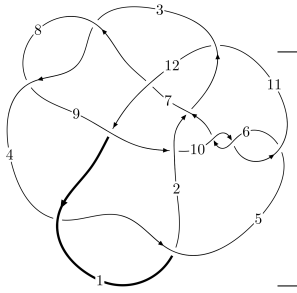
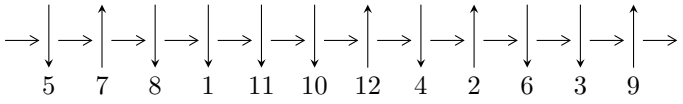
$12a_{1257}$ $(K12a_{1257})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & 5.69717 \times 10^{443} u^{121} - 1.08046 \times 10^{443} u^{120} + \cdots + 1.39254 \times 10^{445} b + 1.13421 \times 10^{446}, \\ & - 1.11587 \times 10^{444} u^{121} + 9.38471 \times 10^{444} u^{120} + \cdots + 5.98792 \times 10^{446} a + 3.66043 \times 10^{447}, \\ & u^{122} - u^{121} + \cdots + 840u - 344 \rangle \\ I_2^u = \langle & 24839975132 u^{20} + 42789429212 u^{19} + \cdots + 64008861027 b - 50213545124, \\ & 44188587683 u^{20} + 143099664266 u^{19} + \cdots + 64008861027 a - 168032991365, \\ & u^{21} - 7u^{19} + \cdots - 5u^2 + 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 143 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $\boldsymbol{I_1^u = \langle 5.70 \times 10^{443} u^{121} - 1.08 \times 10^{443} u^{120} + \cdots + 1.39 \times 10^{445} b + 1.13 \times 10^{446},\ -1.12 \times 10^{444} u^{121} + 9.38 \times 10^{444} u^{120} + \cdots + 5.99 \times 10^{446} a + 3.66 \times 10^{447},\ u^{122} - u^{121} + \cdots + 840u - 344 \rangle}$

(i) Arc colorings

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

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.00186353u^{121} - 0.0156727u^{120} + \cdots + 8.69189u - 6.11302 \\ -0.0409121u^{121} + 0.00775889u^{120} + \cdots + 10.8209u - 8.14493 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0424622u^{121} + 0.0182287u^{120} + \cdots + 7.27198u - 9.50758 \\ -0.0988281u^{121} + 0.0548574u^{120} + \cdots + 4.32925u - 11.7309 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0333642u^{121} + 0.00722217u^{120} + \cdots + 9.88193u - 10.3188 \\ -0.0518144u^{121} - 0.0133058u^{120} + \cdots + 31.5122u - 17.0446 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0249558u^{121} + 0.0248564u^{120} + \cdots - 22.7064u + 12.6805 \\ 0.0259868u^{121} + 0.0332605u^{120} + \cdots - 28.4800u + 14.2995 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0790093u^{121} - 0.0280193u^{120} + \cdots + 9.57936u + 9.70489 \\ 0.104578u^{121} - 0.0400487u^{120} + \cdots - 11.8432u + 17.6024 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0567863u^{121} - 0.0247468u^{120} + \cdots + 25.8798u - 21.9604 \\ -0.0657310u^{121} - 0.0362288u^{120} + \cdots + 51.9703u - 29.6219 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0178133u^{121} + 0.0149639u^{120} + \cdots + 3.63656u - 4.43187 \\ -0.00460256u^{121} + 0.0149540u^{120} + \cdots - 4.51681u + 3.76614 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0565800u^{121} + 0.0189299u^{120} + \cdots + 10.2260u - 12.7674 \\ -0.0993556u^{121} + 0.0423615u^{120} + \cdots + 12.3550u - 14.7993 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0488883u^{121} + 0.0908826u^{120} + \cdots - 102.646u + 42.5994$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$3(3u^{122} + 10u^{121} + \cdots + 187864u + 5572)$
c_2	$3(3u^{122} - 4u^{121} + \cdots - 1118665u - 446825)$
c_3, c_8	$u^{122} - u^{121} + \cdots + 840u - 344$
