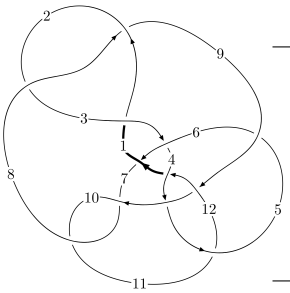
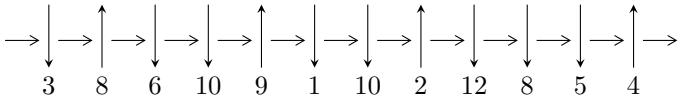
$12n_{0620}$ $(K12n_{0620})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & -2.73681 \times 10^{256} u^{109} - 4.05736 \times 10^{257} u^{108} + \cdots + 1.53699 \times 10^{257} b - 1.76787 \times 10^{260}, \\ & 1.94900 \times 10^{259} u^{109} - 3.61458 \times 10^{259} u^{108} + \cdots + 4.59560 \times 10^{259} a - 9.14146 \times 10^{260}, \\ & u^{110} - 2u^{109} + \cdots - 963u + 299 \rangle \\ I_2^u = \langle & 11609161034 u^{38} + 12620010667 u^{37} + \cdots + 1705879031 b + 52177194139, \\ & -15376761536 u^{38} - 26045766200 u^{37} + \cdots + 5117637093 a - 26089510019, \\ & u^{39} + u^{38} + \cdots - 5u + 3 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 149 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. $\boldsymbol{I_1^u = \langle -2.74 \times 10^{256} u^{109} - 4.06 \times 10^{257} u^{108} + \cdots + 1.54 \times 10^{257} b - 1.77 \times 10^{260},\ 1.95 \times 10^{259} u^{109} - 3.61 \times 10^{259} u^{108} + \cdots + 4.60 \times 10^{259} a - 9.14 \times 10^{260},\ u^{110} - 2u^{109} + \cdots - 963u + 299 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} -0.424100u^{109} + 0.786531u^{108} + \cdots - 129.279u + 19.8918 \\ 0.178063u^{109} + 2.63981u^{108} + \cdots - 2882.73u + 1150.21 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.353328u^{109} + 1.67139u^{108} + \cdots - 1477.43u + 519.669 \\ 0.532410u^{109} - 2.28550u^{108} + \cdots + 1910.28u - 663.962 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.944196u^{109} + 2.84949u^{108} + \cdots - 2069.39u + 645.488 \\ 0.965844u^{109} - 2.70003u^{108} + \cdots + 1777.43u - 527.622 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.721156u^{109} + 1.24858u^{108} + \cdots - 776.539u + 163.332 \\ 0.969958u^{109} - 1.71452u^{108} + \cdots + 488.229u + 11.3660 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.344268u^{109} - 0.0978060u^{108} + \cdots - 369.928u + 206.437 \\ 1.24825u^{109} - 3.84301u^{108} + \cdots + 2734.98u - 855.933 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.608160u^{109} - 0.734139u^{108} + \cdots + 154.268u + 49.4400 \\ 0.366448u^{109} - 2.01607u^{108} + \cdots + 1749.68u - 629.644 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.424100u^{109} - 0.786531u^{108} + \cdots + 129.279u - 19.8918 \\ -0.751274u^{109} - 1.98316u^{108} + \cdots + 2815.31u - 1168.65 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 19.0742u^{109} - 31.2577u^{108} + \cdots + 11449.6u - 1567.00$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{110} + 42u^{109} + \cdots + 4187325u + 89401$
c_2, c_8	$u^{110} + 2u^{109} + \cdots + 963u + 299$
c_3	$u^{110} + 10u^{109} + \cdots + 25u - 1$
c_4	$u^{110} + 8u^{108} + \cdots + 1099616u + 270272$
c_5	$u^{110} - 3u^{109} + \cdots + 9806561u + 1029481$
c_6	$u^{110} + 5u^{109} + \cdots + 140122u - 5273$
c_7, c_{10}	$u^{110} + u^{109} + \cdots + 26u + 1$
c_9	$u^{110} - 7u^{109} + \cdots - 40u + 1$
c_{11}	$u^{110} + 3u^{109} + \cdots + 54488131u + 3556907$
