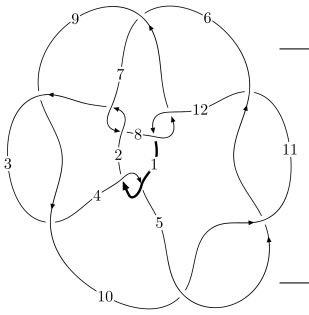
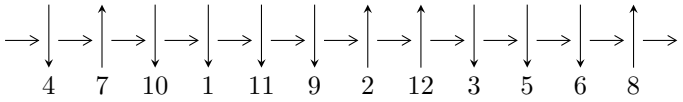
$12a_{1089}$ $(K12a_{1089})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & 2.16790 \times 10^{353} u^{115} + 2.84497 \times 10^{353} u^{114} + \cdots + 2.63757 \times 10^{354} b + 1.97507 \times 10^{355}, \\ & - 3.27005 \times 10^{354} u^{115} - 5.00102 \times 10^{354} u^{114} + \cdots + 1.23966 \times 10^{356} a - 4.07845 \times 10^{356}, \\ & u^{116} + u^{115} + \cdots + 77u - 47 \rangle \\ I_2^u = \langle & -527881694 u^{37} + 532329791 u^{36} + \cdots + 163338409 b - 249206027, \\ & - 867853410 u^{37} + 1532845572 u^{36} + \cdots + 163338409 a - 1189450516,\ u^{38} - 22 u^{36} + \cdots + 2u + 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 154 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. $\boldsymbol{I_1^u = \langle 2.17 \times 10^{353} u^{115} + 2.84 \times 10^{353} u^{114} + \cdots + 2.64 \times 10^{354} b + 1.98 \times 10^{355},\ -3.27 \times 10^{354} u^{115} - 5.00 \times 10^{354} u^{114} + \cdots + 1.24 \times 10^{356} a - 4.08 \times 10^{356},\ u^{116} + u^{115} + \cdots + 77u - 47 \rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0263787u^{115} + 0.0403419u^{114} + \cdots - 3.61240u + 3.28999 \\ -0.0821930u^{115} - 0.107863u^{114} + \cdots + 0.687418u - 7.48822 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.00829665u^{115} + 0.00828424u^{114} + \cdots + 14.0526u + 5.31889 \\ 0.00131243u^{115} + 0.0121793u^{114} + \cdots - 8.59129u - 2.26904 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.00960909u^{115} + 0.0204635u^{114} + \cdots + 5.46135u + 3.04985 \\ 0.00131243u^{115} + 0.0121793u^{114} + \cdots - 8.59129u - 2.26904 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0106014u^{115} + 0.0172463u^{114} + \cdots - 16.7708u - 1.82678 \\ 0.0306743u^{115} + 0.0473761u^{114} + \cdots - 6.13314u + 0.511842 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0106968u^{115} - 0.00589435u^{114} + \cdots + 4.55965u - 2.79866 \\ -0.0394291u^{115} - 0.0526976u^{114} + \cdots - 4.77318u - 6.48703 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0297377u^{115} - 0.0329784u^{114} + \cdots + 2.05844u - 1.66172 \\ -0.0542512u^{115} - 0.0727667u^{114} + \cdots + 1.99382u - 4.73724 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00550118u^{115} + 0.00583765u^{114} + \cdots - 11.4685u - 0.314190 \\ 0.0190890u^{115} + 0.0342645u^{114} + \cdots - 5.58633u - 0.267695 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.239239u^{115} + 0.274769u^{114} + \cdots + 24.2940u + 29.3306$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{116} - 5u^{115} + \cdots + 7u + 1$
c_2, c_7	$u^{116} + u^{115} + \cdots + 15451u - 12027$
c_3, c_9	$u^{116} + u^{115} + \cdots - 29632u - 18731$
c_5, c_{10}, c_{11}	$u^{116} - u^{115} + \cdots - 77u - 47$
c_6	$u^{116} - 5u^{115} + \cdots - 814958041u + 396832763$
c_8, c_{12}	$u^{116} - 3u^{115} + \cdots - 41431u - 28963$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{116} + 53y^{115} + \cdots + 1061y + 1$
c_2, c_7	$y^{116} + 87y^{115} + \cdots + 10374252209y + 144648729$
c_3, c_9	$y^{116} - 89y^{115} + \cdots - 3789676988y + 350850361$
c_5, c_{10}, c_{11}	$y^{116} - 127y^{115} + \cdots - 477y + 2209$
