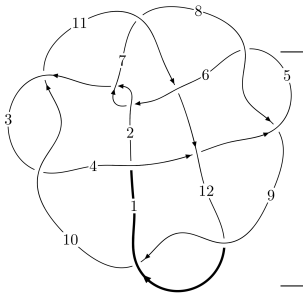
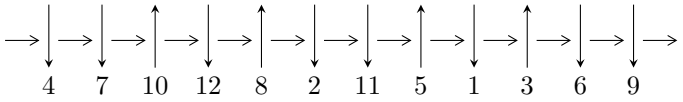
$12a_{1080}$ $(K12a_{1080})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 5.71445 \times 10^{533} u^{129} - 2.95703 \times 10^{534} u^{128} + \cdots + 2.15300 \times 10^{534} b - 3.92705 \times 10^{534},$$
$$- 7.74014 \times 10^{535} u^{129} + 3.94800 \times 10^{536} u^{128} + \cdots + 4.30600 \times 10^{534} a + 6.77807 \times 10^{536},$$
$$u^{130} - 5u^{129} + \cdots - 6u - 1 \rangle$$
$$I_2^u = \langle 5.03147 \times 10^{18} u^{28} - 3.08387 \times 10^{19} u^{27} + \cdots + 8.43939 \times 10^{18} b - 1.04843 \times 10^{19},$$
$$- 1.85005 \times 10^{19} u^{28} + 1.08812 \times 10^{20} u^{27} + \cdots + 8.43939 \times 10^{18} a - 3.82188 \times 10^{19},\ u^{29} - 7u^{28} + \cdots - 5u +$$
$$I_3^u = \langle b - 1,\ a,\ u + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 160 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. $\boldsymbol{I_1^u = \langle 5.71 \times 10^{533} u^{129} - 2.96 \times 10^{534} u^{128} + \cdots + 2.15 \times 10^{534} b - 3.93 \times 10^{534},\ -7.74 \times 10^{535} u^{129} + 3.95 \times 10^{536} u^{128} + \cdots + 4.31 \times 10^{534} a + 6.78 \times 10^{536},\ u^{130} - 5u^{129} + \cdots - 6u - 1 \rangle}$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 17.9752u^{129} - 91.6859u^{128} + \cdots + 1038.28u - 157.410 \\ -0.265418u^{129} + 1.37345u^{128} + \cdots + 16.6270u + 1.82399 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 17.7098u^{129} - 90.3124u^{128} + \cdots + 1054.91u - 155.586 \\ -0.265418u^{129} + 1.37345u^{128} + \cdots + 16.6270u + 1.82399 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -17.4445u^{129} + 88.8676u^{128} + \cdots - 86.8634u + 198.239 \\ 0.479324u^{129} - 2.38693u^{128} + \cdots + 36.7566u - 3.63350 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 17.6308u^{129} - 89.9462u^{128} + \cdots + 1047.76u - 153.876 \\ -0.0239336u^{129} + 0.128212u^{128} + \cdots + 23.5302u + 0.0849661 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 9.43611u^{129} - 47.7722u^{128} + \cdots + 120.382u - 108.498 \\ -1.71518u^{129} + 8.55245u^{128} + \cdots - 88.2992u + 17.3088 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -10.5939u^{129} + 54.2944u^{128} + \cdots - 213.176u + 79.9416 \\ -0.898314u^{129} + 4.70501u^{128} + \cdots - 42.6358u + 8.95224 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -4.49629u^{129} + 22.7969u^{128} + \cdots + 151.904u + 56.6764 \\ 1.62019u^{129} - 8.33401u^{128} + \cdots + 86.2625u - 16.5936 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -6.51812u^{129} + 33.3516u^{128} + \cdots + 552.533u + 85.7734 \\ 0.0695352u^{129} - 0.309490u^{128} + \cdots + 29.3881u + 0.459493 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2.50096u^{129} + 12.6110u^{128} + \cdots - 163.450u + 16.2890$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{130} - 13u^{129} + \cdots - 179728050u + 10062098$
c_2, c_6	$u^{130} - 3u^{129} + \cdots + 8779u - 307$
c_3, c_{10}	$u^{130} + 6u^{129} + \cdots + 273801u + 6691$
c_4	$u^{130} + 8u^{129} + \cdots - 32651759u - 16964329$
c_5, c_8	$u^{130} + 9u^{129} + \cdots + 6600u + 218$
c_7	$u^{130} + 4u^{129} + \cdots - 3192063u + 4571051$
c_9, c_{12}	$u^{130} - 5u^{129} + \cdots - 6u - 1$
