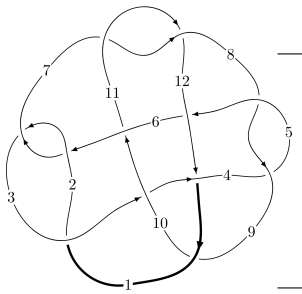
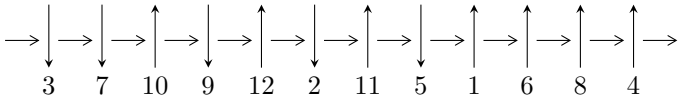
$12a_{0637}$ $(K12a_{0637})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -7.80686 \times 10^{608} u^{135} + 4.59267 \times 10^{609} u^{134} + \cdots + 3.53132 \times 10^{611} b + 7.99940 \times 10^{610}, \\
&\quad - 1.21400 \times 10^{609} u^{135} - 1.85289 \times 10^{611} u^{134} + \cdots + 1.45844 \times 10^{614} a - 4.86124 \times 10^{614}, \\
&\quad u^{136} - 5u^{135} + \cdots - 1764u - 392 \rangle \\
I_2^u &= \langle 3127351u^{18} - 1101560u^{17} + \cdots + 3308497b - 3526485, \\
&\quad 4211238u^{18} - 9238417u^{17} + \cdots + 3308497a + 6322815,\ u^{19} - u^{18} + \cdots - 11u^2 - 1 \rangle \\
I_3^u &= \langle b,\ a + u,\ u^2 - u + 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 157 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. $\boldsymbol{I_1^u = \langle -7.81 \times 10^{608} u^{135} + 4.59 \times 10^{609} u^{134} + \cdots + 3.53 \times 10^{611} b + 8.00 \times 10^{610},\ -1.21 \times 10^{609} u^{135} - 1.85 \times 10^{611} u^{134} + \cdots + 1.46 \times 10^{614} a - 4.86 \times 10^{614},\ u^{136} - 5u^{135} + \cdots - 1764u - 392 \rangle}$

(i) Arc colorings

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

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

$$a_1 = \begin{pmatrix} 8.32400 \times 10^{-6} u^{135} + 0.00127046 u^{134} + \cdots + 11.7711 u + 3.33319 \\ 0.00221075 u^{135} - 0.0130055 u^{134} + \cdots + 2.35289 u - 0.226527 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -0.00320519 u^{135} + 0.0124770 u^{134} + \cdots - 18.1541 u - 2.63362 \\ 0.00190447 u^{135} - 0.0132405 u^{134} + \cdots + 4.84713 u + 1.75434 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.00961782 u^{135} - 0.0513213 u^{134} + \cdots + 2.39397 u + 4.01892 \\ 0.00525886 u^{135} - 0.0201863 u^{134} + \cdots - 7.87142 u - 0.761178 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0132748 u^{135} + 0.0673620 u^{134} + \cdots - 21.5615 u - 2.98098 \\ -0.000837063 u^{135} - 0.00318599 u^{134} + \cdots + 7.32115 u + 1.47992 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -0.00220242 u^{135} + 0.0142760 u^{134} + \cdots + 9.41817 u + 3.55971 \\ 0.00221075 u^{135} - 0.0130055 u^{134} + \cdots + 2.35289 u - 0.226527 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.00128220 u^{135} + 0.0191494 u^{134} + \cdots - 15.4030 u + 2.71700 \\ -0.00302398 u^{135} + 0.0113216 u^{134} + \cdots + 5.21126 u + 0.327390 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.00108998 u^{135} - 0.00277045 u^{134} + \cdots + 8.16182 u + 3.74680 \\ 0.000603983 u^{135} - 0.00470337 u^{134} + \cdots + 1.35625 u - 0.268539 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.00620299 u^{135} + 0.0265644 u^{134} + \cdots + 29.1434 u + 7.44215 \\ 0.00106340 u^{135} - 0.00871337 u^{134} + \cdots + 5.45011 u + 0.321834 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00348385 u^{135} - 0.0403883 u^{134} + \cdots + 22.9816 u + 11.3314$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{136} + 52u^{135} + \cdots + 9209u + 529$
c_2, c_6	$u^{136} - 2u^{135} + \cdots - 89u - 23$
c_3	$u^{136} + 7u^{135} + \cdots - 20u - 1$
c_4, c_8	$u^{136} + 5u^{135} + \cdots + 1764u - 392$
c_5	$u^{136} - 3u^{135} + \cdots - 10733u + 829$