c_{12}	$u^{110} + 8u^{109} + \cdots - 5432u + 83$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{110} + 62y^{109} + \cdots - 1749078882747y + 7992538801$
c_2, c_8	$y^{110} + 42y^{109} + \cdots + 4187325y + 89401$
c_3	$y^{110} - 24y^{109} + \cdots - 35y + 1$
c_4	$y^{110} + 16y^{109} + \cdots + 4786463564800y + 73046953984$
c_5	$y^{110} - 29y^{109} + \cdots - 26980827938145y + 1059831129361$
c_6	$y^{110} + 45y^{109} + \cdots - 976149500y + 27804529$
c_7, c_{10}	$y^{110} + 87y^{109} + \cdots + 98y + 1$
c_9	$y^{110} - 27y^{109} + \cdots - 484y + 1$
c_{11}	$y^{110} + 23y^{109} + \cdots - 545838580976069y + 12651587406649$
c_{12}	$y^{110} - 6y^{109} + \cdots - 29183256y + 6889$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.722846+0.701707I$ $a=-1.017860-0.590067I$ $b=-0.727453-0.080952I$	$3.33089-2.04230I$	0
$u=-0.722846-0.701707I$ $a=-1.017860+0.590067I$ $b=-0.727453+0.080952I$	$3.33089+2.04230I$	0
$u=\ \ 0.445918+0.876034I$ $a=\ \ 0.58584-1.30472I$ $b=\ \ 1.41639-0.62868I$	$-6.18417+2.12923I$	0
$u=\ \ 0.445918-0.876034I$ $a=\ \ 0.58584+1.30472I$ $b=\ \ 1.41639+0.62868I$	$-6.18417-2.12923I$	0
$u=-0.698901+0.679034I$ $a=\ \ 0.90817-1.27666I$ $b=-0.86504-2.14123I$	$3.33911+2.19870I$	0
$u=-0.698901-0.679034I$ $a=\ \ 0.90817+1.27666I$ $b=-0.86504+2.14123I$	$3.33911-2.19870I$	0
$u=-0.346243+0.975342I$ $a=-0.413122+0.497225I$ $b=\ \ 0.006959+0.697219I$	$-0.60914-1.80163I$	0
$u=-0.346243-0.975342I$ $a=-0.413122-0.497225I$ $b=\ \ 0.006959-0.697219I$	$-0.60914+1.80163I$	0
$u=\ \ 0.763827+0.726239I$ $a=-1.59712-0.66520I$ $b=\ \ 0.18657-1.56551I$	$7.19825-4.32425I$	0
$u=\ \ 0.763827-0.726239I$ $a=-1.59712+0.66520I$ $b=\ \ 0.18657+1.56551I$	$7.19825+4.32425I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.571377 + 0.750356I$ $a = -0.769118 + 0.584129I$ $b = 0.216929 + 0.253116I$	$-1.84127 - 0.70860I$	0
$u = 0.571377 - 0.750356I$ $a = -0.769118 - 0.584129I$ $b = 0.216929 - 0.253116I$	$-1.84127 + 0.70860I$	0
$u = 0.595378 + 0.874733I$ $a = 0.177994 - 1.026400I$ $b = 0.43318 - 1.54478I$	$-2.04500 + 5.27108I$	0
$u = 0.595378 - 0.874733I$ $a = 0.177994 + 1.026400I$ $b = 0.43318 + 1.54478I$	$-2.04500 - 5.27108I$	0
$u = -0.626457 + 0.864050I$ $a = 1.14154 - 0.95416I$ $b = -0.96129 - 2.66223I$	$2.41221 - 2.45417I$	0
$u = -0.626457 - 0.864050I$ $a = 1.14154 + 0.95416I$ $b = -0.96129 + 2.66223I$	$2.41221 + 2.45417I$	0
$u = 0.337405 + 0.860809I$ $a = 0.545050 - 0.680241I$ $b = 1.90211 - 0.19509I$	$-3.62539 - 1.21292I$	0
$u = 0.337405 - 0.860809I$ $a = 0.545050 + 0.680241I$ $b = 1.90211 + 0.19509I$	$-3.62539 + 1.21292I$	0
$u = 0.002367 + 0.923336I$ $a = 1.198900 - 0.401062I$ $b = 1.352370 - 0.092461I$	$1.97943 - 4.96044I$	0
$u = 0.002367 - 0.923336I$ $a = 1.198900 + 0.401062I$ $b = 1.352370 + 0.092461I$	$1.97943 + 4.96044I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.362094 + 1.020900I$ $a = -0.431256 + 0.237298I$ $b = 0.677429 + 0.253537I$	$-1.86815 - 0.95241I$	0
$u = 0.362094 - 1.020900I$ $a = -0.431256 - 0.237298I$ $b = 0.677429 - 0.253537I$	$-1.86815 + 0.95241I$	0