c_{11}	$u^{130} + 12u^{129} + \cdots + 35960u - 90691$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{130} - 39y^{129} + \cdots - 12521051740895800y + 101245816161604$
c_2, c_6	$y^{130} - 87y^{129} + \cdots - 162306321y + 94249$
c_3, c_{10}	$y^{130} + 34y^{129} + \cdots - 59906322757y + 44769481$
c_4	$y^{130} - 128y^{129} + \cdots - 5434457919023257y + 287788458420241$
c_5, c_8	$y^{130} + 111y^{129} + \cdots - 8958604y + 47524$
c_7	$y^{130} - 70y^{129} + \cdots - 3447337940891247y + 20894507244601$
c_9, c_{12}	$y^{130} - 115y^{129} + \cdots - 68y + 1$
c_{11}	$y^{130} - 96y^{129} + \cdots + 30998315860y + 8224857481$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00202$ $a=-0.0616349$ $b=-8.97342$	-3.29193	0
$u=-0.073491+0.987925I$ $a=\ \ 1.315450-0.395938I$ $b=-0.889853+0.641878I$	$-3.61027+7.42880I$	0
$u=-0.073491-0.987925I$ $a=\ \ 1.315450+0.395938I$ $b=-0.889853-0.641878I$	$-3.61027-7.42880I$	0
$u=-0.409840+0.896900I$ $a=\ \ 0.883868-0.533532I$ $b=-0.763894+0.603595I$	$-1.69773+2.65884I$	0
$u=-0.409840-0.896900I$ $a=\ \ 0.883868+0.533532I$ $b=-0.763894-0.603595I$	$-1.69773-2.65884I$	0
$u=-0.020637+0.967032I$ $a=-0.084685+0.964659I$ $b=-0.375576-0.657852I$	$-0.50407-1.50340I$	0
$u=-0.020637-0.967032I$ $a=-0.084685-0.964659I$ $b=-0.375576+0.657852I$	$-0.50407+1.50340I$	0
$u=-0.129553+0.930254I$ $a=-1.217950+0.545282I$ $b=\ \ 0.727114-0.502909I$	$-0.51607+3.67076I$	0
$u=-0.129553-0.930254I$ $a=-1.217950-0.545282I$ $b=\ \ 0.727114+0.502909I$	$-0.51607-3.67076I$	0
$u=\ \ 0.090422+0.924094I$ $a=\ \ 0.069738-1.052160I$ $b=\ \ 0.488227+0.892671I$	$-4.45289-8.08828I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.090422 - 0.924094I$ $a = 0.069738 + 1.052160I$ $b = 0.488227 - 0.892671I$	$-4.45289 + 8.08828I$	0
$u = -1.07910$ $a = -0.316887$ $b = -0.845615$	-1.80194	0
$u = -1.083850 + 0.160880I$ $a = 0.597938 - 0.242020I$ $b = 0.636688 + 0.640814I$	$-2.11300 + 0.79916I$	0
$u = -1.083850 - 0.160880I$ $a = 0.597938 + 0.242020I$ $b = 0.636688 - 0.640814I$	$-2.11300 - 0.79916I$	0
$u = -0.242844 + 0.845324I$ $a = -0.995175 + 0.758224I$ $b = 1.088130 - 0.680843I$	$-3.62197 + 5.01079I$	0
$u = -0.242844 - 0.845324I$ $a = -0.995175 - 0.758224I$ $b = 1.088130 + 0.680843I$	$-3.62197 - 5.01079I$	0
$u = 1.095850 + 0.271330I$ $a = -0.789504 + 0.483119I$ $b = -0.658536 - 0.592176I$	$0.31867 - 3.20607I$	0
$u = 1.095850 - 0.271330I$ $a = -0.789504 - 0.483119I$ $b = -0.658536 + 0.592176I$	$0.31867 + 3.20607I$	0
$u = 1.097640 + 0.274588I$ $a = -0.12884 + 1.41473I$ $b = -0.658414 - 0.715748I$	$-2.84987 - 4.21682I$	0
$u = 1.097640 - 0.274588I$ $a = -0.12884 - 1.41473I$ $b = -0.658414 + 0.715748I$	$-2.84987 + 4.21682I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.119590+0.200790I$ $a=-0.155962+1.179580I$ $b=\ \ 2.88822-0.94863I$	$-8.11010+0.62872I$	0
$u=-1.119590-0.200790I$ $a=-0.155962-1.179580I$ $b=\ \ 2.88822+0.94863I$	$-8.11010-0.62872I$	0
$u=\ \ 1.150330+0.007367I$ $a=\ \ 0.572667-1.059770I$ $b=\ \ 0.689821+0.179403I$	$-4.77689+2.09602I$	0
$u=\ \ 1.150330-0.007367I$ $a=\ \ 0.572667+1.059770I$ $b=\ \ 0.689821-0.179403I$	$-4.77689-2.09602I$	0
$u=-1.136690+0.223145I$ $a=-0.404583+0.204210I$ $b=-0.237139+0.768520I$	$-2.74861-0.75488I$	0
$u=-1.136690-0.223145I$ $a=-0.404583-0.204210I$ $b=-0.237139-0.768520I$	$-2.74861+0.75488I$	0
