 0.58991I$ $b = -1.346860 + 0.320768I$	$7.43042 - 3.38208I$	0
$u = -0.532827 + 0.983917I$ $a = -1.102080 + 0.654082I$ $b = 1.365910 - 0.306586I$	$11.09390 - 4.19413I$	0
$u = -0.532827 - 0.983917I$ $a = -1.102080 - 0.654082I$ $b = 1.365910 + 0.306586I$	$11.09390 + 4.19413I$	0
$u = -0.050306 + 0.874311I$ $a = 1.60362 + 0.34559I$ $b = -1.328610 + 0.111859I$	$7.31902 - 2.80449I$	0
$u = -0.050306 - 0.874311I$ $a = 1.60362 - 0.34559I$ $b = -1.328610 - 0.111859I$	$7.31902 + 2.80449I$	0
$u = 1.107530 + 0.221187I$ $a = 1.22998 + 1.17599I$ $b = -1.102900 + 0.445367I$	$-0.91861 - 5.00934I$	0
$u = 1.107530 - 0.221187I$ $a = 1.22998 - 1.17599I$ $b = -1.102900 - 0.445367I$	$-0.91861 + 5.00934I$	0
$u = 0.070134 + 0.865185I$ $a = -1.65106 + 0.14147I$ $b = 1.47600 - 0.35818I$	$11.97640 - 2.93586I$	0
$u = 0.070134 - 0.865185I$ $a = -1.65106 - 0.14147I$ $b = 1.47600 + 0.35818I$	$11.97640 + 2.93586I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.856845+0.131608I$ $a=-0.12179+2.20756I$ $b=\ \ 1.030550-0.111168I$	$2.93986-2.52030I$	0
$u=-0.856845-0.131608I$ $a=-0.12179-2.20756I$ $b=\ \ 1.030550+0.111168I$	$2.93986+2.52030I$	0
$u=\ \ 1.062400+0.456633I$ $a=\ \ 0.314056+1.059930I$ $b=-1.209760-0.001302I$	$8.90062-1.54659I$	0
$u=\ \ 1.062400-0.456633I$ $a=\ \ 0.314056-1.059930I$ $b=-1.209760+0.001302I$	$8.90062+1.54659I$	0
$u=\ \ 0.836144$ $a=-1.81627$ $b=\ \ 1.69790$	11.1866	0
$u=\ \ 1.152110+0.191743I$ $a=-1.00646-1.48940I$ $b=\ \ 1.261180-0.567330I$	$4.32440-9.08748I$	0
$u=\ \ 1.152110-0.191743I$ $a=-1.00646+1.48940I$ $b=\ \ 1.261180+0.567330I$	$4.32440+9.08748I$	0
$u=-0.258052+0.789817I$ $a=\ \ 0.140191-0.606288I$ $b=\ \ 0.198810+0.549299I$	$1.35239+3.40013I$	0
$u=-0.258052-0.789817I$ $a=\ \ 0.140191+0.606288I$ $b=\ \ 0.198810-0.549299I$	$1.35239-3.40013I$	0
$u=\ \ 0.803999+0.190276I$ $a=-0.05590+1.73727I$ $b=\ \ 0.575329+0.304263I$	$1.37533-4.04378I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.803999 - 0.190276I$ $a = -0.05590 - 1.73727I$ $b = 0.575329 - 0.304263I$	$1.37533 + 4.04378I$	0
$u = -1.014540 + 0.603398I$ $a = 1.19194 - 0.80373I$ $b = -1.45839 - 0.63741I$	$9.51821 + 9.86764I$	0
$u = -1.014540 - 0.603398I$ $a = 1.19194 + 0.80373I$ $b = -1.45839 + 0.63741I$	$9.51821 - 9.86764I$	0
$u = 1.19033$ $a = 0.633381$ $b = -2.57595$	5.74232	0
$u = 1.008690 + 0.636363I$ $a = -1.38714 - 1.38113I$ $b = 1.104040 + 0.048480I$	$3.42114 - 1.49949I$	0
$u = 1.008690 - 0.636363I$ $a = -1.38714 + 1.38113I$ $b = 1.104040 - 0.048480I$	$3.42114 + 1.49949I$	0
$u = -1.20245$ $a = 1.43195$ $b = -0.869123$	1.87496	0
$u = 1.129360 + 0.492218I$ $a = 1.00124 + 1.02679I$ $b = -1.078970 + 0.428805I$	$0.10965 - 4.48168I$	0