c_7, c_{11}	$u^{136} - 3u^{135} + \cdots - 5775u + 244$
c_9	$u^{136} - 4u^{135} + \cdots - 59182u - 17287$
c_{10}	$u^{136} + 4u^{135} + \cdots + 113947u - 42193$
c_{12}	$u^{136} + 15u^{135} + \cdots - 36u + 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{136} + 68y^{135} + \cdots + 1258572891y + 279841$
c_2, c_6	$y^{136} - 52y^{135} + \cdots - 9209y + 529$
c_3	$y^{136} + 5y^{135} + \cdots - 32y + 1$
c_4, c_8	$y^{136} + 109y^{135} + \cdots - 1223824y + 153664$
c_5	$y^{136} - 47y^{135} + \cdots - 19505819y + 687241$
c_7, c_{11}	$y^{136} - 113y^{135} + \cdots - 9614305y + 59536$
c_9	$y^{136} - 42y^{135} + \cdots + 9263767506y + 298840369$
c_{10}	$y^{136} - 30y^{135} + \cdots - 52468465753y + 1780249249$
c_{12}	$y^{136} - 11y^{135} + \cdots - 1776y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.981483 + 0.194710I$ $a = 0.487582 - 1.061820I$ $b = 0.684933 - 0.932359I$	$-3.02456 - 6.65628I$	0
$u = 0.981483 - 0.194710I$ $a = 0.487582 + 1.061820I$ $b = 0.684933 + 0.932359I$	$-3.02456 + 6.65628I$	0
$u = -0.302840 + 0.950578I$ $a = 1.44682 - 0.22641I$ $b = -0.296701 - 0.506353I$	$-0.76134 + 6.16481I$	0
$u = -0.302840 - 0.950578I$ $a = 1.44682 + 0.22641I$ $b = -0.296701 + 0.506353I$	$-0.76134 - 6.16481I$	0
$u = -0.979464 + 0.038146I$ $a = 1.046020 - 0.701042I$ $b = 0.722445 - 0.812577I$	$-1.52856 - 8.54158I$	0
$u = -0.979464 - 0.038146I$ $a = 1.046020 + 0.701042I$ $b = 0.722445 + 0.812577I$	$-1.52856 + 8.54158I$	0
$u = 0.151638 + 1.012050I$ $a = 0.161145 - 0.868688I$ $b = 3.41324 + 0.54552I$	$3.12305 + 2.06608I$	0
$u = 0.151638 - 1.012050I$ $a = 0.161145 + 0.868688I$ $b = 3.41324 - 0.54552I$	$3.12305 - 2.06608I$	0
$u = -0.979982 + 0.309514I$ $a = -0.25551 - 1.41166I$ $b = 0.136556 - 0.747463I$	$3.04388 - 0.52509I$	0
$u = -0.979982 - 0.309514I$ $a = -0.25551 + 1.41166I$ $b = 0.136556 + 0.747463I$	$3.04388 + 0.52509I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.914350 + 0.469337I$ $a = 0.15902 - 1.71081I$ $b = -0.083275 - 0.829333I$	$2.05985 + 5.50935I$	0
$u = 0.914350 - 0.469337I$ $a = 0.15902 + 1.71081I$ $b = -0.083275 + 0.829333I$	$2.05985 - 5.50935I$	0
$u = 0.958608 + 0.066625I$ $a = -0.946811 + 0.693056I$ $b = -0.632110 + 0.752174I$	$-0.27138 - 3.15703I$	0
$u = 0.958608 - 0.066625I$ $a = -0.946811 - 0.693056I$ $b = -0.632110 - 0.752174I$	$-0.27138 + 3.15703I$	0
$u = -0.135717 + 0.938317I$ $a = 1.171490 + 0.784766I$ $b = -0.114192 - 0.199226I$	$-2.52392 - 0.14907I$	0
$u = -0.135717 - 0.938317I$ $a = 1.171490 - 0.784766I$ $b = -0.114192 + 0.199226I$	$-2.52392 + 0.14907I$	0
$u = 0.152114 + 1.047540I$ $a = -0.301370 - 0.233899I$ $b = 1.141520 + 0.689819I$	$1.60169 - 2.91819I$	0
$u = 0.152114 - 1.047540I$ $a = -0.301370 + 0.233899I$ $b = 1.141520 - 0.689819I$	$1.60169 + 2.91819I$	0
$u = 0.252270 + 1.037820I$ $a = -0.869697 - 0.126533I$ $b = 0.479427 - 0.271272I$	$0.86648 - 2.06124I$	0
$u = 0.252270 - 1.037820I$ $a = -0.869697 + 0.126533I$ $b = 0.479427 + 0.271272I$	$0.86648 + 2.06124I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.837404+0.322705I$ $a=-0.694951+0.286572I$ $b=-0.015978+0.547591I$	$1.94190+0.55872I$	0
$u=-0.837404-0.322705I$ $a=-0.694951-0.286572I$ $b=-0.015978-0.547591I$	$1.94190-0.55872I$	0
$u=-0.008280+1.119830I$ $a=-0.159799-1.114960I$ $b=0.03210-1.75361I$	$3.45662+1.19333I$	0