$u = 1.09151$ $a = -1.20966$ $b = 0.426400$	-2.72278	0
$u = 0.156976 + 0.886403I$ $a = 0.517031 - 0.819311I$ $b = -2.20512 - 1.12750I$	$-5.39558 + 5.25843I$	0
$u = 0.156976 - 0.886403I$ $a = 0.517031 + 0.819311I$ $b = -2.20512 + 1.12750I$	$-5.39558 - 5.25843I$	0
$u = -0.704749 + 0.860618I$ $a = -1.10219 + 0.90580I$ $b = 1.22696 + 2.04135I$	$6.18973 - 6.69907I$	0
$u = -0.704749 - 0.860618I$ $a = -1.10219 - 0.90580I$ $b = 1.22696 - 2.04135I$	$6.18973 + 6.69907I$	0
$u = 0.703019 + 0.866531I$ $a = 0.410291 - 0.025373I$ $b = -1.26321 - 0.79273I$	$-2.06981 + 6.66278I$	0
$u = 0.703019 - 0.866531I$ $a = 0.410291 + 0.025373I$ $b = -1.26321 + 0.79273I$	$-2.06981 - 6.66278I$	0
$u = 0.440379 + 0.763170I$ $a = -0.64807 + 1.58057I$ $b = -1.141980 + 0.190483I$	$-5.80700 + 1.50471I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.440379 - 0.763170I$ $a = -0.64807 - 1.58057I$ $b = -1.141980 - 0.190483I$	$-5.80700 - 1.50471I$	0
$u = 0.804886 + 0.781354I$ $a = 1.35580 + 0.79298I$ $b = -0.33866 + 1.71063I$	$7.48927 + 1.66053I$	0
$u = 0.804886 - 0.781354I$ $a = 1.35580 - 0.79298I$ $b = -0.33866 - 1.71063I$	$7.48927 - 1.66053I$	0
$u = -0.856105 + 0.734749I$ $a = 1.17022 + 0.96909I$ $b = 1.012480 + 0.338174I$	$1.48996 + 3.88010I$	0
$u = -0.856105 - 0.734749I$ $a = 1.17022 - 0.96909I$ $b = 1.012480 - 0.338174I$	$1.48996 - 3.88010I$	0
$u = -0.150463 + 1.124600I$ $a = -1.031350 + 0.040889I$ $b = 0.215838 + 0.240483I$	$-1.23331 + 1.22688I$	0
$u = -0.150463 - 1.124600I$ $a = -1.031350 - 0.040889I$ $b = 0.215838 - 0.240483I$	$-1.23331 - 1.22688I$	0
$u = -0.719221 + 0.878314I$ $a = -0.907622 + 0.945954I$ $b = 0.35687 + 2.59585I$	$6.14126 + 1.24957I$	0
$u = -0.719221 - 0.878314I$ $a = -0.907622 - 0.945954I$ $b = 0.35687 - 2.59585I$	$6.14126 - 1.24957I$	0
$u = -0.296758 + 0.812163I$ $a = -1.257690 + 0.297788I$ $b = -0.518619 - 0.150423I$	$0.537031 - 1.207440I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.296758-0.812163I$ $a=-1.257690-0.297788I$ $b=-0.518619+0.150423I$	$0.537031+1.207440I$	0
$u=0.997006+0.556264I$ $a=1.19356+0.90160I$ $b=-0.43208+1.57023I$	$8.27801-4.57132I$	0
$u=0.997006-0.556264I$ $a=1.19356-0.90160I$ $b=-0.43208-1.57023I$	$8.27801+4.57132I$	0
$u=0.400337+1.070610I$ $a=0.130198+0.182402I$ $b=-0.139502-0.845139I$	$-4.28944+3.55197I$	0
$u=0.400337-1.070610I$ $a=0.130198-0.182402I$ $b=-0.139502+0.845139I$	$-4.28944-3.55197I$	0
$u=0.256791+0.805667I$ $a=0.464107+1.205970I$ $b=-1.098290+0.008504I$	$-3.53626+3.81291I$	0
$u=0.256791-0.805667I$ $a=0.464107-1.205970I$ $b=-1.098290-0.008504I$	$-3.53626-3.81291I$	0
$u=0.281043+1.129070I$ $a=0.0542065+0.1136410I$ $b=0.136152-0.267958I$	$-5.24948-0.28210I$	0
$u=0.281043-1.129070I$ $a=0.0542065-0.1136410I$ $b=0.136152+0.267958I$	$-5.24948+0.28210I$	0
$u=-0.849507+0.809289I$ $a=-0.741868+1.083740I$ $b=0.40181+2.05841I$	$3.63531+1.33713I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.849507-0.809289I$ $a=-0.741868-1.083740I$ $b=\ \ 0.40181-2.05841I$	$3.63531-1.33713I$	0
$u=-0.292829+1.140030I$ $a=-1.180480+0.389242I$ $b=-1.46797+0.39561I$	$-0.137879+0.321132I$	0