c_6	$y^{116} - 73y^{115} + \cdots - 7.82 \times 10^{18}y + 1.57 \times 10^{17}$
c_8, c_{12}	$y^{116} + 91y^{115} + \cdots + 24959611685y + 838855369$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.960959 + 0.215752I$ $a = 0.202040 + 0.956436I$ $b = 0.20044 + 1.42180I$	$-0.288325 - 0.779523I$	0
$u = 0.960959 - 0.215752I$ $a = 0.202040 - 0.956436I$ $b = 0.20044 - 1.42180I$	$-0.288325 + 0.779523I$	0
$u = -1.003490 + 0.306347I$ $a = -0.572446 + 0.945587I$ $b = 0.99453 + 1.07087I$	$0.55988 + 4.62574I$	0
$u = -1.003490 - 0.306347I$ $a = -0.572446 - 0.945587I$ $b = 0.99453 - 1.07087I$	$0.55988 - 4.62574I$	0
$u = 1.017930 + 0.285169I$ $a = -0.406865 + 1.187220I$ $b = -0.204285 - 0.151586I$	$-5.89361 + 2.48036I$	0
$u = 1.017930 - 0.285169I$ $a = -0.406865 - 1.187220I$ $b = -0.204285 + 0.151586I$	$-5.89361 - 2.48036I$	0
$u = 0.358643 + 0.862625I$ $a = -0.830151 + 0.350832I$ $b = 1.85943 - 0.74398I$	$-9.20673 + 1.54759I$	0
$u = 0.358643 - 0.862625I$ $a = -0.830151 - 0.350832I$ $b = 1.85943 + 0.74398I$	$-9.20673 - 1.54759I$	0
$u = -0.692941 + 0.610126I$ $a = -1.31092 + 0.62066I$ $b = 1.43770 + 0.10147I$	$-2.45600 + 7.26119I$	0
$u = -0.692941 - 0.610126I$ $a = -1.31092 - 0.62066I$ $b = 1.43770 - 0.10147I$	$-2.45600 - 7.26119I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.585134 + 0.704910I$ $a = -0.368240 + 1.259040I$ $b = -0.640094 - 0.004933I$	$-9.95535 - 6.43682I$	0
$u = 0.585134 - 0.704910I$ $a = -0.368240 - 1.259040I$ $b = -0.640094 + 0.004933I$	$-9.95535 + 6.43682I$	0
$u = -0.879930 + 0.234208I$ $a = -0.568954 + 0.259175I$ $b = 0.032102 - 0.373700I$	$-3.78870 + 2.47110I$	0
$u = -0.879930 - 0.234208I$ $a = -0.568954 - 0.259175I$ $b = 0.032102 + 0.373700I$	$-3.78870 - 2.47110I$	0
$u = -0.805223 + 0.376836I$ $a = 0.247170 + 0.868480I$ $b = 0.511052 - 0.312783I$	$-4.48108 + 3.01418I$	0
$u = -0.805223 - 0.376836I$ $a = 0.247170 - 0.868480I$ $b = 0.511052 + 0.312783I$	$-4.48108 - 3.01418I$	0
$u = 0.628358 + 0.953747I$ $a = -1.211560 - 0.030659I$ $b = 1.67900 - 0.74020I$	$-7.7685 - 12.9192I$	0
$u = 0.628358 - 0.953747I$ $a = -1.211560 + 0.030659I$ $b = 1.67900 + 0.74020I$	$-7.7685 + 12.9192I$	0
$u = 0.487797 + 0.688192I$ $a = -1.044840 - 0.304123I$ $b = 1.304500 + 0.082287I$	$0.43138 - 3.07010I$	0
$u = 0.487797 - 0.688192I$ $a = -1.044840 + 0.304123I$ $b = 1.304500 - 0.082287I$	$0.43138 + 3.07010I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.731382+0.354228I$ $a=\ \ 0.189971+0.918976I$ $b=\ \ 1.206400+0.006932I$	$-3.88310-4.22061I$	0
$u=-0.731382-0.354228I$ $a=\ \ 0.189971-0.918976I$ $b=\ \ 1.206400-0.006932I$	$-3.88310+4.22061I$	0
$u=-0.582124+1.054380I$ $a=-0.950379-0.033672I$ $b=\ \ 1.77847+0.80668I$	$-3.01776+5.66969I$	0
$u=-0.582124-1.054380I$ $a=-0.950379+0.033672I$ $b=\ \ 1.77847-0.80668I$	$-3.01776-5.66969I$	0
$u=-0.167777+0.765414I$ $a=\ \ 1.69805-0.76921I$ $b=-1.119090+0.121688I$	$-0.91303-2.88527I$	0
$u=-0.167777-0.765414I$ $a=\ \ 1.69805+0.76921I$ $b=-1.119090-0.121688I$	$-0.91303+2.88527I$	0
$u=\ \ 0.679246+1.027930I$ $a=\ \ 0.433132+0.879625I$ $b=-1.272730-0.040711I$	$-7.79920+6.41393I$	0
$u=\ \ 0.679246-1.027930I$ $a=\ \ 0.433132-0.879625I$ $b=-1.272730+0.040711I$	$-7.79920-6.41393I$	0