$u = 1.129360 - 0.492218I$ $a = 1.00124 - 1.02679I$ $b = -1.078970 - 0.428805I$	$0.10965 + 4.48168I$	0
$u = 0.735696 + 0.118101I$ $a = 0.59129 - 2.40306I$ $b = -0.850795 + 0.180856I$	$6.45678 - 8.22259I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.735696 - 0.118101I$ $a = 0.59129 + 2.40306I$ $b = -0.850795 - 0.180856I$	$6.45678 + 8.22259I$	0
$u = 1.176340 + 0.442144I$ $a = -1.010910 - 0.975118I$ $b = 1.40342 - 0.62990I$	$4.52271 - 8.07392I$	0
$u = 1.176340 - 0.442144I$ $a = -1.010910 + 0.975118I$ $b = 1.40342 + 0.62990I$	$4.52271 + 8.07392I$	0
$u = -0.064652 + 1.259870I$ $a = -1.55286 - 0.19267I$ $b = 1.38752 + 0.33072I$	$12.1768 + 12.3422I$	0
$u = -0.064652 - 1.259870I$ $a = -1.55286 + 0.19267I$ $b = 1.38752 - 0.33072I$	$12.1768 - 12.3422I$	0
$u = -1.271270 + 0.010472I$ $a = 0.493530 - 0.645669I$ $b = 0.372201 - 1.018560I$	$1.38433 + 3.30057I$	0
$u = -1.271270 - 0.010472I$ $a = 0.493530 + 0.645669I$ $b = 0.372201 + 1.018560I$	$1.38433 - 3.30057I$	0
$u = -1.233480 + 0.366840I$ $a = -0.021203 - 0.182690I$ $b = 0.188021 - 1.131960I$	$-2.03657 + 7.38018I$	0
$u = -1.233480 - 0.366840I$ $a = -0.021203 + 0.182690I$ $b = 0.188021 + 1.131960I$	$-2.03657 - 7.38018I$	0
$u = 1.291170 + 0.071617I$ $a = -0.827168 + 0.322335I$ $b = 0.009115 + 0.461538I$	$-1.65578 + 0.24540I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.291170 - 0.071617I$ $a = -0.827168 - 0.322335I$ $b = 0.009115 - 0.461538I$	$-1.65578 - 0.24540I$	0
$u = -1.200070 + 0.510332I$ $a = 0.497005 + 0.005590I$ $b = -0.769177 + 0.589646I$	$1.57951 + 1.76742I$	0
$u = -1.200070 - 0.510332I$ $a = 0.497005 - 0.005590I$ $b = -0.769177 - 0.589646I$	$1.57951 - 1.76742I$	0
$u = -1.237890 + 0.416643I$ $a = -0.403979 + 0.160673I$ $b = 0.138193 + 0.573082I$	$-1.49994 + 1.61445I$	0
$u = -1.237890 - 0.416643I$ $a = -0.403979 - 0.160673I$ $b = 0.138193 - 0.573082I$	$-1.49994 - 1.61445I$	0
$u = -0.045413 + 1.306590I$ $a = 1.67730 - 0.20079I$ $b = -1.301320 + 0.252631I$	$5.92187 - 6.37567I$	0
$u = -0.045413 - 1.306590I$ $a = 1.67730 + 0.20079I$ $b = -1.301320 - 0.252631I$	$5.92187 + 6.37567I$	0
$u = -1.271590 + 0.355578I$ $a = -0.275443 + 0.222786I$ $b = 0.243434 + 1.386490I$	$2.30413 + 12.11600I$	0
$u = -1.271590 - 0.355578I$ $a = -0.275443 - 0.222786I$ $b = 0.243434 - 1.386490I$	$2.30413 - 12.11600I$	0
$u = -1.320660 + 0.052173I$ $a = -0.238135 - 0.284295I$ $b = -0.292004 - 0.653383I$	$-3.32174 - 0.72507I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.320660-0.052173I$ $a=-0.238135+0.284295I$ $b=-0.292004+0.653383I$	$-3.32174+0.72507I$	0
$u=0.419647+0.530297I$ $a=-0.233736-0.046973I$ $b=0.373441+0.584783I$	$1.99588+0.53159I$	0
$u=0.419647-0.530297I$ $a=-0.233736+0.046973I$ $b=0.373441-0.584783I$	$1.99588-0.53159I$	0