$u=-0.008280-1.119830I$ $a=-0.159799+1.114960I$ $b=0.03210+1.75361I$	$3.45662-1.19333I$	0
$u=0.304821+1.112420I$ $a=-0.720839-0.703542I$ $b=0.834018-0.531603I$	$0.89236-2.44414I$	0
$u=0.304821-1.112420I$ $a=-0.720839+0.703542I$ $b=0.834018+0.531603I$	$0.89236+2.44414I$	0
$u=0.219062+1.152790I$ $a=1.77534-0.55054I$ $b=-0.206015+0.078298I$	$1.23659-2.47274I$	0
$u=0.219062-1.152790I$ $a=1.77534+0.55054I$ $b=-0.206015-0.078298I$	$1.23659+2.47274I$	0
$u=0.013238+1.173740I$ $a=-0.045455-1.349070I$ $b=-0.02527-1.93660I$	$5.17420-2.39055I$	0
$u=0.013238-1.173740I$ $a=-0.045455+1.349070I$ $b=-0.02527+1.93660I$	$5.17420+2.39055I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.150212+0.805508I$ $a=\ \ 0.407311-0.763432I$ $b=-0.569199+0.927037I$	$2.15127-0.79768I$	0
$u=-0.150212-0.805508I$ $a=\ \ 0.407311+0.763432I$ $b=-0.569199-0.927037I$	$2.15127+0.79768I$	0
$u=-0.145982+1.194190I$ $a=\ \ 0.136926-0.910700I$ $b=-1.40298-1.12621I$	$4.37821+1.69238I$	0
$u=-0.145982-1.194190I$ $a=\ \ 0.136926+0.910700I$ $b=-1.40298+1.12621I$	$4.37821-1.69238I$	0
$u=\ \ 0.462490+1.116580I$ $a=\ \ 1.38294+0.78397I$ $b=-0.217676+0.469481I$	$4.19712-10.61180I$	0
$u=\ \ 0.462490-1.116580I$ $a=\ \ 1.38294-0.78397I$ $b=-0.217676-0.469481I$	$4.19712+10.61180I$	0
$u=-0.023411+1.233580I$ $a=-0.346728+0.323039I$ $b=\ \ 1.44932+1.29738I$	$1.82787-2.48174I$	0
$u=-0.023411-1.233580I$ $a=-0.346728-0.323039I$ $b=\ \ 1.44932-1.29738I$	$1.82787+2.48174I$	0
$u=-0.120685+0.750153I$ $a=-0.04422+2.21426I$ $b=\ \ 0.032281+1.095470I$	$-3.50794+1.54063I$	0
$u=-0.120685-0.750153I$ $a=-0.04422-2.21426I$ $b=\ \ 0.032281-1.095470I$	$-3.50794-1.54063I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.167440+0.424522I$ $a=-0.542033-0.916711I$ $b=-0.665908-0.868794I$	$4.09156+7.55900I$	0
$u=-1.167440-0.424522I$ $a=-0.542033+0.916711I$ $b=-0.665908+0.868794I$	$4.09156-7.55900I$	0
$u=-0.014597+1.243110I$ $a=-0.80318+1.33274I$ $b=0.959566+0.810599I$	$7.97959+8.79008I$	0
$u=-0.014597-1.243110I$ $a=-0.80318-1.33274I$ $b=0.959566-0.810599I$	$7.97959-8.79008I$	0
$u=0.141849+1.249280I$ $a=-1.103230+0.039500I$ $b=1.352340-0.028688I$	$1.98199-0.92146I$	0
$u=0.141849-1.249280I$ $a=-1.103230-0.039500I$ $b=1.352340+0.028688I$	$1.98199+0.92146I$	0
$u=-0.653080+0.349813I$ $a=-0.306707-0.977063I$ $b=-0.697548-1.012470I$	$1.91773+3.55207I$	0
$u=-0.653080-0.349813I$ $a=-0.306707+0.977063I$ $b=-0.697548+1.012470I$	$1.91773-3.55207I$	0
$u=-0.019016+1.261740I$ $a=0.751852+1.066740I$ $b=-1.124570+0.761603I$	$9.92861-2.36642I$	0
$u=-0.019016-1.261740I$ $a=0.751852-1.066740I$ $b=-1.124570-0.761603I$	$9.92861+2.36642I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.707639+0.069066I$ $a=1.048460-0.912240I$ $b=0.544976-1.018770I$	$-5.75265-2.32928I$	$-7.06110+0.I$
$u=-0.707639-0.069066I$ $a=1.048460+0.912240I$ $b=0.544976+1.018770I$	$-5.75265+2.32928I$	$-7.06110+0.I$
$u=-0.329536+1.247580I$ $a=-0.390138+0.881909I$ $b=1.21962+1.27645I$	$-2.08160+6.15361I$	0
$u=-0.329536-1.247580I$ $a=-0.390138-0.881909I$ $b=1.21962-1.27645I$	$-2.08160-6.15361I$	0
$u=1.242020+0.355992I$ $a=0.591318-0.930230I$ $b=0.697845-0.861755I$	$2.76128-13.52910I$	0
$u=1.242020-0.355992I$ $a=0.591318+0.930230I$ $b=0.697845+0.861755I$	$2.76128+13.52910I$	0
