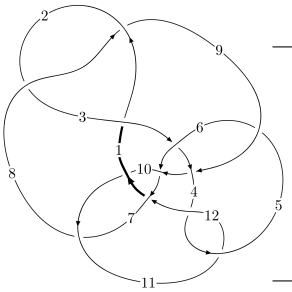
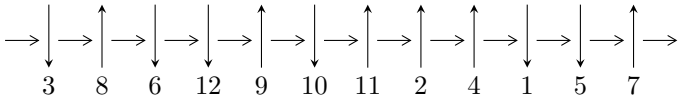
$12a_{0705}$ $(K12a_{0705})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.77814 \times 10^{223} u^{84} + 1.16049 \times 10^{224} u^{83} + \cdots + 5.71791 \times 10^{224} b - 2.02352 \times 10^{225},$$
$$6.93165 \times 10^{224} u^{84} + 8.28583 \times 10^{225} u^{83} + \cdots + 4.57433 \times 10^{226} a + 1.25867 \times 10^{228},$$
$$u^{85} + 5u^{84} + \cdots + 951u + 160 \rangle$$

$$I_2^u = \langle 2.63966 \times 10^{86} a u^{58} + 8.74141 \times 10^{84} u^{58} + \cdots - 5.15249 \times 10^{85} a - 6.04873 \times 10^{86},$$
$$5.11511 \times 10^{86} a u^{58} + 5.45554 \times 10^{85} u^{58} + \cdots - 5.67633 \times 10^{84} a - 9.66817 \times 10^{86},\ u^{59} - u^{58} + \cdots - 2u + 1$$

$$I_3^u = \langle 4325521 u^{21} a - 5569352 u^{21} + \cdots + 770633 a + 20960753,$$
$$51468579 u^{21} a + 49951560 u^{21} + \cdots - 135794681 a - 49237463,\ u^{22} + 13 u^{20} + \cdots - 3u + 1 \rangle$$

$$I_4^u = \langle -u^4 - 2u^3 - 2u^2 + b - 2u,\ u^4 + u^3 + a - u - 2,\ u^5 + 2u^4 + 3u^3 + 3u^2 + u + 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 252 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. $\boldsymbol{I_1^u = \langle 2.78 \times 10^{223} u^{84} + 1.16 \times 10^{224} u^{83} + \cdots + 5.72 \times 10^{224} b - 2.02 \times 10^{225},\ 6.93 \times 10^{224} u^{84} + 8.29 \times 10^{225} u^{83} + \cdots + 4.57 \times 10^{226} a + 1.26 \times 10^{228},\ u^{85} + 5u^{84} + \cdots + 951u + 160 \rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0151534u^{84} - 0.181137u^{83} + \cdots - 148.935u - 27.5159 \\ -0.0485866u^{84} - 0.202956u^{83} + \cdots + 5.73116u + 3.53891 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.229002u^{84} + 1.05119u^{83} + \cdots - 12.0998u - 14.1719 \\ -0.0683057u^{84} - 0.350783u^{83} + \cdots - 74.6193u - 11.0319 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0637400u^{84} - 0.384094u^{83} + \cdots - 143.204u - 23.9770 \\ -0.0485866u^{84} - 0.202956u^{83} + \cdots + 5.73116u + 3.53891 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0221182u^{84} - 0.159178u^{83} + \cdots - 94.1381u - 15.3032 \\ -0.0653935u^{84} - 0.272677u^{83} + \cdots + 36.6397u + 10.1984 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.00497274u^{84} + 0.114466u^{83} + \cdots + 130.312u + 22.5502 \\ 0.0447022u^{84} + 0.202464u^{83} + \cdots + 16.4799u - 0.834762 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.104846u^{84} - 0.302981u^{83} + \cdots + 245.097u + 51.8678 \\ 0.0841183u^{84} + 0.400156u^{83} + \cdots + 54.2721u + 6.26190 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -0.0189559u^{84} - 0.192940u^{83} + \cdots - 178.497u - 31.7372 \\ -0.0447255u^{84} - 0.208162u^{83} + \cdots - 1.08021u + 1.69630 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.290244u^{84} - 1.22579u^{83} + \cdots + 55.3401u + 25.6354 \\ 0.109881u^{84} + 0.562827u^{83} + \cdots + 120.402u + 17.0715 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.514445u^{84} - 2.31397u^{83} + \cdots - 6.34406u + 23.9114$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{85}+45u^{84}+\cdots-58368u-4096$
c_2, c_8	$u^{85}+3u^{84}+\cdots+288u+64$
c_3, c_{10}	$u^{85}-u^{84}+\cdots-3u+1$
c_4, c_{11}	$u^{85}+5u^{84}+\cdots+951u+160$
c_5, c_7	$u^{85}+2u^{84}+\cdots+54u-1$
c_6	$u^{85}+10u^{84}+\cdots-35445u-2194$
c_9, c_{12}	$u^{85}-3u^{83}+\cdots-4u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{85} + y^{84} + \cdots + 204472320y - 16777216$
c_2, c_8	$y^{85} + 45y^{84} + \cdots - 58368y - 4096$
c_3, c_{10}	$y^{85} - y^{84} + \cdots - 53y - 1$
c_4, c_{11}	$y^{85} + 37y^{84} + \cdots - 57839y - 25600$
c_5, c_7	$y^{85} - 18y^{84} + \cdots + 2716y - 1$
c_6	$y^{85} + 2y^{84} + \cdots + 255642685y - 4813636$
c_9, c_{12}	$y^{85} - 6y^{84} + \cdots + 46y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.145023+0.999078I$ $a=\ \ 1.19262-0.94042I$ $b=-1.219270+0.307226I$	$-0.02146-4.72656I$	0
$u=-0.145023-0.999078I$ $a=\ \ 1.19262+0.94042I$ $b=-1.219270-0.307226I$	$-0.02146+4.72656I$	0
$u=-0.414665+0.862773I$ $a=-0.670244+0.551943I$ $b=\ \ 0.306642+0.570240I$	$0.16279+1.74173I$	0
$u=-0.414665-0.862773I$ $a=-0.670244-0.551943I$ $b=\ \ 0.306642-0.570240I$	$0.16279-1.74173I$	0
$u=\ \ 0.467897+0.811337I$ $a=\ \ 1.61458-0.44871I$ $b=-0.11055+1.71276I$	$-6.17853-1.94386I$	0
$u=\ \ 0.467897-0.811337I$ $a=\ \ 1.61458+0.44871I$ $b=-0.11055-1.71276I$	$-6.17853+1.94386I$	0
$u=-0.237851+0.903591I$ $a=-0.351699+0.573757I$ $b=\ \ 0.120379+0.448116I$	$0.25713+1.76398I$	0
$u=-0.237851-0.903591I$ $a=-0.351699-0.573757I$ $b=\ \ 0.120379-0.448116I$	$0.25713-1.76398I$	0
$u=-0.744454+0.553688I$ $a=-0.574586+0.793591I$ $b=\ \ 0.740393+0.780188I$	$0.86628+1.67485I$	0
$u=-0.744454-0.553688I$ $a=-0.574586-0.793591I$ $b=\ \ 0.740393-0.780188I$	$0.86628-1.67485I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.325831 + 0.857016I$ $a = -2.17780 + 0.76800I$ $b = 0.26280 - 1.96854I$	$-5.20417 - 1.44091I$	$15.1928 + 0.I$