$u=\ \ 1.18620$ $a=\ \ 1.12730$ $b=\ \ 0.812482$	-5.51674	0
$u=-1.224080+0.092709I$ $a=-1.06586+1.58713I$ $b=-0.440715-0.317754I$	$-11.92840+3.71446I$	0
$u=-1.224080-0.092709I$ $a=-1.06586-1.58713I$ $b=-0.440715+0.317754I$	$-11.92840-3.71446I$	0
$u=\ \ 1.194690+0.331291I$ $a=\ \ 0.648812-0.429668I$ $b=\ \ 0.921396+0.752959I$	$-2.49703-7.75580I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.194690 - 0.331291I$ $a = 0.648812 + 0.429668I$ $b = 0.921396 - 0.752959I$	$-2.49703 + 7.75580I$	0
$u = -0.030993 + 0.755408I$ $a = -0.144627 - 0.837090I$ $b = 0.752383 + 0.319406I$	$-6.21610 + 3.71666I$	0
$u = -0.030993 - 0.755408I$ $a = -0.144627 + 0.837090I$ $b = 0.752383 - 0.319406I$	$-6.21610 - 3.71666I$	0
$u = -1.253630 + 0.015548I$ $a = 0.384371 - 0.207385I$ $b = 0.836924 - 0.860718I$	$-2.67890 + 1.86876I$	0
$u = -1.253630 - 0.015548I$ $a = 0.384371 + 0.207385I$ $b = 0.836924 + 0.860718I$	$-2.67890 - 1.86876I$	0
$u = -1.118880 + 0.570219I$ $a = 0.390866 - 0.720429I$ $b = -0.934232 - 0.180625I$	$-6.03411 + 0.01480I$	0
$u = -1.118880 - 0.570219I$ $a = 0.390866 + 0.720429I$ $b = -0.934232 + 0.180625I$	$-6.03411 - 0.01480I$	0
$u = -0.194122 + 0.709389I$ $a = 1.51868 - 0.76656I$ $b = -1.156460 - 0.029029I$	$-5.55815 + 2.85770I$	0
$u = -0.194122 - 0.709389I$ $a = 1.51868 + 0.76656I$ $b = -1.156460 + 0.029029I$	$-5.55815 - 2.85770I$	0
$u = -1.271440 + 0.012123I$ $a = 0.335518 + 1.315410I$ $b = 0.985026 - 0.992068I$	$-9.42887 + 2.93806I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.271440-0.012123I$ $a=\ 0.335518-1.315410I$ $b=\ 0.985026+0.992068I$	$-9.42887-2.93806I$	0
$u=\ 0.440963+1.195240I$ $a=-0.855898-0.678673I$ $b=\ 0.871594+0.698929I$	$-8.7020-13.0723I$	0
$u=\ 0.440963-1.195240I$ $a=-0.855898+0.678673I$ $b=\ 0.871594-0.698929I$	$-8.7020+13.0723I$	0
$u=-1.249240+0.285238I$ $a=-1.024480-0.471633I$ $b=-0.859403+0.184929I$	$-9.97413-0.00960I$	0
$u=-1.249240-0.285238I$ $a=-1.024480+0.471633I$ $b=-0.859403-0.184929I$	$-9.97413+0.00960I$	0
$u=\ 0.060570+0.706728I$ $a=\ 0.269155-0.894738I$ $b=-0.356989+0.978877I$	$0.95733+3.92673I$	0
$u=\ 0.060570-0.706728I$ $a=\ 0.269155+0.894738I$ $b=-0.356989-0.978877I$	$0.95733-3.92673I$	0
$u=\ 0.254318+0.660041I$ $a=-0.224910+1.035090I$ $b=\ 0.121313-0.854569I$	$2.84269-0.32651I$	0
$u=\ 0.254318-0.660041I$ $a=-0.224910-1.035090I$ $b=\ 0.121313+0.854569I$	$2.84269+0.32651I$	0
$u=\ 1.311880+0.020045I$ $a=\ 0.012950-0.962013I$ $b=-1.77191+1.66222I$	$-13.9433-7.8812I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.311880 - 0.020045I$ $a = 0.012950 + 0.962013I$ $b = -1.77191 - 1.66222I$	$-13.9433 + 7.8812I$	0
$u = -1.328540 + 0.000938I$ $a = -0.503466 - 1.139700I$ $b = -1.279620 + 0.498610I$	$-14.1933 + 7.5974I$	0
$u = -1.328540 - 0.000938I$ $a = -0.503466 + 1.139700I$ $b = -1.279620 - 0.498610I$	$-14.1933 - 7.5974I$	0
$u = 1.334430 + 0.011122I$ $a = 0.033605 + 0.980534I$ $b = 1.42537 - 1.26333I$	$-10.35500 - 2.89604I$	0
$u = 1.334430 - 0.011122I$ $a = 0.033605 - 0.980534I$ $b = 1.42537 + 1.26333I$	$-10.35500 + 2.89604I$	0
$u = -1.330320 + 0.170812I$ $a = 0.079576 + 0.950102I$ $b = 1.82229 - 1.55223I$	$-5.94349 + 4.90505I$	0
$u = -1.330320 - 0.170812I$ $a = 0.079576 - 0.950102I$ $b = 1.82229 + 1.55223I$	$-5.94349 - 4.90505I$	0
