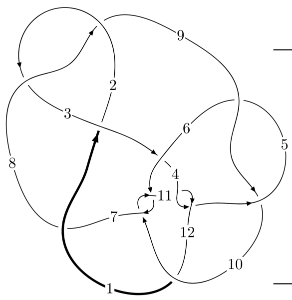
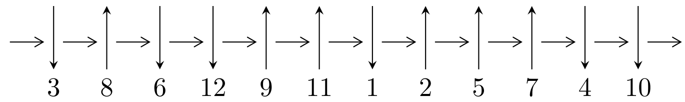
$12a_{0708}$ $(K12a_{0708})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-1.09180 \times 10^{106} u^{45} + 2.54989 \times 10^{106} u^{44} + \cdots + 1.47540 \times 10^{109} b - 9.66672 \times 10^{108}, \\
&- 3.14133 \times 10^{108} u^{45} + 6.29434 \times 10^{108} u^{44} + \cdots + 5.90159 \times 10^{110} a - 2.38197 \times 10^{111}, \\
&u^{46} - 2u^{45} + \cdots + 841u - 160\rangle \\
I_2^u = \langle &u^{31} - u^{30} + \cdots + a + 2,\ 2u^{31}a + 4u^{31} + \cdots + 6a + 4,\ u^{32} - u^{31} + \cdots + 2u - 1\rangle \\
I_3^u = \langle &b + 1,\ 16a^4 + 32a^3 + 16a^2 + 1,\ u + 1\rangle \\
I_4^u = \langle &2u^2a - au + 3u^2 + b + 2a - u + 5,\ 70u^2a + 25a^2 - 40au + 91u^2 + 130a - 42u + 169,\ u^3 - u^2 + 2u - 1\rangle \\
I_5^u = \langle &b - 1,\ 8a^3 - 12a^2 + 6a - 1,\ u - 1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 123 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. $\boldsymbol{I_1^u = \langle -1.09 \times 10^{106} u^{45} + 2.55 \times 10^{106} u^{44} + \cdots + 1.48 \times 10^{109} b - 9.67 \times 10^{108},\ -3.14 \times 10^{108} u^{45} + 6.29 \times 10^{108} u^{44} + \cdots + 5.90 \times 10^{110} a - 2.38 \times 10^{111},\ u^{46} - 2u^{45} + \cdots + 841u - 160 \rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.00532285u^{45} - 0.0106655u^{44} + \cdots - 6.13310u + 4.03615 \\ 0.000740005u^{45} - 0.00172827u^{44} + \cdots + 1.78965u + 0.655195 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.00458285u^{45} - 0.00893723u^{44} + \cdots - 7.92275u + 3.38096 \\ 0.000740005u^{45} - 0.00172827u^{44} + \cdots + 1.78965u + 0.655195 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.00266979u^{45} - 0.00467810u^{44} + \cdots - 7.89898u + 1.66017 \\ 0.000649223u^{45} - 0.00112824u^{44} + \cdots + 0.509083u + 0.599334 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.00386651u^{45} - 0.00706006u^{44} + \cdots - 7.67006u + 4.50026 \\ 0.000120669u^{45} - 0.000217602u^{44} + \cdots - 0.420533u + 0.840929 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.00308435u^{45} - 0.00557645u^{44} + \cdots - 6.66439u + 3.23217 \\ 0.000567357u^{45} - 0.00102442u^{44} + \cdots - 0.589724u + 0.521928 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.000163084u^{45} - 0.000998201u^{44} + \cdots + 4.27507u + 0.948641 \\ -0.000225587u^{45} - 0.000445073u^{44} + \cdots + 3.77056u - 0.0255609 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.00488531u^{45} - 0.00821426u^{44} + \cdots - 15.9169u + 3.03609 \\ 0.00128027u^{45} - 0.00211403u^{44} + \cdots - 2.99501u + 1.51400 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.00411477u^{45} - 0.00750092u^{44} + \cdots - 7.70291u + 4.38186 \\ 0.000191354u^{45} - 0.000279609u^{44} + \cdots - 0.394775u + 0.968236 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00201846u^{45} - 0.00557907u^{44} + \cdots - 13.0415u + 5.45038$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{46} + 23u^{45} + \cdots + 112u + 64$