$u=1.307820+0.274864I$ $a=0.085206-0.190905I$ $b=-0.090114-0.900265I$	$-6.42038-3.16549I$	0
$u=1.307820-0.274864I$ $a=0.085206+0.190905I$ $b=-0.090114+0.900265I$	$-6.42038+3.16549I$	0
$u=1.291080+0.349126I$ $a=0.306369+0.219969I$ $b=-0.191727+1.091060I$	$-3.29921-7.30371I$	0
$u=1.291080-0.349126I$ $a=0.306369-0.219969I$ $b=-0.191727-1.091060I$	$-3.29921+7.30371I$	0
$u=-1.252100+0.495718I$ $a=0.52941-1.50227I$ $b=-1.121350-0.022468I$	$7.82978+7.91392I$	0
$u=-1.252100-0.495718I$ $a=0.52941+1.50227I$ $b=-1.121350+0.022468I$	$7.82978-7.91392I$	0
$u=0.394816+1.320890I$ $a=-1.375450-0.027755I$ $b=1.140540-0.064980I$	$2.13769-1.18631I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.394816 - 1.320890I$ $a = -1.375450 + 0.027755I$ $b = 1.140540 + 0.064980I$	$2.13769 + 1.18631I$	0
$u = -1.301960 + 0.457122I$ $a = -0.590109 + 1.091690I$ $b = 1.156570 + 0.416229I$	$3.40334 + 7.64879I$	0
$u = -1.301960 - 0.457122I$ $a = -0.590109 - 1.091690I$ $b = 1.156570 - 0.416229I$	$3.40334 - 7.64879I$	0
$u = -1.333710 + 0.425702I$ $a = 0.759018 - 0.950054I$ $b = -1.43023 - 0.69908I$	$7.61011 + 7.61213I$	0
$u = -1.333710 - 0.425702I$ $a = 0.759018 + 0.950054I$ $b = -1.43023 + 0.69908I$	$7.61011 - 7.61213I$	0
$u = 0.218548 + 0.551748I$ $a = -0.713524 - 0.955013I$ $b = -0.492758 + 0.692695I$	$6.57929 - 8.58236I$	$7.17479 + 7.35116I$
$u = 0.218548 - 0.551748I$ $a = -0.713524 + 0.955013I$ $b = -0.492758 - 0.692695I$	$6.57929 + 8.58236I$	$7.17479 - 7.35116I$
$u = 0.096219 + 1.408040I$ $a = 1.240840 + 0.138875I$ $b = -1.138190 - 0.225307I$	$5.37760 + 6.35842I$	0
$u = 0.096219 - 1.408040I$ $a = 1.240840 - 0.138875I$ $b = -1.138190 + 0.225307I$	$5.37760 - 6.35842I$	0
$u = 1.14489 + 0.84151I$ $a = 1.79580 + 0.56792I$ $b = -1.39055 + 0.27443I$	$3.46207 - 4.82583I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.14489 - 0.84151I$ $a = 1.79580 - 0.56792I$ $b = -1.39055 - 0.27443I$	$3.46207 + 4.82583I$	0
$u = 1.42965$ $a = 0.686510$ $b = 0.644590$	-5.36152	0
$u = -0.478248 + 0.271489I$ $a = -0.977448 + 0.413736I$ $b = -0.268229 - 0.088356I$	$-1.211170 + 0.683772I$	$-5.72849 - 2.30581I$
$u = -0.478248 - 0.271489I$ $a = -0.977448 - 0.413736I$ $b = -0.268229 + 0.088356I$	$-1.211170 - 0.683772I$	$-5.72849 + 2.30581I$
$u = 1.11597 + 0.93887I$ $a = 1.176320 + 0.588254I$ $b = -0.856393 + 0.342815I$	$1.70730 - 5.60461I$	0
$u = 1.11597 - 0.93887I$ $a = 1.176320 - 0.588254I$ $b = -0.856393 - 0.342815I$	$1.70730 + 5.60461I$	0
$u = -1.36863 + 0.60611I$ $a = -1.26268 + 0.80568I$ $b = 1.43156 + 0.48503I$	$1.78338 + 12.88010I$	0
$u = -1.36863 - 0.60611I$ $a = -1.26268 - 0.80568I$ $b = 1.43156 - 0.48503I$	$1.78338 - 12.88010I$	0