$u=-0.292829-1.140030I$ $a=-1.180480-0.389242I$ $b=-1.46797-0.39561I$	$-0.137879-0.321132I$	0
$u=\ \ 1.024800+0.580684I$ $a=-1.19370-1.00233I$ $b=\ \ 0.34345-1.67474I$	$7.2811-12.3035I$	0
$u=\ \ 1.024800-0.580684I$ $a=-1.19370+1.00233I$ $b=\ \ 0.34345+1.67474I$	$7.2811+12.3035I$	0
$u=\ \ 0.749698+0.289214I$ $a=-0.1297850+0.0239455I$ $b=\ \ 0.240853+0.119770I$	$-0.98667-3.24837I$	0
$u=\ \ 0.749698-0.289214I$ $a=-0.1297850-0.0239455I$ $b=\ \ 0.240853-0.119770I$	$-0.98667+3.24837I$	0
$u=-1.054500+0.566130I$ $a=\ \ 0.537611-1.194650I$ $b=-0.55155-1.70109I$	$8.01631+1.94598I$	0
$u=-1.054500-0.566130I$ $a=\ \ 0.537611+1.194650I$ $b=-0.55155+1.70109I$	$8.01631-1.94598I$	0
$u=-0.677358+0.988928I$ $a=\ \ 0.631718+0.861883I$ $b=\ \ 0.957361+0.484007I$	$2.45837-3.33905I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.677358-0.988928I$ $a=\ \ 0.631718-0.861883I$ $b=\ \ 0.957361-0.484007I$	$2.45837+3.33905I$	0
$u=\ \ 0.222666+0.768558I$ $a=-0.777803+0.666985I$ $b=\ \ 2.96488+0.93575I$	$-4.79949-3.56029I$	0
$u=\ \ 0.222666-0.768558I$ $a=-0.777803-0.666985I$ $b=\ \ 2.96488-0.93575I$	$-4.79949+3.56029I$	0
$u=\ \ 0.567412+1.059780I$ $a=\ \ 0.0499061-0.1307740I$ $b=-0.765301+0.192801I$	$0.04110+7.67997I$	0
$u=\ \ 0.567412-1.059780I$ $a=\ \ 0.0499061+0.1307740I$ $b=-0.765301-0.192801I$	$0.04110-7.67997I$	0
$u=-0.522752+1.085990I$ $a=\ \ 0.973408-0.524333I$ $b=\ \ 1.46745-1.79487I$	$1.33546-7.85597I$	0
$u=-0.522752-1.085990I$ $a=\ \ 0.973408+0.524333I$ $b=\ \ 1.46745+1.79487I$	$1.33546+7.85597I$	0
$u=-0.667948+1.003410I$ $a=\ \ 1.104430-0.758801I$ $b=-0.58229-2.28353I$	$2.34844-7.49528I$	0
$u=-0.667948-1.003410I$ $a=\ \ 1.104430+0.758801I$ $b=-0.58229+2.28353I$	$2.34844+7.49528I$	0
$u=\ \ 0.703432+0.982255I$ $a=-0.57713-1.34466I$ $b=\ \ 0.71275-2.41009I$	$6.41324+9.89890I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.703432 - 0.982255I$ $a = -0.57713 + 1.34466I$ $b = 0.71275 + 2.41009I$	$6.41324 - 9.89890I$	0
$u = 0.752637 + 0.948523I$ $a = 0.677210 + 1.194750I$ $b = -0.62119 + 2.34760I$	$6.97709 + 4.18089I$	0
$u = 0.752637 - 0.948523I$ $a = 0.677210 - 1.194750I$ $b = -0.62119 - 2.34760I$	$6.97709 - 4.18089I$	0
$u = 0.742838 + 0.959284I$ $a = -0.452411 + 0.181354I$ $b = 0.984265 + 0.575575I$	$-2.19004 - 1.11649I$	0
$u = 0.742838 - 0.959284I$ $a = -0.452411 - 0.181354I$ $b = 0.984265 - 0.575575I$	$-2.19004 + 1.11649I$	0
$u = 0.839106 + 0.897477I$ $a = 0.860838 + 0.936493I$ $b = -0.63470 + 2.13840I$	$6.76959 + 3.11743I$	0
$u = 0.839106 - 0.897477I$ $a = 0.860838 - 0.936493I$ $b = -0.63470 - 2.13840I$	$6.76959 - 3.11743I$	0
$u = -0.490267 + 0.588933I$ $a = -0.408893 + 0.539297I$ $b = -0.118510 + 0.402371I$	$0.37791 - 1.68859I$	0
$u = -0.490267 - 0.588933I$ $a = -0.408893 - 0.539297I$ $b = -0.118510 - 0.402371I$	$0.37791 + 1.68859I$	0
$u = -0.791619 + 0.967926I$ $a = -1.012830 + 0.862680I$ $b = 0.61314 + 1.87380I$	$3.14059 - 7.45185I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.791619-0.967926I$ $a=-1.012830-0.862680I$ $b=\ 0.61314-1.87380I$	$3.14059+7.45185I$	0