c_2, c_8	$u^{46} + 3u^{45} + \cdots + 28u + 8$
c_3, c_{12}	$128(128u^{46} - 576u^{45} + \cdots - 9u + 1)$
c_4, c_{11}	$u^{46} + 2u^{45} + \cdots - 841u - 160$
c_5, c_6, c_9 c_{10}	$u^{46} + u^{45} + \cdots - 14u - 1$
c_7	$u^{46} - 3u^{45} + \cdots - 24020u + 12872$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{46} + 3y^{45} + \cdots - 45312y + 4096$
c_2, c_8	$y^{46} + 23y^{45} + \cdots + 112y + 64$
c_3, c_{12}	$16384(16384y^{46} - 569344y^{45} + \cdots - 97y + 1)$
c_4, c_{11}	$y^{46} - 28y^{45} + \cdots - 649361y + 25600$
c_5, c_6, c_9 c_{10}	$y^{46} + 31y^{45} + \cdots + 78y + 1$
c_7	$y^{46} - 17y^{45} + \cdots + 1347455088y + 165688384$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.966769 + 0.336158I$ $a = 0.487792 + 0.360103I$ $b = 0.823732 + 0.567954I$	$-1.06197 + 2.22747I$	$-2.33539 - 2.53265I$
$u = 0.966769 - 0.336158I$ $a = 0.487792 - 0.360103I$ $b = 0.823732 - 0.567954I$	$-1.06197 - 2.22747I$	$-2.33539 + 2.53265I$
$u = -1.022710 + 0.054575I$ $a = 1.065410 - 0.295918I$ $b = 0.0351231 - 0.1143600I$	$-4.15103 + 3.62905I$	$-9.89130 - 4.16048I$
$u = -1.022710 - 0.054575I$ $a = 1.065410 + 0.295918I$ $b = 0.0351231 + 0.1143600I$	$-4.15103 - 3.62905I$	$-9.89130 + 4.16048I$
$u = 0.300795 + 1.016240I$ $a = 0.098981 + 0.607252I$ $b = 0.114437 + 0.723964I$	$0.64788 - 2.52803I$	$4.19226 + 0.68863I$
$u = 0.300795 - 1.016240I$ $a = 0.098981 - 0.607252I$ $b = 0.114437 - 0.723964I$	$0.64788 + 2.52803I$	$4.19226 - 0.68863I$
$u = 0.920916$ $a = -0.662681$ $b = 0.145994$	-1.48897	-6.56270
$u = -1.089920 + 0.144544I$ $a = -0.610206 + 0.169024I$ $b = -1.154580 + 0.317622I$	$-0.053677 + 0.799227I$	$-3.87957 - 8.61272I$
$u = -1.089920 - 0.144544I$ $a = -0.610206 - 0.169024I$ $b = -1.154580 - 0.317622I$	$-0.053677 - 0.799227I$	$-3.87957 + 8.61272I$
$u = 0.830377 + 0.297025I$ $a = -0.408161 - 0.736370I$ $b = 0.270178 - 0.394032I$	$-1.84309 - 0.93078I$	$-5.79685 + 4.30580I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.830377 - 0.297025I$ $a = -0.408161 + 0.736370I$ $b = 0.270178 + 0.394032I$	$-1.84309 + 0.93078I$	$-5.79685 - 4.30580I$
$u = -1.20992$ $a = -0.752195$ $b = -1.48735$	-1.03932	-8.02530
$u = 0.467930 + 0.629000I$ $a = -0.488824 - 1.031510I$ $b = 0.576714 - 0.673740I$	$0.40716 - 5.93075I$	$1.20971 + 10.32229I$
$u = 0.467930 - 0.629000I$ $a = -0.488824 + 1.031510I$ $b = 0.576714 + 0.673740I$	$0.40716 + 5.93075I$	$1.20971 - 10.32229I$
$u = 1.256000 + 0.034981I$ $a = 0.807767 + 0.042667I$ $b = 1.61598 + 0.10458I$	$-4.20433 - 4.10865I$	$-10.31107 + 4.30154I$
$u = 1.256000 - 0.034981I$ $a = 0.807767 - 0.042667I$ $b = 1.61598 - 0.10458I$	$-4.20433 + 4.10865I$	$-10.31107 - 4.30154I$
$u = -0.196424 + 1.258430I$ $a = 0.327145 - 0.489998I$ $b = -0.372089 - 1.349360I$	$-9.1285 + 12.2286I$	$-6.60036 - 8.01621I$
$u = -0.196424 - 1.258430I$ $a = 0.327145 + 0.489998I$ $b = -0.372089 + 1.349360I$	$-9.1285 - 12.2286I$	$-6.60036 + 8.01621I$
$u = 0.226130 + 1.306880I$ $a = -0.283030 - 0.536087I$ $b = 0.311390 - 1.307260I$	$-6.02382 - 6.82285I$	$-4.45743 + 5.16086I$