$u = 0.325831 - 0.857016I$ $a = -2.17780 - 0.76800I$ $b = 0.26280 + 1.96854I$	$-5.20417 + 1.44091I$	$15.1928 + 0.I$
$u = -1.007860 + 0.442367I$ $a = 0.171364 + 0.089166I$ $b = 0.97401 - 1.04691I$	$-6.33527 - 6.47253I$	0
$u = -1.007860 - 0.442367I$ $a = 0.171364 - 0.089166I$ $b = 0.97401 + 1.04691I$	$-6.33527 + 6.47253I$	0
$u = -0.387180 + 1.051580I$ $a = -1.90614 - 0.15376I$ $b = 0.991243 + 0.329483I$	$0.34615 + 4.52822I$	0
$u = -0.387180 - 1.051580I$ $a = -1.90614 + 0.15376I$ $b = 0.991243 - 0.329483I$	$0.34615 - 4.52822I$	0
$u = 1.134890 + 0.030841I$ $a = 0.630137 + 0.153086I$ $b = 0.348898 - 0.070015I$	$-5.09082 - 3.47004I$	0
$u = 1.134890 - 0.030841I$ $a = 0.630137 - 0.153086I$ $b = 0.348898 + 0.070015I$	$-5.09082 + 3.47004I$	0
$u = -1.14821$ $a = -0.384806$ $b = -0.488004$	-2.55206	0
$u = 0.839575 + 0.114772I$ $a = -0.032887 + 0.714584I$ $b = -0.806543 + 0.923956I$	$1.32571 - 6.56605I$	$1.99732 + 8.56393I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.839575 - 0.114772I$ $a = -0.032887 - 0.714584I$ $b = -0.806543 - 0.923956I$	$1.32571 + 6.56605I$	$1.99732 - 8.56393I$
$u = -0.007264 + 0.829533I$ $a = -1.85140 + 0.83210I$ $b = 0.746495 + 0.782670I$	$-0.92279 + 4.99667I$	$-0.32701 - 9.48610I$
$u = -0.007264 - 0.829533I$ $a = -1.85140 - 0.83210I$ $b = 0.746495 - 0.782670I$	$-0.92279 - 4.99667I$	$-0.32701 + 9.48610I$
$u = -0.382038 + 1.114950I$ $a = -1.75536 + 0.63931I$ $b = 1.017940 + 0.557572I$	$2.49649 - 0.28839I$	0
$u = -0.382038 - 1.114950I$ $a = -1.75536 - 0.63931I$ $b = 1.017940 - 0.557572I$	$2.49649 + 0.28839I$	0
$u = -0.344478 + 1.127640I$ $a = 1.86709 + 0.14823I$ $b = -0.90135 - 1.49524I$	$4.89992 + 4.14078I$	0
$u = -0.344478 - 1.127640I$ $a = 1.86709 - 0.14823I$ $b = -0.90135 + 1.49524I$	$4.89992 - 4.14078I$	0
$u = 0.569645 + 1.041430I$ $a = 0.900230 + 0.832130I$ $b = -0.622261 + 0.147422I$	$3.79995 - 2.91202I$	0
$u = 0.569645 - 1.041430I$ $a = 0.900230 - 0.832130I$ $b = -0.622261 - 0.147422I$	$3.79995 + 2.91202I$	0
$u = -0.568028 + 1.044380I$ $a = -1.060440 + 0.880912I$ $b = 0.948370 - 0.004808I$	$1.42121 + 7.52668I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.568028-1.044380I$ $a=-1.060440-0.880912I$ $b=\ \ 0.948370+0.004808I$	$1.42121-7.52668I$	0
$u=\ \ 1.166520+0.304583I$ $a=-0.0068236-0.0796588I$ $b=-0.960647-0.983402I$	$-0.93503+9.65311I$	0
$u=\ \ 1.166520-0.304583I$ $a=-0.0068236+0.0796588I$ $b=-0.960647+0.983402I$	$-0.93503-9.65311I$	0
$u=-0.485027+1.110170I$ $a=-2.05258+0.14746I$ $b=\ \ 0.930371+0.364814I$	$2.52269+11.49970I$	0
$u=-0.485027-1.110170I$ $a=-2.05258-0.14746I$ $b=\ \ 0.930371-0.364814I$	$2.52269-11.49970I$	0
$u=\ \ 0.506109+1.102090I$ $a=\ \ 0.724641+0.937788I$ $b=-0.353150+0.174525I$	$4.28934-0.95475I$	0
$u=\ \ 0.506109-1.102090I$ $a=\ \ 0.724641-0.937788I$ $b=-0.353150-0.174525I$	$4.28934+0.95475I$	0
$u=\ \ 0.454589+1.131320I$ $a=\ \ 1.93379+0.18704I$ $b=-0.950181+0.386813I$	$4.48376-6.60665I$	0
$u=\ \ 0.454589-1.131320I$ $a=\ \ 1.93379-0.18704I$ $b=-0.950181-0.386813I$	$4.48376+6.60665I$	0
$u=\ \ 0.427905+1.148690I$ $a=\ \ 1.70847+0.45962I$ $b=-1.001950+0.461990I$	$4.52844-4.64681I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.427905 - 1.148690I$ $a = 1.70847 - 0.45962I$ $b = -1.001950 - 0.461990I$	$4.52844 + 4.64681I$	0
$u = -0.469824 + 1.147620I$ $a = -0.651852 + 0.990039I$ $b = 0.279787 + 0.178360I$	$2.66701 - 3.92013I$	0
$u = -0.469824 - 1.147620I$ $a = -0.651852 - 0.990039I$ $b = 0.279787 - 0.178360I$	$2.66701 + 3.92013I$	0
$u = -0.740758 + 0.028690I$ $a = -0.167876 + 0.743200I$ $b = -0.388579 - 0.395849I$	$-2.81486 + 1.35585I$	$-4.32855 - 3.99004I$
$u = -0.740758 - 0.028690I$ $a = -0.167876 - 0.743200I$ $b = -0.388579 + 0.395849I$	$-2.81486 - 1.35585I$	$-4.32855 + 3.99004I$
$u = -0.169253 + 0.718680I$ $a = 1.95614 + 0.75611I$ $b = -0.700499 + 0.757219I$	$-1.26329 - 1.91287I$	$0.12963 + 3.91780I$
$u = -0.169253 - 0.718680I$ $a = 1.95614 - 0.75611I$ $b = -0.700499 - 0.757219I$	$-1.26329 + 1.91287I$	$0.12963 - 3.91780I$
$u = 0.447982 + 1.200670I$ $a = -1.77308 - 0.06023I$ $b = 1.04387 - 1.39049I$	$5.05317 - 10.87710I$	0
$u = 0.447982 - 1.200670I$ $a = -1.77308 + 0.06023I$ $b = 1.04387 + 1.39049I$	$5.05317 + 10.87710I$	0
$u = 0.022272 + 0.716797I$ $a = 1.78274 + 0.99592I$ $b = -0.087749 - 1.147130I$	$2.50161 - 2.17329I$	$6.51599 + 3.54221I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.022272 - 0.716797I$ $a = 1.78274 - 0.99592I$ $b = -0.087749 + 1.147130I$	$2.50161 + 2.17329I$	$6.51599 - 3.54221I$
$u = -1.249110 + 0.368300I$ $a = -0.0645207 - 0.0257805I$ $b = 0.984331 - 0.975875I$	$-3.3385 - 15.1009I$	0
$u = -1.249110 - 0.368300I$ $a = -0.0645207 + 0.0257805I$ $b = 0.984331 + 0.975875I$	$-3.3385 + 15.1009I$	0
$u = -0.328044 + 0.609728I$ $a = -1.34132 + 1.32062I$ $b = 0.036244 - 0.771250I$	$0.63834 + 7.93490I$	$2.22123 - 7.11106I$