$u=\ \ 1.157620+0.443863I$ $a=-0.189174-0.568301I$ $b=\ \ 1.221170-0.216240I$	$-1.20649-0.86334I$	0
$u=\ \ 1.157620-0.443863I$ $a=-0.189174+0.568301I$ $b=\ \ 1.221170+0.216240I$	$-1.20649+0.86334I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.464480+0.597645I$ $a=-0.666327-1.078540I$ $b=\ \ 0.470414+0.162347I$	$-5.87891+2.01172I$	0
$u=-0.464480-0.597645I$ $a=-0.666327+1.078540I$ $b=\ \ 0.470414-0.162347I$	$-5.87891-2.01172I$	0
$u=-0.133836+0.739194I$ $a=\ \ 1.45697+0.66942I$ $b=-1.137490-0.492056I$	$-2.21680+0.85063I$	0
$u=-0.133836-0.739194I$ $a=\ \ 1.45697-0.66942I$ $b=-1.137490+0.492056I$	$-2.21680-0.85063I$	0
$u=-1.249440+0.020384I$ $a=-0.207298+0.788926I$ $b=-0.174210+0.534680I$	$-4.27742+2.03570I$	0
$u=-1.249440-0.020384I$ $a=-0.207298-0.788926I$ $b=-0.174210-0.534680I$	$-4.27742-2.03570I$	0
$u=-0.468547+0.563268I$ $a=\ \ 1.56977-0.26709I$ $b=-1.60428-0.92377I$	$-3.24415+7.60529I$	0
$u=-0.468547-0.563268I$ $a=\ \ 1.56977+0.26709I$ $b=-1.60428+0.92377I$	$-3.24415-7.60529I$	0
$u=-0.897144+0.913412I$ $a=\ \ 0.093383-0.693891I$ $b=-1.106540-0.322936I$	$-3.93054+1.06843I$	0
$u=-0.897144-0.913412I$ $a=\ \ 0.093383+0.693891I$ $b=-1.106540+0.322936I$	$-3.93054-1.06843I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.222980 + 0.397868I$ $a = -0.457048 - 0.965708I$ $b = 0.838741 - 0.018901I$	$-5.21017 - 1.33349I$	0
$u = 1.222980 - 0.397868I$ $a = -0.457048 + 0.965708I$ $b = 0.838741 + 0.018901I$	$-5.21017 + 1.33349I$	0
$u = 0.258967 + 0.649396I$ $a = 1.62115 + 0.08108I$ $b = -1.25777 + 0.75678I$	$1.24152 - 3.15622I$	$0. + 5.35356I$
$u = 0.258967 - 0.649396I$ $a = 1.62115 - 0.08108I$ $b = -1.25777 - 0.75678I$	$1.24152 + 3.15622I$	$0. - 5.35356I$
$u = -1.293710 + 0.162674I$ $a = -0.881449 + 1.047260I$ $b = 0.921047 + 0.824360I$	$-3.96629 + 5.43316I$	0
$u = -1.293710 - 0.162674I$ $a = -0.881449 - 1.047260I$ $b = 0.921047 - 0.824360I$	$-3.96629 - 5.43316I$	0
$u = -1.297460 + 0.154478I$ $a = -0.665454 + 0.573927I$ $b = 0.677618 + 0.284900I$	$-4.60138 + 2.60940I$	0
$u = -1.297460 - 0.154478I$ $a = -0.665454 - 0.573927I$ $b = 0.677618 - 0.284900I$	$-4.60138 - 2.60940I$	0
$u = 1.290000 + 0.313602I$ $a = -0.906934 - 0.585868I$ $b = 1.44302 - 0.96953I$	$-6.62702 - 4.67162I$	0
$u = 1.290000 - 0.313602I$ $a = -0.906934 + 0.585868I$ $b = 1.44302 + 0.96953I$	$-6.62702 + 4.67162I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.661781$ $a = 0.657001$ $b = 0.484863$	-1.43796	-6.19480
$u = 1.353330 + 0.210766I$ $a = 0.189472 + 0.011626I$ $b = -2.51986 + 1.39800I$	$-12.12510 - 4.40047I$	0
$u = 1.353330 - 0.210766I$ $a = 0.189472 - 0.011626I$ $b = -2.51986 - 1.39800I$	$-12.12510 + 4.40047I$	0
$u = 1.368650 + 0.171457I$ $a = -0.288360 - 0.577493I$ $b = 1.40899 - 0.52054I$	$-1.90006 - 1.36942I$	0
$u = 1.368650 - 0.171457I$ $a = -0.288360 + 0.577493I$ $b = 1.40899 + 0.52054I$	$-1.90006 + 1.36942I$	0
$u = -0.172317 + 0.592852I$ $a = 1.54879 - 0.53651I$ $b = -1.378770 + 0.226916I$	$2.99453 - 1.29302I$	$3.14653 + 1.82110I$
$u = -0.172317 - 0.592852I$ $a = 1.54879 + 0.53651I$ $b = -1.378770 - 0.226916I$	$2.99453 + 1.29302I$	$3.14653 - 1.82110I$
$u = -1.40946 + 0.14375I$ $a = 0.910021 - 0.506146I$ $b = -1.52632 - 0.63329I$	$-7.99936 + 7.61801I$	0
$u = -1.40946 - 0.14375I$ $a = 0.910021 + 0.506146I$ $b = -1.52632 + 0.63329I$	$-7.99936 - 7.61801I$	0