$u = 0.226130 - 1.306880I$ $a = -0.283030 + 0.536087I$ $b = 0.311390 + 1.307260I$	$-6.02382 + 6.82285I$	$-4.45743 - 5.16086I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.152157+1.357930I$ $a=\ \ 0.196395-0.491844I$ $b=-0.222197-1.374140I$	$-10.97740+2.63730I$	$-9.44645-2.07014I$
$u=-0.152157-1.357930I$ $a=\ \ 0.196395+0.491844I$ $b=-0.222197+1.374140I$	$-10.97740-2.63730I$	$-9.44645+2.07014I$
$u=-0.415745+0.454460I$ $a=\ \ 0.339820-1.213850I$ $b=-0.630617-0.516212I$	$1.71362+1.56853I$	$5.64296-4.27493I$
$u=-0.415745-0.454460I$ $a=\ \ 0.339820+1.213850I$ $b=-0.630617+0.516212I$	$1.71362-1.56853I$	$5.64296+4.27493I$
$u=\ \ 1.47895+0.51753I$ $a=\ \ 0.69888+1.63660I$ $b=-0.55966+1.47409I$	$-14.4351-18.4106I$	0
$u=\ \ 1.47895-0.51753I$ $a=\ \ 0.69888-1.63660I$ $b=-0.55966-1.47409I$	$-14.4351+18.4106I$	0
$u=-1.49451+0.51469I$ $a=-0.66292+1.61664I$ $b=\ \ 0.51926+1.45348I$	$-11.4919+13.1095I$	0
$u=-1.49451-0.51469I$ $a=-0.66292-1.61664I$ $b=\ \ 0.51926-1.45348I$	$-11.4919-13.1095I$	0
$u=\ \ 1.50459+0.53805I$ $a=\ \ 0.67757+1.55296I$ $b=-0.46575+1.50413I$	$-16.3159-9.1985I$	0
$u=\ \ 1.50459-0.53805I$ $a=\ \ 0.67757-1.55296I$ $b=-0.46575-1.50413I$	$-16.3159+9.1985I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.319923 + 0.205407I$ $a = -0.49892 - 1.47670I$ $b = -0.684519 - 0.269684I$	$1.299950 + 0.545169I$	$7.33327 - 2.66356I$
$u = -0.319923 - 0.205407I$ $a = -0.49892 + 1.47670I$ $b = -0.684519 + 0.269684I$	$1.299950 - 0.545169I$	$7.33327 + 2.66356I$
$u = -1.58193 + 0.48587I$ $a = -0.47480 + 1.54895I$ $b = 0.375465 + 1.314860I$	$-7.50745 + 10.56620I$	0
$u = -1.58193 - 0.48587I$ $a = -0.47480 - 1.54895I$ $b = 0.375465 - 1.314860I$	$-7.50745 - 10.56620I$	0
$u = -1.58450 + 0.64719I$ $a = -0.554722 + 1.269070I$ $b = 0.10580 + 1.45206I$	$-15.5466 + 4.8809I$	0
$u = -1.58450 - 0.64719I$ $a = -0.554722 - 1.269070I$ $b = 0.10580 - 1.45206I$	$-15.5466 - 4.8809I$	0
$u = 0.10957 + 1.71612I$ $a = -0.044906 - 0.687293I$ $b = 0.041280 - 1.188470I$	$-1.28695 - 3.16258I$	0
$u = 0.10957 - 1.71612I$ $a = -0.044906 + 0.687293I$ $b = 0.041280 + 1.188470I$	$-1.28695 + 3.16258I$	0
$u = 1.64163 + 0.51374I$ $a = 0.42138 + 1.45572I$ $b = -0.280308 + 1.292080I$	$-7.10146 - 4.90994I$	0
$u = 1.64163 - 0.51374I$ $a = 0.42138 - 1.45572I$ $b = -0.280308 - 1.292080I$	$-7.10146 + 4.90994I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.56809+0.75350I$ $a=-0.505362+1.120240I$ $b=-0.063645+1.376890I$	$-13.07240-4.75404I$	0
$u=-1.56809-0.75350I$ $a=-0.505362-1.120240I$ $b=-0.063645-1.376890I$	$-13.07240+4.75404I$	0
$u=1.62673+0.71859I$ $a=0.469280+1.190400I$ $b=-0.021734+1.350920I$	$-10.16390-0.95021I$	0
$u=1.62673-0.71859I$ $a=0.469280-1.190400I$ $b=-0.021734-1.350920I$	$-10.16390+0.95021I$	0
$u=0.160935+0.124811I$ $a=2.02700-2.96588I$ $b=0.836429-0.145266I$	$-0.85613+3.53276I$	$2.89113-3.11148I$
$u=0.160935-0.124811I$ $a=2.02700+2.96588I$ $b=0.836429+0.145266I$	$-0.85613-3.53276I$	$2.89113+3.11148I$

II.