$u = 1.328030 + 0.197054I$ $a = 0.576524 + 0.293758I$ $b = 0.864753 + 0.387823I$	$-5.00318 - 3.21559I$	0
$u = 1.328030 - 0.197054I$ $a = 0.576524 - 0.293758I$ $b = 0.864753 - 0.387823I$	$-5.00318 + 3.21559I$	0
$u = -1.281040 + 0.418549I$ $a = 0.809033 + 0.672759I$ $b = 0.690595 - 0.535196I$	$-4.44925 + 6.36446I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.281040-0.418549I$ $a=\ \ 0.809033-0.672759I$ $b=\ \ 0.690595+0.535196I$	$-4.44925-6.36446I$	0
$u=\ \ 1.341430+0.190127I$ $a=-0.827371-0.207179I$ $b=-1.002280-0.480499I$	$-6.40527-3.33195I$	0
$u=\ \ 1.341430-0.190127I$ $a=-0.827371+0.207179I$ $b=-1.002280+0.480499I$	$-6.40527+3.33195I$	0
$u=\ \ 1.320880+0.332965I$ $a=\ \ 0.0018459+0.1399580I$ $b=-1.341270+0.332724I$	$-10.47680-7.70288I$	0
$u=\ \ 1.320880-0.332965I$ $a=\ \ 0.0018459-0.1399580I$ $b=-1.341270-0.332724I$	$-10.47680+7.70288I$	0
$u=-1.352890+0.221980I$ $a=\ \ 0.015406-0.853772I$ $b=-1.26724+1.43738I$	$-5.20381+1.63050I$	0
$u=-1.352890-0.221980I$ $a=\ \ 0.015406+0.853772I$ $b=-1.26724-1.43738I$	$-5.20381-1.63050I$	0
$u=-1.354340+0.278982I$ $a=\ \ 0.083985-0.858763I$ $b=-1.23852+1.09364I$	$-5.20629+1.68465I$	0
$u=-1.354340-0.278982I$ $a=\ \ 0.083985+0.858763I$ $b=-1.23852-1.09364I$	$-5.20629-1.68465I$	0
$u=\ \ 1.355230+0.288926I$ $a=\ \ 0.158142-1.109720I$ $b=\ \ 1.26542+0.68333I$	$-10.43720-6.44469I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.355230 - 0.288926I$ $a = 0.158142 + 1.109720I$ $b = 1.26542 - 0.68333I$	$-10.43720 + 6.44469I$	0
$u = 1.387820 + 0.051455I$ $a = -0.007288 - 1.052230I$ $b = -0.58780 + 1.54672I$	$-14.1274 + 1.4151I$	0
$u = 1.387820 - 0.051455I$ $a = -0.007288 + 1.052230I$ $b = -0.58780 - 1.54672I$	$-14.1274 - 1.4151I$	0
$u = -1.336980 + 0.388354I$ $a = -0.802035 - 0.511974I$ $b = -0.835602 + 0.664222I$	$-8.9382 + 12.7310I$	0
$u = -1.336980 - 0.388354I$ $a = -0.802035 + 0.511974I$ $b = -0.835602 - 0.664222I$	$-8.9382 - 12.7310I$	0
$u = -0.575430 + 0.191897I$ $a = -0.75266 + 2.21488I$ $b = 0.95730 + 1.45363I$	$-7.66415 + 0.37111I$	0
$u = -0.575430 - 0.191897I$ $a = -0.75266 - 2.21488I$ $b = 0.95730 - 1.45363I$	$-7.66415 - 0.37111I$	0
$u = 1.342190 + 0.378213I$ $a = -0.013183 + 1.071910I$ $b = -1.41597 - 1.12995I$	$-5.11178 - 8.25838I$	0
$u = 1.342190 - 0.378213I$ $a = -0.013183 - 1.071910I$ $b = -1.41597 + 1.12995I$	$-5.11178 + 8.25838I$	0
$u = 1.338300 + 0.420027I$ $a = -0.056252 - 1.064140I$ $b = 1.65777 + 1.17573I$	$-8.0509 - 12.3800I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.338300 - 0.420027I$ $a = -0.056252 + 1.064140I$ $b = 1.65777 - 1.17573I$	$-8.0509 + 12.3800I$	0
$u = 1.41920 + 0.02261I$ $a = -0.053861 + 1.115730I$ $b = -0.455069 - 0.662436I$	$-13.99120 - 0.99445I$	0
$u = 1.41920 - 0.02261I$ $a = -0.053861 - 1.115730I$ $b = -0.455069 + 0.662436I$	$-13.99120 + 0.99445I$	0
$u = 1.41300 + 0.29459I$ $a = 0.130921 + 0.119386I$ $b = 0.810368 - 0.056158I$	$-5.67729 - 3.56833I$	0
$u = 1.41300 - 0.29459I$ $a = 0.130921 - 0.119386I$ $b = 0.810368 + 0.056158I$	$-5.67729 + 3.56833I$	0
$u = 1.40445 + 0.33837I$ $a = -0.195996 + 0.878968I$ $b = -1.68456 - 0.82654I$	$-8.84937 - 9.24827I$	0
$u = 1.40445 - 0.33837I$ $a = -0.195996 - 0.878968I$ $b = -1.68456 + 0.82654I$	$-8.84937 + 9.24827I$	0
