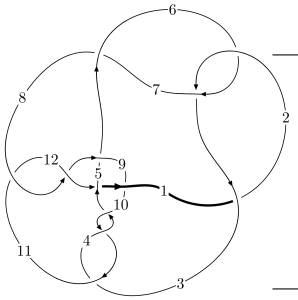
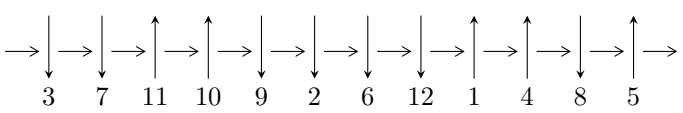
$12a_{0678}$ $(K12a_{0678})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.88041 \times 10^{309} u^{112} + 8.48809 \times 10^{308} u^{111} + \cdots + 1.65652 \times 10^{311} b - 2.44967 \times 10^{311},$$
$$3.34457 \times 10^{311} u^{112} - 3.90481 \times 10^{311} u^{111} + \cdots + 1.82217 \times 10^{312} a + 1.06215 \times 10^{313},$$
$$u^{113} - u^{112} + \cdots + 15u + 11\rangle$$
$$I_2^u = \langle 3u^{22} + 38u^{20} + \cdots + b + 2,\ u^{19} + 11u^{17} + \cdots + a + 1,\ u^{24} + 14u^{22} + \cdots + 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 137 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. $\boldsymbol{I_1^u = \langle 2.88 \times 10^{309} u^{112} + 8.49 \times 10^{308} u^{111} + \cdots + 1.66 \times 10^{311} b - 2.45 \times 10^{311},\ 3.34 \times 10^{311} u^{112} - 3.90 \times 10^{311} u^{111} + \cdots + 1.82 \times 10^{312} a + 1.06 \times 10^{313},\ u^{113} - u^{112} + \cdots + 15u + 11 \rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.183549u^{112} + 0.214295u^{111} + \cdots - 20.6174u - 5.82903 \\ -0.0173884u^{112} - 0.00512406u^{111} + \cdots - 0.0536761u + 1.47881 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.132513u^{112} - 0.169681u^{111} + \cdots + 8.54221u + 0.737478 \\ -0.0162259u^{112} - 0.0501027u^{111} + \cdots - 1.92847u - 0.675743 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.116287u^{112} - 0.219784u^{111} + \cdots + 6.61374u + 0.0617348 \\ -0.0162259u^{112} - 0.0501027u^{111} + \cdots - 1.92847u - 0.675743 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0974973u^{112} + 0.157066u^{111} + \cdots - 25.6173u - 11.7732 \\ -0.00678329u^{112} - 0.0287232u^{111} + \cdots + 1.40250u + 2.02414 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.154016u^{112} - 0.165009u^{111} + \cdots - 12.0342u + 0.764893 \\ 0.0218718u^{112} - 0.0968420u^{111} + \cdots + 2.52686u - 1.37446 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.129130u^{112} + 0.113392u^{111} + \cdots + 59.8830u - 2.07616 \\ -0.0181661u^{112} + 0.0738493u^{111} + \cdots - 7.90164u + 1.00539 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.125690u^{112} - 0.165723u^{111} + \cdots + 10.2798u + 0.288716 \\ -0.00525691u^{112} - 0.0914473u^{111} + \cdots - 1.96487u - 1.01948 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.101122u^{112} - 0.0898832u^{111} + \cdots + 12.7383u - 7.53310$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{113} + 39u^{112} + \cdots - 216u + 1$
c_2, c_6	$u^{113} - u^{112} + \cdots + 12u + 1$
c_3, c_4, c_{10}	$u^{113} - u^{112} + \cdots + 15u + 11$
c_5	$u^{113} - 5u^{112} + \cdots + 240u - 13$
c_8, c_{11}	$u^{113} - u^{112} + \cdots - 2039u - 229$
c_9	$u^{113} - 7u^{112} + \cdots - 7067u - 2507$