c_5, c_6, c_{10}	$u^{122} + u^{121} + \cdots + 8u - 11$
c_7	$3(3u^{122} - 7u^{121} + \cdots - 2u + 1)$
c_9	$u^{122} - 2u^{121} + \cdots + 950272u - 49152$
c_{11}	$u^{122} + 4u^{121} + \cdots + 111658u - 20519$
c_{12}	$u^{122} - 3u^{121} + \cdots + 51487u - 8787$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$9(9y^{122} - 898y^{121} + \cdots - 7.94711 \times 10^9 y + 3.10472 \times 10^7)$
c_2	$9(9y^{122} - 388y^{121} + \cdots - 2.27562 \times 10^{12} y + 1.99653 \times 10^{11})$
c_3, c_8	$y^{122} - 91y^{121} + \cdots - 740000y + 118336$
c_5, c_6, c_{10}	$y^{122} + 115y^{121} + \cdots - 8600y + 121$
c_7	$9(9y^{122} + 5y^{121} + \cdots - 20y + 1)$
c_9	$y^{122} - 22y^{121} + \cdots - 561164320768y + 2415919104$
c_{11}	$y^{122} - 14y^{121} + \cdots - 28711211162y + 421029361$
c_{12}	$y^{122} + 53y^{121} + \cdots + 2230478219y + 77211369$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.604012 + 0.787190I$ $a = 1.151760 - 0.060842I$ $b = -0.862030 + 0.023194I$	$4.52117 + 4.07559I$	0
$u = 0.604012 - 0.787190I$ $a = 1.151760 + 0.060842I$ $b = -0.862030 - 0.023194I$	$4.52117 - 4.07559I$	0
$u = 1.000660 + 0.207886I$ $a = -0.436527 + 1.299170I$ $b = -0.235979 + 0.305966I$	$0.36555 - 2.39525I$	0
$u = 1.000660 - 0.207886I$ $a = -0.436527 - 1.299170I$ $b = -0.235979 - 0.305966I$	$0.36555 + 2.39525I$	0
$u = 0.976833 + 0.387500I$ $a = -0.62050 - 1.97893I$ $b = 0.354146 - 0.011955I$	$3.34528 - 8.66044I$	0
$u = 0.976833 - 0.387500I$ $a = -0.62050 + 1.97893I$ $b = 0.354146 + 0.011955I$	$3.34528 + 8.66044I$	0
$u = -0.240514 + 0.903459I$ $a = -0.106658 + 0.239405I$ $b = 0.937678 + 0.678854I$	$0.12332 + 4.01287I$	0
$u = -0.240514 - 0.903459I$ $a = -0.106658 - 0.239405I$ $b = 0.937678 - 0.678854I$	$0.12332 - 4.01287I$	0
$u = -0.136181 + 0.916927I$ $a = 0.155274 + 0.361001I$ $b = 0.930982 - 0.743513I$	$8.57001 - 7.32077I$	0
$u = -0.136181 - 0.916927I$ $a = 0.155274 - 0.361001I$ $b = 0.930982 + 0.743513I$	$8.57001 + 7.32077I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.966501+0.499176I$ $a=-0.666110+0.332942I$ $b=-0.423485+0.385406I$	$-1.79362+0.74361I$	0
$u=-0.966501-0.499176I$ $a=-0.666110-0.332942I$ $b=-0.423485-0.385406I$	$-1.79362-0.74361I$	0
$u=-0.867098+0.253936I$ $a=\ \ 0.61988+1.94729I$ $b=\ \ 0.457387+0.092056I$	$7.08067+3.95400I$	0
$u=-0.867098-0.253936I$ $a=\ \ 0.61988-1.94729I$ $b=\ \ 0.457387-0.092056I$	$7.08067-3.95400I$	0
$u=-0.088634+0.886156I$ $a=\ \ 0.293338+0.175849I$ $b=-0.952380+0.636078I$	$7.63214-1.85396I$	0
$u=-0.088634-0.886156I$ $a=\ \ 0.293338-0.175849I$ $b=-0.952380-0.636078I$	$7.63214+1.85396I$	0
$u=\ \ 1.084380+0.239590I$ $a=\ \ 1.03058+1.77666I$ $b=\ \ 0.55960+2.00322I$	$2.71157+0.31538I$	0
$u=\ \ 1.084380-0.239590I$ $a=\ \ 1.03058-1.77666I$ $b=\ \ 0.55960-2.00322I$	$2.71157-0.31538I$	0
$u=\ \ 1.122500+0.217741I$ $a=\ \ 0.70445-1.89025I$ $b=\ \ 1.32380-1.19693I$	$5.88182-0.15056I$	0
$u=\ \ 1.122500-0.217741I$ $a=\ \ 0.70445+1.89025I$ $b=\ \ 1.32380+1.19693I$	$5.88182+0.15056I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.146260 + 0.042855I$ $a = -0.582703 + 0.076661I$ $b = -1.88629 - 0.09036I$	$0.189968 - 1.251570I$	0