$u = -0.328044 - 0.609728I$ $a = -1.34132 - 1.32062I$ $b = 0.036244 + 0.771250I$	$0.63834 - 7.93490I$	$2.22123 + 7.11106I$
$u = 0.421773 + 1.268360I$ $a = -0.710011 - 0.688684I$ $b = 1.188010 + 0.454540I$	$5.08186 + 1.66877I$	0
$u = 0.421773 - 1.268360I$ $a = -0.710011 + 0.688684I$ $b = 1.188010 - 0.454540I$	$5.08186 - 1.66877I$	0
$u = -0.612698 + 1.191870I$ $a = 0.484243 - 0.713869I$ $b = -1.156650 + 0.513704I$	$2.92851 + 3.88301I$	0
$u = -0.612698 - 1.191870I$ $a = 0.484243 + 0.713869I$ $b = -1.156650 - 0.513704I$	$2.92851 - 3.88301I$	0
$u = -0.649982 + 1.178850I$ $a = 1.68535 - 0.36388I$ $b = -1.21185 - 1.24863I$	$-3.97588 + 12.45700I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.649982-1.178850I$ $a=\ \ 1.68535+0.36388I$ $b=-1.21185+1.24863I$	$-3.97588-12.45700I$	0
$u=-1.352570+0.262899I$ $a=-0.049030-0.153871I$ $b=-0.749695+0.152939I$	$-2.13033-0.64925I$	0
$u=-1.352570-0.262899I$ $a=-0.049030+0.153871I$ $b=-0.749695-0.152939I$	$-2.13033+0.64925I$	0
$u=-0.645574+1.242540I$ $a=-1.041700+0.352813I$ $b=\ \ 0.980190+0.450183I$	$1.25521+7.10290I$	0
$u=-0.645574-1.242540I$ $a=-1.041700-0.352813I$ $b=\ \ 0.980190-0.450183I$	$1.25521-7.10290I$	0
$u=-0.458967+0.357277I$ $a=\ \ 1.85016+0.00734I$ $b=-0.641156+0.680423I$	$0.24321-7.41159I$	$1.55361+9.94736I$
$u=-0.458967-0.357277I$ $a=\ \ 1.85016-0.00734I$ $b=-0.641156-0.680423I$	$0.24321+7.41159I$	$1.55361-9.94736I$
$u=\ \ 0.66404+1.27922I$ $a=-1.58041-0.29916I$ $b=\ \ 1.13884-1.21294I$	$2.1680-16.1005I$	0
$u=\ \ 0.66404-1.27922I$ $a=-1.58041+0.29916I$ $b=\ \ 1.13884+1.21294I$	$2.1680+16.1005I$	0
$u=\ \ 0.554829+0.040510I$ $a=-0.436541+0.045823I$ $b=\ \ 0.659061+0.357831I$	$1.49082+0.81139I$	$5.16124-3.30442I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.554829 - 0.040510I$ $a = -0.436541 - 0.045823I$ $b = 0.659061 - 0.357831I$	$1.49082 - 0.81139I$	$5.16124 + 3.30442I$
$u = 0.518360 + 0.164912I$ $a = -1.285340 - 0.456448I$ $b = 0.596205 + 0.595908I$	$1.77682 + 2.60946I$	$4.38584 - 4.48074I$
$u = 0.518360 - 0.164912I$ $a = -1.285340 + 0.456448I$ $b = 0.596205 - 0.595908I$	$1.77682 - 2.60946I$	$4.38584 + 4.48074I$
$u = -0.71122 + 1.29452I$ $a = 1.53972 - 0.32682I$ $b = -1.13897 - 1.18316I$	$-0.3408 + 21.9635I$	0
$u = -0.71122 - 1.29452I$ $a = 1.53972 + 0.32682I$ $b = -1.13897 + 1.18316I$	$-0.3408 - 21.9635I$	0
$u = -0.494608 + 0.093658I$ $a = 0.199289 - 0.545574I$ $b = -0.844479 - 0.233581I$	$-0.63017 - 3.57283I$	$0.99238 + 2.73815I$
$u = -0.494608 - 0.093658I$ $a = 0.199289 + 0.545574I$ $b = -0.844479 + 0.233581I$	$-0.63017 + 3.57283I$	$0.99238 - 2.73815I$
$u = 0.41775 + 1.45859I$ $a = 1.075160 + 0.005477I$ $b = -1.066850 + 0.445652I$	$2.07936 - 4.29169I$	0
$u = 0.41775 - 1.45859I$ $a = 1.075160 - 0.005477I$ $b = -1.066850 - 0.445652I$	$2.07936 + 4.29169I$	0
$u = 0.08042 + 1.56201I$ $a = -0.891755 - 0.352633I$ $b = 1.140010 + 0.429042I$	$6.10542 + 4.62752I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.08042 - 1.56201I$ $a = -0.891755 + 0.352633I$ $b = 1.140010 - 0.429042I$	$6.10542 - 4.62752I$	0
$u = 1.62763 + 0.16845I$ $a = -0.0435748 - 0.0623811I$ $b = 0.853798 + 0.066764I$	$-3.25627 - 2.89779I$	0
$u = 1.62763 - 0.16845I$ $a = -0.0435748 + 0.0623811I$ $b = 0.853798 - 0.066764I$	$-3.25627 + 2.89779I$	0
$u = 0.03257 + 1.67503I$ $a = 0.881764 - 0.251048I$ $b = -1.131520 + 0.441094I$	$4.64394 - 9.72183I$	0
$u = 0.03257 - 1.67503I$ $a = 0.881764 + 0.251048I$ $b = -1.131520 - 0.441094I$	$4.64394 + 9.72183I$	0

II.

$\boldsymbol{I_2^u = \langle 2.64\times 10^{86}au^{58}+8.74\times 10^{84}u^{58}+\cdots-5.15\times 10^{85}a-6.05\times 10^{86},\ 5.12\times 10^{86}au^{58}+5.46\times 10^{85}u^{58}+\cdots-5.68\times 10^{84}a-9.67\times 10^{86},\ u^{59}-u^{58}+\cdots-2u+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a \\ -113.936au^{58} - 3.77304u^{58} + \cdots + 22.2396a + 261.081 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 5.63240au^{58} + 435.052u^{58} + \cdots + 311.680a - 64.1170 \\ -2.18470au^{58} + 14.9121u^{58} + \cdots + 30.4822a + 65.8181 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -113.936au^{58} - 3.77304u^{58} + \cdots + 23.2396a + 261.081 \\ -113.936au^{58} - 3.77304u^{58} + \cdots + 22.2396a + 261.081 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 22.2396au^{58} + 227.772u^{58} + \cdots + 203.514a + 16.6509 \\ 20.1444au^{58} - 192.367u^{58} + \cdots - 113.936a + 146.586 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 77.9773au^{58} + 456.902u^{58} + \cdots + 88.3564a - 383.094 \\ 88.5791au^{58} + 182.326u^{58} + \cdots + 1.55254a - 303.914 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 27.1191au^{58} - 373.742u^{58} + \cdots - 315.980a - 207.066 \\ 27.1425au^{58} - 20.7041u^{58} + \cdots - 56.2659a - 215.782 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 2.09525au^{58} + 402.226u^{58} + \cdots + 317.450a + 11.0185 \\ 27.1425au^{58} - 96.9355u^{58} + \cdots - 56.2659a + 88.0119 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -168.522au^{58} - 227.202u^{58} + \cdots - 77.8489a + 429.624 \\ 67.4805au^{58} - 61.6163u^{58} + \cdots - 70.8785a - 232.710 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -372.274u^{58} + 267.999u^{57} + \cdots - 702.756u + 77.0685$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{59}+28u^{58}+\cdots+414u-81)^2$