$u=-0.754952+1.002980I$ $a=-0.96228-1.04203I$ $b=-1.267360-0.506770I$	$0.65666-9.87625I$	0
$u=-0.754952-1.002980I$ $a=-0.96228+1.04203I$ $b=-1.267360+0.506770I$	$0.65666+9.87625I$	0
$u=\ 0.597618+0.441462I$ $a=-0.257840-0.234467I$ $b=-0.253860+0.711613I$	$1.80194-2.98891I$	0
$u=\ 0.597618-0.441462I$ $a=-0.257840+0.234467I$ $b=-0.253860-0.711613I$	$1.80194+2.98891I$	0
$u=\ 0.544171+1.135500I$ $a=\ 0.0599171+0.0180853I$ $b=-0.108409-0.279795I$	$-3.47609+8.12962I$	0
$u=\ 0.544171-1.135500I$ $a=\ 0.0599171-0.0180853I$ $b=-0.108409+0.279795I$	$-3.47609-8.12962I$	0
$u=-0.262254+0.649877I$ $a=\ 1.98854-0.43600I$ $b=-0.613552+0.641324I$	$3.47982+4.08661I$	$-13.33560+0.I$
$u=-0.262254-0.649877I$ $a=\ 1.98854+0.43600I$ $b=-0.613552-0.641324I$	$3.47982-4.08661I$	$-13.33560+0.I$
$u=\ 0.408299+1.249070I$ $a=\ 0.213406-1.114190I$ $b=\ 0.11995-2.87727I$	$-7.06000+4.83351I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.408299 - 1.249070I$ $a = 0.213406 + 1.114190I$ $b = 0.11995 + 2.87727I$	$-7.06000 - 4.83351I$	0
$u = -0.654822 + 0.139766I$ $a = 0.58380 - 2.18903I$ $b = -0.261229 - 0.419096I$	$3.74355 + 3.53991I$	$-4.00000 - 3.29686I$
$u = -0.654822 - 0.139766I$ $a = 0.58380 + 2.18903I$ $b = -0.261229 + 0.419096I$	$3.74355 - 3.53991I$	$-4.00000 + 3.29686I$
$u = 0.734549 + 1.136420I$ $a = 0.621206 + 1.112780I$ $b = -0.61835 + 2.68599I$	$6.46528 + 10.86220I$	0
$u = 0.734549 - 1.136420I$ $a = 0.621206 - 1.112780I$ $b = -0.61835 - 2.68599I$	$6.46528 - 10.86220I$	0
$u = 0.754779 + 1.142830I$ $a = -0.703845 - 1.136610I$ $b = 0.56031 - 2.63452I$	$5.5076 + 18.7521I$	0
$u = 0.754779 - 1.142830I$ $a = -0.703845 + 1.136610I$ $b = 0.56031 + 2.63452I$	$5.5076 - 18.7521I$	0
$u = -1.321520 + 0.379233I$ $a = -0.337643 + 1.187470I$ $b = 0.31220 + 1.53336I$	$5.74971 - 5.00037I$	0
$u = -1.321520 - 0.379233I$ $a = -0.337643 - 1.187470I$ $b = 0.31220 - 1.53336I$	$5.74971 + 5.00037I$	0
$u = -0.771559 + 1.151210I$ $a = 0.890069 - 0.688454I$ $b = -0.27955 - 2.00957I$	$6.19341 - 8.51585I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.771559-1.151210I$ $a=\ \ 0.890069+0.688454I$ $b=-0.27955+2.00957I$	$6.19341+8.51585I$	0
$u=-0.164450+1.385290I$ $a=\ \ 1.021200-0.385607I$ $b=\ \ 0.446356-0.603996I$	$-0.89195-9.78273I$	0
$u=-0.164450-1.385290I$ $a=\ \ 1.021200+0.385607I$ $b=\ \ 0.446356+0.603996I$	$-0.89195+9.78273I$	0
$u=\ \ 0.581174$ $a=-0.508856$ $b=\ \ 0.502116$	-1.35474	-7.05700
$u=-0.19366+1.40634I$ $a=-0.874181+0.427985I$ $b=-0.205974+0.896255I$	$0.33041-2.04839I$	0
$u=-0.19366-1.40634I$ $a=-0.874181-0.427985I$ $b=-0.205974-0.896255I$	$0.33041+2.04839I$	0
$u=-0.96655+1.06458I$ $a=-0.755366+0.862184I$ $b=\ \ 0.35356+1.85000I$	$4.02708-3.77390I$	0
$u=-0.96655-1.06458I$ $a=-0.755366-0.862184I$ $b=\ \ 0.35356-1.85000I$	$4.02708+3.77390I$	0
$u=-0.038866+0.292210I$ $a=-2.66380+0.09334I$ $b=-1.041810+0.607287I$	$1.75436-2.59200I$	$2.03482+0.31842I$
$u=-0.038866-0.292210I$ $a=-2.66380-0.09334I$ $b=-1.041810-0.607287I$	$1.75436+2.59200I$	$2.03482-0.31842I$

II.