$u=0.620441+0.339642I$ $a=-0.487855+1.037950I$ $b=-0.187055+0.767608I$	$-1.16016-1.33965I$	$0.+4.37094I$
$u=0.620441-0.339642I$ $a=-0.487855-1.037950I$ $b=-0.187055-0.767608I$	$-1.16016+1.33965I$	$0.-4.37094I$
$u=-0.395929+1.235260I$ $a=-1.043790+0.358024I$ $b=0.430408+0.345386I$	$6.26159+5.53325I$	0
$u=-0.395929-1.235260I$ $a=-1.043790-0.358024I$ $b=0.430408-0.345386I$	$6.26159-5.53325I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.299723+1.266030I$ $a=\ \ 0.313961-1.170680I$ $b=-0.991635-0.913823I$	$5.50999+3.17286I$	0
$u=-0.299723-1.266030I$ $a=\ \ 0.313961+1.170680I$ $b=-0.991635+0.913823I$	$5.50999-3.17286I$	0
$u=\ \ 0.360206+1.251930I$ $a=-0.402774-1.311800I$ $b=\ \ 0.891393-0.912140I$	$4.19605-8.46266I$	0
$u=\ \ 0.360206-1.251930I$ $a=-0.402774+1.311800I$ $b=\ \ 0.891393+0.912140I$	$4.19605+8.46266I$	0
$u=-0.096363+1.311080I$ $a=\ \ 0.112577+0.636063I$ $b=-1.53192+1.01243I$	$10.78600+4.00364I$	0
$u=-0.096363-1.311080I$ $a=\ \ 0.112577-0.636063I$ $b=-1.53192-1.01243I$	$10.78600-4.00364I$	0
$u=\ \ 0.120369+1.316730I$ $a=\ \ 0.009938+0.607473I$ $b=\ \ 1.56232+1.04618I$	$9.27217-10.26780I$	0
$u=\ \ 0.120369-1.316730I$ $a=\ \ 0.009938-0.607473I$ $b=\ \ 1.56232-1.04618I$	$9.27217+10.26780I$	0
$u=-0.475031+0.481180I$ $a=\ \ 0.08954+1.69963I$ $b=-0.062215+1.043550I$	$-2.16643-2.81238I$	$-3.01505+1.45077I$
$u=-0.475031-0.481180I$ $a=\ \ 0.08954-1.69963I$ $b=-0.062215-1.043550I$	$-2.16643+2.81238I$	$-3.01505-1.45077I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.446508 + 0.480371I$ $a = 0.58535 - 2.82648I$ $b = 0.068908 - 0.700380I$	$-0.909099 - 0.180096I$	$-7.02104 + 1.48725I$
$u = 0.446508 - 0.480371I$ $a = 0.58535 + 2.82648I$ $b = 0.068908 + 0.700380I$	$-0.909099 + 0.180096I$	$-7.02104 - 1.48725I$
$u = -0.448880 + 1.284280I$ $a = -0.223147 + 1.091730I$ $b = 1.30927 + 1.19959I$	$2.37424 + 13.57830I$	0
$u = -0.448880 - 1.284280I$ $a = -0.223147 - 1.091730I$ $b = 1.30927 - 1.19959I$	$2.37424 - 13.57830I$	0
$u = 0.418918 + 1.320840I$ $a = 0.189697 + 0.999987I$ $b = -1.25953 + 1.17196I$	$4.06395 - 8.01371I$	0
$u = 0.418918 - 1.320840I$ $a = 0.189697 - 0.999987I$ $b = -1.25953 - 1.17196I$	$4.06395 + 8.01371I$	0
$u = 0.187089 + 1.379670I$ $a = 0.175273 + 0.611190I$ $b = -1.02046 + 1.35278I$	$4.38987 - 3.93870I$	0
$u = 0.187089 - 1.379670I$ $a = 0.175273 - 0.611190I$ $b = -1.02046 - 1.35278I$	$4.38987 + 3.93870I$	0
$u = 0.542183 + 0.233446I$ $a = 0.326843 + 1.194970I$ $b = 0.418948 + 0.663812I$	$-1.58591 - 0.97043I$	$-3.82761 + 0.82785I$
$u = 0.542183 - 0.233446I$ $a = 0.326843 - 1.194970I$ $b = 0.418948 - 0.663812I$	$-1.58591 + 0.97043I$	$-3.82761 - 0.82785I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.113950+1.409110I$ $a=-0.129708-0.732051I$ $b=\ \ 0.684952-0.571355I$	$9.67053+2.96947I$	0
$u=-0.113950-1.409110I$ $a=-0.129708+0.732051I$ $b=\ \ 0.684952+0.571355I$	$9.67053-2.96947I$	0
$u=\ \ 0.04442+1.41384I$ $a=\ \ 0.029133-0.828842I$ $b=-0.807755-0.795601I$	$9.41264+2.80994I$	0
$u=\ \ 0.04442-1.41384I$ $a=\ \ 0.029133+0.828842I$ $b=-0.807755+0.795601I$	$9.41264-2.80994I$	0
$u=\ \ 0.020718+0.570454I$ $a=\ \ 0.30280-1.96398I$ $b=\ \ 0.172294+1.235970I$	$3.09116+2.32307I$	$16.3107-9.3430I$
$u=\ \ 0.020718-0.570454I$ $a=\ \ 0.30280+1.96398I$ $b=\ \ 0.172294-1.235970I$	$3.09116-2.32307I$	$16.3107+9.3430I$