$u = 0.157642 + 0.516695I$ $a = -1.74025 - 0.24932I$ $b = 0.511814 + 0.349407I$	$-0.530702 + 1.255080I$	$-4.00000 - 3.64281I$
$u = 0.157642 - 0.516695I$ $a = -1.74025 + 0.24932I$ $b = 0.511814 - 0.349407I$	$-0.530702 - 1.255080I$	$-4.00000 + 3.64281I$
$u = 0.62953 + 1.33910I$ $a = 0.632615 + 0.613599I$ $b = -0.668136 - 0.589000I$	$-4.04361 - 6.29930I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.62953 - 1.33910I$ $a = 0.632615 - 0.613599I$ $b = -0.668136 + 0.589000I$	$-4.04361 + 6.29930I$	0
$u = 1.44298 + 0.34787I$ $a = 0.027603 - 0.837185I$ $b = 1.63762 + 1.01601I$	$-7.47543 - 7.09269I$	0
$u = 1.44298 - 0.34787I$ $a = 0.027603 + 0.837185I$ $b = 1.63762 - 1.01601I$	$-7.47543 + 7.09269I$	0
$u = -0.020568 + 0.493316I$ $a = -1.36949 - 0.75216I$ $b = 0.055730 + 0.980040I$	$-0.690944 + 0.710546I$	$-5.10637 + 0.I$
$u = -0.020568 - 0.493316I$ $a = -1.36949 + 0.75216I$ $b = 0.055730 - 0.980040I$	$-0.690944 - 0.710546I$	$-5.10637 + 0.I$
$u = -0.457274 + 0.129266I$ $a = 0.50656 - 1.49117I$ $b = -0.29757 + 1.58838I$	$0.37812 + 2.22329I$	$-13.8075 - 7.7611I$
$u = -0.457274 - 0.129266I$ $a = 0.50656 + 1.49117I$ $b = -0.29757 - 1.58838I$	$0.37812 - 2.22329I$	$-13.8075 + 7.7611I$
$u = 1.42820 + 0.56301I$ $a = 0.120957 - 0.252680I$ $b = -0.391763 + 0.619471I$	$-8.22968 + 2.61869I$	0
$u = 1.42820 - 0.56301I$ $a = 0.120957 + 0.252680I$ $b = -0.391763 - 0.619471I$	$-8.22968 - 2.61869I$	0
$u = -0.168264 + 0.425371I$ $a = 1.28122 + 0.98430I$ $b = 0.516253 - 1.056420I$	$-1.67454 + 0.95361I$	$-4.46828 - 0.33846I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.168264-0.425371I$ $a=\ \ 1.28122-0.98430I$ $b=\ \ 0.516253+1.056420I$	$-1.67454-0.95361I$	$-4.46828+0.33846I$
$u=-0.177067+0.388181I$ $a=-0.806616+0.298443I$ $b=-0.104181+0.441416I$	$-0.391409+0.990443I$	$-6.94560-6.37500I$
$u=-0.177067-0.388181I$ $a=-0.806616-0.298443I$ $b=-0.104181-0.441416I$	$-0.391409-0.990443I$	$-6.94560+6.37500I$
$u=-1.52177+0.45149I$ $a=-0.023534-1.003640I$ $b=-1.46266+1.14471I$	$-14.8430+18.8383I$	0
$u=-1.52177-0.45149I$ $a=-0.023534+1.003640I$ $b=-1.46266-1.14471I$	$-14.8430-18.8383I$	0
$u=-1.48371+0.63192I$ $a=-0.054684+0.729620I$ $b=\ \ 0.696218-0.536118I$	$-4.11013+4.51900I$	0
$u=-1.48371-0.63192I$ $a=-0.054684-0.729620I$ $b=\ \ 0.696218+0.536118I$	$-4.11013-4.51900I$	0
$u=-1.55030+0.46019I$ $a=\ \ 0.012246+0.981982I$ $b=\ \ 1.29407-1.12131I$	$-10.6426+12.4107I$	0
$u=-1.55030-0.46019I$ $a=\ \ 0.012246-0.981982I$ $b=\ \ 1.29407+1.12131I$	$-10.6426-12.4107I$	0
$u=-1.51993+0.56718I$ $a=-0.296884+0.731669I$ $b=\ \ 0.563905-0.415063I$	$-7.71273-1.55990I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.51993-0.56718I$ $a=-0.296884-0.731669I$ $b=\ \ 0.563905+0.415063I$	$-7.71273+1.55990I$	0
$u=-1.54631+0.50368I$ $a=\ \ 0.027006-0.968000I$ $b=-1.19129+0.88163I$	$-16.0128+6.1089I$	0
$u=-1.54631-0.50368I$ $a=\ \ 0.027006+0.968000I$ $b=-1.19129-0.88163I$	$-16.0128-6.1089I$	0
$u=\ \ 0.077650+0.356980I$ $a=\ \ 2.92652+0.94798I$ $b=-0.885792-0.839896I$	$-1.45363-2.81108I$	$-5.48491+0.85956I$
$u=\ \ 0.077650-0.356980I$ $a=\ \ 2.92652-0.94798I$ $b=-0.885792+0.839896I$	$-1.45363+2.81108I$	$-5.48491-0.85956I$
$u=\ \ 1.55377+0.55131I$ $a=\ \ 0.227464+0.794779I$ $b=-1.30323-0.68383I$	$-15.5623-8.4376I$	0
$u=\ \ 1.55377-0.55131I$ $a=\ \ 0.227464-0.794779I$ $b=-1.30323+0.68383I$	$-15.5623+8.4376I$	0