c_2	$(u^{59}+14u^{57}+\cdots+36u+9)^2$
c_3	$u^{118}-30u^{117}+\cdots-1174u+373$
c_4	$(u^{59}-u^{58}+\cdots-2u+1)^2$
c_5, c_7	$u^{118}+u^{117}+\cdots+4805u+275$
c_6	$(u^{59}-5u^{58}+\cdots+1690u-227)^2$
c_8	$(u^{59}+14u^{57}+\cdots+36u-9)^2$
c_9, c_{12}	$u^{118}+u^{117}+\cdots+13u+1$
c_{10}	$u^{118}+30u^{117}+\cdots+1174u+373$
c_{11}	$(u^{59}+u^{58}+\cdots-2u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{59}+4y^{58}+\cdots+1220022y-6561)^2$
c_2, c_8	$(y^{59}+28y^{58}+\cdots+414y-81)^2$
c_3, c_{10}	$y^{118}-72y^{117}+\cdots-14598888y+139129$
c_4, c_{11}	$(y^{59}+49y^{58}+\cdots-36y-1)^2$
c_5, c_7	$y^{118}+49y^{117}+\cdots-4205975y+75625$
c_6	$(y^{59}-31y^{58}+\cdots+42662y-51529)^2$
c_9, c_{12}	$y^{118}+49y^{117}+\cdots-85y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.974248$ $a=-0.422435+0.047119I$ $b=-0.465721+0.488306I$	-2.45323	0
$u=-0.974248$ $a=-0.422435-0.047119I$ $b=-0.465721-0.488306I$	-2.45323	0
$u=-0.616383+0.878313I$ $a=-0.389792+0.484669I$ $b=-0.299598+1.115800I$	$0.637962+1.184170I$	0
$u=-0.616383+0.878313I$ $a=-0.520375-0.252563I$ $b=\ \ 0.208429+0.727615I$	$0.637962+1.184170I$	0
$u=-0.616383-0.878313I$ $a=-0.389792-0.484669I$ $b=-0.299598-1.115800I$	$0.637962-1.184170I$	0
$u=-0.616383-0.878313I$ $a=-0.520375+0.252563I$ $b=\ \ 0.208429-0.727615I$	$0.637962-1.184170I$	0
$u=\ \ 0.160104+0.887211I$ $a=-0.606374+1.223140I$ $b=-0.181398-0.098838I$	$0.32511+2.19300I$	0
$u=\ \ 0.160104+0.887211I$ $a=-0.357456-0.267890I$ $b=\ \ 0.549568+1.119360I$	$0.32511+2.19300I$	0
$u=\ \ 0.160104-0.887211I$ $a=-0.606374-1.223140I$ $b=-0.181398+0.098838I$	$0.32511-2.19300I$	0
$u=\ \ 0.160104-0.887211I$ $a=-0.357456+0.267890I$ $b=\ \ 0.549568-1.119360I$	$0.32511-2.19300I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.346628 + 1.050780I$ $a = 1.52218 + 0.15604I$ $b = -1.43515 + 0.76855I$	$-1.105040 + 0.369460I$	0
$u = 0.346628 + 1.050780I$ $a = -1.91998 + 0.29232I$ $b = 0.362038 - 0.410182I$	$-1.105040 + 0.369460I$	0
$u = 0.346628 - 1.050780I$ $a = 1.52218 - 0.15604I$ $b = -1.43515 - 0.76855I$	$-1.105040 - 0.369460I$	0
$u = 0.346628 - 1.050780I$ $a = -1.91998 - 0.29232I$ $b = 0.362038 + 0.410182I$	$-1.105040 - 0.369460I$	0
$u = 0.307731 + 0.818133I$ $a = -1.48167 + 0.02104I$ $b = -0.09579 - 1.55964I$	$-5.27758 - 1.46200I$	$8.4003 + 23.0224I$
$u = 0.307731 + 0.818133I$ $a = -3.53563 + 0.52168I$ $b = 1.41990 - 1.97215I$	$-5.27758 - 1.46200I$	$8.4003 + 23.0224I$
$u = 0.307731 - 0.818133I$ $a = -1.48167 - 0.02104I$ $b = -0.09579 + 1.55964I$	$-5.27758 + 1.46200I$	$8.4003 - 23.0224I$
$u = 0.307731 - 0.818133I$ $a = -3.53563 - 0.52168I$ $b = 1.41990 + 1.97215I$	$-5.27758 + 1.46200I$	$8.4003 - 23.0224I$
$u = 0.373129 + 1.082460I$ $a = -0.186146 - 1.267850I$ $b = 0.177502 - 0.831850I$	$0.92231 - 6.36053I$	0
$u = 0.373129 + 1.082460I$ $a = 2.12050 - 0.15788I$ $b = -1.26159 + 0.99596I$	$0.92231 - 6.36053I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.373129 - 1.082460I$ $a = -0.186146 + 1.267850I$ $b = 0.177502 + 0.831850I$	$0.92231 + 6.36053I$	0
$u = 0.373129 - 1.082460I$ $a = 2.12050 + 0.15788I$ $b = -1.26159 - 0.99596I$	$0.92231 + 6.36053I$	0
$u = 0.643282 + 0.491700I$ $a = 0.197149 - 0.882984I$ $b = 0.607614 + 1.072220I$	$-4.47069 + 2.29186I$	$-8.70845 - 5.66101I$
$u = 0.643282 + 0.491700I$ $a = 0.350461 - 1.306890I$ $b = -0.087102 - 0.691288I$	$-4.47069 + 2.29186I$	$-8.70845 - 5.66101I$
$u = 0.643282 - 0.491700I$ $a = 0.197149 + 0.882984I$ $b = 0.607614 - 1.072220I$	$-4.47069 - 2.29186I$	$-8.70845 + 5.66101I$
$u = 0.643282 - 0.491700I$ $a = 0.350461 + 1.306890I$ $b = -0.087102 + 0.691288I$	$-4.47069 - 2.29186I$	$-8.70845 + 5.66101I$
$u = -0.642861 + 0.480334I$ $a = -0.170528 - 0.288510I$ $b = -0.465980 - 0.912841I$	$-4.19902 + 7.99685I$	$-7.28681 - 11.66535I$
$u = -0.642861 + 0.480334I$ $a = -2.32051 + 1.78880I$ $b = 1.004950 + 0.686191I$	$-4.19902 + 7.99685I$	$-7.28681 - 11.66535I$
$u = -0.642861 - 0.480334I$ $a = -0.170528 + 0.288510I$ $b = -0.465980 + 0.912841I$	$-4.19902 - 7.99685I$	$-7.28681 + 11.66535I$
$u = -0.642861 - 0.480334I$ $a = -2.32051 - 1.78880I$ $b = 1.004950 - 0.686191I$	$-4.19902 - 7.99685I$	$-7.28681 + 11.66535I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.566388 + 1.060870I$ $a = -1.25800 - 0.81911I$ $b = 0.254299 - 0.570666I$	$-2.76182 - 7.05009I$	0
$u = 0.566388 + 1.060870I$ $a = 1.70251 + 0.18296I$ $b = -1.29022 + 0.96132I$	$-2.76182 - 7.05009I$	0
$u = 0.566388 - 1.060870I$ $a = -1.25800 + 0.81911I$ $b = 0.254299 + 0.570666I$	$-2.76182 + 7.05009I$	0