$u=-0.188756+0.521521I$ $a=-0.77392-1.94014I$ $b=-0.686102+1.002950I$	$3.12603+2.39225I$	$9.06902+6.97086I$
$u=-0.188756-0.521521I$ $a=-0.77392+1.94014I$ $b=-0.686102-1.002950I$	$3.12603-2.39225I$	$9.06902-6.97086I$
$u=\ \ 0.554146+0.001366I$ $a=\ \ 1.40120+1.38461I$ $b=\ \ 0.813546+0.203203I$	$0.58990+4.81521I$	$2.24613-4.54598I$
$u=\ \ 0.554146-0.001366I$ $a=\ \ 1.40120-1.38461I$ $b=\ \ 0.813546-0.203203I$	$0.58990-4.81521I$	$2.24613+4.54598I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.26750+1.43200I$ $a=\ \ 0.427874-0.570118I$ $b=-1.45292-1.11592I$	$7.59293+6.96607I$	0
$u=-0.26750-1.43200I$ $a=\ \ 0.427874+0.570118I$ $b=-1.45292+1.11592I$	$7.59293-6.96607I$	0
$u=\ \ 0.41398+1.40485I$ $a=-0.470805-0.916175I$ $b=\ \ 1.16045-1.09565I$	$2.01977-11.60480I$	0
$u=\ \ 0.41398-1.40485I$ $a=-0.470805+0.916175I$ $b=\ \ 1.16045+1.09565I$	$2.01977+11.60480I$	0
$u=-0.52593+1.37345I$ $a=-0.477581+0.796148I$ $b=\ \ 0.712392+0.676730I$	$6.69236+5.85561I$	0
$u=-0.52593-1.37345I$ $a=-0.477581-0.796148I$ $b=\ \ 0.712392-0.676730I$	$6.69236-5.85561I$	0
$u=-0.09714+1.49933I$ $a=-0.071954-0.867007I$ $b=\ \ 0.049673-0.681225I$	$9.83192+3.09070I$	0
$u=-0.09714-1.49933I$ $a=-0.071954+0.867007I$ $b=\ \ 0.049673+0.681225I$	$9.83192-3.09070I$	0
$u=-0.470347+0.080046I$ $a=-1.65155-1.26100I$ $b=-0.757551-0.030920I$	$1.64170+0.05442I$	$5.97527+1.38963I$
$u=-0.470347-0.080046I$ $a=-1.65155+1.26100I$ $b=-0.757551+0.030920I$	$1.64170-0.05442I$	$5.97527-1.38963I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.49465 + 1.47050I$ $a = 0.059995 + 0.843739I$ $b = -1.073900 + 0.819905I$	$6.03289 - 6.64676I$	0
$u = 0.49465 - 1.47050I$ $a = 0.059995 - 0.843739I$ $b = -1.073900 - 0.819905I$	$6.03289 + 6.64676I$	0
$u = 0.432510 + 0.063513I$ $a = 0.11485 + 1.62720I$ $b = 0.883673 + 0.580622I$	$-1.58709 - 1.21163I$	$-6.61256 + 2.97902I$
$u = 0.432510 - 0.063513I$ $a = 0.11485 - 1.62720I$ $b = 0.883673 - 0.580622I$	$-1.58709 + 1.21163I$	$-6.61256 - 2.97902I$
$u = -0.45128 + 1.49782I$ $a = 0.085533 + 0.478688I$ $b = 1.208830 + 0.435841I$	$10.34880 + 4.82983I$	0
$u = -0.45128 - 1.49782I$ $a = 0.085533 - 0.478688I$ $b = 1.208830 - 0.435841I$	$10.34880 - 4.82983I$	0
$u = -0.45991 + 1.50482I$ $a = 0.241280 - 0.983791I$ $b = -1.17364 - 1.19814I$	$10.0833 + 13.2815I$	0
$u = -0.45991 - 1.50482I$ $a = 0.241280 + 0.983791I$ $b = -1.17364 + 1.19814I$	$10.0833 - 13.2815I$	0
$u = 0.47838 + 1.49979I$ $a = -0.138710 + 0.592243I$ $b = -1.271910 + 0.531645I$	$9.9440 - 10.1934I$	0
$u = 0.47838 - 1.49979I$ $a = -0.138710 - 0.592243I$ $b = -1.271910 - 0.531645I$	$9.9440 + 10.1934I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.49218 + 1.49924I$ $a = -0.242029 - 1.053330I$ $b = 1.15827 - 1.21100I$	$8.5267 - 19.5613I$	0
$u = 0.49218 - 1.49924I$ $a = -0.242029 + 1.053330I$ $b = 1.15827 + 1.21100I$	$8.5267 + 19.5613I$	0
$u = -1.57603 + 0.08027I$ $a = 0.304884 - 0.492135I$ $b = 0.398436 - 0.338581I$	$4.33355 - 1.53454I$	0
$u = -1.57603 - 0.08027I$ $a = 0.304884 + 0.492135I$ $b = 0.398436 + 0.338581I$	$4.33355 + 1.53454I$	0
$u = -0.03752 + 1.58102I$ $a = 0.065601 + 0.381998I$ $b = 0.325751 + 0.605320I$	$3.79404 - 2.92444I$	0
$u = -0.03752 - 1.58102I$ $a = 0.065601 - 0.381998I$ $b = 0.325751 - 0.605320I$	$3.79404 + 2.92444I$	0