$u = 1.146260 - 0.042855I$ $a = -0.582703 - 0.076661I$ $b = -1.88629 + 0.09036I$	$0.189968 + 1.251570I$	0
$u = 0.290670 + 1.111480I$ $a = 0.087173 + 0.145864I$ $b = -0.903371 + 0.688115I$	$-1.01392 - 8.75038I$	0
$u = 0.290670 - 1.111480I$ $a = 0.087173 - 0.145864I$ $b = -0.903371 - 0.688115I$	$-1.01392 + 8.75038I$	0
$u = -1.14892$ $a = 0.659162$ $b = 1.89148$	-4.37114	0
$u = -1.138110 + 0.195030I$ $a = -0.15246 + 1.76125I$ $b = 0.61079 + 1.57952I$	$-3.14459 + 1.16883I$	0
$u = -1.138110 - 0.195030I$ $a = -0.15246 - 1.76125I$ $b = 0.61079 - 1.57952I$	$-3.14459 - 1.16883I$	0
$u = 0.007461 + 0.835751I$ $a = -0.073744 + 0.397542I$ $b = -0.890083 - 0.595912I$	$2.55112 + 4.21322I$	0
$u = 0.007461 - 0.835751I$ $a = -0.073744 - 0.397542I$ $b = -0.890083 + 0.595912I$	$2.55112 - 4.21322I$	0
$u = 1.179670 + 0.033463I$ $a = -0.97750 - 1.76730I$ $b = 0.740671 - 0.709642I$	$0.69055 - 7.86145I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.179670 - 0.033463I$ $a = -0.97750 + 1.76730I$ $b = 0.740671 + 0.709642I$	$0.69055 + 7.86145I$	0
$u = -1.187310 + 0.055707I$ $a = 0.57715 + 2.43247I$ $b = -0.392933 + 0.907576I$	$-5.78046 - 2.67801I$	0
$u = -1.187310 - 0.055707I$ $a = 0.57715 - 2.43247I$ $b = -0.392933 - 0.907576I$	$-5.78046 + 2.67801I$	0
$u = -1.171740 + 0.243574I$ $a = -0.48719 - 1.83317I$ $b = -0.100075 - 0.249733I$	$-4.23137 + 5.27335I$	0
$u = -1.171740 - 0.243574I$ $a = -0.48719 + 1.83317I$ $b = -0.100075 + 0.249733I$	$-4.23137 - 5.27335I$	0
$u = 1.208310 + 0.188282I$ $a = 0.08160 + 2.47331I$ $b = -0.241048 + 1.103970I$	$-4.88247 - 3.91427I$	0
$u = 1.208310 - 0.188282I$ $a = 0.08160 - 2.47331I$ $b = -0.241048 - 1.103970I$	$-4.88247 + 3.91427I$	0
$u = -0.687999 + 0.359730I$ $a = 0.848366 - 0.061263I$ $b = -1.153990 + 0.002434I$	$7.72907 - 1.13566I$	0
$u = -0.687999 - 0.359730I$ $a = 0.848366 + 0.061263I$ $b = -1.153990 - 0.002434I$	$7.72907 + 1.13566I$	0
$u = -0.303172 + 0.711246I$ $a = -1.059850 - 0.757480I$ $b = 0.725735 - 0.022937I$	$-1.45418 - 1.75021I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.303172-0.711246I$ $a=-1.059850+0.757480I$ $b=\ \ 0.725735+0.022937I$	$-1.45418+1.75021I$	0
$u=\ \ 1.194850+0.297888I$ $a=\ \ 0.26968+1.47503I$ $b=-0.762477+0.986963I$	$-3.44043-4.18263I$	0
$u=\ \ 1.194850-0.297888I$ $a=\ \ 0.26968-1.47503I$ $b=-0.762477-0.986963I$	$-3.44043+4.18263I$	0
$u=-1.174990+0.399163I$ $a=-0.64210+1.40000I$ $b=\ \ 0.835123+0.753703I$	$2.92338+6.99742I$	0
$u=-1.174990-0.399163I$ $a=-0.64210-1.40000I$ $b=\ \ 0.835123-0.753703I$	$2.92338-6.99742I$	0
$u=-1.241760+0.061173I$ $a=-0.76484+1.83008I$ $b=-1.07189+1.57808I$	$-5.21797-0.40787I$	0
$u=-1.241760-0.061173I$ $a=-0.76484-1.83008I$ $b=-1.07189-1.57808I$	$-5.21797+0.40787I$	0
$u=\ \ 1.25518$ $a=\ \ 1.40422$ $b=-0.230257$	-6.77287	0
$u=-0.236158+1.234460I$ $a=-0.100891+0.105992I$ $b=\ \ 0.890900+0.723943I$	$4.87949+12.70870I$	0