$\boldsymbol{I_2^u = \langle 1.16\times 10^{10}u^{38}+1.26\times 10^{10}u^{37}+\cdots+1.71\times 10^{9}b+5.22\times 10^{10},\ -1.54\times 10^{10}u^{38}-2.60\times 10^{10}u^{37}+\cdots+5.12\times 10^{9}a-2.61\times 10^{10},\ u^{39}+u^{38}+\cdots-5u+3\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} 3.00466u^{38}+5.08941u^{37}+\cdots+24.6462u+5.09796 \\ -6.80538u^{38}-7.39795u^{37}+\cdots+32.7085u-30.5867 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -6.48500u^{38}-8.88570u^{37}+\cdots-34.1505u-5.35458 \\ -5.68266u^{38}-3.83171u^{37}+\cdots-43.6053u+9.98890 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -9.15840u^{38}-12.6366u^{37}+\cdots-49.6185u-6.44140 \\ -4.32777u^{38}-2.99455u^{37}+\cdots-34.3192u+11.6682 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -3.46041u^{38}-4.94835u^{37}+\cdots-22.2584u-1.61415 \\ -2.42874u^{38}+0.548168u^{37}+\cdots-68.6513u+30.8932 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -9.12343u^{38}-9.84116u^{37}+\cdots-59.5190u+4.95937 \\ -3.51702u^{38}-0.614793u^{37}+\cdots-30.5223u+14.7875 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 5.65559u^{38}+2.56831u^{37}+\cdots+56.6364u-19.5593 \\ -3.18047u^{38}-4.57244u^{37}+\cdots+8.65337u-11.4424 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 3.00466u^{38}+5.08941u^{37}+\cdots+24.6462u+5.09796 \\ -7.48515u^{38}-8.60320u^{37}+\cdots+34.1183u-36.8409 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{20149469114}{1705879031}u^{38}-\frac{11732042020}{1705879031}u^{37}+\cdots-\frac{334502621797}{1705879031}u+\frac{5505549483}{1705879031}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{39} - 19u^{38} + \cdots - 173u + 9$
c_2	$u^{39} + u^{38} + \cdots - 5u + 3$
c_3	$u^{39} - 21u^{38} + \cdots + 7u - 1$
c_4	$u^{39} + u^{38} + \cdots - 2u + 1$
c_5	$u^{39} + 8u^{36} + \cdots + 19u + 1$
c_6	$u^{39} - 4u^{38} + \cdots + 14u + 1$
c_7	$u^{39} - 2u^{38} + \cdots - 2u - 1$
c_8	$u^{39} - u^{38} + \cdots - 5u - 3$
c_9	$u^{39} - 14u^{38} + \cdots + 12u - 1$
c_{10}	$u^{39} + 2u^{38} + \cdots - 2u + 1$
c_{11}	$u^{39} - 2u^{38} + \cdots - u - 3$
c_{12}	$u^{39} - u^{38} + \cdots - 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{39} + 11y^{38} + \cdots + 103y - 81$
c_2, c_8	$y^{39} + 19y^{38} + \cdots - 173y - 9$
c_3	$y^{39} - 23y^{38} + \cdots + 3y - 1$
c_4	$y^{39} - 23y^{38} + \cdots - 12y - 1$
c_5	$y^{39} - 48y^{37} + \cdots + 317y - 1$
c_6	$y^{39} + 10y^{38} + \cdots + 60y - 1$
c_7, c_{10}	$y^{39} + 8y^{38} + \cdots + 26y - 1$
c_9	$y^{39} - 18y^{38} + \cdots + 4y - 1$
c_{11}	$y^{39} - 20y^{38} + \cdots + 121y - 9$
c_{12}	$y^{39} + 11y^{38} + \cdots + 16y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.381509+0.917059I$ $a=\ 0.055108+0.492299I$ $b=\ 2.64138-1.32304I$	$-4.84250-6.01524I$	$-7.39015+9.84235I$
$u=-0.381509-0.917059I$ $a=\ 0.055108-0.492299I$ $b=\ 2.64138+1.32304I$	$-4.84250+6.01524I$	$-7.39015-9.84235I$
$u=\ 0.157939+1.016680I$ $a=\ 1.230100+0.275403I$ $b=\ 0.869444-0.397926I$	$-0.309417+0.564833I$	$-11.10551-1.04698I$
$u=\ 0.157939-1.016680I$ $a=\ 1.230100-0.275403I$ $b=\ 0.869444+0.397926I$	$-0.309417-0.564833I$	$-11.10551+1.04698I$