$u=-0.220324+0.257336I$ $a=\ \ 2.46568-4.06100I$ $b=\ \ 0.348249+0.522392I$	$-8.82326-2.45397I$	$-9.07242+9.28337I$
$u=-0.220324-0.257336I$ $a=\ \ 2.46568+4.06100I$ $b=\ \ 0.348249-0.522392I$	$-8.82326+2.45397I$	$-9.07242-9.28337I$
$u=\ \ 0.11727+1.70328I$ $a=-0.705595-0.162044I$ $b=\ \ 0.726224+0.110053I$	$-10.05660+0.92727I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.11727 - 1.70328I$ $a = -0.705595 + 0.162044I$ $b = 0.726224 - 0.110053I$	$-10.05660 - 0.92727I$	0
$u = -0.153290$ $a = -3.37425$ $b = -0.766547$	-1.99515	-3.75200
$u = 1.83028 + 0.41768I$ $a = -0.130425 - 0.638164I$ $b = 0.741911 + 0.973437I$	$-8.73950 - 4.06805I$	0
$u = 1.83028 - 0.41768I$ $a = -0.130425 + 0.638164I$ $b = 0.741911 - 0.973437I$	$-8.73950 + 4.06805I$	0
$u = -0.0993803 + 0.0063765I$ $a = 3.69594 - 13.32710I$ $b = -0.983894 + 0.119002I$	$-5.70561 - 2.82958I$	$-10.76935 + 1.81030I$
$u = -0.0993803 - 0.0063765I$ $a = 3.69594 + 13.32710I$ $b = -0.983894 - 0.119002I$	$-5.70561 + 2.82958I$	$-10.76935 - 1.81030I$
$u = 0.0268208 + 0.0305191I$ $a = 29.6132 + 13.6360I$ $b = 1.268210 + 0.497295I$	$-9.75886 + 7.66998I$	$-11.09033 - 5.42698I$
$u = 0.0268208 - 0.0305191I$ $a = 29.6132 - 13.6360I$ $b = 1.268210 - 0.497295I$	$-9.75886 - 7.66998I$	$-11.09033 + 5.42698I$
$u = 1.96168 + 1.31224I$ $a = 0.318774 + 0.391530I$ $b = -0.474803 - 0.261945I$	$-10.92390 + 4.16775I$	0
$u = 1.96168 - 1.31224I$ $a = 0.318774 - 0.391530I$ $b = -0.474803 + 0.261945I$	$-10.92390 - 4.16775I$	0

II.

$\boldsymbol{I_2^u = \langle 5.03\times10^{18}u^{28}-3.08\times10^{19}u^{27}+\cdots+8.44\times10^{18}b-1.05\times10^{19},\ -1.85\times10^{19}u^{28}+1.09\times10^{20}u^{27}+\cdots+8.44\times10^{18}a-3.82\times10^{19},\ u^{29}-7u^{28}+\cdots-5u+1\rangle}$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2.19216u^{28} - 12.8933u^{27} + \cdots + 42.2028u + 4.52863 \\ -0.596188u^{28} + 3.65413u^{27} + \cdots - 19.7477u + 1.24230 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1.59597u^{28} - 9.23921u^{27} + \cdots + 22.4550u + 5.77093 \\ -0.596188u^{28} + 3.65413u^{27} + \cdots - 19.7477u + 1.24230 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -3.21612u^{28} + 20.1873u^{27} + \cdots - 128.378u + 10.9011 \\ 0.992475u^{28} - 5.59188u^{27} + \cdots - 11.0335u - 2.57562 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 4.40109u^{28} - 25.3145u^{27} + \cdots + 31.9478u + 3.53009 \\ 0.924488u^{28} - 5.25857u^{27} + \cdots - 14.2432u - 0.0773399 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -3.46683u^{28} + 20.6813u^{27} + \cdots - 56.8067u + 6.36127 \\ 0.0153284u^{28} - 0.0588238u^{27} + \cdots - 4.67255u - 0.670540 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.828426u^{28} + 4.10485u^{27} + \cdots + 8.07912u + 4.79327 \\ 0.161202u^{28} - 0.861779u^{27} + \cdots - 11.6203u + 0.236366 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.229452u^{28} + 1.27507u^{27} + \cdots + 53.9130u - 0.482139 \\ 0.261731u^{28} - 1.25486u^{27} + \cdots + 4.20427u + 0.365732 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -4.95853u^{28} + 29.7272u^{27} + \cdots - 140.771u + 10.8173 \\ 0.331803u^{28} - 1.95212u^{27} + \cdots - 11.1444u - 2.26096 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{65111884557626300133}{84393911824214506 31}u^{28} - \frac{372871696936112308123}{8439391182421450631}u^{27} + \cdots + \frac{398429549803450832683}{8439391182421450631}u - \frac{12097997358592395509}{8439391182421450631}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{29} - 6u^{28} + \cdots + 10u + 1$