$u=-0.236158-1.234460I$ $a=-0.100891-0.105992I$ $b=\ \ 0.890900-0.723943I$	$4.87949-12.70870I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.246630+0.255267I$ $a=\ \ 0.172527-0.247100I$ $b=\ \ 1.051920-0.043007I$	$-3.43189+3.95846I$	0
$u=-1.246630-0.255267I$ $a=\ \ 0.172527+0.247100I$ $b=\ \ 1.051920+0.043007I$	$-3.43189-3.95846I$	0
$u=\ \ 1.273820+0.112467I$ $a=\ \ 0.57249+1.66884I$ $b=\ \ 1.00345+1.58304I$	$-7.11559-5.13445I$	0
$u=\ \ 1.273820-0.112467I$ $a=\ \ 0.57249-1.66884I$ $b=\ \ 1.00345-1.58304I$	$-7.11559+5.13445I$	0
$u=-1.255070+0.273667I$ $a=-0.53404-1.58140I$ $b=-1.29853-1.19048I$	$-1.26423+3.63180I$	0
$u=-1.255070-0.273667I$ $a=-0.53404+1.58140I$ $b=-1.29853+1.19048I$	$-1.26423-3.63180I$	0
$u=-1.275990+0.166531I$ $a=\ \ 0.119660-0.202339I$ $b=-0.290527-0.199626I$	$-1.78102+0.04002I$	0
$u=-1.275990-0.166531I$ $a=\ \ 0.119660+0.202339I$ $b=-0.290527+0.199626I$	$-1.78102-0.04002I$	0
$u=-1.294610+0.150957I$ $a=-0.56206+1.51842I$ $b=-1.03035+1.61105I$	$-1.27716+9.56420I$	0
$u=-1.294610-0.150957I$ $a=-0.56206-1.51842I$ $b=-1.03035-1.61105I$	$-1.27716-9.56420I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.230320+0.437781I$ $a=-0.13075-1.65724I$ $b=-1.25919-1.31101I$	$5.14389+12.14870I$	0
$u=-1.230320-0.437781I$ $a=-0.13075+1.65724I$ $b=-1.25919+1.31101I$	$5.14389-12.14870I$	0
$u=1.312370+0.071022I$ $a=-0.133076-0.649670I$ $b=-1.031410-0.530995I$	$-7.22586-0.26019I$	0
$u=1.312370-0.071022I$ $a=-0.133076+0.649670I$ $b=-1.031410+0.530995I$	$-7.22586+0.26019I$	0
$u=-1.245050+0.427250I$ $a=-0.07700+1.74458I$ $b=0.934702+0.941172I$	$4.03093+6.55649I$	0
$u=-1.245050-0.427250I$ $a=-0.07700-1.74458I$ $b=0.934702-0.941172I$	$4.03093-6.55649I$	0
$u=0.103787+1.318050I$ $a=0.265587-0.229174I$ $b=-0.550013-0.296741I$	$0.549767+1.184870I$	0
$u=0.103787-1.318050I$ $a=0.265587+0.229174I$ $b=-0.550013+0.296741I$	$0.549767-1.184870I$	0
$u=1.268610+0.377816I$ $a=0.27334-1.56476I$ $b=1.24182-1.24543I$	$-1.37091-8.56529I$	0
$u=1.268610-0.377816I$ $a=0.27334+1.56476I$ $b=1.24182+1.24543I$	$-1.37091+8.56529I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.645612 + 0.061796I$ $a = 2.74885 + 0.68647I$ $b = 1.180570 + 0.241608I$	$2.01963 - 1.05555I$	$-12.10339 + 2.04316I$
$u = 0.645612 - 0.061796I$ $a = 2.74885 - 0.68647I$ $b = 1.180570 - 0.241608I$	$2.01963 + 1.05555I$	$-12.10339 - 2.04316I$
$u = -1.352450 + 0.066592I$ $a = 0.087455 + 0.980535I$ $b = 1.049130 + 0.936651I$	$-3.39022 + 2.98405I$	0
$u = -1.352450 - 0.066592I$ $a = 0.087455 - 0.980535I$ $b = 1.049130 - 0.936651I$	$-3.39022 - 2.98405I$	0
$u = -0.110309 + 0.572008I$ $a = 1.229000 - 0.416576I$ $b = -0.347171 + 0.793115I$	$5.91854 - 3.13751I$	$0.76663 + 1.77568I$
$u = -0.110309 - 0.572008I$ $a = 1.229000 + 0.416576I$ $b = -0.347171 - 0.793115I$	$5.91854 + 3.13751I$	$0.76663 - 1.77568I$
$u = 0.068199 + 0.544487I$ $a = -0.103221 + 0.664665I$ $b = 1.034830 - 0.343908I$	$2.70887 - 0.48608I$	$3.14941 - 1.48071I$
$u = 0.068199 - 0.544487I$ $a = -0.103221 - 0.664665I$ $b = 1.034830 + 0.343908I$	$2.70887 + 0.48608I$	$3.14941 + 1.48071I$
$u = 1.40814 + 0.41089I$ $a = -0.18904 + 1.63083I$ $b = -1.09729 + 1.16633I$	$-5.04061 - 8.77658I$	0