c_{12}	$u^{113} - 4u^{112} + \cdots + 56403u + 23683$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{113} + 81y^{112} + \cdots - 11600y - 1$
c_2, c_6	$y^{113} - 39y^{112} + \cdots - 216y - 1$
c_3, c_4, c_{10}	$y^{113} + 115y^{112} + \cdots + 5989y - 121$
c_5	$y^{113} - 7y^{112} + \cdots - 4228y - 169$
c_8, c_{11}	$y^{113} - 81y^{112} + \cdots - 193937y - 52441$
c_9	$y^{113} + 17y^{112} + \cdots - 196420401y - 6285049$
c_{12}	$y^{113} + 40y^{112} + \cdots - 26878017779y - 560884489$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.904745+0.460220I$ $a=-0.96192+1.22457I$ $b=\ \ 0.688613-0.837945I$	$1.45825-7.28472I$	0
$u=-0.904745-0.460220I$ $a=-0.96192-1.22457I$ $b=\ \ 0.688613+0.837945I$	$1.45825+7.28472I$	0
$u=-0.296641+0.935465I$ $a=-0.044155+0.326319I$ $b=\ \ 0.936373-0.712759I$	$-0.50638+3.02045I$	0
$u=-0.296641-0.935465I$ $a=-0.044155-0.326319I$ $b=\ \ 0.936373+0.712759I$	$-0.50638-3.02045I$	0
$u=\ \ 1.017070+0.148681I$ $a=\ \ 0.88000-1.91335I$ $b=-0.948912+0.670284I$	$-0.82794+3.11768I$	0
$u=\ \ 1.017070-0.148681I$ $a=\ \ 0.88000+1.91335I$ $b=-0.948912-0.670284I$	$-0.82794-3.11768I$	0
$u=\ \ 0.717168+0.646184I$ $a=-0.113524-0.620470I$ $b=-1.064940+0.175863I$	$-5.34748+7.31945I$	0
$u=\ \ 0.717168-0.646184I$ $a=-0.113524+0.620470I$ $b=-1.064940-0.175863I$	$-5.34748-7.31945I$	0
$u=\ \ 0.961035+0.501171I$ $a=-0.130517+0.522604I$ $b=\ \ 0.966771+0.026860I$	$-4.61135-1.81073I$	0
$u=\ \ 0.961035-0.501171I$ $a=-0.130517-0.522604I$ $b=\ \ 0.966771-0.026860I$	$-4.61135+1.81073I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.952030 + 0.520069I$ $a = -0.15869 + 1.98165I$ $b = 1.021830 - 0.732336I$	$0.43907 + 13.15560I$	0
$u = 0.952030 - 0.520069I$ $a = -0.15869 - 1.98165I$ $b = 1.021830 + 0.732336I$	$0.43907 - 13.15560I$	0
$u = -0.889860 + 0.051884I$ $a = 0.84685 - 2.15997I$ $b = -0.758557 + 0.674541I$	$-0.23754 + 2.10414I$	0
$u = -0.889860 - 0.051884I$ $a = 0.84685 + 2.15997I$ $b = -0.758557 - 0.674541I$	$-0.23754 - 2.10414I$	0
$u = 0.257866 + 1.091200I$ $a = 0.369039 + 1.068280I$ $b = 0.794720 - 0.766604I$	$-0.07099 + 2.58407I$	0
$u = 0.257866 - 1.091200I$ $a = 0.369039 - 1.068280I$ $b = 0.794720 + 0.766604I$	$-0.07099 - 2.58407I$	0
$u = 0.040879 + 0.851393I$ $a = 0.554820 + 0.537590I$ $b = 0.497920 - 0.402888I$	$-0.94803 + 1.45359I$	0
$u = 0.040879 - 0.851393I$ $a = 0.554820 - 0.537590I$ $b = 0.497920 + 0.402888I$	$-0.94803 - 1.45359I$	0
$u = -0.672021 + 0.499691I$ $a = 0.39256 - 2.25417I$ $b = 0.946144 + 0.752331I$	$4.60985 - 7.30372I$	0
$u = -0.672021 - 0.499691I$ $a = 0.39256 + 2.25417I$ $b = 0.946144 - 0.752331I$	$4.60985 + 7.30372I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.700086 + 0.431320I$ $a = -1.28265 - 0.73113I$ $b = 0.794688 + 0.790567I$	$5.07217 + 1.49536I$	0
$u = 0.700086 - 0.431320I$ $a = -1.28265 + 0.73113I$ $b = 0.794688 - 0.790567I$	$5.07217 - 1.49536I$	0