$u = 1.44395 + 0.06856I$ $a = -0.060905 - 1.071410I$ $b = -0.03857 - 1.66674I$	$-5.58618 - 0.23721I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.44395 - 0.06856I$ $a = -0.060905 + 1.071410I$ $b = -0.03857 + 1.66674I$	$-5.58618 + 0.23721I$	0
$u = -1.44048 + 0.16211I$ $a = -0.484450 + 0.926250I$ $b = 0.94003 + 1.47624I$	$-4.25117 + 5.91833I$	0
$u = -1.44048 - 0.16211I$ $a = -0.484450 - 0.926250I$ $b = 0.94003 - 1.47624I$	$-4.25117 - 5.91833I$	0
$u = 1.46635 + 0.08055I$ $a = 0.665160 + 0.716250I$ $b = -1.50709 + 0.93593I$	$-7.01488 - 3.82662I$	0
$u = 1.46635 - 0.08055I$ $a = 0.665160 - 0.716250I$ $b = -1.50709 - 0.93593I$	$-7.01488 + 3.82662I$	0
$u = -1.46917 + 0.04899I$ $a = 0.396075 + 0.627817I$ $b = -1.051470 + 0.295556I$	$-5.94902 + 1.80517I$	0
$u = -1.46917 - 0.04899I$ $a = 0.396075 - 0.627817I$ $b = -1.051470 - 0.295556I$	$-5.94902 - 1.80517I$	0
$u = 0.436644 + 0.278726I$ $a = 0.79629 + 1.35693I$ $b = 0.046925 + 0.359287I$	$-0.061028 - 0.849331I$	$-5.28659 + 2.65216I$
$u = 0.436644 - 0.278726I$ $a = 0.79629 - 1.35693I$ $b = 0.046925 - 0.359287I$	$-0.061028 + 0.849331I$	$-5.28659 - 2.65216I$
$u = 0.106867 + 0.503282I$ $a = -2.19321 + 1.46638I$ $b = 1.026670 - 0.286632I$	$-3.01366 - 5.47537I$	$-6.48835 + 8.18173I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.106867 - 0.503282I$ $a = -2.19321 - 1.46638I$ $b = \ 1.026670 + 0.286632I$	$-3.01366 + 5.47537I$	$-6.48835 - 8.18173I$
$u = \ 1.47887 + 0.17152I$ $a = \ 0.523765 - 0.316475I$ $b = -1.61108 + 0.20680I$	$-12.18370 - 4.76851I$	0
$u = \ 1.47887 - 0.17152I$ $a = \ 0.523765 + 0.316475I$ $b = -1.61108 - 0.20680I$	$-12.18370 + 4.76851I$	0
$u = -1.51464 + 0.05952I$ $a = -0.389191 + 0.554694I$ $b = \ 2.03095 + 0.12844I$	$-5.28031 + 2.22171I$	0
$u = -1.51464 - 0.05952I$ $a = -0.389191 - 0.554694I$ $b = \ 2.03095 - 0.12844I$	$-5.28031 - 2.22171I$	0
$u = \ 1.51802 + 0.00269I$ $a = \ 0.613331 - 0.688802I$ $b = -0.773740 - 0.133042I$	$-7.17942 + 3.54005I$	0
$u = \ 1.51802 - 0.00269I$ $a = \ 0.613331 + 0.688802I$ $b = -0.773740 + 0.133042I$	$-7.17942 - 3.54005I$	0
$u = -1.52528 + 0.01270I$ $a = \ 0.327369 + 0.623025I$ $b = -1.92991 + 2.09247I$	$-15.1818 - 1.9790I$	0
$u = -1.52528 - 0.01270I$ $a = \ 0.327369 - 0.623025I$ $b = -1.92991 - 2.09247I$	$-15.1818 + 1.9790I$	0
$u = -1.53222$ $a = -0.723600$ $b = \ 0.163999$	-8.63565	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.52661 + 0.18269I$ $a = -0.524603 - 0.711133I$ $b = 1.66289 - 1.67415I$	$-9.8942 - 10.3270I$	0
$u = 1.52661 - 0.18269I$ $a = -0.524603 + 0.711133I$ $b = 1.66289 + 1.67415I$	$-9.8942 + 10.3270I$	0
$u = -1.52452 + 0.23062I$ $a = 0.444833 - 0.482269I$ $b = -1.60575 - 0.61844I$	$-6.20833 + 6.42415I$	0
$u = -1.52452 - 0.23062I$ $a = 0.444833 + 0.482269I$ $b = -1.60575 + 0.61844I$	$-6.20833 - 6.42415I$	0
$u = 1.57165 + 0.06912I$ $a = -0.620425 + 0.219408I$ $b = 0.090989 - 0.239787I$	$-12.44280 - 4.39857I$	0
$u = 1.57165 - 0.06912I$ $a = -0.620425 - 0.219408I$ $b = 0.090989 + 0.239787I$	$-12.44280 + 4.39857I$	0
$u = -1.55440 + 0.25060I$ $a = 0.759326 + 0.565189I$ $b = -0.170882 - 0.092229I$	$-16.9699 + 10.0081I$	0
$u = -1.55440 - 0.25060I$ $a = 0.759326 - 0.565189I$ $b = -0.170882 + 0.092229I$	$-16.9699 - 10.0081I$	0