$u = 0.566388 - 1.060870I$ $a = 1.70251 - 0.18296I$ $b = -1.29022 - 0.96132I$	$-2.76182 + 7.05009I$	0
$u = -0.374436 + 1.152900I$ $a = -0.80326 + 1.45454I$ $b = 1.87559 - 1.61777I$	$2.64835 + 6.33789I$	0
$u = -0.374436 + 1.152900I$ $a = 1.93886 + 0.24033I$ $b = -0.674816 - 0.976812I$	$2.64835 + 6.33789I$	0
$u = -0.374436 - 1.152900I$ $a = -0.80326 - 1.45454I$ $b = 1.87559 + 1.61777I$	$2.64835 - 6.33789I$	0
$u = -0.374436 - 1.152900I$ $a = 1.93886 - 0.24033I$ $b = -0.674816 + 0.976812I$	$2.64835 - 6.33789I$	0
$u = -0.556368 + 1.084320I$ $a = 0.611322 - 1.254560I$ $b = -0.181879 - 0.709545I$	$-2.68379 + 5.13285I$	0
$u = -0.556368 + 1.084320I$ $a = -1.88751 + 0.10443I$ $b = 1.23031 + 0.95333I$	$-2.68379 + 5.13285I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.556368-1.084320I$ $a=\ \ 0.611322+1.254560I$ $b=-0.181879+0.709545I$	$-2.68379-5.13285I$	0
$u=-0.556368-1.084320I$ $a=-1.88751-0.10443I$ $b=\ \ 1.23031-0.95333I$	$-2.68379-5.13285I$	0
$u=-0.424810+1.157070I$ $a=\ \ 0.266105-1.361470I$ $b=-0.145167-0.806235I$	$-0.65433+11.22720I$	0
$u=-0.424810+1.157070I$ $a=-1.95747-0.12629I$ $b=\ \ 1.22661+0.99336I$	$-0.65433+11.22720I$	0
$u=-0.424810-1.157070I$ $a=\ \ 0.266105+1.361470I$ $b=-0.145167+0.806235I$	$-0.65433-11.22720I$	0
$u=-0.424810-1.157070I$ $a=-1.95747+0.12629I$ $b=\ \ 1.22661-0.99336I$	$-0.65433-11.22720I$	0
$u=\ \ 0.148012+0.729341I$ $a=\ \ 0.11862-1.94126I$ $b=-0.046545-0.912670I$	$-2.60977-2.74850I$	$-9.61755+8.55100I$
$u=\ \ 0.148012+0.729341I$ $a=-0.54007-2.42336I$ $b=\ \ 0.55160+1.75103I$	$-2.60977-2.74850I$	$-9.61755+8.55100I$
$u=\ \ 0.148012-0.729341I$ $a=\ \ 0.11862+1.94126I$ $b=-0.046545+0.912670I$	$-2.60977+2.74850I$	$-9.61755-8.55100I$
$u=\ \ 0.148012-0.729341I$ $a=-0.54007+2.42336I$ $b=\ \ 0.55160-1.75103I$	$-2.60977+2.74850I$	$-9.61755-8.55100I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.136361 + 0.723393I$ $a = 0.460703 - 1.122880I$ $b = 0.249953 - 1.012360I$	$-0.54273 - 4.18418I$	$-0.7207 + 16.6205I$
$u = 0.136361 + 0.723393I$ $a = 3.89862 - 0.46274I$ $b = -1.71652 + 0.69565I$	$-0.54273 - 4.18418I$	$-0.7207 + 16.6205I$
$u = 0.136361 - 0.723393I$ $a = 0.460703 + 1.122880I$ $b = 0.249953 + 1.012360I$	$-0.54273 + 4.18418I$	$-0.7207 - 16.6205I$
$u = 0.136361 - 0.723393I$ $a = 3.89862 + 0.46274I$ $b = -1.71652 - 0.69565I$	$-0.54273 + 4.18418I$	$-0.7207 - 16.6205I$
$u = 0.477859 + 1.182000I$ $a = 0.562616 + 1.051710I$ $b = -1.46102 - 1.46311I$	$-0.16797 - 12.64270I$	0
$u = 0.477859 + 1.182000I$ $a = -1.84319 + 0.03471I$ $b = 0.786338 - 1.003220I$	$-0.16797 - 12.64270I$	0
$u = 0.477859 - 1.182000I$ $a = 0.562616 - 1.051710I$ $b = -1.46102 + 1.46311I$	$-0.16797 + 12.64270I$	0
$u = 0.477859 - 1.182000I$ $a = -1.84319 - 0.03471I$ $b = 0.786338 + 1.003220I$	$-0.16797 + 12.64270I$	0
$u = 0.788076 + 1.019980I$ $a = -0.501591 - 0.364281I$ $b = 0.424807 - 0.685140I$	$-2.50740 - 6.17991I$	0
$u = 0.788076 + 1.019980I$ $a = 1.65059 + 0.64202I$ $b = -1.11612 + 1.03002I$	$-2.50740 - 6.17991I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.788076 - 1.019980I$ $a = -0.501591 + 0.364281I$ $b = 0.424807 + 0.685140I$	$-2.50740 + 6.17991I$	0
$u = 0.788076 - 1.019980I$ $a = 1.65059 - 0.64202I$ $b = -1.11612 - 1.03002I$	$-2.50740 + 6.17991I$	0
$u = -0.429800 + 1.216710I$ $a = 1.249470 + 0.131662I$ $b = -0.366186 - 0.510344I$	$1.50803 + 4.57483I$	0
$u = -0.429800 + 1.216710I$ $a = -1.55564 + 0.14036I$ $b = 1.54852 + 1.10815I$	$1.50803 + 4.57483I$	0
$u = -0.429800 - 1.216710I$ $a = 1.249470 - 0.131662I$ $b = -0.366186 + 0.510344I$	$1.50803 - 4.57483I$	0
$u = -0.429800 - 1.216710I$ $a = -1.55564 - 0.14036I$ $b = 1.54852 - 1.10815I$	$1.50803 - 4.57483I$	0
$u = -0.633524 + 0.312344I$ $a = -0.099044 - 0.577222I$ $b = -0.640592 + 1.061830I$	$-4.78069 - 0.45328I$	$-8.62280 + 1.56790I$
$u = -0.633524 + 0.312344I$ $a = 0.55636 - 2.17187I$ $b = 0.423500 - 0.458593I$	$-4.78069 - 0.45328I$	$-8.62280 + 1.56790I$
$u = -0.633524 - 0.312344I$ $a = -0.099044 + 0.577222I$ $b = -0.640592 - 1.061830I$	$-4.78069 + 0.45328I$	$-8.62280 - 1.56790I$
$u = -0.633524 - 0.312344I$ $a = 0.55636 + 2.17187I$ $b = 0.423500 + 0.458593I$	$-4.78069 + 0.45328I$	$-8.62280 - 1.56790I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.699228 + 1.121130I$ $a = 0.136902 + 0.470317I$ $b = 0.353588 + 1.260610I$	$-0.59586 + 3.55518I$	0
$u = 0.699228 + 1.121130I$ $a = 0.401777 - 0.243100I$ $b = -0.262030 + 0.601936I$	$-0.59586 + 3.55518I$	0
$u = 0.699228 - 1.121130I$ $a = 0.136902 - 0.470317I$ $b = 0.353588 - 1.260610I$	$-0.59586 - 3.55518I$	0
$u = 0.699228 - 1.121130I$ $a = 0.401777 + 0.243100I$ $b = -0.262030 - 0.601936I$	$-0.59586 - 3.55518I$	0
$u = -0.051363 + 1.336090I$ $a = -1.293320 + 0.524250I$ $b = 1.196380 - 0.535448I$	$7.86174 + 2.79901I$	0
$u = -0.051363 + 1.336090I$ $a = 1.34720 + 0.47819I$ $b = -1.035230 - 0.566468I$	$7.86174 + 2.79901I$	0
$u = -0.051363 - 1.336090I$ $a = -1.293320 - 0.524250I$ $b = 1.196380 + 0.535448I$	$7.86174 - 2.79901I$	0