$$I_2^u = \langle u^{31} - u^{30} + \cdots + a + 2,\ 2u^{31}a + 4u^{31} + \cdots + 6a + 4,\ u^{32} - u^{31} + \cdots + 2u - 1\rangle$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} a \\ -u^{31} + u^{30} + \cdots - a - 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{31} - u^{30} + \cdots + 2a + 2 \\ -u^{31} + u^{30} + \cdots - a - 2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -2u^{31}a - u^{31} + \cdots - 4a - 12 \\ u^{31} + u^{30} + \cdots + a + 4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^{31}a + 4u^{31} + \cdots + 2a + 6 \\ -u^5a - u^6 + 2u^3a + 2u^4 - au - 2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{31}a - 6u^{31} + \cdots - 4a - 6 \\ 2u^{31} - 2u^{30} + \cdots + 2u + 4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -2u^{31}a + u^{31} + \cdots + 8u - 8 \\ -u^{31} + 3u^{30} + \cdots - a + 2u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{31}a + u^{30}a + \cdots - 2a - 11 \\ u^{23}a + u^{24} + \cdots + 4au + 5 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^{31}a + 4u^{31} + \cdots + 2a + 5 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{29} - 48u^{27} - 4u^{26} + 252u^{25} + 44u^{24} - 740u^{23} - 208u^{22} + 1264u^{21} + 536u^{20} - 1080u^{19} - 768u^{18} - 64u^{17} + 480u^{16} + 1008u^{15} + 176u^{14} - 612u^{13} - 436u^{12} - 320u^{11} + 120u^{10} + 424u^9 + 128u^8 + 4u^7 - 60u^6 - 108u^5 - 12u^4 + 4u^3 + 4u^2 + 12u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{32} + 17u^{31} + \cdots - 8u^2 + 1)^2$
c_2, c_8	$(u^{32} - u^{31} + \cdots + 2u - 1)^2$
c_3, c_{12}	$u^{64} + 9u^{63} + \cdots - 753639276u + 67447447$
c_4, c_{11}	$(u^{32} + u^{31} + \cdots - 2u - 1)^2$
c_5, c_6, c_9 c_{10}	$u^{64} - 3u^{63} + \cdots - 588u + 173$
c_7	$(u^{32} + u^{31} + \cdots - 14u - 5)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{32} - 3y^{31} + \cdots - 16y + 1)^2$
c_2, c_8	$(y^{32} + 17y^{31} + \cdots - 8y^2 + 1)^2$
c_3, c_{12}	$y^{64} - 41y^{63} + \cdots - 61152709244965460y + 4549158106817809$
c_4, c_{11}	$(y^{32} - 27y^{31} + \cdots + 16y^2 + 1)^2$
c_5, c_6, c_9 c_{10}	$y^{64} + 47y^{63} + \cdots + 352484y + 29929$
c_7	$(y^{32} - 23y^{31} + \cdots - 296y + 25)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.029010+0.281289I$ $a=-0.51554-1.89839I$ $b=-0.184298+0.584080I$	$-7.18816-3.89503I$	$-5.35061+2.90091I$
$u=-1.029010+0.281289I$ $a=2.50665-1.47322I$ $b=0.000618-1.174080I$	$-7.18816-3.89503I$	$-5.35061+2.90091I$
$u=-1.029010-0.281289I$ $a=-0.51554+1.89839I$ $b=-0.184298-0.584080I$	$-7.18816+3.89503I$	$-5.35061-2.90091I$
$u=-1.029010-0.281289I$ $a=2.50665+1.47322I$ $b=0.000618+1.174080I$	$-7.18816+3.89503I$	$-5.35061-2.90091I$
$u=1.134230+0.236397I$ $a=0.980915-0.877845I$ $b=-0.148002+0.499701I$	$-4.61920-0.52783I$	$-1.59448+0.64788I$
$u=1.134230+0.236397I$ $a=-1.52583-2.25642I$ $b=0.013222-1.162460I$	$-4.61920-0.52783I$	$-1.59448+0.64788I$
$u=1.134230-0.236397I$ $a=0.980915+0.877845I$ $b=-0.148002-0.499701I$	$-4.61920+0.52783I$	$-1.59448-0.64788I$
$u=1.134230-0.236397I$ $a=-1.52583+2.25642I$ $b=0.013222+1.162460I$	$-4.61920+0.52783I$	$-1.59448-0.64788I$
$u=-0.166316+0.775774I$ $a=0.808888+0.712460I$ $b=-0.825267-0.097868I$	$-4.56459+7.88151I$	$-2.19556-6.68910I$