$u = -0.872118 + 0.855001I$ $a = 0.02346 + 1.69483I$ $b = -0.735758 - 0.728083I$	$0.45892 + 1.35049I$	0
$u = -0.872118 - 0.855001I$ $a = 0.02346 - 1.69483I$ $b = -0.735758 + 0.728083I$	$0.45892 - 1.35049I$	0
$u = 0.485816 + 0.594222I$ $a = -0.00749 - 1.74016I$ $b = -0.885101 + 0.783586I$	$4.45524 + 2.73268I$	$0. - 3.15176I$
$u = 0.485816 - 0.594222I$ $a = -0.00749 + 1.74016I$ $b = -0.885101 - 0.783586I$	$4.45524 - 2.73268I$	$0. + 3.15176I$
$u = -0.030242 + 1.257560I$ $a = 0.746401 + 0.445817I$ $b = -0.810158 + 0.596598I$	$-4.05059 + 5.07742I$	0
$u = -0.030242 - 1.257560I$ $a = 0.746401 - 0.445817I$ $b = -0.810158 - 0.596598I$	$-4.05059 - 5.07742I$	0
$u = 0.976987 + 0.815948I$ $a = 0.603989 + 1.014990I$ $b = -0.967712 - 0.693262I$	$-0.24807 - 6.79516I$	0
$u = 0.976987 - 0.815948I$ $a = 0.603989 - 1.014990I$ $b = -0.967712 + 0.693262I$	$-0.24807 + 6.79516I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.371232 + 1.234750I$ $a = -1.049150 - 0.614323I$ $b = \quad 0.823820 + 0.567682I$	$-4.28136 + 1.83518I$	0
$u = \quad 0.371232 - 1.234750I$ $a = -1.049150 + 0.614323I$ $b = \quad 0.823820 - 0.567682I$	$-4.28136 - 1.83518I$	0
$u = \quad 0.205525 + 1.294310I$ $a = -0.525040 - 0.120923I$ $b = \quad 0.517487 + 0.855851I$	$-1.15792 + 3.94082I$	0
$u = \quad 0.205525 - 1.294310I$ $a = -0.525040 + 0.120923I$ $b = \quad 0.517487 - 0.855851I$	$-1.15792 - 3.94082I$	0
$u = -0.542338 + 0.411411I$ $a = -0.401084 - 1.125040I$ $b = \quad 0.137856 + 0.713210I$	$-1.38662 - 4.57794I$	$-1.22877 + 7.27845I$
$u = -0.542338 - 0.411411I$ $a = -0.401084 + 1.125040I$ $b = \quad 0.137856 - 0.713210I$	$-1.38662 + 4.57794I$	$-1.22877 - 7.27845I$
$u = -0.151317 + 1.311120I$ $a = -0.059586 + 0.225984I$ $b = \quad 0.646595 - 0.774177I$	$-0.628719 + 0.882092I$	0
$u = -0.151317 - 1.311120I$ $a = -0.059586 - 0.225984I$ $b = \quad 0.646595 + 0.774177I$	$-0.628719 - 0.882092I$	0
$u = -0.657880 + 0.165084I$ $a = \quad 0.38727 + 2.11810I$ $b = -1.030830 - 0.710764I$	$1.91904 - 6.54565I$	$0.15249 + 7.74575I$
$u = -0.657880 - 0.165084I$ $a = \quad 0.38727 - 2.11810I$ $b = -1.030830 + 0.710764I$	$1.91904 + 6.54565I$	$0.15249 - 7.74575I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.660558 + 0.071886I$ $a = 1.05029 + 1.38972I$ $b = -0.654500 - 0.804124I$	$3.05428 + 0.83352I$	$3.15363 - 1.85468I$
$u = 0.660558 - 0.071886I$ $a = 1.05029 - 1.38972I$ $b = -0.654500 + 0.804124I$	$3.05428 - 0.83352I$	$3.15363 + 1.85468I$
$u = -0.085768 + 1.343410I$ $a = -1.273430 + 0.242185I$ $b = -1.232150 + 0.104849I$	$-7.13022 - 1.65816I$	0
$u = -0.085768 - 1.343410I$ $a = -1.273430 - 0.242185I$ $b = -1.232150 - 0.104849I$	$-7.13022 + 1.65816I$	0
$u = -0.021247 + 1.352070I$ $a = -0.061018 - 1.006550I$ $b = 0.944097 + 0.958398I$	$0.69979 - 3.48425I$	0