$u = 1.38283 + 0.64837I$ $a = -1.063510 - 0.675951I$ $b = 1.253970 - 0.571822I$	$1.32115 - 13.29350I$	0
$u = 1.38283 - 0.64837I$ $a = -1.063510 + 0.675951I$ $b = 1.253970 + 0.571822I$	$1.32115 + 13.29350I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.41640 + 0.59524I$ $a = 1.116180 + 0.781695I$ $b = -1.47957 + 0.57235I$	$7.5925 - 18.7913I$	0
$u = 1.41640 - 0.59524I$ $a = 1.116180 - 0.781695I$ $b = -1.47957 - 0.57235I$	$7.5925 + 18.7913I$	0
$u = 1.53727$ $a = 0.426033$ $b = -1.46089$	8.61324	0
$u = -1.40579 + 0.62377I$ $a = 1.091860 - 0.606808I$ $b = -1.245940 - 0.466819I$	$-2.84296 + 8.08154I$	0
$u = -1.40579 - 0.62377I$ $a = 1.091860 + 0.606808I$ $b = -1.245940 + 0.466819I$	$-2.84296 - 8.08154I$	0
$u = -0.460679$ $a = -0.911688$ $b = -1.22871$	0.613536	13.1590
$u = -1.54129$ $a = 0.0352544$ $b = 0.972874$	0.720066	0
$u = 0.100125 + 0.404117I$ $a = 2.12907 - 0.05398I$ $b = 0.289595 - 0.443502I$	$1.78277 - 4.00315I$	$2.74480 + 6.42996I$
$u = 0.100125 - 0.404117I$ $a = 2.12907 + 0.05398I$ $b = 0.289595 + 0.443502I$	$1.78277 + 4.00315I$	$2.74480 - 6.42996I$
$u = -0.198425 + 0.358426I$ $a = 0.28562 + 3.59401I$ $b = -0.225943 - 0.133733I$	$5.65081 + 1.71698I$	$17.6974 - 1.9857I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.198425-0.358426I$ $a=\ \ 0.28562-3.59401I$ $b=-0.225943+0.133733I$	$5.65081-1.71698I$	$17.6974+1.9857I$
$u=\ \ 0.225705+0.309180I$ $a=-1.039030+0.416603I$ $b=-0.391115-1.157360I$	$5.84300-2.34407I$	$12.82711+4.41953I$
$u=\ \ 0.225705-0.309180I$ $a=-1.039030-0.416603I$ $b=-0.391115+1.157360I$	$5.84300+2.34407I$	$12.82711-4.41953I$
$u=\ \ 0.369506$ $a=-1.56521$ $b=\ \ 0.633722$	0.992586	11.4650
$u=\ \ 1.63602$ $a=-0.737016$ $b=\ \ 0.621597$	-1.36484	0
$u=-1.66203$ $a=-0.221478$ $b=\ \ 0.162999$	-3.11044	0
$u=\ \ 1.47910+0.77322I$ $a=-1.195450-0.390858I$ $b=\ \ 1.258520-0.207651I$	$1.14385-1.93389I$	0
$u=\ \ 1.47910-0.77322I$ $a=-1.195450+0.390858I$ $b=\ \ 1.258520+0.207651I$	$1.14385+1.93389I$	0
$u=-1.38318+0.97054I$ $a=\ \ 0.929310-0.600810I$ $b=-1.152700+0.077736I$	$8.30900-4.86994I$	0
$u=-1.38318-0.97054I$ $a=\ \ 0.929310+0.600810I$ $b=-1.152700-0.077736I$	$8.30900+4.86994I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.69303$ $a = 0.0174393$ $b = -1.05150$	2.48679	0
$u = -1.53624 + 0.81070I$ $a = -0.863778 + 0.415887I$ $b = 1.013210 + 0.197642I$	$0.20721 + 2.12586I$	0
$u = -1.53624 - 0.81070I$ $a = -0.863778 - 0.415887I$ $b = 1.013210 - 0.197642I$	$0.20721 - 2.12586I$	0
$u = -0.0001479 + 0.1236730I$ $a = 3.31368 + 5.75049I$ $b = 0.456774 - 0.598825I$	$1.95643 + 0.05896I$	$6.47140 + 0.32524I$
$u = -0.0001479 - 0.1236730I$ $a = 3.31368 - 5.75049I$ $b = 0.456774 + 0.598825I$	$1.95643 - 0.05896I$	$6.47140 - 0.32524I$

II.