$u = 1.40814 - 0.41089I$ $a = -0.18904 - 1.63083I$ $b = -1.09729 - 1.16633I$	$-5.04061 + 8.77658I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.285251 + 0.447657I$ $a = -0.469896 + 0.646478I$ $b = -1.316700 - 0.502443I$	$8.41814 - 2.55121I$	$4.33699 + 5.44008I$
$u = 0.285251 - 0.447657I$ $a = -0.469896 - 0.646478I$ $b = -1.316700 + 0.502443I$	$8.41814 + 2.55121I$	$4.33699 - 5.44008I$
$u = 0.351099 + 0.371932I$ $a = 2.26061 - 0.65659I$ $b = 0.452952 + 0.854468I$	$1.94986 - 1.37190I$	$-3.76005 - 3.82007I$
$u = 0.351099 - 0.371932I$ $a = 2.26061 + 0.65659I$ $b = 0.452952 - 0.854468I$	$1.94986 + 1.37190I$	$-3.76005 + 3.82007I$
$u = -1.43663 + 0.39328I$ $a = -0.018429 - 1.154060I$ $b = -0.290989 - 0.943659I$	$-5.43258 + 4.56786I$	0
$u = -1.43663 - 0.39328I$ $a = -0.018429 + 1.154060I$ $b = -0.290989 + 0.943659I$	$-5.43258 - 4.56786I$	0
$u = 1.09205 + 1.01974I$ $a = -0.0585516 + 0.0289578I$ $b = 0.309304 - 0.236222I$	$2.12157 - 3.07632I$	0
$u = 1.09205 - 1.01974I$ $a = -0.0585516 - 0.0289578I$ $b = 0.309304 + 0.236222I$	$2.12157 + 3.07632I$	0
$u = -1.45256 + 0.46650I$ $a = 0.15761 + 1.49423I$ $b = 1.17247 + 1.14441I$	$-6.4453 + 14.3034I$	0
$u = -1.45256 - 0.46650I$ $a = 0.15761 - 1.49423I$ $b = 1.17247 - 1.14441I$	$-6.4453 - 14.3034I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.460293$ $a = -1.25249$ $b = \quad 1.12792$	2.71449	20.9140
$u = \quad 1.46911 + 0.47244I$ $a = -0.044461 - 1.145230I$ $b = \quad 0.573742 - 1.119100I$	$-8.49065 - 7.01308I$	0
$u = \quad 1.46911 - 0.47244I$ $a = -0.044461 + 1.145230I$ $b = \quad 0.573742 + 1.119100I$	$-8.49065 + 7.01308I$	0
$u = \quad 1.46222 + 0.51383I$ $a = -0.09764 + 1.43786I$ $b = -1.21014 + 1.12528I$	$-0.4189 - 18.7740I$	0
$u = \quad 1.46222 - 0.51383I$ $a = -0.09764 - 1.43786I$ $b = -1.21014 - 1.12528I$	$-0.4189 + 18.7740I$	0
$u = \quad 1.42202 + 0.62487I$ $a = -0.178198 - 1.086890I$ $b = \quad 0.925255 - 0.701304I$	$-3.61881 - 7.97481I$	0
$u = \quad 1.42202 - 0.62487I$ $a = -0.178198 + 1.086890I$ $b = \quad 0.925255 + 0.701304I$	$-3.61881 + 7.97481I$	0
$u = -1.47952 + 0.50088I$ $a = \quad 0.061725 - 1.161990I$ $b = -0.68737 - 1.27852I$	$-3.83299 + 9.60532I$	0
$u = -1.47952 - 0.50088I$ $a = \quad 0.061725 + 1.161990I$ $b = -0.68737 + 1.27852I$	$-3.83299 - 9.60532I$	0
$u = -1.47125 + 0.55335I$ $a = \quad 0.087489 - 1.084120I$ $b = -0.882401 - 0.878137I$	$-7.81978 + 6.19714I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.47125-0.55335I$ $a=\ \ 0.087489+1.084120I$ $b=-0.882401+0.878137I$	$-7.81978-6.19714I$	0
$u=\ \ 0.049547+0.424919I$ $a=-0.718020-0.593551I$ $b=\ \ 0.187791+0.579194I$	$-0.255044+1.126440I$	$-3.57834-5.49956I$
$u=\ \ 0.049547-0.424919I$ $a=-0.718020+0.593551I$ $b=\ \ 0.187791-0.579194I$	$-0.255044-1.126440I$	$-3.57834+5.49956I$
$u=\ \ 1.53383+0.51429I$ $a=-0.015778-1.032470I$ $b=\ \ 0.969673-0.986951I$	$-3.60645-4.16463I$	0
$u=\ \ 1.53383-0.51429I$ $a=-0.015778+1.032470I$ $b=\ \ 0.969673+0.986951I$	$-3.60645+4.16463I$	0