$u = -0.60722 + 1.48945I$ $a = -0.219673 + 1.106620I$ $b = 0.820425 + 0.979066I$	$9.07956 + 8.72345I$	0
$u = -0.60722 - 1.48945I$ $a = -0.219673 - 1.106620I$ $b = 0.820425 - 0.979066I$	$9.07956 - 8.72345I$	0
$u = 0.57774 + 1.52044I$ $a = 0.132585 + 1.074160I$ $b = -0.892428 + 0.986481I$	$9.10013 - 3.61859I$	0
$u = 0.57774 - 1.52044I$ $a = 0.132585 - 1.074160I$ $b = -0.892428 - 0.986481I$	$9.10013 + 3.61859I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.68138 + 0.13540I$ $a = -0.390625 - 0.331214I$ $b = -0.432528 - 0.212299I$	$4.02922 - 3.69499I$	0
$u = 1.68138 - 0.13540I$ $a = -0.390625 + 0.331214I$ $b = -0.432528 + 0.212299I$	$4.02922 + 3.69499I$	0
$u = -0.103201 + 0.267919I$ $a = 0.862791 - 0.147655I$ $b = 0.33344 - 1.57915I$	$-1.20642 + 3.24458I$	$-8.2723 - 20.7502I$
$u = -0.103201 - 0.267919I$ $a = 0.862791 + 0.147655I$ $b = 0.33344 + 1.57915I$	$-1.20642 - 3.24458I$	$-8.2723 + 20.7502I$
$u = -0.285406$ $a = -3.03677$ $b = -0.492714$	1.12272	11.1750
$u = 0.154924 + 0.158169I$ $a = -0.70155 + 5.64423I$ $b = 0.985387 + 0.089326I$	$4.60181 - 9.00523I$	$5.96633 + 6.29175I$
$u = 0.154924 - 0.158169I$ $a = -0.70155 - 5.64423I$ $b = 0.985387 - 0.089326I$	$4.60181 + 9.00523I$	$5.96633 - 6.29175I$
$u = -0.172847 + 0.101959I$ $a = 2.55233 + 4.57931I$ $b = -1.063350 + 0.110520I$	$6.29043 + 2.89211I$	$9.29484 - 3.33568I$
$u = -0.172847 - 0.101959I$ $a = 2.55233 - 4.57931I$ $b = -1.063350 - 0.110520I$	$6.29043 - 2.89211I$	$9.29484 + 3.33568I$
$u = 0.06647 + 1.86571I$ $a = 0.045489 - 0.299436I$ $b = 0.207167 - 0.910907I$	$6.41462 + 3.31930I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.06647 - 1.86571I$ $a = 0.045489 + 0.299436I$ $b = 0.207167 + 0.910907I$	$6.41462 - 3.31930I$	0
$u = 0.54569 + 1.80298I$ $a = 0.1058470 - 0.0004980I$ $b = 0.346493 + 0.019407I$	$0.204133 + 0.345609I$	0
$u = 0.54569 - 1.80298I$ $a = 0.1058470 + 0.0004980I$ $b = 0.346493 - 0.019407I$	$0.204133 - 0.345609I$	0
$u = 0.37057 + 1.87912I$ $a = -0.053079 + 0.309370I$ $b = -0.090046 + 0.323901I$	$3.85824 - 2.87616I$	0
$u = 0.37057 - 1.87912I$ $a = -0.053079 - 0.309370I$ $b = -0.090046 - 0.323901I$	$3.85824 + 2.87616I$	0
$u = 2.37630$ $a = -0.147560$ $b = -0.179765$	0.265457	0

II. $\boldsymbol{I_2^u = \langle 3.13\times 10^6 u^{18} - 1.10\times 10^6 u^{17} + \cdots + 3.31\times 10^6 b - 3.53\times 10^6,\ 4.21\times 10^6 u^{18} - 9.24\times 10^6 u^{17} + \cdots + 3.31\times 10^6 a + 6.32\times 10^6,\ u^{19} - u^{18} + \cdots - 11u^2 - 1\rangle}$

(i) Arc colorings

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

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

$$a_1 = \begin{pmatrix} -1.27286u^{18} + 2.79233u^{17} + \cdots + 4.29462u - 1.91108 \\ -0.945248u^{18} + 0.332949u^{17} + \cdots + 6.33620u + 1.06589 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 1.78390u^{18} - 3.89595u^{17} + \cdots - 3.55434u + 5.85116 \\ 0.272855u^{18} - 1.79233u^{17} + \cdots - 1.29462u + 1.91108 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 4.59659u^{18} - 2.45413u^{17} + \cdots - 11.4683u - 3.09754 \\ -1.19512u^{18} + 3.53428u^{17} + \cdots + 0.332158u - 1.39731 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 4.33044u^{18} - 2.54928u^{17} + \cdots - 15.2205u - 3.03308 \\ 1.11517u^{18} + 0.702346u^{17} + \cdots + 3.75157u - 1.21611 