$\boldsymbol{I_2^u = \langle 7.92\times 10^8 u^{18} + 1.48\times 10^8 u^{17} + \cdots + 2.26\times 10^9 b + 2.26\times 10^9,\ -1.62\times 10^8 u^{18} + 7.59\times 10^8 u^{17} + \cdots + 2.26\times 10^9 a + 2.45\times 10^{10},\ u^{19} - 8u^{17} + \cdots - 15u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_{10} = \begin{pmatrix} 0.0719703u^{18} - 0.336175u^{17} + \cdots + 7.91864u - 10.8722 \\ -0.350846u^{18} - 0.0657124u^{17} + \cdots - 8.24945u - 1.00362 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.278876u^{18} - 0.401888u^{17} + \cdots - 0.330807u - 11.8759 \\ -0.350846u^{18} - 0.0657124u^{17} + \cdots - 8.24945u - 1.00362 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2.06658u^{18} + 0.00280882u^{17} + \cdots + 77.8527u - 23.4221 \\ 0.471608u^{18} + 0.112728u^{17} + \cdots + 19.4581u - 4.07844 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0515186u^{18} - 0.541545u^{17} + \cdots + 6.69380u - 12.3780 \\ -0.722285u^{18} - 0.184624u^{17} + \cdots - 17.5963u - 0.361828 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.779187u^{18} + 0.342273u^{17} + \cdots - 38.7911u + 20.6169 \\ 0.660387u^{18} + 0.793389u^{17} + \cdots - 2.30440u + 2.94278 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2.59102u^{18} - 0.116156u^{17} + \cdots - 92.8719u + 32.0382 \\ -0.698485u^{18} + 0.0443048u^{17} + \cdots - 19.1479u + 5.37856 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -2.05708u^{18} - 0.0504904u^{17} + \cdots - 79.1873u + 33.1423 \\ 0.195658u^{18} + 0.345667u^{17} + \cdots + 2.78270u + 3.86736 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -3.86132u^{18} - 0.678099u^{17} + \cdots - 127.882u + 35.3868 \\ -0.812222u^{18} - 0.0812151u^{17} + \cdots - 26.5770u + 6.00488 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{6831297144}{2256529259}u^{18} + \frac{11207398997}{2256529259}u^{17} + \cdots + \frac{41616421755}{2256529259}u + \frac{30171201693}{2256529259}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} - 2u^{18} + \cdots - 4u - 1$
c_2	$u^{19} - 8u^{17} + \cdots - 15u - 1$
c_3	$u^{19} + u^{18} + \cdots + 41u - 5$
c_4	$u^{19} - 3u^{18} + \cdots - 6u + 1$
c_5	$u^{19} - 3u^{18} + \cdots + u - 1$
c_6	$u^{19} - 8u^{17} + \cdots - 15u + 1$
c_7	$u^{19} - 2u^{18} + \cdots + 5u - 1$
c_8	$u^{19} - u^{18} + \cdots + 41u + 5$