$u=\ \ 1.61469+0.13966I$ $a=\ \ 0.069315+0.398022I$ $b=\ \ 0.283938+0.541467I$	$2.43291-2.68890I$	0
$u=\ \ 1.61469-0.13966I$ $a=\ \ 0.069315-0.398022I$ $b=\ \ 0.283938-0.541467I$	$2.43291+2.68890I$	0
$u=\ \ 0.033396+0.372902I$ $a=-1.05313+1.25297I$ $b=\ \ 0.571256+1.023590I$	$-1.39848+1.69419I$	$5.40238+3.22646I$
$u=\ \ 0.033396-0.372902I$ $a=-1.05313-1.25297I$ $b=\ \ 0.571256-1.023590I$	$-1.39848-1.69419I$	$5.40238-3.22646I$
$u=-0.322077+0.005347I$ $a=-3.93287+0.12149I$ $b=-0.697814+0.167206I$	$-2.19840+0.01517I$	$-11.05542+3.71706I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.322077-0.005347I$ $a=-3.93287-0.12149I$ $b=-0.697814-0.167206I$	$-2.19840-0.01517I$	$-11.05542-3.71706I$
$u=\ \ 0.244987+0.197622I$ $a=-4.14152-0.10127I$ $b=\ \ 0.128878+0.864098I$	$3.39289-7.96178I$	$-2.64222+4.65082I$
$u=\ \ 0.244987-0.197622I$ $a=-4.14152+0.10127I$ $b=\ \ 0.128878-0.864098I$	$3.39289+7.96178I$	$-2.64222-4.65082I$
$u=-0.144108+0.266850I$ $a=\ \ 2.88110+1.43551I$ $b=-0.259595+0.980782I$	$-2.80629+3.70003I$	$-5.46472-7.08880I$
$u=-0.144108-0.266850I$ $a=\ \ 2.88110-1.43551I$ $b=-0.259595-0.980782I$	$-2.80629-3.70003I$	$-5.46472+7.08880I$
$u=\ \ 0.12591+1.74655I$ $a=-0.0520078-0.0988769I$ $b=\ \ 0.229755-0.247671I$	$-2.69265+0.62772I$	0
$u=\ \ 0.12591-1.74655I$ $a=-0.0520078+0.0988769I$ $b=\ \ 0.229755+0.247671I$	$-2.69265-0.62772I$	0
$u=\ \ 0.32303+1.90836I$ $a=\ \ 0.0514929-0.0037415I$ $b=-0.022781-0.353229I$	$1.95055-3.13857I$	0
$u=\ \ 0.32303-1.90836I$ $a=\ \ 0.0514929+0.0037415I$ $b=-0.022781+0.353229I$	$1.95055+3.13857I$	0
$u=-1.95815+0.18847I$ $a=\ \ 0.308717+0.266503I$ $b=\ \ 0.501721+0.402916I$	$0.74141-3.88564I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.95815-0.18847I$ $a=\ \ 0.308717-0.266503I$ $b=\ \ 0.501721-0.402916I$	$0.74141+3.88564I$	0
$u=\ \ 2.05667$ $a=-0.320631$ $b=-0.499157$	-3.51656	0

II. $I_2^u =$
$\langle 2.48\times10^{10}u^{20}+4.28\times10^{10}u^{19}+\cdots+6.40\times10^{10}b-5.02\times10^{10},\ 4.42\times10^{10}u^{20}+$
$1.43\times10^{11}u^{19}+\cdots+6.40\times10^{10}a-1.68\times10^{11},\ u^{21}-7u^{19}+\cdots-5u^2+1\rangle$

(i) Arc colorings

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

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.690351u^{20} - 2.23562u^{19} + \cdots + 1.01142u + 2.62515 \\ -0.388071u^{20} - 0.668492u^{19} + \cdots + 3.51184u + 0.784478 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.63561u^{20} - 0.900464u^{19} + \cdots + 3.83291u + 1.17401 \\ -1.27762u^{20} + 0.796704u^{19} + \cdots + 4.45710u - 0.550681 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.96739u^{20} + 0.741300u^{19} + \cdots - 0.738960u - 0.132507 \\ 1.49248u^{20} + 1.26446u^{19} + \cdots - 3.14590u - 2.19244 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.705270u^{20} - 2.67361u^{19} + \cdots + 2.59865u + 3.79884 \\ 0.468738u^{20} - 2.03800u^{19} + \cdots + 2.93390u + 3.96593 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.415493u^{20} + 1.70473u^{19} + \cdots + 5.96094u + 0.740078 \\ 0.240138u^{20} + 2.11931u^{19} + \cdots + 3.21820u - 1.97827 