$u = -0.051363 - 1.336090I$ $a = 1.34720 - 0.47819I$ $b = -1.035230 + 0.566468I$	$7.86174 - 2.79901I$	0
$u = 0.626015 + 0.015955I$ $a = 0.548454 + 0.198254I$ $b = -0.469338 + 1.089150I$	$-3.38442 - 8.35809I$	$-7.00708 + 7.27114I$
$u = 0.626015 + 0.015955I$ $a = -0.26648 + 3.06750I$ $b = 0.773216 + 0.747951I$	$-3.38442 - 8.35809I$	$-7.00708 + 7.27114I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.626015 - 0.015955I$ $a = 0.548454 - 0.198254I$ $b = -0.469338 - 1.089150I$	$-3.38442 + 8.35809I$	$-7.00708 - 7.27114I$
$u = 0.626015 - 0.015955I$ $a = -0.26648 - 3.06750I$ $b = 0.773216 - 0.747951I$	$-3.38442 + 8.35809I$	$-7.00708 - 7.27114I$
$u = -0.190249 + 1.399080I$ $a = -0.024830 + 0.534345I$ $b = 0.138671 - 0.227105I$	$-0.18748 + 2.52042I$	0
$u = -0.190249 + 1.399080I$ $a = 0.300172 - 0.366177I$ $b = -0.59533 + 1.79660I$	$-0.18748 + 2.52042I$	0
$u = -0.190249 - 1.399080I$ $a = -0.024830 - 0.534345I$ $b = 0.138671 + 0.227105I$	$-0.18748 - 2.52042I$	0
$u = -0.190249 - 1.399080I$ $a = 0.300172 + 0.366177I$ $b = -0.59533 - 1.79660I$	$-0.18748 - 2.52042I$	0
$u = -0.488881 + 0.303856I$ $a = -0.737878 - 0.060779I$ $b = 0.354514 + 1.076950I$	$-0.85444 + 3.23679I$	$-3.13111 - 5.47740I$
$u = -0.488881 + 0.303856I$ $a = -1.77604 + 2.28587I$ $b = -0.537600 + 0.678188I$	$-0.85444 + 3.23679I$	$-3.13111 - 5.47740I$
$u = -0.488881 - 0.303856I$ $a = -0.737878 + 0.060779I$ $b = 0.354514 - 1.076950I$	$-0.85444 - 3.23679I$	$-3.13111 + 5.47740I$
$u = -0.488881 - 0.303856I$ $a = -1.77604 - 2.28587I$ $b = -0.537600 - 0.678188I$	$-0.85444 - 3.23679I$	$-3.13111 + 5.47740I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.203007 + 0.451248I$ $a = -0.324282 - 0.908451I$ $b = 0.639423 + 1.195230I$	$-1.09124 + 3.38818I$	$-5.28744 - 0.35006I$
$u = 0.203007 + 0.451248I$ $a = -4.43029 - 0.21841I$ $b = -0.357474 - 0.112457I$	$-1.09124 + 3.38818I$	$-5.28744 - 0.35006I$
$u = 0.203007 - 0.451248I$ $a = -0.324282 + 0.908451I$ $b = 0.639423 - 1.195230I$	$-1.09124 - 3.38818I$	$-5.28744 + 0.35006I$
$u = 0.203007 - 0.451248I$ $a = -4.43029 + 0.21841I$ $b = -0.357474 + 0.112457I$	$-1.09124 - 3.38818I$	$-5.28744 + 0.35006I$
$u = -0.73608 + 1.32878I$ $a = 0.706150 - 0.077875I$ $b = -0.442880 - 0.554410I$	$2.16805 + 7.38733I$	0
$u = -0.73608 + 1.32878I$ $a = -1.355480 + 0.388578I$ $b = 1.17883 + 1.23108I$	$2.16805 + 7.38733I$	0
$u = -0.73608 - 1.32878I$ $a = 0.706150 + 0.077875I$ $b = -0.442880 + 0.554410I$	$2.16805 - 7.38733I$	0
$u = -0.73608 - 1.32878I$ $a = -1.355480 - 0.388578I$ $b = 1.17883 - 1.23108I$	$2.16805 - 7.38733I$	0
$u = 0.144988 + 0.455917I$ $a = 0.543645 - 0.637738I$ $b = -0.231791 + 1.315070I$	$-5.23264 - 0.18537I$	$-5.10684 + 9.45911I$
$u = 0.144988 + 0.455917I$ $a = 4.73234 - 2.07071I$ $b = 0.230392 + 0.397665I$	$-5.23264 - 0.18537I$	$-5.10684 + 9.45911I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.144988 - 0.455917I$ $a = 0.543645 + 0.637738I$ $b = -0.231791 - 1.315070I$	$-5.23264 + 0.18537I$	$-5.10684 - 9.45911I$
$u = 0.144988 - 0.455917I$ $a = 4.73234 + 2.07071I$ $b = 0.230392 - 0.397665I$	$-5.23264 + 0.18537I$	$-5.10684 - 9.45911I$
$u = 0.84710 + 1.33446I$ $a = -0.618994 - 0.084260I$ $b = 0.477567 - 0.568731I$	$0.45379 - 12.54640I$	0
$u = 0.84710 + 1.33446I$ $a = 1.307490 + 0.483428I$ $b = -1.10800 + 1.22373I$	$0.45379 - 12.54640I$	0
$u = 0.84710 - 1.33446I$ $a = -0.618994 + 0.084260I$ $b = 0.477567 + 0.568731I$	$0.45379 + 12.54640I$	0
$u = 0.84710 - 1.33446I$ $a = 1.307490 - 0.483428I$ $b = -1.10800 - 1.22373I$	$0.45379 + 12.54640I$	0
$u = -0.037123 + 0.401056I$ $a = 0.636805 - 1.099910I$ $b = -0.59849 + 1.30912I$	$-3.56442 - 8.10409I$	$-17.0460 + 4.5293I$
$u = -0.037123 + 0.401056I$ $a = 8.14813 + 0.91511I$ $b = 0.337519 + 0.027910I$	$-3.56442 - 8.10409I$	$-17.0460 + 4.5293I$
$u = -0.037123 - 0.401056I$ $a = 0.636805 + 1.099910I$ $b = -0.59849 - 1.30912I$	$-3.56442 + 8.10409I$	$-17.0460 - 4.5293I$
$u = -0.037123 - 0.401056I$ $a = 8.14813 - 0.91511I$ $b = 0.337519 - 0.027910I$	$-3.56442 + 8.10409I$	$-17.0460 - 4.5293I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.34530 + 1.64339I$ $a = -0.029382 + 0.257545I$ $b = 0.23692 + 1.59759I$	$-2.02916 - 1.62533I$	0
$u = 0.34530 + 1.64339I$ $a = 0.146412 - 0.208006I$ $b = -0.139978 + 0.354900I$	$-2.02916 - 1.62533I$	0
$u = 0.34530 - 1.64339I$ $a = -0.029382 - 0.257545I$ $b = 0.23692 - 1.59759I$	$-2.02916 + 1.62533I$	0
$u = 0.34530 - 1.64339I$ $a = 0.146412 + 0.208006I$ $b = -0.139978 - 0.354900I$	$-2.02916 + 1.62533I$	0
$u = -0.64420 + 2.25311I$ $a = 0.1019810 + 0.0566033I$ $b = -0.71768 + 2.18101I$	$-1.96431 - 1.71276I$	0
$u = -0.64420 + 2.25311I$ $a = -0.0498684 + 0.0094625I$ $b = 0.1086660 + 0.0456200I$	$-1.96431 - 1.71276I$	0
$u = -0.64420 - 2.25311I$ $a = 0.1019810 - 0.0566033I$ $b = -0.71768 - 2.18101I$	$-1.96431 + 1.71276I$	0
$u = -0.64420 - 2.25311I$ $a = -0.0498684 - 0.0094625I$ $b = 0.1086660 - 0.0456200I$	$-1.96431 + 1.71276I$	0

III.