$u = -1.55772 + 0.37131I$ $a = 0.466429 - 0.498527I$ $b = -1.58644 - 2.10988I$	$-15.4065 + 3.1899I$	0
$u = -1.55772 - 0.37131I$ $a = 0.466429 + 0.498527I$ $b = -1.58644 + 2.10988I$	$-15.4065 - 3.1899I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.354649 + 0.178265I$ $a = 1.70120 + 1.60306I$ $b = -1.53968 - 0.34601I$	$1.15993 - 1.35908I$	$-12.2639 + 8.3469I$
$u = 0.354649 - 0.178265I$ $a = 1.70120 - 1.60306I$ $b = -1.53968 + 0.34601I$	$1.15993 + 1.35908I$	$-12.2639 - 8.3469I$
$u = 0.236468 + 0.316597I$ $a = 0.687125 + 0.346260I$ $b = 0.023923 + 0.310352I$	$-0.232689 - 0.919664I$	$-4.83172 + 7.00937I$
$u = 0.236468 - 0.316597I$ $a = 0.687125 - 0.346260I$ $b = 0.023923 - 0.310352I$	$-0.232689 + 0.919664I$	$-4.83172 - 7.00937I$
$u = 0.339066 + 0.194268I$ $a = -0.30345 + 1.62912I$ $b = 1.98945 + 1.31338I$	$-8.61292 + 2.47865I$	$-16.4334 - 8.3819I$
$u = 0.339066 - 0.194268I$ $a = -0.30345 - 1.62912I$ $b = 1.98945 - 1.31338I$	$-8.61292 - 2.47865I$	$-16.4334 + 8.3819I$
$u = 1.59917 + 0.20284I$ $a = 0.495414 + 0.636121I$ $b = -1.75924 + 0.41320I$	$-10.1244 - 10.3524I$	0
$u = 1.59917 - 0.20284I$ $a = 0.495414 - 0.636121I$ $b = -1.75924 - 0.41320I$	$-10.1244 + 10.3524I$	0
$u = -0.340269 + 0.160523I$ $a = -0.29929 - 3.82080I$ $b = -0.1017990 + 0.0615742I$	$-0.65522 - 3.86174I$	$-1.78994 - 2.48842I$
$u = -0.340269 - 0.160523I$ $a = -0.29929 + 3.82080I$ $b = -0.1017990 - 0.0615742I$	$-0.65522 + 3.86174I$	$-1.78994 + 2.48842I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.60196+0.32741I$ $a=\ \ 0.666214-0.633941I$ $b=-1.70758-1.33120I$	$-15.0370+17.6468I$	0
$u=-1.60196-0.32741I$ $a=\ \ 0.666214+0.633941I$ $b=-1.70758+1.33120I$	$-15.0370-17.6468I$	0
$u=\ \ 1.62875+0.18797I$ $a=\ \ 0.574360-0.281082I$ $b=-0.174088-0.108636I$	$-12.65020-4.72514I$	0
$u=\ \ 1.62875-0.18797I$ $a=\ \ 0.574360+0.281082I$ $b=-0.174088+0.108636I$	$-12.65020+4.72514I$	0
$u=\ \ 1.61481+0.33845I$ $a=\ \ 0.555062+0.610354I$ $b=-1.55778+1.59357I$	$-10.2522-10.7501I$	0
$u=\ \ 1.61481-0.33845I$ $a=\ \ 0.555062-0.610354I$ $b=-1.55778-1.59357I$	$-10.2522+10.7501I$	0
$u=-0.230330+0.228442I$ $a=-3.69984+0.55947I$ $b=\ \ 1.044400+0.380961I$	$-1.24659+2.68982I$	$-8.71560-2.56344I$
$u=-0.230330-0.228442I$ $a=-3.69984-0.55947I$ $b=\ \ 1.044400-0.380961I$	$-1.24659-2.68982I$	$-8.71560+2.56344I$
$u=-1.69160+0.02487I$ $a=\ \ 0.298589-0.467853I$ $b=-0.503361+0.496794I$	$-15.6936+2.0907I$	0
$u=-1.69160-0.02487I$ $a=\ \ 0.298589+0.467853I$ $b=-0.503361-0.496794I$	$-15.6936-2.0907I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.70904 + 0.04941I$ $a = 0.0012741 + 0.0255841I$ $b = -0.293011 - 0.420005I$	$-13.27090 - 3.79964I$	0
$u = 1.70904 - 0.04941I$ $a = 0.0012741 - 0.0255841I$ $b = -0.293011 + 0.420005I$	$-13.27090 + 3.79964I$	0
$u = -0.022579 + 0.237295I$ $a = 4.94054 - 0.59275I$ $b = -0.036723 - 0.673903I$	$-0.398563 - 0.766268I$	$-5.02338 - 1.75801I$
$u = -0.022579 - 0.237295I$ $a = 4.94054 + 0.59275I$ $b = -0.036723 + 0.673903I$	$-0.398563 + 0.766268I$	$-5.02338 + 1.75801I$
$u = -1.74312 + 0.30205I$ $a = 0.222382 + 0.493873I$ $b = 0.224365 + 0.240219I$	$-15.9338 - 1.1454I$	0
$u = -1.74312 - 0.30205I$ $a = 0.222382 - 0.493873I$ $b = 0.224365 - 0.240219I$	$-15.9338 + 1.1454I$	0

II.