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -0.327607u^{18} + 2.45938u^{17} + \cdots - 2.04158u - 2.97697 \\ -0.945248u^{18} + 0.332949u^{17} + \cdots + 6.33620u + 1.06589 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2.16422u^{18} + 0.900143u^{17} + \cdots + 3.03373u + 1.36677 \\ -0.339438u^{18} + 0.0707176u^{17} + \cdots + 1.38102u + 3.43889 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.638042u^{18} + 1.85344u^{17} + \cdots - 1.31443u - 1.45750 \\ -0.657270u^{18} - 0.380493u^{17} + \cdots + 6.75291u + 1.66899 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.343425u^{18} - 0.352256u^{17} + \cdots + 2.84501u - 0.982824 \\ 2.26422u^{18} - 0.278842u^{17} + \cdots - 5.85220u - 3.65684 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{113731721}{3308497}u^{18} - \frac{122304285}{3308497}u^{17} + \cdots - \frac{167222314}{3308497}u + \frac{63097751}{3308497}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} - 9u^{18} + \cdots + 5u - 1$
c_2	$u^{19} + u^{18} + \cdots + u - 1$
c_3	$u^{19} + 3u^{18} + \cdots - 7u - 1$
c_4	$u^{19} - u^{18} + \cdots - 11u^2 - 1$
c_5	$u^{19} - 2u^{18} + \cdots - u + 1$
c_6	$u^{19} - u^{18} + \cdots + u + 1$
c_7	$u^{19} - 9u^{17} + \cdots + 3u + 1$
c_8	$u^{19} + u^{18} + \cdots + 11u^2 + 1$
c_9	$u^{19} - 4u^{18} + \cdots + 3u + 1$
c_{10}	$u^{19} + 2u^{18} + \cdots - 4u + 1$
c_{11}	$u^{19} - 9u^{17} + \cdots + 3u - 1$
c_{12}	$u^{19} - 4u^{18} + \cdots + 26u + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19}+3y^{18}+\cdots-7y-1$
c_2, c_6	$y^{19}-9y^{18}+\cdots+5y-1$
c_3	$y^{19}+5y^{18}+\cdots-y-1$
c_4, c_8	$y^{19}+17y^{18}+\cdots-22y-1$
c_5	$y^{19}-8y^{18}+\cdots+3y-1$
c_7, c_{11}	$y^{19}-18y^{18}+\cdots-39y-1$
c_9	$y^{19}-6y^{18}+\cdots+13y-1$
c_{10}	$y^{19}-6y^{18}+\cdots+12y-1$
c_{12}	$y^{19}-2y^{18}+\cdots+502y-9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.209559+0.919561I$ $a=-0.320802-0.929595I$ $b=-2.08658+1.36801I$	$3.12378-2.11694I$	$57.0161+27.7352I$
$u=-0.209559-0.919561I$ $a=-0.320802+0.929595I$ $b=-2.08658-1.36801I$	$3.12378+2.11694I$	$57.0161-27.7352I$
$u=\ \ 0.080519+1.201710I$ $a=\ \ 1.014420-0.537793I$ $b=-1.181480-0.601693I$	$1.85150-1.54249I$	$1.31428+3.08095I$
$u=\ \ 0.080519-1.201710I$ $a=\ \ 1.014420+0.537793I$ $b=-1.181480+0.601693I$	$1.85150+1.54249I$	$1.31428-3.08095I$
$u=\ \ 0.457848+1.145640I$ $a=\ \ 0.67044+1.28336I$ $b=-0.908367+0.507401I$	$5.46703-11.02550I$	$7.17011+10.31199I$
$u=\ \ 0.457848-1.145640I$ $a=\ \ 0.67044-1.28336I$ $b=-0.908367-0.507401I$	$5.46703+11.02550I$	$7.17011-10.31199I$
$u=-0.406841+0.496089I$ $a=-0.973347-0.198277I$ $b=\ \ 0.008411+0.993515I$	$1.43371+1.41487I$	$0.12878-4.93178I$
$u=-0.406841-0.496089I$ $a=-0.973347+0.198277I$ $b=\ \ 0.008411-0.993515I$	$1.43371-1.41487I$	$0.12878+4.93178I$
$u=\ \ 0.054364+0.611975I$ $a=\ \ 0.36972+2.57617I$ $b=-0.121498+1.013670I$	$-3.80331-1.24964I$	$-9.17184-3.81648I$
$u=\ \ 0.054364-0.611975I$ $a=\ \ 0.36972-2.57617I$ $b=-0.121498-1.013670I$	$-3.80331+1.24964I$	$-9.17184+3.81648I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.38771$ $a = 0.400151$ $b = 0.133551$	0.193725	-12.5530
$u = -0.53503 + 1.34304I$ $a = -0.310997 + 0.953953I$ $b = 0.908177 + 0.662487I$	$7.58058 + 6.03645I$	$10.36733 - 4.64724I$