c_9	$u^{19} - 3u^{18} + \cdots - 23u + 1$
c_{10}	$u^{19} + 3u^{18} + \cdots + u + 1$
c_{11}	$u^{19} - 5u^{18} + \cdots + 4u + 1$
c_{12}	$u^{19} + 3u^{18} + \cdots - 23u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} + 2y^{18} + \cdots + 46y - 1$
c_2, c_6	$y^{19} - 16y^{18} + \cdots + 159y - 1$
c_3, c_8	$y^{19} - 17y^{18} + \cdots + 1731y - 25$
c_4	$y^{19} - 7y^{18} + \cdots + 94y - 1$
c_5, c_{10}	$y^{19} - 31y^{18} + \cdots + 27y - 1$
c_7	$y^{19} - 6y^{18} + \cdots + 9y - 1$
c_9, c_{12}	$y^{19} - 17y^{18} + \cdots + 545y - 1$
c_{11}	$y^{19} - 19y^{18} + \cdots + 10y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.948882$ $a=\ \ 0.420434$ $b=-1.51887$	-0.0522738	-2.13350
$u=\ \ 0.948291$ $a=-0.219082$ $b=\ \ 3.86098$	4.55872	88.0720
$u=\ \ 0.998924+0.629882I$ $a=-1.97905-0.90443I$ $b=\ \ 1.343040-0.308552I$	$4.00272-4.78550I$	$10.63922+5.01600I$
$u=\ \ 0.998924-0.629882I$ $a=-1.97905+0.90443I$ $b=\ \ 1.343040+0.308552I$	$4.00272+4.78550I$	$10.63922-5.01600I$
$u=-0.629570+1.040920I$ $a=-1.49280+0.38753I$ $b=\ \ 1.157600-0.253486I$	$7.37353-5.84742I$	$9.30245+6.94375I$
$u=-0.629570-1.040920I$ $a=-1.49280-0.38753I$ $b=\ \ 1.157600+0.253486I$	$7.37353+5.84742I$	$9.30245-6.94375I$
$u=-1.168570+0.362422I$ $a=\ \ 0.68161-1.49743I$ $b=-1.123780-0.641982I$	$5.52017+10.28820I$	$5.93954-9.82069I$
$u=-1.168570-0.362422I$ $a=\ \ 0.68161+1.49743I$ $b=-1.123780+0.641982I$	$5.52017-10.28820I$	$5.93954+9.82069I$
$u=-0.995194+0.759827I$ $a=-1.27070+0.94640I$ $b=\ \ 0.856076+0.332030I$	$2.14286+5.50598I$	$11.65232-6.69325I$
$u=-0.995194-0.759827I$ $a=-1.27070-0.94640I$ $b=\ \ 0.856076-0.332030I$	$2.14286-5.50598I$	$11.65232+6.69325I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.36113$ $a=\ \ 0.643361$ $b=-0.446430$	-0.617884	2.68150
$u=\ \ 1.40302$ $a=\ \ 0.775709$ $b=\ \ 0.528367$	-5.57065	-20.8290
$u=\ \ 1.50745$ $a=-0.916677$ $b=\ \ 0.361115$	0.709401	-1.47580
$u=\ \ 0.473561+0.057656I$ $a=-1.57212+1.03384I$ $b=\ \ 0.051996+0.781955I$	$5.00025-1.76770I$	$3.74639+1.14542I$
$u=\ \ 0.473561-0.057656I$ $a=-1.57212-1.03384I$ $b=\ \ 0.051996-0.781955I$	$5.00025+1.76770I$	$3.74639-1.14542I$
$u=\ \ 1.32328+0.90704I$ $a=\ \ 1.225520+0.460064I$ $b=-1.186300+0.176065I$	$1.45847-2.11781I$	$9.21881+9.96997I$
$u=\ \ 1.32328-0.90704I$ $a=\ \ 1.225520-0.460064I$ $b=-1.186300-0.176065I$	$1.45847+2.11781I$	$9.21881-9.96997I$