$u = -0.021247 - 1.352070I$ $a = -0.061018 + 1.006550I$ $b = 0.944097 - 0.958398I$	$0.69979 + 3.48425I$	0
$u = -0.394843 + 0.506930I$ $a = 1.39123 + 0.85496I$ $b = 0.0322998 + 0.0684716I$	$-1.69967 + 1.41298I$	$-2.69092 + 1.91888I$
$u = -0.394843 - 0.506930I$ $a = 1.39123 - 0.85496I$ $b = 0.0322998 - 0.0684716I$	$-1.69967 - 1.41298I$	$-2.69092 - 1.91888I$
$u = -0.454907 + 0.452677I$ $a = 0.674989 - 0.859764I$ $b = -0.875336 + 0.802718I$	$4.49627 + 3.20308I$	$3.48381 - 2.71288I$
$u = -0.454907 - 0.452677I$ $a = 0.674989 + 0.859764I$ $b = -0.875336 - 0.802718I$	$4.49627 - 3.20308I$	$3.48381 + 2.71288I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.025891 + 1.370390I$ $a = -1.57854 - 1.55814I$ $b = -0.922099 + 0.621408I$	$-4.43146 - 0.26971I$	0
$u = 0.025891 - 1.370390I$ $a = -1.57854 + 1.55814I$ $b = -0.922099 - 0.621408I$	$-4.43146 + 0.26971I$	0
$u = 0.192055 + 1.364200I$ $a = -0.313552 - 0.103035I$ $b = -0.047523 + 0.500321I$	$-3.93269 + 3.51055I$	0
$u = 0.192055 - 1.364200I$ $a = -0.313552 + 0.103035I$ $b = -0.047523 - 0.500321I$	$-3.93269 - 3.51055I$	0
$u = -0.223783 + 1.362090I$ $a = 1.06778 - 1.45403I$ $b = 1.103090 + 0.686311I$	$-2.90635 - 9.69009I$	0
$u = -0.223783 - 1.362090I$ $a = 1.06778 + 1.45403I$ $b = 1.103090 - 0.686311I$	$-2.90635 + 9.69009I$	0
$u = 0.051085 + 1.401210I$ $a = 0.956213 + 0.527542I$ $b = -0.726348 - 0.830235I$	$-4.93439 + 1.51922I$	0
$u = 0.051085 - 1.401210I$ $a = 0.956213 - 0.527542I$ $b = -0.726348 + 0.830235I$	$-4.93439 - 1.51922I$	0
$u = -0.34307 + 1.37543I$ $a = 0.81505 - 1.98309I$ $b = 0.919748 + 0.602453I$	$-4.62773 - 6.48376I$	0
$u = -0.34307 - 1.37543I$ $a = 0.81505 + 1.98309I$ $b = 0.919748 - 0.602453I$	$-4.62773 + 6.48376I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.14168+1.41065I$ $a=-1.312970+0.160808I$ $b=-1.030060+0.151808I$	$-7.04105-1.22213I$	0
$u=-0.14168-1.41065I$ $a=-1.312970-0.160808I$ $b=-1.030060-0.151808I$	$-7.04105+1.22213I$	0
$u=-0.09186+1.42127I$ $a=-0.65316+1.99706I$ $b=-1.002910-0.741040I$	$-5.78801-7.40375I$	0
$u=-0.09186-1.42127I$ $a=-0.65316-1.99706I$ $b=-1.002910+0.741040I$	$-5.78801+7.40375I$	0
$u=0.13179+1.42720I$ $a=0.893354+1.063640I$ $b=1.016350-0.700786I$	$-1.72012+4.71291I$	0
$u=0.13179-1.42720I$ $a=0.893354-1.063640I$ $b=1.016350+0.700786I$	$-1.72012-4.71291I$	0
$u=0.528952+0.199906I$ $a=0.515752+0.734700I$ $b=-0.126164-0.482992I$	$1.042540+0.891885I$	$4.82385-2.40916I$
$u=0.528952-0.199906I$ $a=0.515752-0.734700I$ $b=-0.126164+0.482992I$	$1.042540-0.891885I$	$4.82385+2.40916I$
$u=-0.426785+0.361913I$ $a=-1.47979+1.51501I$ $b=-0.876462-0.236702I$	$-1.18174-3.41761I$	$-4.69079+9.24081I$
$u=-0.426785-0.361913I$ $a=-1.47979-1.51501I$ $b=-0.876462+0.236702I$	$-1.18174+3.41761I$	$-4.69079-9.24081I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.213521+0.506242I$ $a=-0.64097+2.67316I$ $b=-0.939614-0.003187I$	$-4.57467-1.42068I$	$-13.6094+4.9351I$