$\boldsymbol{I_2^u = \langle -5.28\times 10^8 u^{37} + 5.32\times 10^8 u^{36} + \cdots + 1.63\times 10^8 b - 2.49\times 10^8,\ -8.68\times 10^8 u^{37} + 1.53\times 10^9 u^{36} + \cdots + 1.63\times 10^8 a - 1.19\times 10^9,\ u^{38} - 22u^{36} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 5.31322u^{37} - 9.38448u^{36} + \cdots + 4.88198u + 7.28212 \\ 3.23183u^{37} - 3.25906u^{36} + \cdots + 1.21161u + 1.52570 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 14.3841u^{37} - 12.5499u^{36} + \cdots + 15.2625u + 11.1622 \\ -0.924842u^{37} - 2.22155u^{36} + \cdots + 0.348607u + 1.07494 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 13.4593u^{37} - 14.7715u^{36} + \cdots + 15.6111u + 12.2372 \\ -0.924842u^{37} - 2.22155u^{36} + \cdots + 0.348607u + 1.07494 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 4.93937u^{37} - 8.54762u^{36} + \cdots + 11.4126u + 4.43711 \\ -1.52994u^{37} - 0.382225u^{36} + \cdots + 0.827180u + 0.554171 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -18.2878u^{37} + 14.5316u^{36} + \cdots - 4.64258u - 9.11580 \\ 2.01550u^{37} - 1.75794u^{36} + \cdots + 2.32068u + 1.83899 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 8.31963u^{37} - 10.4202u^{36} + \cdots + 13.0808u + 10.0178 \\ 9.32112u^{37} - 8.17447u^{36} + \cdots + 1.52212u + 4.62608 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 3.34463u^{37} - 4.81435u^{36} + \cdots + 7.15442u + 1.06791 \\ 1.46047u^{37} - 4.57157u^{36} + \cdots + 3.91592u + 3.04337 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{4604442165}{163338409}u^{37} + \frac{4374776075}{163338409}u^{36} + \cdots - \frac{4846027611}{163338409}u - \frac{4296043422}{163338409}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{38} - 6u^{37} + \cdots + 19u^2 + 1$
c_2	$u^{38} + 13u^{36} + \cdots + 11u^2 + 1$
c_3	$u^{38} - 13u^{36} + \cdots - u + 1$
c_4	$u^{38} + 6u^{37} + \cdots + 19u^2 + 1$
c_5	$u^{38} - 22u^{36} + \cdots - 2u + 1$
c_6	$u^{38} - 12u^{37} + \cdots + 4u + 1$
c_7	$u^{38} + 13u^{36} + \cdots + 11u^2 + 1$
c_8	$u^{38} - 2u^{37} + \cdots - 2u + 1$
c_9	$u^{38} - 13u^{36} + \cdots + u + 1$
c_{10}, c_{11}	$u^{38} - 22u^{36} + \cdots + 2u + 1$
c_{12}	$u^{38} + 2u^{37} + \cdots + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{38} + 24y^{37} + \cdots + 38y + 1$
c_2, c_7	$y^{38} + 26y^{37} + \cdots + 22y + 1$
c_3, c_9	$y^{38} - 26y^{37} + \cdots - 23y + 1$
c_5, c_{10}, c_{11}	$y^{38} - 44y^{37} + \cdots + 16y + 1$
c_6	$y^{38} - 14y^{37} + \cdots - 20y + 1$
c_8, c_{12}	$y^{38} + 26y^{37} + \cdots + 22y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.845300 + 0.345162I$ $a = 0.338386 + 1.137760I$ $b = -0.32722 + 1.59715I$	$-1.16974 - 1.73068I$	$-9.18761 + 3.86520I$
$u = 0.845300 - 0.345162I$ $a = 0.338386 - 1.137760I$ $b = -0.32722 - 1.59715I$	$-1.16974 + 1.73068I$	$-9.18761 - 3.86520I$