$\boldsymbol{I_3^u = \langle 4.33\times 10^6 au^{21} - 5.57\times 10^6 u^{21} + \cdots + 7.71\times 10^5 a + 2.10\times 10^7,\ 5.15\times 10^7 au^{21} + 5.00\times 10^7 u^{21} + \cdots - 1.36\times 10^8 a - 4.92\times 10^7,\ u^{22} + 13u^{20} + \cdots - 3u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a \\ -1.71831au^{21} + 2.21242u^{21} + \cdots - 0.306133a - 8.32664 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 3.26754au^{21} + 0.994732u^{21} + \cdots - 12.1468a - 5.94072 \\ 0.397380au^{21} + 9.07632u^{21} + \cdots - 1.71831a + 6.78609 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1.71831au^{21} + 2.21242u^{21} + \cdots + 0.693867a - 8.32664 \\ -1.71831au^{21} + 2.21242u^{21} + \cdots - 0.306133a - 8.32664 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.306133au^{21} + 9.39187u^{21} + \cdots + 2.46799a + 4.68568 \\ 0.397380au^{21} + 17.4735u^{21} + \cdots - 1.71831a + 17.4125 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 5.78354au^{21} - 0.832759u^{21} + \cdots + 3.33949a - 1.66232 \\ 2.01279au^{21} + 0.435494u^{21} + \cdots + 0.815041a + 3.41229 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -2.11053au^{21} - 14.1733u^{21} + \cdots + 7.37956a + 1.79136 \\ 0.227978au^{21} - 14.1807u^{21} + \cdots - 0.845863a - 15.9659 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -0.703514au^{21} + 4.89251u^{21} + \cdots + 4.18630a + 1.41814 \\ 0.227978au^{21} + 14.7190u^{21} + \cdots - 0.845863a + 14.9625 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -3.69975au^{21} - 8.88729u^{21} + \cdots - 3.72407a + 4.99331 \\ 0.825793au^{21} + 4.96517u^{21} + \cdots - 3.10305a - 30.5982 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{220311408}{2517311}u^{21} + \frac{43573144}{2517311}u^{20} + \cdots + \frac{724321844}{2517311}u - \frac{26958998}{2517311}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{22} - 16u^{21} + \cdots - 51u + 13)^2$
c_2, c_8	$u^{44} + 16u^{42} + \cdots + 51u^2 + 13$
c_3, c_{10}	$u^{44} + 11u^{43} + \cdots - 16u + 1$
c_4	$(u^{22} + 13u^{20} + \cdots - 3u + 1)^2$
c_5, c_7	$u^{44} - 2u^{43} + \cdots - 19u + 1$
c_6	$(u^{22} + 3u^{21} + \cdots - 4u + 1)^2$
c_9, c_{12}	$u^{44} + 2u^{43} + \cdots + 15u + 1$
c_{11}	$(u^{22} + 13u^{20} + \cdots + 3u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{22} - 12y^{21} + \cdots - 1977y + 169)^2$
c_2, c_8	$(y^{22} + 16y^{21} + \cdots + 51y + 13)^2$
c_3, c_{10}	$y^{44} - 59y^{43} + \cdots - 2y + 1$
c_4, c_{11}	$(y^{22} + 26y^{21} + \cdots + 25y + 1)^2$
c_5, c_7	$y^{44} + 36y^{43} + \cdots - 73y + 1$
c_6	$(y^{22} - 11y^{21} + \cdots - 12y + 1)^2$
c_9, c_{12}	$y^{44} + 40y^{43} + \cdots + 135y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.201771+1.057170I$ $a=\ \ 0.627916+0.573243I$ $b=-0.256241+1.016760I$	$-1.76921-1.89270I$	$-4.21340+3.50057I$
$u=-0.201771+1.057170I$ $a=-0.436160-0.556434I$ $b=\ \ 0.396621+0.698733I$	$-1.76921-1.89270I$	$-4.21340+3.50057I$
$u=-0.201771-1.057170I$ $a=\ \ 0.627916-0.573243I$ $b=-0.256241-1.016760I$	$-1.76921+1.89270I$	$-4.21340-3.50057I$
$u=-0.201771-1.057170I$ $a=-0.436160+0.556434I$ $b=\ \ 0.396621-0.698733I$	$-1.76921+1.89270I$	$-4.21340-3.50057I$
$u=\ \ 0.296107+0.837502I$ $a=\ \ 1.96433+0.02934I$ $b=-0.06682+1.52563I$	$-5.37912-1.38910I$	$-44.3694-13.7052I$
$u=\ \ 0.296107+0.837502I$ $a=-3.41864+1.50660I$ $b=\ \ 1.14816-2.79572I$	$-5.37912-1.38910I$	$-44.3694-13.7052I$
$u=\ \ 0.296107-0.837502I$ $a=\ \ 1.96433-0.02934I$ $b=-0.06682-1.52563I$	$-5.37912+1.38910I$	$-44.3694+13.7052I$
$u=\ \ 0.296107-0.837502I$ $a=-3.41864-1.50660I$ $b=\ \ 1.14816+2.79572I$	$-5.37912+1.38910I$	$-44.3694+13.7052I$
$u=-0.595144+0.962657I$ $a=\ \ 0.659137-1.137950I$ $b=-0.432485-0.591297I$	$-2.25765+7.48045I$	$0.4859-14.1943I$
$u=-0.595144+0.962657I$ $a=-1.92051+0.38095I$ $b=\ \ 1.27908+0.89560I$	$-2.25765+7.48045I$	$0.4859-14.1943I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.595144-0.962657I$ $a=\ \ 0.659137+1.137950I$ $b=-0.432485+0.591297I$	$-2.25765-7.48045I$	$0.4859+14.1943I$
$u=-0.595144-0.962657I$ $a=-1.92051-0.38095I$ $b=\ \ 1.27908-0.89560I$	$-2.25765-7.48045I$	$0.4859+14.1943I$
$u=\ \ 0.618125+1.021360I$ $a=-0.187871-0.945472I$ $b=\ \ 0.170784-0.591557I$	$-2.19248-5.12417I$	$3.58965+2.51687I$
$u=\ \ 0.618125+1.021360I$ $a=\ \ 1.92298+0.31867I$ $b=-1.16557+0.89974I$	$-2.19248-5.12417I$	$3.58965+2.51687I$
$u=\ \ 0.618125-1.021360I$ $a=-0.187871+0.945472I$ $b=\ \ 0.170784+0.591557I$	$-2.19248+5.12417I$	$3.58965-2.51687I$
$u=\ \ 0.618125-1.021360I$ $a=\ \ 1.92298-0.31867I$ $b=-1.16557-0.89974I$	$-2.19248+5.12417I$	$3.58965-2.51687I$
$u=-0.421138+1.174640I$ $a=-0.679434+0.402271I$ $b=\ \ 1.012810-0.662909I$	$2.63762+5.69978I$	$2.92422-3.43709I$
$u=-0.421138+1.174640I$ $a=-1.77924-0.04634I$ $b=\ \ 0.871174+0.880878I$	$2.63762+5.69978I$	$2.92422-3.43709I$
$u=-0.421138-1.174640I$ $a=-0.679434-0.402271I$ $b=\ \ 1.012810+0.662909I$	$2.63762-5.69978I$	$2.92422+3.43709I$
$u=-0.421138-1.174640I$ $a=-1.77924+0.04634I$ $b=\ \ 0.871174-0.880878I$	$2.63762-5.69978I$	$2.92422+3.43709I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.536596 + 1.174720I$ $a = 0.450802 - 0.173817I$ $b = -0.406133 - 0.554925I$	$0.59983 - 11.01500I$	$1.07553 + 8.59857I$
$u = 0.536596 + 1.174720I$ $a = 1.80600 + 0.18193I$ $b = -0.995487 + 0.917927I$	$0.59983 - 11.01500I$	$1.07553 + 8.59857I$
$u = 0.536596 - 1.174720I$ $a = 0.450802 + 0.173817I$ $b = -0.406133 + 0.554925I$	$0.59983 + 11.01500I$	$1.07553 - 8.59857I$
$u = 0.536596 - 1.174720I$ $a = 1.80600 - 0.18193I$ $b = -0.995487 - 0.917927I$	$0.59983 + 11.01500I$	$1.07553 - 8.59857I$
$u = 0.005831 + 0.657923I$ $a = 0.641547 + 0.850207I$ $b = -0.486384 + 1.024680I$	$-0.43220 - 3.66490I$	$4.41010 + 2.43967I$