c_2	$u^{29} + u^{28} + \cdots + 2u - 1$
c_3	$u^{29} + 6u^{28} + \cdots - 6u + 1$
c_4	$u^{29} + 4u^{28} + \cdots + 36u + 7$
c_5	$u^{29} + 2u^{28} + \cdots + 67u + 5$
c_6	$u^{29} - u^{28} + \cdots + 2u + 1$
c_7	$u^{29} + 4u^{28} + \cdots - 2u - 1$
c_8	$u^{29} - 2u^{28} + \cdots + 67u - 5$
c_9	$u^{29} + 7u^{28} + \cdots - 5u - 1$
c_{10}	$u^{29} - 6u^{28} + \cdots - 6u - 1$
c_{11}	$u^{29} + 2u^{28} + \cdots + u - 1$
c_{12}	$u^{29} - 7u^{28} + \cdots - 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{29} + 32y^{27} + \cdots + 44y - 1$
c_2, c_6	$y^{29} - 15y^{28} + \cdots + 14y - 1$
c_3, c_{10}	$y^{29} + 18y^{28} + \cdots - 14y - 1$
c_4	$y^{29} - 20y^{28} + \cdots + 1058y - 49$
c_5, c_8	$y^{29} + 30y^{28} + \cdots + 1569y - 25$
c_7	$y^{29} - 10y^{28} + \cdots + 2y^2 - 1$
c_9, c_{12}	$y^{29} - 31y^{28} + \cdots - 247y - 1$
c_{11}	$y^{29} + 90y^{27} + \cdots + 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.02088$ $a=\ \ 0.113836$ $b=\ \ 2.33521$	-3.31380	-21.6720
$u=\ \ 0.790388+0.706490I$ $a=-0.321340-1.118480I$ $b=\ \ 0.288040+0.015027I$	$-9.15541+1.66908I$	$-13.84689-0.49824I$
$u=\ \ 0.790388-0.706490I$ $a=-0.321340+1.118480I$ $b=\ \ 0.288040-0.015027I$	$-9.15541-1.66908I$	$-13.84689+0.49824I$
$u=-0.876506+0.259934I$ $a=-0.42329+1.44179I$ $b=\ \ 2.20662+1.00894I$	$-7.90167+0.39359I$	$-30.3205+14.4885I$
$u=-0.876506-0.259934I$ $a=-0.42329-1.44179I$ $b=\ \ 2.20662-1.00894I$	$-7.90167-0.39359I$	$-30.3205-14.4885I$
$u=-1.076060+0.353832I$ $a=-0.042338+1.241840I$ $b=\ \ 0.715002-0.850882I$	$-2.71016+3.76879I$	$-6.24100+0.83237I$
$u=-1.076060-0.353832I$ $a=-0.042338-1.241840I$ $b=\ \ 0.715002+0.850882I$	$-2.71016-3.76879I$	$-6.24100-0.83237I$
$u=-0.341515+0.788112I$ $a=-1.085840+0.828396I$ $b=\ \ 0.915743-0.658486I$	$-1.92986+4.06368I$	$-7.23408-6.83570I$
$u=-0.341515-0.788112I$ $a=-1.085840-0.828396I$ $b=\ \ 0.915743+0.658486I$	$-1.92986-4.06368I$	$-7.23408+6.83570I$
$u=-1.224510+0.098915I$ $a=-0.195886-0.768254I$ $b=-0.976600+0.144826I$	$-4.27936-1.48897I$	$-8.66466+0.76951I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.224510-0.098915I$ $a=-0.195886+0.768254I$ $b=-0.976600-0.144826I$	$-4.27936+1.48897I$	$-8.66466-0.76951I$
$u=1.226120+0.096599I$ $a=0.80938+1.51250I$ $b=0.332578-0.578978I$	$-11.68730-3.74894I$	$-0.77528+7.46773I$
$u=1.226120-0.096599I$ $a=0.80938-1.51250I$ $b=0.332578+0.578978I$	$-11.68730+3.74894I$	$-0.77528-7.46773I$
$u=1.228520+0.382337I$ $a=0.105593-0.977584I$ $b=1.52541+0.08829I$	$-11.2333-9.9215I$	$-13.0866+8.1578I$
$u=1.228520-0.382337I$ $a=0.105593+0.977584I$ $b=1.52541-0.08829I$	$-11.2333+9.9215I$	$-13.0866-8.1578I$
$u=-0.134492+0.680599I$ $a=0.583373+0.888996I$ $b=0.190060-0.785482I$	$0.814562+0.651644I$	$0.373303-0.869607I$
$u=-0.134492-0.680599I$ $a=0.583373-0.888996I$ $b=0.190060+0.785482I$	$0.814562-0.651644I$	$0.373303+0.869607I$
$u=1.364030+0.184869I$ $a=-0.569259-0.189121I$ $b=-0.954971-0.608249I$	$-4.35193-3.55824I$	$-4.00000+5.55601I$