$u=-1.63674$ $a=\ \ 0.0257786$ $b=-0.374181$	-2.95718	25.8480
$u=\ \ 0.0831383$ $a=-9.91445$ $b=-1.60825$	12.1515	13.8400

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = 0$ $b = -1.00000$	0	-1.00000
$u = 1.61803$ $a = 0$ $b = -1.00000$	0	-1.00000

IV. $I_4^u = \langle b+1,\ a-1,\ u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00000$ $a=\ \ 1.00000$ $b=-1.00000$	0	0

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^2+u-1)(u^{19}-2u^{18}+\cdots-4u-1)$ $\cdot(u^{125}+6u^{124}+\cdots-103752u+326)$
c_2	$(u-1)(u^2+u-1)(u^{19}-8u^{17}+\cdots-15u-1)$ $\cdot(u^{125}-3u^{124}+\cdots-1955u+289)$
c_3	$u^3(u^{19}+u^{18}+\cdots+41u-5)(u^{125}-49u^{123}+\cdots+1952u-64)$
c_4	$((u+1)^3)(u^{19}-3u^{18}+\cdots-6u+1)$ $\cdot(u^{125}+11u^{124}+\cdots+5083935u+755075)$
c_5	$((u+1)^3)(u^{19}-3u^{18}+\cdots+u-1)(u^{125}+15u^{124}+\cdots+1470u+223)$
c_6	$(u+1)(u^2-u-1)(u^{19}-8u^{17}+\cdots-15u+1)$ $\cdot(u^{125}-3u^{124}+\cdots-1955u+289)$
c_7	$(u+1)(u^2-u-1)(u^{19}-2u^{18}+\cdots+5u-1)$ $\cdot(u^{125}-3u^{124}+\cdots-1329u-1097)$
c_8	$u^3(u^{19}-u^{18}+\cdots+41u+5)(u^{125}-49u^{123}+\cdots+1952u-64)$
c_9	$(u+1)(u^2-u-1)(u^{19}-3u^{18}+\cdots-23u+1)(u^{125}+2u^{124}+\cdots-3u+1)$
c_{10}	$((u-1)^3)(u^{19}+3u^{18}+\cdots+u+1)(u^{125}+15u^{124}+\cdots+1470u+223)$
c_{11}	$((u-1)^3)(u^{19}-5u^{18}+\cdots+4u+1)(u^{125}+11u^{124}+\cdots-19u+1)$
c_{12}	$(u-1)(u^2+u-1)(u^{19}+3u^{18}+\cdots-23u-1)(u^{125}+2u^{124}+\cdots-3u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^2-3y+1)(y^{19}+2y^{18}+\cdots+46y-1)$ $\cdot(y^{125}+26y^{124}+\cdots+11898756036y-106276)$
c_2, c_6	$(y-1)(y^2-3y+1)(y^{19}-16y^{18}+\cdots+159y-1)$ $\cdot(y^{125}-85y^{124}+\cdots-9039053y-83521)$
c_3, c_8	$y^3(y^{19}-17y^{18}+\cdots+1731y-25)$ $\cdot(y^{125}-98y^{124}+\cdots+891904y-4096)$
c_4	$((y-1)^3)(y^{19}-7y^{18}+\cdots+94y-1)$ $\cdot(y^{125}-51y^{124}+\cdots-11330459493975y-570138255625)$
c_5, c_{10}	$((y-1)^3)(y^{19}-31y^{18}+\cdots+27y-1)$ $\cdot(y^{125}-179y^{124}+\cdots+4984526y-49729)$
c_7	$(y-1)(y^2-3y+1)(y^{19}-6y^{18}+\cdots+9y-1)$ $\cdot(y^{125}-23y^{124}+\cdots+199287673y-1203409)$
c_9, c_{12}	$(y-1)(y^2-3y+1)(y^{19}-17y^{18}+\cdots+545y-1)$ $\cdot(y^{125}-106y^{124}+\cdots-155y-1)$
c_{11}	$((y-1)^3)(y^{19}-19y^{18}+\cdots+10y-1)(y^{125}-99y^{124}+\cdots+589y-1)$