$u = 0.005831 + 0.657923I$ $a = 3.47837 + 0.40078I$ $b = -1.025210 + 0.525608I$	$-0.43220 - 3.66490I$	$4.41010 + 2.43967I$
$u = 0.005831 - 0.657923I$ $a = 0.641547 - 0.850207I$ $b = -0.486384 - 1.024680I$	$-0.43220 + 3.66490I$	$4.41010 - 2.43967I$
$u = 0.005831 - 0.657923I$ $a = 3.47837 - 0.40078I$ $b = -1.025210 - 0.525608I$	$-0.43220 + 3.66490I$	$4.41010 - 2.43967I$
$u = -0.001384 + 0.564588I$ $a = -0.499426 - 0.235317I$ $b = 0.57946 + 1.29783I$	$-3.30245 + 8.15205I$	$12.8474 - 9.3878I$
$u = -0.001384 + 0.564588I$ $a = -6.37715 + 1.41055I$ $b = 0.652275 + 0.068309I$	$-3.30245 + 8.15205I$	$12.8474 - 9.3878I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.001384-0.564588I$ $a=-0.499426+0.235317I$ $b=\ \ 0.57946-1.29783I$	$-3.30245-8.15205I$	$12.8474+9.3878I$
$u=-0.001384-0.564588I$ $a=-6.37715-1.41055I$ $b=\ \ 0.652275-0.068309I$	$-3.30245-8.15205I$	$12.8474+9.3878I$
$u=\ \ 0.01460+1.46352I$ $a=\ \ 0.167274-0.498034I$ $b=-0.027733+0.357376I$	$-0.34964+2.63420I$	$-23.8140-7.7608I$
$u=\ \ 0.01460+1.46352I$ $a=\ \ 0.337597-0.315688I$ $b=-0.36501+1.98484I$	$-0.34964+2.63420I$	$-23.8140-7.7608I$
$u=\ \ 0.01460-1.46352I$ $a=\ \ 0.167274+0.498034I$ $b=-0.027733-0.357376I$	$-0.34964-2.63420I$	$-23.8140+7.7608I$
$u=\ \ 0.01460-1.46352I$ $a=\ \ 0.337597+0.315688I$ $b=-0.36501-1.98484I$	$-0.34964-2.63420I$	$-23.8140+7.7608I$
$u=\ \ 0.201375+0.329683I$ $a=\ \ 1.17523-0.99657I$ $b=\ \ 0.282712+1.277420I$	$-5.32068-0.31973I$	$-9.05297+4.67817I$
$u=\ \ 0.201375+0.329683I$ $a=-1.54080-4.47948I$ $b=\ \ 0.323637-0.757875I$	$-5.32068-0.31973I$	$-9.05297+4.67817I$
$u=\ \ 0.201375-0.329683I$ $a=\ \ 1.17523+0.99657I$ $b=\ \ 0.282712-1.277420I$	$-5.32068+0.31973I$	$-9.05297-4.67817I$
$u=\ \ 0.201375-0.329683I$ $a=-1.54080+4.47948I$ $b=\ \ 0.323637+0.757875I$	$-5.32068+0.31973I$	$-9.05297-4.67817I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.45320+2.24172I$ $a=\ \ 0.0961240+0.0785902I$ $b=-0.53608+2.17207I$	$-1.97323-1.71954I$	$-198.883+270.228I$
$u=-0.45320+2.24172I$ $a=\ \ 0.01193270-0.00475518I$ $b=\ \ 0.0464291+0.0694636I$	$-1.97323-1.71954I$	$-198.883+270.228I$
$u=-0.45320-2.24172I$ $a=\ \ 0.0961240-0.0785902I$ $b=-0.53608-2.17207I$	$-1.97323+1.71954I$	$-198.883-270.228I$
$u=-0.45320-2.24172I$ $a=\ \ 0.01193270+0.00475518I$ $b=\ \ 0.0464291-0.0694636I$	$-1.97323+1.71954I$	$-198.883-270.228I$

IV.

$\boldsymbol{I_4^u = \langle -u^4-2u^3-2u^2+b-2u,\ u^4+u^3+a-u-2,\ u^5+2u^4+3u^3+3u^2+u+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^4-u^3+u+2 \\ u^4+2u^3+2u^2+2u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2u^4-4u^3-5u^2-5u \\ u^2+u+1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3+2u^2+3u+2 \\ u^4+2u^3+2u^2+2u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^3+2u^2+2u+2 \\ u^4+2u^3+3u^2+2u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^4+2u^3+2u^2+u-1 \\ -u^4-2u^3-3u^2-2u-1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^4+2u^3+2u^2+u-1 \\ -u^4-2u^3-3u^2-2u-1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -u^4-u^3+u+2 \\ u^4+2u^3+2u^2+2u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^4+2u^3+2u^2+u-1 \\ -u^4-2u^3-3u^2-2u-1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5u^4+13u^3+19u^2+13u+9$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_8	y^5
c_3, c_{10}	$y^5 - 3y^4 + 3y^3 - 3y^2 + 2y - 1$
c_4, c_{11}	$y^5 + 2y^4 - y^3 - 7y^2 - 5y - 1$
c_5, c_7	$y^5 + 2y^4 + 3y^3 + 5y^2 + 3y - 1$
c_6	$y^5 + y^4 + 7y^3 + 8y^2 + y - 1$
c_9, c_{12}	$y^5 - 2y^4 + 3y^3 - 3y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.372466+1.263920I$ $a=-1.347300+0.010044I$ $b=\ \ 1.045750+0.405588I$	$3.01018+5.17259I$	$5.18262-7.13326I$
$u=-0.372466-1.263920I$ $a=-1.347300-0.010044I$ $b=\ \ 1.045750-0.405588I$	$3.01018-5.17259I$	$5.18262+7.13326I$
$u=-1.33263$ $a=-0.119827$ $b=-0.692872$	-2.14584	10.4210
$u=\ \ 0.038780+0.656277I$ $a=\ \ 1.90721+0.97967I$ $b=-0.699311+0.811268I$	$-0.29233-3.70382I$	$1.60688+5.64419I$
$u=\ \ 0.038780-0.656277I$ $a=\ \ 1.90721-0.97967I$ $b=-0.699311-0.811268I$	$-0.29233+3.70382I$	$1.60688-5.64419I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^5(u^{22}-16u^{21}+\cdots-51u+13)^2$ $\cdot(u^{85}+45u^{84}+\cdots-58368u-4096)$
c_2, c_8	$u^5(u^{44}+16u^{42}+\cdots+51u^2+13)(u^{85}+3u^{84}+\cdots+288u+64)$
c_3, c_{10}	$(u^5-u^4-u^3+u^2-1)(u^{44}+11u^{43}+\cdots-16u+1)$ $\cdot(u^{85}-u^{84}+\cdots-3u+1)$
c_4	$(u^5+2u^4+3u^3+3u^2+u+1)(u^{22}+13u^{20}+\cdots-3u+1)^2$ $\cdot(u^{85}+5u^{84}+\cdots+951u+160)$
c_5, c_7	$(u^5+2u^4+3u^3+3u^2+3u+1)(u^{44}-2u^{43}+\cdots-19u+1)$ $\cdot(u^{85}+2u^{84}+\cdots+54u-1)$
c_6	$(u^5-3u^4+5u^3-4u^2+3u-1)(u^{22}+3u^{21}+\cdots-4u+1)^2$ $\cdot(u^{85}+10u^{84}+\cdots-35445u-2194)$
c_9, c_{12}	$(u^5-u^3+u^2+u-1)(u^{44}+2u^{43}+\cdots+15u+1)$ $\cdot(u^{85}-3u^{83}+\cdots-4u+1)$
c_{11}	$(u^5-2u^4+3u^3-3u^2+u-1)(u^{22}+13u^{20}+\cdots+3u+1)^2$ $\cdot(u^{85}+5u^{84}+\cdots+951u+160)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^5(y^{22}-12y^{21}+\cdots-1977y+169)^2$ $\cdot(y^{85}+y^{84}+\cdots+204472320y-16777216)$
c_2, c_8	$y^5(y^{22}+16y^{21}+\cdots+51y+13)^2$ $\cdot(y^{85}+45y^{84}+\cdots-58368y-4096)$
c_3, c_{10}	$(y^5-3y^4+3y^3-3y^2+2y-1)(y^{44}-59y^{43}+\cdots-2y+1)$ $\cdot(y^{85}-y^{84}+\cdots-53y-1)$
c_4, c_{11}	$(y^5+2y^4-y^3-7y^2-5y-1)(y^{22}+26y^{21}+\cdots+25y+1)^2$ $\cdot(y^{85}+37y^{84}+\cdots-57839y-25600)$
c_5, c_7	$(y^5+2y^4+3y^3+5y^2+3y-1)(y^{44}+36y^{43}+\cdots-73y+1)$ $\cdot(y^{85}-18y^{84}+\cdots+2716y-1)$
c_6	$(y^5+y^4+7y^3+8y^2+y-1)(y^{22}-11y^{21}+\cdots-12y+1)^2$ $\cdot(y^{85}+2y^{84}+\cdots+255642685y-4813636)$
c_9, c_{12}	$(y^5-2y^4+3y^3-3y^2+3y-1)(y^{44}+40y^{43}+\cdots+135y+1)$ $\cdot(y^{85}-6y^{84}+\cdots+46y-1)$