$u=-0.213521-0.506242I$ $a=-0.64097-2.67316I$ $b=-0.939614+0.003187I$	$-4.57467+1.42068I$	$-13.6094-4.9351I$
$u=-0.375046+0.372412I$ $a=\ \ 0.601261-0.124789I$ $b=\ \ 0.809904-0.222631I$	$-1.42108+0.71519I$	$-5.82545+0.19565I$
$u=-0.375046-0.372412I$ $a=\ \ 0.601261+0.124789I$ $b=\ \ 0.809904+0.222631I$	$-1.42108-0.71519I$	$-5.82545-0.19565I$
$u=-0.12762+1.47160I$ $a=\ \ 1.79595-0.33732I$ $b=\ \ 0.996530+0.109044I$	$-7.21611-5.34844I$	0
$u=-0.12762-1.47160I$ $a=\ \ 1.79595+0.33732I$ $b=\ \ 0.996530-0.109044I$	$-7.21611+5.34844I$	0
$u=-0.19466+1.47164I$ $a=-0.104695+0.611663I$ $b=-0.208324-0.922034I$	$-7.52691-7.29165I$	0
$u=-0.19466-1.47164I$ $a=-0.104695-0.611663I$ $b=-0.208324+0.922034I$	$-7.52691+7.29165I$	0
$u=\ \ 0.12039+1.48891I$ $a=-0.666920+0.517086I$ $b=-1.211290-0.462374I$	$-10.82210+2.23474I$	0
$u=\ \ 0.12039-1.48891I$ $a=-0.666920-0.517086I$ $b=-1.211290+0.462374I$	$-10.82210-2.23474I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.181944 + 0.469432I$ $a = -0.24373 - 1.67968I$ $b = 1.067010 + 0.341528I$	$-4.31911 + 0.78254I$	$-10.68583 - 5.88091I$
$u = 0.181944 - 0.469432I$ $a = -0.24373 + 1.67968I$ $b = 1.067010 - 0.341528I$	$-4.31911 - 0.78254I$	$-10.68583 + 5.88091I$
$u = -0.36540 + 1.45969I$ $a = -0.751434 + 0.808259I$ $b = 0.706121 - 0.835266I$	$-5.28759 - 2.55686I$	0
$u = -0.36540 - 1.45969I$ $a = -0.751434 - 0.808259I$ $b = 0.706121 + 0.835266I$	$-5.28759 + 2.55686I$	0
$u = 0.25240 + 1.49295I$ $a = 0.509936 + 0.096396I$ $b = -0.708804 - 0.788238I$	$-1.19353 + 4.97276I$	0
$u = 0.25240 - 1.49295I$ $a = 0.509936 - 0.096396I$ $b = -0.708804 + 0.788238I$	$-1.19353 - 4.97276I$	0
$u = -0.12259 + 1.51595I$ $a = -0.139504 - 0.730940I$ $b = 0.034177 + 0.612002I$	$-8.52350 - 0.38432I$	0
$u = -0.12259 - 1.51595I$ $a = -0.139504 + 0.730940I$ $b = 0.034177 - 0.612002I$	$-8.52350 + 0.38432I$	0
$u = -0.02787 + 1.54592I$ $a = 1.04039 - 1.08708I$ $b = 0.986192 + 0.176196I$	$-11.56620 - 2.19964I$	0
$u = -0.02787 - 1.54592I$ $a = 1.04039 + 1.08708I$ $b = 0.986192 - 0.176196I$	$-11.56620 + 2.19964I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.23679+1.52932I$ $a=-1.08706+1.48125I$ $b=-0.995781-0.716273I$	$-2.06596-10.65630I$	0
$u=-0.23679-1.52932I$ $a=-1.08706-1.48125I$ $b=-0.995781+0.716273I$	$-2.06596+10.65630I$	0
$u=-0.32764+1.51685I$ $a=\ \ 0.651085-0.461836I$ $b=-0.646761+0.913987I$	$-4.91899-11.73710I$	0
$u=-0.32764-1.51685I$ $a=\ \ 0.651085+0.461836I$ $b=-0.646761-0.913987I$	$-4.91899+11.73710I$	0
$u=\ \ 0.41783+1.50254I$ $a=\ \ 0.33474+1.75807I$ $b=\ \ 1.014610-0.734997I$	$-6.23858+8.43337I$	0
$u=\ \ 0.41783-1.50254I$ $a=\ \ 0.33474-1.75807I$ $b=\ \ 1.014610+0.734997I$	$-6.23858-8.43337I$	0
$u=\ \ 0.23570+1.54809I$ $a=\ \ 0.905985+0.631738I$ $b=\ \ 1.198460-0.189814I$	$-12.4981+10.7952I$	0