$u = -0.53503 - 1.34304I$ $a = -0.310997 - 0.953953I$ $b = 0.908177 - 0.662487I$	$7.58058 - 6.03645I$	$10.36733 + 4.64724I$
$u = -0.37531 + 1.44384I$ $a = -0.353748 + 0.662766I$ $b = 1.071250 + 0.856488I$	$7.81625 + 6.23436I$	$9.05553 - 3.81843I$
$u = -0.37531 - 1.44384I$ $a = -0.353748 - 0.662766I$ $b = 1.071250 - 0.856488I$	$7.81625 - 6.23436I$	$9.05553 + 3.81843I$
$u = 0.099924 + 0.408537I$ $a = 0.550806 + 1.158770I$ $b = -0.25181 + 1.44431I$	$-1.06564 + 3.01949I$	$8.76905 + 4.80187I$
$u = 0.099924 - 0.408537I$ $a = 0.550806 - 1.158770I$ $b = -0.25181 - 1.44431I$	$-1.06564 - 3.01949I$	$8.76905 - 4.80187I$
$u = 0.64023 + 1.56852I$ $a = 0.153442 - 0.355010I$ $b = 0.495130 - 0.339869I$	$3.81818 - 3.04500I$	$8.6274 + 18.2900I$
$u = 0.64023 - 1.56852I$ $a = 0.153442 + 0.355010I$ $b = 0.495130 + 0.339869I$	$3.81818 + 3.04500I$	$8.6274 - 18.2900I$

III. $I_3^u = \langle b,\ a+u,\ u^2-u+1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u-1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u+1 \\ u-1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2u+1 \\ u-1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u-1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u+1 \\ u-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u-1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$		
$a = -0.500000 - 0.866025I$	0	3.00000
$b = 0$		
$u = 0.500000 - 0.866025I$		
$a = -0.500000 + 0.866025I$	0	3.00000
$b = 0$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u^{19}-9u^{18}+\cdots+5u-1)(u^{136}+52u^{135}+\cdots+9209u+529)$
c_2	$((u-1)^2)(u^{19}+u^{18}+\cdots+u-1)(u^{136}-2u^{135}+\cdots-89u-23)$
c_3	$(u^2-u+1)(u^{19}+3u^{18}+\cdots-7u-1)(u^{136}+7u^{135}+\cdots-20u-1)$
c_4	$(u^2-u+1)(u^{19}-u^{18}+\cdots-11u^2-1)(u^{136}+5u^{135}+\cdots+1764u-392)$
c_5	$((u+1)^2)(u^{19}-2u^{18}+\cdots-u+1)(u^{136}-3u^{135}+\cdots-10733u+829)$
c_6	$((u+1)^2)(u^{19}-u^{18}+\cdots+u+1)(u^{136}-2u^{135}+\cdots-89u-23)$
c_7	$((u+1)^2)(u^{19}-9u^{17}+\cdots+3u+1)(u^{136}-3u^{135}+\cdots-5775u+244)$
c_8	$(u^2+u+1)(u^{19}+u^{18}+\cdots+11u^2+1)(u^{136}+5u^{135}+\cdots+1764u-392)$
c_9	$(u^2+u+1)(u^{19}-4u^{18}+\cdots+3u+1)$ $\cdot(u^{136}-4u^{135}+\cdots-59182u-17287)$
c_{10}	$(u^2+u+1)(u^{19}+2u^{18}+\cdots-4u+1)$ $\cdot(u^{136}+4u^{135}+\cdots+113947u-42193)$
c_{11}	$((u-1)^2)(u^{19}-9u^{17}+\cdots+3u-1)(u^{136}-3u^{135}+\cdots-5775u+244)$
c_{12}	$u^2(u^{19}-4u^{18}+\cdots+26u+3)(u^{136}+15u^{135}+\cdots-36u+8)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^2)(y^{19}+3y^{18}+\cdots-7y-1)$ $\cdot(y^{136}+68y^{135}+\cdots+1258572891y+279841)$
c_2, c_6	$((y-1)^2)(y^{19}-9y^{18}+\cdots+5y-1)(y^{136}-52y^{135}+\cdots-9209y+529)$
c_3	$(y^2+y+1)(y^{19}+5y^{18}+\cdots-y-1)(y^{136}+5y^{135}+\cdots-32y+1)$
c_4, c_8	$(y^2+y+1)(y^{19}+17y^{18}+\cdots-22y-1)$ $\cdot(y^{136}+109y^{135}+\cdots-1223824y+153664)$
c_5	$((y-1)^2)(y^{19}-8y^{18}+\cdots+3y-1)$ $\cdot(y^{136}-47y^{135}+\cdots-19505819y+687241)$
c_7, c_{11}	$((y-1)^2)(y^{19}-18y^{18}+\cdots-39y-1)$ $\cdot(y^{136}-113y^{135}+\cdots-9614305y+59536)$
c_9	$(y^2+y+1)(y^{19}-6y^{18}+\cdots+13y-1)$ $\cdot(y^{136}-42y^{135}+\cdots+9263767506y+298840369)$
c_{10}	$(y^2+y+1)(y^{19}-6y^{18}+\cdots+12y-1)$ $\cdot(y^{136}-30y^{135}+\cdots-52468465753y+1780249249)$
c_{12}	$y^2(y^{19}-2y^{18}+\cdots+502y-9)(y^{136}-11y^{135}+\cdots-1776y+64)$