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.334901u^{20} + 0.532403u^{19} + \cdots - 2.76763u - 0.291504 \\ -2.19802u^{20} - 0.352779u^{19} + \cdots + 2.57696u + 0.620270 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2.29196u^{20} + 0.506276u^{19} + \cdots + 2.04133u + 0.278852 \\ 5.05533u^{20} + 1.17230u^{19} + \cdots - 12.5850u - 6.06332 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.691332u^{20} - 1.03050u^{19} + \cdots + 0.709138u + 1.05802 \\ -0.389051u^{20} + 0.536629u^{19} + \cdots + 3.20956u - 0.782652 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$$= -\frac{19253119502519}{1728239247729}u^{20} + \frac{2253298001296}{1728239247729}u^{19} + \cdots + \frac{67555449295790}{1728239247729}u - \frac{12666145653124}{1728239247729}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$3(3u^{21}+5u^{20}+\cdots+72u-16)$
c_2	$3(3u^{21}+13u^{20}+\cdots-6u+1)$
c_3	$u^{21}-7u^{19}+\cdots+5u^2-1$
c_4	$3(3u^{21}-5u^{20}+\cdots+72u+16)$
c_5, c_6	$u^{21}+2u^{20}+\cdots-u+1$
c_7	$3(3u^{21}-10u^{20}+\cdots+3u+1)$
c_8	$u^{21}-7u^{19}+\cdots-5u^2+1$
c_9	$u^{21}-u^{20}+\cdots+10u+3$
c_{10}	$u^{21}-2u^{20}+\cdots-u-1$
c_{11}	$u^{21}+3u^{20}+\cdots-11u+1$
c_{12}	$u^{21}+11u^{19}+\cdots-16u-3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$9(9y^{21} - 241y^{20} + \cdots + 4800y - 256)$
c_2	$9(9y^{21} - 55y^{20} + \cdots + 14y - 1)$
c_3, c_8	$y^{21} - 14y^{20} + \cdots + 10y - 1$
c_5, c_6, c_{10}	$y^{21} + 20y^{20} + \cdots + 9y - 1$
c_7	$9(9y^{21} - 22y^{20} + \cdots - 31y - 1)$
c_9	$y^{21} + 7y^{20} + \cdots - 38y - 9$
c_{11}	$y^{21} + 3y^{20} + \cdots + 27y - 1$
c_{12}	$y^{21} + 22y^{20} + \cdots - 98y - 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.020200+0.329581I$ $a=\ \ 1.26224-2.11915I$ $b=-0.401136-0.780145I$	$2.52476+9.09814I$	$-5.99965-10.70332I$
$u=-1.020200-0.329581I$ $a=\ \ 1.26224+2.11915I$ $b=-0.401136+0.780145I$	$2.52476-9.09814I$	$-5.99965+10.70332I$
$u=-0.797353+0.725488I$ $a=-0.715029-0.018354I$ $b=-0.362489+0.468408I$	$-2.23815+0.64309I$	$-16.7302+2.7247I$
$u=-0.797353-0.725488I$ $a=-0.715029+0.018354I$ $b=-0.362489-0.468408I$	$-2.23815-0.64309I$	$-16.7302-2.7247I$
$u=\ \ 1.164760+0.165737I$ $a=-0.18412-2.54738I$ $b=-0.078863-1.020960I$	$-5.08783-4.68052I$	$-10.26822+8.30783I$
$u=\ \ 1.164760-0.165737I$ $a=-0.18412+2.54738I$ $b=-0.078863+1.020960I$	$-5.08783+4.68052I$	$-10.26822-8.30783I$
$u=-1.207670+0.016287I$ $a=\ \ 0.36660-1.77644I$ $b=\ \ 1.12812-1.21332I$	$-5.03951-1.18769I$	$-6.11414+3.27926I$
$u=-1.207670-0.016287I$ $a=\ \ 0.36660+1.77644I$ $b=\ \ 1.12812+1.21332I$	$-5.03951+1.18769I$	$-6.11414-3.27926I$
$u=\ \ 0.668402+0.300520I$ $a=\ \ 2.19057-0.50439I$ $b=\ \ 1.38280+0.47163I$	$2.31013+0.76215I$	$-3.00672+7.16992I$
$u=\ \ 0.668402-0.300520I$ $a=\ \ 2.19057+0.50439I$ $b=\ \ 1.38280-0.47163I$	$2.31013-0.76215I$	$-3.00672-7.16992I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.531064 + 0.126324I$ $a = -0.82675 - 1.19106I$ $b = 1.195870 - 0.278600I$	$7.49754 + 1.98939I$	$-1.66955 - 3.30703I$