$u=-0.374304+0.866275I$ $a=-0.287460-0.459532I$ $b=-3.24378+0.90407I$	$-4.65276+2.86183I$	$-8.72125+1.48205I$
$u=-0.374304-0.866275I$ $a=-0.287460+0.459532I$ $b=-3.24378-0.90407I$	$-4.65276-2.86183I$	$-8.72125-1.48205I$
$u=\ 0.488776+0.964307I$ $a=\ 0.686621-1.028550I$ $b=\ 1.250150-0.271535I$	$-6.38253+2.66006I$	$-13.9544-10.9667I$
$u=\ 0.488776-0.964307I$ $a=\ 0.686621+1.028550I$ $b=\ 1.250150+0.271535I$	$-6.38253-2.66006I$	$-13.9544+10.9667I$
$u=-0.786721+0.781260I$ $a=-0.757095+1.128990I$ $b=\ 0.53819+2.17515I$	$4.36068+1.41163I$	$1.07438-1.63800I$
$u=-0.786721-0.781260I$ $a=-0.757095-1.128990I$ $b=\ 0.53819-2.17515I$	$4.36068-1.41163I$	$1.07438+1.63800I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.487152 + 0.737238I$ $a = -0.77118 + 1.59271I$ $b = -1.294470 + 0.302016I$	$-5.60145 + 1.33676I$	$2.67435 + 9.87638I$
$u = 0.487152 - 0.737238I$ $a = -0.77118 - 1.59271I$ $b = -1.294470 - 0.302016I$	$-5.60145 - 1.33676I$	$2.67435 - 9.87638I$
$u = 1.003500 + 0.538416I$ $a = 0.62597 + 1.29517I$ $b = -0.58422 + 1.49706I$	$5.41733 + 4.52189I$	$-4.50034 - 4.01452I$
$u = 1.003500 - 0.538416I$ $a = 0.62597 - 1.29517I$ $b = -0.58422 - 1.49706I$	$5.41733 - 4.52189I$	$-4.50034 + 4.01452I$
$u = 0.336615 + 1.093440I$ $a = 0.440002 - 0.353670I$ $b = 0.690677 + 0.157463I$	$-5.37949 - 0.76456I$	$-11.81802 + 7.51740I$
$u = 0.336615 - 1.093440I$ $a = 0.440002 + 0.353670I$ $b = 0.690677 - 0.157463I$	$-5.37949 + 0.76456I$	$-11.81802 - 7.51740I$
$u = -1.14447$ $a = 1.10497$ $b = -0.514924$	-2.83583	-46.6120
$u = -0.679942 + 0.953484I$ $a = -0.303900 - 0.514678I$ $b = 0.79200 - 1.18044I$	$-2.67499 - 7.07270I$	$-10.5818 + 10.8935I$
$u = -0.679942 - 0.953484I$ $a = -0.303900 + 0.514678I$ $b = 0.79200 + 1.18044I$	$-2.67499 + 7.07270I$	$-10.5818 - 10.8935I$
$u = 0.712859 + 0.378244I$ $a = -0.833822 + 0.362873I$ $b = -0.394868 + 0.081022I$	$-1.58544 - 3.30132I$	$-10.50768 + 3.97124I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.712859 - 0.378244I$ $a = -0.833822 - 0.362873I$ $b = -0.394868 - 0.081022I$	$-1.58544 + 3.30132I$	$-10.50768 - 3.97124I$
$u = -0.149539 + 1.192040I$ $a = 0.882984 + 0.014537I$ $b = -0.385730 + 0.022764I$	$-0.760558 + 1.166500I$	$0.78374 - 5.31915I$
$u = -0.149539 - 1.192040I$ $a = 0.882984 - 0.014537I$ $b = -0.385730 - 0.022764I$	$-0.760558 - 1.166500I$	$0.78374 + 5.31915I$
$u = 0.503517 + 1.097370I$ $a = -0.901381 - 0.456802I$ $b = -1.17970 - 1.17478I$	$1.96107 + 7.82530I$	$1.58001 - 8.33410I$
$u = 0.503517 - 1.097370I$ $a = -0.901381 + 0.456802I$ $b = -1.17970 + 1.17478I$	$1.96107 - 7.82530I$	$1.58001 + 8.33410I$
$u = -0.748258 + 0.981212I$ $a = -1.031590 + 0.779076I$ $b = 0.63515 + 1.95664I$	$3.74165 - 7.21979I$	$0. + 5.50828I$
$u = -0.748258 - 0.981212I$ $a = -1.031590 - 0.779076I$ $b = 0.63515 - 1.95664I$	$3.74165 + 7.21979I$	$0. - 5.50828I$
$u = 0.549832 + 1.115040I$ $a = 0.164961 - 0.405266I$ $b = 0.439895 - 0.349678I$	$-3.80185 + 8.15309I$	$-19.0524 - 8.2054I$
$u = 0.549832 - 1.115040I$ $a = 0.164961 + 0.405266I$ $b = 0.439895 + 0.349678I$	$-3.80185 - 8.15309I$	$-19.0524 + 8.2054I$