$u=-0.166316+0.775774I$ $a=-0.0657221-0.0170222I$ $b=0.363273+1.276150I$	$-4.56459+7.88151I$	$-2.19556-6.68910I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.166316 - 0.775774I$ $a = 0.808888 - 0.712460I$ $b = -0.825267 + 0.097868I$	$-4.56459 - 7.88151I$	$-2.19556 + 6.68910I$
$u = -0.166316 - 0.775774I$ $a = -0.0657221 + 0.0170222I$ $b = 0.363273 - 1.276150I$	$-4.56459 - 7.88151I$	$-2.19556 + 6.68910I$
$u = -0.729645 + 0.240963I$ $a = 1.45927 - 2.11943I$ $b = -0.276623 + 1.009120I$	$-7.57192 + 3.88889I$	$-6.89128 - 4.90467I$
$u = -0.729645 + 0.240963I$ $a = 3.23608 + 0.77843I$ $b = -0.191669 - 1.139020I$	$-7.57192 + 3.88889I$	$-6.89128 - 4.90467I$
$u = -0.729645 - 0.240963I$ $a = 1.45927 + 2.11943I$ $b = -0.276623 - 1.009120I$	$-7.57192 - 3.88889I$	$-6.89128 + 4.90467I$
$u = -0.729645 - 0.240963I$ $a = 3.23608 - 0.77843I$ $b = -0.191669 + 1.139020I$	$-7.57192 - 3.88889I$	$-6.89128 + 4.90467I$
$u = 0.028912 + 0.764004I$ $a = -0.299643 + 0.562116I$ $b = 0.400000 + 0.404029I$	$0.72469 - 2.24194I$	$3.34310 + 3.79727I$
$u = 0.028912 + 0.764004I$ $a = 0.162226 + 0.322313I$ $b = -0.320483 + 0.804010I$	$0.72469 - 2.24194I$	$3.34310 + 3.79727I$
$u = 0.028912 - 0.764004I$ $a = -0.299643 - 0.562116I$ $b = 0.400000 - 0.404029I$	$0.72469 + 2.24194I$	$3.34310 - 3.79727I$
$u = 0.028912 - 0.764004I$ $a = 0.162226 - 0.322313I$ $b = -0.320483 - 0.804010I$	$0.72469 + 2.24194I$	$3.34310 - 3.79727I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.140851 + 0.748200I$ $a = -0.709175 + 0.790182I$ $b = 0.682560 - 0.075530I$	$-1.72365 - 3.15266I$	$1.32272 + 3.41480I$
$u = 0.140851 + 0.748200I$ $a = 0.0333149 + 0.0647892I$ $b = -0.307956 + 1.198040I$	$-1.72365 - 3.15266I$	$1.32272 + 3.41480I$
$u = 0.140851 - 0.748200I$ $a = -0.709175 - 0.790182I$ $b = 0.682560 + 0.075530I$	$-1.72365 + 3.15266I$	$1.32272 - 3.41480I$
$u = 0.140851 - 0.748200I$ $a = 0.0333149 - 0.0647892I$ $b = -0.307956 - 1.198040I$	$-1.72365 + 3.15266I$	$1.32272 - 3.41480I$
$u = -0.191682 + 0.700576I$ $a = 0.880290 + 0.968655I$ $b = -0.656498 - 0.316929I$	$-5.63421 - 0.39737I$	$-3.83598 - 0.58140I$
$u = -0.191682 + 0.700576I$ $a = 0.1209190 + 0.0078234I$ $b = 0.189622 + 1.284130I$	$-5.63421 - 0.39737I$	$-3.83598 - 0.58140I$
$u = -0.191682 - 0.700576I$ $a = 0.880290 - 0.968655I$ $b = -0.656498 + 0.316929I$	$-5.63421 + 0.39737I$	$-3.83598 + 0.58140I$
$u = -0.191682 - 0.700576I$ $a = 0.1209190 - 0.0078234I$ $b = 0.189622 - 1.284130I$	$-5.63421 + 0.39737I$	$-3.83598 + 0.58140I$
$u = 1.237710 + 0.313650I$ $a = -0.051272 - 0.281362I$ $b = -0.562964 + 0.030592I$	$-2.99336 - 1.65231I$	$-0.593029 + 0.153087I$
$u = 1.237710 + 0.313650I$ $a = -0.73176 - 1.73401I$ $b = 0.269869 - 1.127560I$	$-2.99336 - 1.65231I$	$-0.593029 + 0.153087I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.237710 - 0.313650I$ $a = -0.051272 + 0.281362I$ $b = -0.562964 - 0.030592I$	$-2.99336 + 1.65231I$	$-0.593029 - 0.153087I$
$u = 1.237710 - 0.313650I$ $a = -0.73176 + 1.73401I$ $b = 0.269869 + 1.127560I$	$-2.99336 + 1.65231I$	$-0.593029 - 0.153087I$
$u = -1.288430 + 0.161328I$ $a = -0.570936 + 0.715075I$ $b = 0.699448 + 0.786398I$	$-8.29586 + 2.81562I$	$-9.51638 - 3.82546I$
$u = -1.288430 + 0.161328I$ $a = 0.31199 - 2.19283I$ $b = 0.05037 - 1.42430I$	$-8.29586 + 2.81562I$	$-9.51638 - 3.82546I$