$u = -1.075900 + 0.490650I$ $a = -0.119385 - 0.717667I$ $b = -0.776808 - 0.499551I$	$-2.21710 - 0.20719I$	0
$u = -1.075900 - 0.490650I$ $a = -0.119385 + 0.717667I$ $b = -0.776808 + 0.499551I$	$-2.21710 + 0.20719I$	0
$u = 1.033810 + 0.630364I$ $a = -0.365158 - 0.609189I$ $b = 1.085160 + 0.081502I$	$-2.23477 - 2.07430I$	0
$u = 1.033810 - 0.630364I$ $a = -0.365158 + 0.609189I$ $b = 1.085160 - 0.081502I$	$-2.23477 + 2.07430I$	0
$u = 1.213070 + 0.129572I$ $a = -0.971194 - 0.702052I$ $b = 1.43380 - 0.83294I$	$-6.47476 - 6.42446I$	0
$u = 1.213070 - 0.129572I$ $a = -0.971194 + 0.702052I$ $b = 1.43380 + 0.83294I$	$-6.47476 + 6.42446I$	0
$u = -0.591964 + 0.497140I$ $a = -1.45976 + 0.47838I$ $b = 1.132600 + 0.660163I$	$-1.01401 + 4.18940I$	$-7.92108 - 6.86650I$
$u = -0.591964 - 0.497140I$ $a = -1.45976 - 0.47838I$ $b = 1.132600 - 0.660163I$	$-1.01401 - 4.18940I$	$-7.92108 + 6.86650I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.258410+0.014992I$ $a=-0.693674+1.161820I$ $b=\ \ 0.225758+0.323174I$	$-3.68830+4.09048I$	0
$u=-1.258410-0.014992I$ $a=-0.693674-1.161820I$ $b=\ \ 0.225758-0.323174I$	$-3.68830-4.09048I$	0
$u=\ \ 1.295500+0.139505I$ $a=-0.207698-1.073070I$ $b=\ \ 0.424930-0.405980I$	$-3.47612-0.57571I$	0
$u=\ \ 1.295500-0.139505I$ $a=-0.207698+1.073070I$ $b=\ \ 0.424930+0.405980I$	$-3.47612+0.57571I$	0
$u=-1.308540+0.209055I$ $a=-0.918887+0.930344I$ $b=\ \ 1.070840+0.779406I$	$-4.01003+4.84629I$	0
$u=-1.308540-0.209055I$ $a=-0.918887-0.930344I$ $b=\ \ 1.070840-0.779406I$	$-4.01003-4.84629I$	0
$u=-1.349830+0.218225I$ $a=\ \ 0.337053-0.338847I$ $b=-2.79365-1.97465I$	$-11.98640+4.84924I$	0
$u=-1.349830-0.218225I$ $a=\ \ 0.337053+0.338847I$ $b=-2.79365+1.97465I$	$-11.98640-4.84924I$	0
$u=\ \ 0.568716+0.260697I$ $a=-0.51186+1.55162I$ $b=-0.879940-0.173321I$	$-4.17805+4.98454I$	$-12.4387-7.5335I$
$u=\ \ 0.568716-0.260697I$ $a=-0.51186-1.55162I$ $b=-0.879940+0.173321I$	$-4.17805-4.98454I$	$-12.4387+7.5335I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.043630 + 0.613046I$ $a = 2.14935 - 0.52868I$ $b = -0.951744 + 0.388637I$	$0.16120 - 1.94338I$	$-1.61641 + 1.64133I$
$u = 0.043630 - 0.613046I$ $a = 2.14935 + 0.52868I$ $b = -0.951744 - 0.388637I$	$0.16120 + 1.94338I$	$-1.61641 - 1.64133I$
$u = -1.382380 + 0.129023I$ $a = -0.502921 + 0.556519I$ $b = 1.400430 + 0.177789I$	$-3.21900 + 2.46219I$	0
$u = -1.382380 - 0.129023I$ $a = -0.502921 - 0.556519I$ $b = 1.400430 - 0.177789I$	$-3.21900 - 2.46219I$	0
$u = 1.382280 + 0.130383I$ $a = -0.160127 - 0.732742I$ $b = 1.125510 - 0.826687I$	$-3.21902 - 0.43410I$	0
$u = 1.382280 - 0.130383I$ $a = -0.160127 + 0.732742I$ $b = 1.125510 + 0.826687I$	$-3.21902 + 0.43410I$	0
$u = -0.290144 + 0.501562I$ $a = -0.570564 + 0.674190I$ $b = 2.43131 - 0.84254I$	$-8.23797 - 2.23376I$	$-1.081678 - 0.656268I$