$u=\ \ 0.23570-1.54809I$ $a=\ \ 0.905985-0.631738I$ $b=\ \ 1.198460+0.189814I$	$-12.4981-10.7952I$	0
$u=-0.430266$ $a=-0.427186$ $b=\ \ 1.14910$	-2.99666	7.78700
$u=\ \ 0.34280+1.54819I$ $a=-0.69624-1.62668I$ $b=-1.070610+0.745576I$	$-6.2336+17.8576I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.34280 - 1.54819I$ $a = -0.69624 + 1.62668I$ $b = -1.070610 - 0.745576I$	$-6.2336 - 17.8576I$	0
$u = -0.105920 + 0.368031I$ $a = -0.081589 - 0.463280I$ $b = -0.900285 + 0.842913I$	$4.56165 + 3.13478I$	$7.99297 - 2.12005I$
$u = -0.105920 - 0.368031I$ $a = -0.081589 + 0.463280I$ $b = -0.900285 - 0.842913I$	$4.56165 - 3.13478I$	$7.99297 + 2.12005I$
$u = \quad 0.25980 + 1.63227I$ $a = -0.756154 - 0.638597I$ $b = -1.023930 + 0.164476I$	$-11.95590 + 2.88693I$	0
$u = \quad 0.25980 - 1.63227I$ $a = -0.756154 + 0.638597I$ $b = -1.023930 - 0.164476I$	$-11.95590 - 2.88693I$	0
$u = -0.01182 + 1.65339I$ $a = -0.799632 - 0.284408I$ $b = -0.873279 + 0.616368I$	$-9.49354 + 2.41623I$	0
$u = -0.01182 - 1.65339I$ $a = -0.799632 + 0.284408I$ $b = -0.873279 - 0.616368I$	$-9.49354 - 2.41623I$	0
$u = -0.261182 + 0.141542I$ $a = -3.15243 - 5.62350I$ $b = \quad 0.945081 + 0.684762I$	$-0.53557 - 6.12044I$	$-6.51011 + 10.79947I$
$u = -0.261182 - 0.141542I$ $a = -3.15243 + 5.62350I$ $b = \quad 0.945081 - 0.684762I$	$-0.53557 + 6.12044I$	$-6.51011 - 10.79947I$
$u = \quad 0.05712 + 1.78672I$ $a = \quad 0.279866 - 0.903270I$ $b = \quad 0.884289 + 0.582545I$	$-10.00510 - 2.29209I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.05712-1.78672I$		
$a=$	$0.279866+0.903270I$	$-10.00510+2.29209I$	0
$b=$	$0.884289-0.582545I$		
$u=$	$0.142278+0.056032I$		
$a=$	$-7.45713-8.09593I$	$0.008105+0.792111I$	$-4.76837-5.29282I$
$b=$	$0.768860+0.696287I$		
$u=$	$0.142278-0.056032I$		
$a=$	$-7.45713+8.09593I$	$0.008105-0.792111I$	$-4.76837+5.29282I$
$b=$	$0.768860-0.696287I$		

II.

$\boldsymbol{I_2^u = \langle 3u^{22}+38u^{20}+\cdots+b+2,\ u^{19}+11u^{17}+\cdots+a+1,\ u^{24}+14u^{22}+\cdots+2u+1\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{19} - 11u^{17} + \cdots - 4u^2 - 1 \\ -3u^{22} - 38u^{20} + \cdots - 6u - 2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2u^{23} + 27u^{21} + \cdots + 5u + 2 \\ -2u^{23} - 26u^{21} + \cdots - 4u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^{21} + 12u^{19} + \cdots + u + 1 \\ -2u^{23} - 26u^{21} + \cdots - 4u - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^6 - 4u^4 - 3u^2 + 1 \\ -u^{23} - 3u^{22} + \cdots - 6u - 3 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^{23} - 14u^{21} + \cdots - 5u - 2 \\ -u^{23} + u^{22} + \cdots + 5u + 2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^5 - 3u^3 - 2u \\ -u^{23} + u^{22} + \cdots + 4u + 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^{23} + 