$u = -1.288430 - 0.161328I$ $a = -0.570936 - 0.715075I$ $b = 0.699448 - 0.786398I$	$-8.29586 - 2.81562I$	$-9.51638 + 3.82546I$
$u = -1.288430 - 0.161328I$ $a = 0.31199 + 2.19283I$ $b = 0.05037 + 1.42430I$	$-8.29586 - 2.81562I$	$-9.51638 + 3.82546I$
$u = -1.281200 + 0.325415I$ $a = 0.226257 - 0.016136I$ $b = 0.840939 - 0.011072I$	$-3.35102 + 6.17510I$	$-1.73067 - 6.90538I$
$u = -1.281200 + 0.325415I$ $a = 0.57150 - 1.75742I$ $b = -0.426115 - 1.231530I$	$-3.35102 + 6.17510I$	$-1.73067 - 6.90538I$
$u = -1.281200 - 0.325415I$ $a = 0.226257 + 0.016136I$ $b = 0.840939 + 0.011072I$	$-3.35102 - 6.17510I$	$-1.73067 + 6.90538I$
$u = -1.281200 - 0.325415I$ $a = 0.57150 + 1.75742I$ $b = -0.426115 + 1.231530I$	$-3.35102 - 6.17510I$	$-1.73067 + 6.90538I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.350330+0.317347I$ $a=\ \ 0.318468+0.345827I$ $b=\ \ 1.228340+0.141912I$	$-6.42571+7.01747I$	$-3.66223-4.88322I$
$u=-1.350330+0.317347I$ $a=\ \ 0.44971-1.81002I$ $b=-0.52447-1.52854I$	$-6.42571+7.01747I$	$-3.66223-4.88322I$
$u=-1.350330-0.317347I$ $a=\ \ 0.318468-0.345827I$ $b=\ \ 1.228340-0.141912I$	$-6.42571-7.01747I$	$-3.66223+4.88322I$
$u=-1.350330-0.317347I$ $a=\ \ 0.44971+1.81002I$ $b=-0.52447+1.52854I$	$-6.42571-7.01747I$	$-3.66223+4.88322I$
$u=-1.39424$ $a=-0.06274+1.60634I$ $b=\ \ 0.65801+1.51623I$	-10.6095	-7.48250
$u=-1.39424$ $a=-0.06274-1.60634I$ $b=\ \ 0.65801-1.51623I$	-10.6095	-7.48250
$u=\ \ 1.364340+0.293820I$ $a=-0.254483+0.452864I$ $b=-1.260800+0.297832I$	$-10.54050-3.23058I$	$-8.64791+1.85611I$
$u=\ \ 1.364340+0.293820I$ $a=-0.43118-1.83794I$ $b=\ \ 0.43888-1.61941I$	$-10.54050-3.23058I$	$-8.64791+1.85611I$
$u=\ \ 1.364340-0.293820I$ $a=-0.254483-0.452864I$ $b=-1.260800-0.297832I$	$-10.54050+3.23058I$	$-8.64791-1.85611I$
$u=\ \ 1.364340-0.293820I$ $a=-0.43118+1.83794I$ $b=\ \ 0.43888+1.61941I$	$-10.54050+3.23058I$	$-8.64791-1.85611I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.599844$ $a = -2.90400 + 1.64616I$ $b = 0.192006 - 1.053850I$	-4.51808	-4.26170
$u = 0.599844$ $a = -2.90400 - 1.64616I$ $b = 0.192006 + 1.053850I$	-4.51808	-4.26170
$u = 1.364190 + 0.328069I$ $a = -0.387418 + 0.382336I$ $b = -1.327060 + 0.107914I$	$-9.3963 - 11.8758I$	$-6.77954 + 7.99531I$
$u = 1.364190 + 0.328069I$ $a = -0.43191 - 1.80017I$ $b = 0.59297 - 1.57615I$	$-9.3963 - 11.8758I$	$-6.77954 + 7.99531I$
$u = 1.364190 - 0.328069I$ $a = -0.387418 - 0.382336I$ $b = -1.327060 - 0.107914I$	$-9.3963 + 11.8758I$	$-6.77954 - 7.99531I$
$u = 1.364190 - 0.328069I$ $a = -0.43191 + 1.80017I$ $b = 0.59297 + 1.57615I$	$-9.3963 + 11.8758I$	$-6.77954 - 7.99531I$
$u = 1.41547 + 0.02215I$ $a = 0.01718 + 1.51055I$ $b = -0.78380 + 1.52731I$	$-14.1165 - 4.3986I$	$-10.80847 + 3.53545I$
$u = 1.41547 + 0.02215I$ $a = -0.03120 - 1.64235I$ $b = -0.63462 - 1.63829I$	$-14.1165 - 4.3986I$	$-10.80847 + 3.53545I$
$u = 1.41547 - 0.02215I$ $a = 0.01718 - 1.51055I$ $b = -0.78380 - 1.52731I$	$-14.1165 + 4.3986I$	$-10.80847 - 3.53545I$
$u = 1.41547 - 0.02215I$ $a = -0.03120 + 1.64235I$ $b = -0.63462 + 1.63829I$	$-14.1165 + 4.3986I$	$-10.80847 - 3.53545I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.248101 + 0.323031I$ $a = -1.59617 + 0.51525I$ $b = 0.086437 + 1.153950I$	$-3.79093 - 1.03498I$	$-3.18759 + 6.41402I$