$u = -0.189863 + 0.675716I$ $a = 1.158180 - 0.077473I$ $b = 1.290150 - 0.570160I$	$1.34646 - 2.99430I$	$-8.12142 + 9.02848I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.189863-0.675716I$ $a=\ \ 1.158180+0.077473I$ $b=\ \ 1.290150+0.570160I$	$1.34646+2.99430I$	$-8.12142-9.02848I$
$u=-0.419941+1.229910I$ $a=-0.174810-1.097680I$ $b=-0.12861-2.96842I$	$-7.15090-4.72557I$	$-25.9426-17.9514I$
$u=-0.419941-1.229910I$ $a=-0.174810+1.097680I$ $b=-0.12861+2.96842I$	$-7.15090+4.72557I$	$-25.9426+17.9514I$
$u=\ \ 0.084189+0.686727I$ $a=\ \ 0.65325+1.40719I$ $b=-1.46534+0.61488I$	$-3.35584+2.88777I$	$-6.85176-2.26602I$
$u=\ \ 0.084189-0.686727I$ $a=\ \ 0.65325-1.40719I$ $b=-1.46534-0.61488I$	$-3.35584-2.88777I$	$-6.85176+2.26602I$
$u=\ \ 0.348774+0.592391I$ $a=-1.80358-0.63228I$ $b=\ \ 0.081902+0.480520I$	$3.88988-4.04539I$	$6.73624+2.96880I$
$u=\ \ 0.348774-0.592391I$ $a=-1.80358+0.63228I$ $b=\ \ 0.081902-0.480520I$	$3.88988+4.04539I$	$6.73624-2.96880I$
$u=-0.870844+1.009680I$ $a=\ \ 0.581836+0.266590I$ $b=-0.794734+0.505924I$	$-2.41024+1.21179I$	$-29.5248-13.9009I$
$u=-0.870844-1.009680I$ $a=\ \ 0.581836-0.266590I$ $b=-0.794734-0.505924I$	$-2.41024-1.21179I$	$-29.5248+13.9009I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{39}-19u^{38}+\cdots-173u+9)$ $\cdot(u^{110}+42u^{109}+\cdots+4187325u+89401)$
c_2	$(u^{39}+u^{38}+\cdots-5u+3)(u^{110}+2u^{109}+\cdots+963u+299)$
c_3	$(u^{39}-21u^{38}+\cdots+7u-1)(u^{110}+10u^{109}+\cdots+25u-1)$
c_4	$(u^{39}+u^{38}+\cdots-2u+1)(u^{110}+8u^{108}+\cdots+1099616u+270272)$
c_5	$(u^{39}+8u^{36}+\cdots+19u+1)$ $\cdot(u^{110}-3u^{109}+\cdots+9806561u+1029481)$
c_6	$(u^{39}-4u^{38}+\cdots+14u+1)(u^{110}+5u^{109}+\cdots+140122u-5273)$
c_7	$(u^{39}-2u^{38}+\cdots-2u-1)(u^{110}+u^{109}+\cdots+26u+1)$
c_8	$(u^{39}-u^{38}+\cdots-5u-3)(u^{110}+2u^{109}+\cdots+963u+299)$
c_9	$(u^{39}-14u^{38}+\cdots+12u-1)(u^{110}-7u^{109}+\cdots-40u+1)$
c_{10}	$(u^{39}+2u^{38}+\cdots-2u+1)(u^{110}+u^{109}+\cdots+26u+1)$
c_{11}	$(u^{39}-2u^{38}+\cdots-u-3)(u^{110}+3u^{109}+\cdots+5.44881\times10^{7}u+3556907)$
c_{12}	$(u^{39}-u^{38}+\cdots-4u+1)(u^{110}+8u^{109}+\cdots-5432u+83)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{39}+11y^{38}+\cdots+103y-81)$ $\cdot(y^{110}+62y^{109}+\cdots-1749078882747y+7992538801)$
c_2, c_8	$(y^{39}+19y^{38}+\cdots-173y-9)$ $\cdot(y^{110}+42y^{109}+\cdots+4187325y+89401)$
c_3	$(y^{39}-23y^{38}+\cdots+3y-1)(y^{110}-24y^{109}+\cdots-35y+1)$
c_4	$(y^{39}-23y^{38}+\cdots-12y-1)$ $\cdot(y^{110}+16y^{109}+\cdots+4786463564800y+73046953984)$
c_5	$(y^{39}-48y^{37}+\cdots+317y-1)$ $\cdot(y^{110}-29y^{109}+\cdots-26980827938145y+1059831129361)$
c_6	$(y^{39}+10y^{38}+\cdots+60y-1)$ $\cdot(y^{110}+45y^{109}+\cdots-976149500y+27804529)$
c_7, c_{10}	$(y^{39}+8y^{38}+\cdots+26y-1)(y^{110}+87y^{109}+\cdots+98y+1)$
c_9	$(y^{39}-18y^{38}+\cdots+4y-1)(y^{110}-27y^{109}+\cdots-484y+1)$
c_{11}	$(y^{39}-20y^{38}+\cdots+121y-9)$ $\cdot(y^{110}+23y^{109}+\cdots-545838580976069y+12651587406649)$
c_{12}	$(y^{39}+11y^{38}+\cdots+16y-1)(y^{110}-6y^{109}+\cdots-29183256y+6889)$