$u=1.364030-0.184869I$ $a=-0.569259+0.189121I$ $b=-0.954971+0.608249I$	$-4.35193+3.55824I$	$-4.00000-5.55601I$
$u=1.28098+0.66187I$ $a=-0.057443+0.885031I$ $b=-0.706929-0.380702I$	$-5.32074-5.40407I$	$-13.5231+6.5907I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.28098 - 0.66187I$ $a = -0.057443 - 0.885031I$ $b = -0.706929 + 0.380702I$	$-5.32074 + 5.40407I$	$-13.5231 - 6.5907I$
$u = 1.41303 + 0.32122I$ $a = -0.100644 + 0.918854I$ $b = -1.70043 - 1.00426I$	$-7.37578 - 8.10737I$	$-9.18906 + 7.53256I$
$u = 1.41303 - 0.32122I$ $a = -0.100644 - 0.918854I$ $b = -1.70043 + 1.00426I$	$-7.37578 + 8.10737I$	$-9.18906 - 7.53256I$
$u = -1.51008 + 0.29574I$ $a = 0.102341 - 0.726622I$ $b = -1.08366 + 1.02048I$	$-5.52358 + 2.66970I$	$-10.64016 - 5.78680I$
$u = -1.51008 - 0.29574I$ $a = 0.102341 + 0.726622I$ $b = -1.08366 - 1.02048I$	$-5.52358 - 2.66970I$	$-10.64016 + 5.78680I$
$u = 0.0172060 + 0.0834844I$ $a = 6.82704 + 2.99178I$ $b = 0.38544 - 1.48114I$	$0.71234 + 2.03356I$	$4.73573 + 1.93850I$
$u = 0.0172060 - 0.0834844I$ $a = 6.82704 - 2.99178I$ $b = 0.38544 + 1.48114I$	$0.71234 - 2.03356I$	$4.73573 - 1.93850I$
$u = 1.85334 + 0.90609I$ $a = 0.311409 + 0.493943I$ $b = -0.303916 - 0.508947I$	$-10.64760 + 4.25761I$	0
$u = 1.85334 - 0.90609I$ $a = 0.311409 - 0.493943I$ $b = -0.303916 + 0.508947I$	$-10.64760 - 4.25761I$	0

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = 0$ $b = 1.00000$	-3.28987	-12.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^{29}-6u^{28}+\cdots+10u+1)$ $\cdot(u^{130}-13u^{129}+\cdots-179728050u+10062098)$
c_2	$(u-1)(u^{29}+u^{28}+\cdots+2u-1)(u^{130}-3u^{129}+\cdots+8779u-307)$
c_3	$(u+1)(u^{29}+6u^{28}+\cdots-6u+1)(u^{130}+6u^{129}+\cdots+273801u+6691)$
c_4	$(u+1)(u^{29}+4u^{28}+\cdots+36u+7)$ $\cdot(u^{130}+8u^{129}+\cdots-32651759u-16964329)$
c_5	$u(u^{29}+2u^{28}+\cdots+67u+5)(u^{130}+9u^{129}+\cdots+6600u+218)$
c_6	$(u+1)(u^{29}-u^{28}+\cdots+2u+1)(u^{130}-3u^{129}+\cdots+8779u-307)$
c_7	$(u-1)(u^{29}+4u^{28}+\cdots-2u-1)$ $\cdot(u^{130}+4u^{129}+\cdots-3192063u+4571051)$
c_8	$u(u^{29}-2u^{28}+\cdots+67u-5)(u^{130}+9u^{129}+\cdots+6600u+218)$
c_9	$(u-1)(u^{29}+7u^{28}+\cdots-5u-1)(u^{130}-5u^{129}+\cdots-6u-1)$
c_{10}	$(u-1)(u^{29}-6u^{28}+\cdots-6u-1)(u^{130}+6u^{129}+\cdots+273801u+6691)$
c_{11}	$(u-1)(u^{29}+2u^{28}+\cdots+u-1)(u^{130}+12u^{129}+\cdots+35960u-90691)$
c_{12}	$(u+1)(u^{29}-7u^{28}+\cdots-5u+1)(u^{130}-5u^{129}+\cdots-6u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^{29}+32y^{27}+\cdots+44y-1)$ $\cdot(y^{130}-39y^{129}+\cdots-1252105174089580 0y+101245816161604)$
c_2, c_6	$(y-1)(y^{29}-15y^{28}+\cdots+14y-1)$ $\cdot(y^{130}-87y^{129}+\cdots-162306321y+94249)$
c_3, c_{10}	$(y-1)(y^{29}+18y^{28}+\cdots-14y-1)$ $\cdot(y^{130}+34y^{129}+\cdots-59906322757y+44769481)$
c_4	$(y-1)(y^{29}-20y^{28}+\cdots+1058y-49)$ $\cdot(y^{130}-128y^{129}+\cdots-5434457919023257y+287788458420241)$
c_5, c_8	$y(y^{29}+30y^{28}+\cdots+1569y-25)$ $\cdot(y^{130}+111y^{129}+\cdots-8958604y+47524)$
c_7	$(y-1)(y^{29}-10y^{28}+\cdots+2y^2-1)$ $\cdot(y^{130}-70y^{129}+\cdots-3447337940891247y+20894507244601)$
c_9, c_{12}	$(y-1)(y^{29}-31y^{28}+\cdots-247y-1)(y^{130}-115y^{129}+\cdots-68y+1)$
c_{11}	$(y-1)(y^{29}+90y^{27}+\cdots+5y-1)$ $\cdot(y^{130}-96y^{129}+\cdots+30998315860y+8224857481)$