$u = 0.531064 - 0.126324I$ $a = -0.82675 + 1.19106I$ $b = 1.195870 + 0.278600I$	$7.49754 - 1.98939I$	$-1.66955 + 3.30703I$
$u = -0.525884$ $a = 0.781585$ $b = -1.20616$	2.54622	-27.2940
$u = 1.40648 + 0.45133I$ $a = -0.040383 - 1.323510I$ $b = 0.750823 - 0.978670I$	$-6.58291 - 6.20833I$	$-6.71892 + 5.20796I$
$u = 1.40648 - 0.45133I$ $a = -0.040383 + 1.323510I$ $b = 0.750823 + 0.978670I$	$-6.58291 + 6.20833I$	$-6.71892 - 5.20796I$
$u = -0.166137 + 0.398513I$ $a = -0.48203 - 1.38068I$ $b = -0.557499 - 0.764154I$	$-1.87170 + 1.94044I$	$-8.89437 - 4.60282I$
$u = -0.166137 - 0.398513I$ $a = -0.48203 + 1.38068I$ $b = -0.557499 + 0.764154I$	$-1.87170 - 1.94044I$	$-8.89437 + 4.60282I$
$u = -1.51731 + 0.61410I$ $a = 0.071459 - 0.891436I$ $b = -0.750662 - 0.778246I$	$-4.62418 + 6.67061I$	$-6.64164 - 5.35255I$
$u = -1.51731 - 0.61410I$ $a = 0.071459 + 0.891436I$ $b = -0.750662 + 0.778246I$	$-4.62418 - 6.67061I$	$-6.64164 + 5.35255I$
$u = 1.20090 + 1.61257I$ $a = 0.1333140 + 0.0080635I$ $b = -0.037216 + 0.260866I$	$1.96912 - 3.00198I$	$-36.4146 - 28.7310I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.20090 - 1.61257I$		
$a = \quad 0.1333140 - 0.0080635I$	$1.96912 + 3.00198I$	$-36.4146 + 28.7310I$
$b = -0.037216 - 0.260866I$		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$9(3u^{21}+5u^{20}+\cdots+72u-16)$ $\cdot(3u^{122}+10u^{121}+\cdots+187864u+5572)$
c_2	$9(3u^{21}+13u^{20}+\cdots-6u+1)$ $\cdot(3u^{122}-4u^{121}+\cdots-1118665u-446825)$
c_3	$(u^{21}-7u^{19}+\cdots+5u^2-1)(u^{122}-u^{121}+\cdots+840u-344)$
c_4	$9(3u^{21}-5u^{20}+\cdots+72u+16)$ $\cdot(3u^{122}+10u^{121}+\cdots+187864u+5572)$
c_5, c_6	$(u^{21}+2u^{20}+\cdots-u+1)(u^{122}+u^{121}+\cdots+8u-11)$
c_7	$9(3u^{21}-10u^{20}+\cdots+3u+1)(3u^{122}-7u^{121}+\cdots-2u+1)$
c_8	$(u^{21}-7u^{19}+\cdots-5u^2+1)(u^{122}-u^{121}+\cdots+840u-344)$
c_9	$(u^{21}-u^{20}+\cdots+10u+3)(u^{122}-2u^{121}+\cdots+950272u-49152)$
c_{10}	$(u^{21}-2u^{20}+\cdots-u-1)(u^{122}+u^{121}+\cdots+8u-11)$
c_{11}	$(u^{21}+3u^{20}+\cdots-11u+1)(u^{122}+4u^{121}+\cdots+111658u-20519)$
c_{12}	$(u^{21}+11u^{19}+\cdots-16u-3)(u^{122}-3u^{121}+\cdots+51487u-8787)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$81(9y^{21} - 241y^{20} + \cdots + 4800y - 256)$ $\cdot (9y^{122} - 898y^{121} + \cdots - 7947111232y + 31047184)$
c_2	$81(9y^{21} - 55y^{20} + \cdots + 14y - 1)$ $\cdot (9y^{122} - 388y^{121} + \cdots - 2275616498025y + 199652580625)$
c_3, c_8	$(y^{21} - 14y^{20} + \cdots + 10y - 1)$ $\cdot (y^{122} - 91y^{121} + \cdots - 740000y + 118336)$
c_5, c_6, c_{10}	$(y^{21} + 20y^{20} + \cdots + 9y - 1)(y^{122} + 115y^{121} + \cdots - 8600y + 121)$
c_7	$81(9y^{21} - 22y^{20} + \cdots - 31y - 1)(9y^{122} + 5y^{121} + \cdots - 20y + 1)$
c_9	$(y^{21} + 7y^{20} + \cdots - 38y - 9)$ $\cdot (y^{122} - 22y^{121} + \cdots - 561164320768y + 2415919104)$
c_{11}	$(y^{21} + 3y^{20} + \cdots + 27y - 1)$ $\cdot (y^{122} - 14y^{121} + \cdots - 28711211162y + 421029361)$
c_{12}	$(y^{21} + 22y^{20} + \cdots - 98y - 9)$ $\cdot (y^{122} + 53y^{121} + \cdots + 2230478219y + 77211369)$