$u = -0.290144 - 0.501562I$ $a = -0.570564 - 0.674190I$ $b = 2.43131 + 0.84254I$	$-8.23797 + 2.23376I$	$-1.081678 + 0.656268I$
$u = -0.547436 + 0.172617I$ $a = -1.76767 + 1.62933I$ $b = 0.629561 + 0.685083I$	$-0.97791 + 4.28318I$	$-10.89005 - 8.80813I$
$u = -0.547436 - 0.172617I$ $a = -1.76767 - 1.62933I$ $b = 0.629561 - 0.685083I$	$-0.97791 - 4.28318I$	$-10.89005 + 8.80813I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.48151 + 0.17342I$ $a = 0.723559 + 0.487485I$ $b = -1.40241 + 0.68808I$	$-7.49670 - 6.47075I$	0
$u = 1.48151 - 0.17342I$ $a = 0.723559 - 0.487485I$ $b = -1.40241 - 0.68808I$	$-7.49670 + 6.47075I$	0
$u = 1.66287 + 0.16694I$ $a = 0.036943 + 0.221785I$ $b = -1.42836 - 0.05616I$	$-15.4031 - 0.5322I$	0
$u = 1.66287 - 0.16694I$ $a = 0.036943 - 0.221785I$ $b = -1.42836 + 0.05616I$	$-15.4031 + 0.5322I$	0
$u = -1.72217 + 0.01885I$ $a = 0.159381 - 0.267951I$ $b = -0.0689918 + 0.0997977I$	$-13.14540 + 4.08884I$	0
$u = -1.72217 - 0.01885I$ $a = 0.159381 + 0.267951I$ $b = -0.0689918 - 0.0997977I$	$-13.14540 - 4.08884I$	0
$u = 0.000076 + 0.257922I$ $a = 3.50423 - 0.93454I$ $b = -1.330790 - 0.365022I$	$1.51579 - 1.01431I$	$0.50261 - 2.29885I$
$u = 0.000076 - 0.257922I$ $a = 3.50423 + 0.93454I$ $b = -1.330790 + 0.365022I$	$1.51579 + 1.01431I$	$0.50261 + 2.29885I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{38}-6u^{37}+\cdots+19u^2+1)(u^{116}-5u^{115}+\cdots+7u+1)$
c_2	$(u^{38}+13u^{36}+\cdots+11u^2+1)(u^{116}+u^{115}+\cdots+15451u-12027)$
c_3	$(u^{38}-13u^{36}+\cdots-u+1)(u^{116}+u^{115}+\cdots-29632u-18731)$
c_4	$(u^{38}+6u^{37}+\cdots+19u^2+1)(u^{116}-5u^{115}+\cdots+7u+1)$
c_5	$(u^{38}-22u^{36}+\cdots-2u+1)(u^{116}-u^{115}+\cdots-77u-47)$
c_6	$(u^{38}-12u^{37}+\cdots+4u+1)$ $\cdot(u^{116}-5u^{115}+\cdots-814958041u+396832763)$
c_7	$(u^{38}+13u^{36}+\cdots+11u^2+1)(u^{116}+u^{115}+\cdots+15451u-12027)$
c_8	$(u^{38}-2u^{37}+\cdots-2u+1)(u^{116}-3u^{115}+\cdots-41431u-28963)$
c_9	$(u^{38}-13u^{36}+\cdots+u+1)(u^{116}+u^{115}+\cdots-29632u-18731)$
c_{10}, c_{11}	$(u^{38}-22u^{36}+\cdots+2u+1)(u^{116}-u^{115}+\cdots-77u-47)$
c_{12}	$(u^{38}+2u^{37}+\cdots+2u+1)(u^{116}-3u^{115}+\cdots-41431u-28963)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^{38}+24y^{37}+\cdots+38y+1)(y^{116}+53y^{115}+\cdots+1061y+1)$
c_2, c_7	$(y^{38}+26y^{37}+\cdots+22y+1)$ $\cdot(y^{116}+87y^{115}+\cdots+10374252209y+144648729)$
c_3, c_9	$(y^{38}-26y^{37}+\cdots-23y+1)$ $\cdot(y^{116}-89y^{115}+\cdots-3789676988y+350850361)$
c_5, c_{10}, c_{11}	$(y^{38}-44y^{37}+\cdots+16y+1)(y^{116}-127y^{115}+\cdots-477y+2209)$
c_6	$(y^{38}-14y^{37}+\cdots-20y+1)$ $\cdot(y^{116}-73y^{115}+\cdots-7.82\times10^{18}y+1.57\times10^{17})$
c_8, c_{12}	$(y^{38}+26y^{37}+\cdots+22y+1)$ $\cdot(y^{116}+91y^{115}+\cdots+24959611685y+838855369)$