14u^{21} + \cdots + 4u + 2 \\ -2u^{23} - 26u^{21} + \cdots - 3u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^{23} - 17u^{22} - 22u^{21} - 210u^{20} - 94u^{19} - 1083u^{18} - 200u^{17} - 3016u^{16} - 258u^{15} - 4894u^{14} - 367u^{13} - 4706u^{12} - 656u^{11} - 2828u^{10} - 713u^9 - 1478u^8 - 320u^7 - 839u^6 - 70u^5 - 250u^4 - 64u^3 - 29u^2 - 13u - 16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{24} - 10u^{23} + \cdots - 15u + 1$
c_2	$u^{24} - 5u^{22} + \cdots + u + 1$
c_3, c_4	$u^{24} + 14u^{22} + \cdots + 2u + 1$
c_5	$u^{24} - 2u^{23} + \cdots + 3u + 1$
c_6	$u^{24} - 5u^{22} + \cdots - u + 1$
c_7	$u^{24} + 10u^{23} + \cdots + 15u + 1$
c_8	$u^{24} + 4u^{23} + \cdots + 4u + 1$
c_9	$u^{24} + u^{22} + \cdots - 2u + 1$
c_{10}	$u^{24} + 14u^{22} + \cdots - 2u + 1$
c_{11}	$u^{24} - 4u^{23} + \cdots - 4u + 1$
c_{12}	$u^{24} + u^{23} + \cdots + 6u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{24} + 18y^{23} + \cdots + 5y + 1$
c_2, c_6	$y^{24} - 10y^{23} + \cdots - 15y + 1$
c_3, c_4, c_{10}	$y^{24} + 28y^{23} + \cdots + 8y + 1$
c_5	$y^{24} - 2y^{23} + \cdots - 3y + 1$
c_8, c_{11}	$y^{24} - 24y^{23} + \cdots - 22y + 1$
c_9	$y^{24} + 2y^{23} + \cdots + 14y + 1$
c_{12}	$y^{24} + 9y^{23} + \cdots + 12y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.014533 + 1.236720I$ $a = 0.153181 + 0.751856I$ $b = 0.924256 - 0.909871I$	$1.74155 + 3.33718I$	$1.37333 - 2.71643I$
$u = 0.014533 - 1.236720I$ $a = 0.153181 - 0.751856I$ $b = 0.924256 + 0.909871I$	$1.74155 - 3.33718I$	$1.37333 + 2.71643I$
$u = 0.587944 + 0.473918I$ $a = -0.35586 - 2.76777I$ $b = -0.789892 + 0.691932I$	$0.156212 + 0.133299I$	$-3.40927 - 3.14502I$
$u = 0.587944 - 0.473918I$ $a = -0.35586 + 2.76777I$ $b = -0.789892 - 0.691932I$	$0.156212 - 0.133299I$	$-3.40927 + 3.14502I$
$u = -0.624523 + 0.399144I$ $a = 1.76133 - 0.91632I$ $b = -0.935565 + 0.676214I$	$-0.30106 + 5.14667I$	$-4.12583 - 3.24317I$
$u = -0.624523 - 0.399144I$ $a = 1.76133 + 0.91632I$ $b = -0.935565 - 0.676214I$	$-0.30106 - 5.14667I$	$-4.12583 + 3.24317I$
$u = 0.153427 + 1.256270I$ $a = 0.386516 + 0.722554I$ $b = -0.494067 + 0.228756I$	$-4.91758 + 3.81805I$	$-9.88337 - 3.57777I$
$u = 0.153427 - 1.256270I$ $a = 0.386516 - 0.722554I$ $b = -0.494067 - 0.228756I$	$-4.91758 - 3.81805I$	$-9.88337 + 3.57777I$
$u = 0.239069 + 1.311440I$ $a = -1.134490 - 0.372910I$ $b = 0.701717 + 0.730628I$	$-2.99873 + 2.84510I$	$-3.41822 - 3.05501I$
$u = 0.239069 - 1.311440I$ $a = -1.134490 + 0.372910I$ $b = 0.701717 - 0.730628I$	$-2.99873 - 2.84510I$	$-3.41822 + 3.05501I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.109220+1.342840I$ $a=-1.47300+0.27515I$ $b=-1.154490+0.184449I$	$-7.58779-1.85770I$	$-15.7813+6.7892I$
$u=-0.109220-1.342840I$ $a=-1.47300-0.27515I$ $b=-1.154490-0.184449I$	$-7.58779+1.85770I$	$-15.7813-6.7892I$