$u = 0.248101 + 0.323031I$ $a = -2.01466 + 2.37922I$ $b = 0.224060 - 0.856864I$	$-3.79093 - 1.03498I$	$-3.18759 + 6.41402I$
$u = 0.248101 - 0.323031I$ $a = -1.59617 - 0.51525I$ $b = 0.086437 - 1.153950I$	$-3.79093 + 1.03498I$	$-3.18759 - 6.41402I$
$u = 0.248101 - 0.323031I$ $a = -2.01466 - 2.37922I$ $b = 0.224060 + 0.856864I$	$-3.79093 + 1.03498I$	$-3.18759 - 6.41402I$

III. $I_3^u = \langle b+1,\ 16a^4+32a^3+16a^2+1,\ u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 16a^2+16a-4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^2-2u+2)^2$
c_2, c_8	u^4+2u^2+2
c_3	$16(16u^4-32u^3+16u^2+1)$
c_4, c_5, c_6	$(u-1)^4$
c_7	u^4-2u^2+2
c_9, c_{10}, c_{11}	$(u+1)^4$
c_{12}	$16(16u^4+32u^3+16u^2+1)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+4)^2$
c_2, c_8	$(y^2+2y+2)^2$
c_3, c_{12}	$256(256y^4-512y^3+288y^2+32y+1)$
c_4, c_5, c_6 c_9, c_{10}, c_{11}	$(y-1)^4$
c_7	$(y^2-2y+2)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_3	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.049340 + 0.227545I$ $b = -1.00000$	$-2.46740 + 3.66386I$	$-4.00000 - 4.00000I$
$u = -1.00000$ $a = -1.049340 - 0.227545I$ $b = -1.00000$	$-2.46740 - 3.66386I$	$-4.00000 + 4.00000I$
$u = -1.00000$ $a = 0.049342 + 0.227545I$ $b = -1.00000$	$-2.46740 - 3.66386I$	$-4.00000 + 4.00000I$
$u = -1.00000$ $a = 0.049342 - 0.227545I$ $b = -1.00000$	$-2.46740 + 3.66386I$	$-4.00000 - 4.00000I$

IV. $I^u_4 = \langle 2u^2a-au+3u^2+b+2a-u+5,\ 70u^2a+91u^2+\cdots+130a+169,\ u^3-u^2+2u-1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^2+3u-1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} a \\ -2u^2a+au-3u^2-2a+u-5 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 2u^2a-au+3u^2+3a-u+5 \\ -2u^2a+au-3u^2-2a+u-5 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -5.20000au^2-11.5600u^2+\cdots-8.80000a-20.0400 \\ 2u^2a-au+\frac{24}{5}u^2+3a-\frac{3}{5}u+\frac{41}{5} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 3u^2a-au+\frac{41}{5}u^2+5a-\frac{17}{5}u+\frac{74}{5} \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -5.80000au^2-15.0400u^2+\cdots-10.2000a-25.3600 \\ u^2a-au+\frac{21}{5}u^2+2a-\frac{7}{5}u+\frac{29}{5} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2a-\frac{49}{25}u^2+\frac{38}{25}u-\frac{91}{25} \\ -4u^2a-4u^2-2a-7 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -8.60000au^2-21.8800u^2+\cdots-15.4000a-36.9200 \\ 2u^2a-2au+\frac{42}{5}u^2+4a-\frac{14}{5}u+\frac{53}{5} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2u^2a+au+\frac{31}{5}u^2+3a-\frac{12}{5}u+\frac{59}{5} \\ 2u^2a-5au+2u^2+3a-u+1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2+4u-12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$(u^3 - u^2 + 2u - 1)^2$
c_2, c_8	$u^6 + u^4 + 2u^2 + 1$
c_3	$25(25u^6 - 110u^5 + 187u^4 - 124u^3 + 12u^2 + 10u + 1)$
c_4	$(u^3 + u^2 + 2u + 1)^2$
c_5, c_6, c_9 c_{10}	$(u^2 + 1)^3$
c_7	$u^6 + 5u^4 + 10u^2 + 1$
c_{12}	$25(25u^6 + 110u^5 + 187u^4 + 124u^3 + 12u^2 - 10u + 1)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{11}	$(y^3 + 3y^2 + 2y - 1)^2$
c_2, c_8	$(y^3 + y^2 + 2y + 1)^2$
c_3, c_{12}	$625(625y^6 - 2750y^5 + 8289y^4 - 8638y^3 + 2998y^2 - 76y + 1)$
c_5, c_6, c_9 c_{10}	$(y + 1)^6$
c_7	$(y^3 + 5y^2 + 10y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_4	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = -0.024694 + 0.898953I$ $b = 1.000000I$	$-0.26574 - 2.82812I$	$-4.49024 + 2.97945I$