$u=0.364977+0.517927I$ $a=2.12100-0.54472I$ $b=0.634672+0.203587I$	$-2.18906-1.95260I$	$-11.11537+5.99217I$
$u=0.364977-0.517927I$ $a=2.12100+0.54472I$ $b=0.634672-0.203587I$	$-2.18906+1.95260I$	$-11.11537-5.99217I$
$u=-0.245629+1.363790I$ $a=0.86717-1.99434I$ $b=1.006840+0.687146I$	$-3.94250-8.29295I$	$-5.73432+7.42323I$
$u=-0.245629-1.363790I$ $a=0.86717+1.99434I$ $b=1.006840-0.687146I$	$-3.94250+8.29295I$	$-5.73432-7.42323I$
$u=0.031257+0.602155I$ $a=0.30393+1.44825I$ $b=-0.909137-0.853718I$	$4.16160-3.16786I$	$-12.45362+3.46009I$
$u=0.031257-0.602155I$ $a=0.30393-1.44825I$ $b=-0.909137+0.853718I$	$4.16160+3.16786I$	$-12.45362-3.46009I$
$u=-0.355393+0.242419I$ $a=-1.57160-0.20685I$ $b=0.999757+0.147710I$	$-3.63247+0.33581I$	$-5.39190-0.48674I$
$u=-0.355393-0.242419I$ $a=-1.57160+0.20685I$ $b=0.999757-0.147710I$	$-3.63247-0.33581I$	$-5.39190+0.48674I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.03893+1.62612I$ $a=-0.619038+0.935434I$ $b=-0.849402-0.289272I$	$-10.98190-1.26132I$	$-11.36572-2.32664I$
$u=-0.03893-1.62612I$ $a=-0.619038-0.935434I$ $b=-0.849402+0.289272I$	$-10.98190+1.26132I$	$-11.36572+2.32664I$
$u=-0.01752+1.71543I$ $a=\ \ 0.560857+0.526854I$ $b=\ \ 0.865319-0.635324I$	$-8.98669+2.48240I$	$2.30562-4.73220I$
$u=-0.01752-1.71543I$ $a=\ \ 0.560857-0.526854I$ $b=\ \ 0.865319+0.635324I$	$-8.98669-2.48240I$	$2.30562+4.73220I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{24}-10u^{23}+\cdots-15u+1)(u^{113}+39u^{112}+\cdots-216u+1)$
c_2	$(u^{24}-5u^{22}+\cdots+u+1)(u^{113}-u^{112}+\cdots+12u+1)$
c_3, c_4	$(u^{24}+14u^{22}+\cdots+2u+1)(u^{113}-u^{112}+\cdots+15u+11)$
c_5	$(u^{24}-2u^{23}+\cdots+3u+1)(u^{113}-5u^{112}+\cdots+240u-13)$
c_6	$(u^{24}-5u^{22}+\cdots-u+1)(u^{113}-u^{112}+\cdots+12u+1)$
c_7	$(u^{24}+10u^{23}+\cdots+15u+1)(u^{113}+39u^{112}+\cdots-216u+1)$
c_8	$(u^{24}+4u^{23}+\cdots+4u+1)(u^{113}-u^{112}+\cdots-2039u-229)$
c_9	$(u^{24}+u^{22}+\cdots-2u+1)(u^{113}-7u^{112}+\cdots-7067u-2507)$
c_{10}	$(u^{24}+14u^{22}+\cdots-2u+1)(u^{113}-u^{112}+\cdots+15u+11)$
c_{11}	$(u^{24}-4u^{23}+\cdots-4u+1)(u^{113}-u^{112}+\cdots-2039u-229)$
c_{12}	$(u^{24}+u^{23}+\cdots+6u^2+1)(u^{113}-4u^{112}+\cdots+56403u+23683)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^{24}+18y^{23}+\cdots+5y+1)(y^{113}+81y^{112}+\cdots-11600y-1)$
c_2, c_6	$(y^{24}-10y^{23}+\cdots-15y+1)(y^{113}-39y^{112}+\cdots-216y-1)$
c_3, c_4, c_{10}	$(y^{24}+28y^{23}+\cdots+8y+1)(y^{113}+115y^{112}+\cdots+5989y-121)$
c_5	$(y^{24}-2y^{23}+\cdots-3y+1)(y^{113}-7y^{112}+\cdots-4228y-169)$
c_8, c_{11}	$(y^{24}-24y^{23}+\cdots-22y+1)(y^{113}-81y^{112}+\cdots-193937y-52441)$
c_9	$(y^{24}+2y^{23}+\cdots+14y+1)$ $\cdot(y^{113}+17y^{112}+\cdots-196420401y-6285049)$
c_{12}	$(y^{24}+9y^{23}+\cdots+12y+1)$ $\cdot(y^{113}+40y^{112}+\cdots-26878017779y-560884489)$