$u = 0.215080 + 1.307140I$ $a = -0.176573 - 0.381910I$ $b = -1.000000I$	$-0.26574 - 2.82812I$	$-4.49024 + 2.97945I$
$u = 0.215080 - 1.307140I$ $a = -0.024694 - 0.898953I$ $b = -1.000000I$	$-0.26574 + 2.82812I$	$-4.49024 - 2.97945I$
$u = 0.215080 - 1.307140I$ $a = -0.176573 + 0.381910I$ $b = 1.000000I$	$-0.26574 + 2.82812I$	$-4.49024 - 2.97945I$
$u = 0.569840$ $a = -2.59873 + 0.48086I$ $b = -1.000000I$	-4.40332	-11.0200
$u = 0.569840$ $a = -2.59873 - 0.48086I$ $b = 1.000000I$	-4.40332	-11.0200

V. $I^u_5 = \langle b-1,\ 8a^3-12a^2+6a-1,\ u-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 34a^2-34a+\frac{17}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_7 c_8	u^3
c_3	$512(2u-1)^3$
c_4, c_5, c_6	$(u+1)^3$
c_9, c_{10}, c_{11}	$(u-1)^3$
c_{12}	$512(2u+1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_7 c_8	y^3
c_3, c_{12}	$262144(4y-1)^3$
c_4, c_5, c_6 c_9, c_{10}, c_{11}	$(y-1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	0.500000	0	0
$b =$	1.00000		
$u =$	1.00000		
$a =$	0.500000	0	0
$b =$	1.00000		
$u =$	1.00000		
$a =$	0.500000	0	0
$b =$	1.00000		

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^3(u^2-2u+2)^2(u^3-u^2+2u-1)^2(u^{32}+17u^{31}+\cdots-8u^2+1)^2$ $\cdot(u^{46}+23u^{45}+\cdots+112u+64)$
c_2, c_8	$u^3(u^4+2u^2+2)(u^6+u^4+2u^2+1)(u^{32}-u^{31}+\cdots+2u-1)^2$ $\cdot(u^{46}+3u^{45}+\cdots+28u+8)$
c_3	$26214400(2u-1)^3(16u^4-32u^3+16u^2+1)$ $\cdot(25u^6-110u^5+187u^4-124u^3+12u^2+10u+1)$ $\cdot(128u^{46}-576u^{45}+\cdots-9u+1)$ $\cdot(u^{64}+9u^{63}+\cdots-753639276u+67447447)$
c_4	$((u-1)^4)(u+1)^3(u^3+u^2+2u+1)^2(u^{32}+u^{31}+\cdots-2u-1)^2$ $\cdot(u^{46}+2u^{45}+\cdots-841u-160)$
c_5, c_6	$((u-1)^4)(u+1)^3(u^2+1)^3(u^{46}+u^{45}+\cdots-14u-1)$ $\cdot(u^{64}-3u^{63}+\cdots-588u+173)$
c_7	$u^3(u^4-2u^2+2)(u^6+5u^4+10u^2+1)(u^{32}+u^{31}+\cdots-14u-5)^2$ $\cdot(u^{46}-3u^{45}+\cdots-24020u+12872)$
c_9, c_{10}	$((u-1)^3)(u+1)^4(u^2+1)^3(u^{46}+u^{45}+\cdots-14u-1)$ $\cdot(u^{64}-3u^{63}+\cdots-588u+173)$
c_{11}	$((u-1)^3)(u+1)^4(u^3-u^2+2u-1)^2(u^{32}+u^{31}+\cdots-2u-1)^2$ $\cdot(u^{46}+2u^{45}+\cdots-841u-160)$
c_{12}	$26214400(2u+1)^3(16u^4+32u^3+16u^2+1)$ $\cdot(25u^6+110u^5+187u^4+124u^3+12u^2-10u+1)$ $\cdot(128u^{46}-576u^{45}+\cdots-9u+1)$ $\cdot(u^{64}+9u^{63}+\cdots-753639276u+67447447)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^3(y^2+4)^2(y^3+3y^2+2y-1)^2(y^{32}-3y^{31}+\cdots-16y+1)^2$ $\cdot(y^{46}+3y^{45}+\cdots-45312y+4096)$
c_2, c_8	$y^3(y^2+2y+2)^2(y^3+y^2+2y+1)^2(y^{32}+17y^{31}+\cdots-8y^2+1)^2$ $\cdot(y^{46}+23y^{45}+\cdots+112y+64)$
c_3, c_{12}	$687194767360000(4y-1)^3(256y^4-512y^3+288y^2+32y+1)$ $\cdot(625y^6-2750y^5+8289y^4-8638y^3+2998y^2-76y+1)$ $\cdot(16384y^{46}-569344y^{45}+\cdots-97y+1)$ $\cdot(y^{64}-41y^{63}+\cdots-61152709244965460y+4549158106817809)$
c_4, c_{11}	$((y-1)^7)(y^3+3y^2+2y-1)^2(y^{32}-27y^{31}+\cdots+16y^2+1)^2$ $\cdot(y^{46}-28y^{45}+\cdots-649361y+25600)$
c_5, c_6, c_9 c_{10}	$((y-1)^7)(y+1)^6(y^{46}+31y^{45}+\cdots+78y+1)$ $\cdot(y^{64}+47y^{63}+\cdots+352484y+29929)$
c_7	$y^3(y^2-2y+2)^2(y^3+5y^2+10y+1)^2$ $\cdot(y^{32}-23y^{31}+\cdots-296y+25)^2$ $\cdot(y^{46}-17y^{45}+\cdots+1347455088y+165688384)$