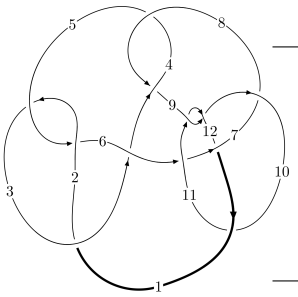
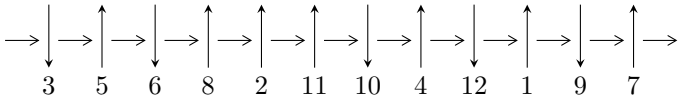
$12a_{0013}$ $(K12a_{0013})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.02573 \times 10^{605} u^{137} - 5.51686 \times 10^{604} u^{136} + \cdots + 1.68194 \times 10^{607} b - 1.50040 \times 10^{609},$$
$$- 1.26961 \times 10^{605} u^{137} + 7.22190 \times 10^{603} u^{136} + \cdots + 3.36387 \times 10^{607} a - 1.61972 \times 10^{609},$$
$$u^{138} - u^{137} + \cdots + 20480u + 4096 \rangle$$

$$I_1^v = \langle a,\ 1003453v^{11} + 865361v^{10} + \cdots + 707733b + 3119402,$$
$$v^{12} + v^{11} - 4v^{10} + 5v^9 + 19v^8 - 9v^7 - 31v^6 - 29v^5 + 31v^4 + 18v^3 + 3v^2 + 3v + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 150 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. $\boldsymbol{I_1^u = \langle -1.03 \times 10^{605} u^{137} - 5.52 \times 10^{604} u^{136} + \cdots + 1.68 \times 10^{607} b - 1.50 \times 10^{609},\ -1.27 \times 10^{605} u^{137} + 7.22 \times 10^{603} u^{136} + \cdots + 3.36 \times 10^{607} a - 1.62 \times 10^{609},\ u^{138} - u^{137} + \cdots + 20480u + 4096 \rangle}$

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} 0.00377426u^{137} - 0.000214690u^{136} + \cdots + 293.153u + 48.1505 \\ 0.00609849u^{137} + 0.00328006u^{136} + \cdots + 526.701u + 89.2069 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.00379341u^{137} - 0.000460878u^{136} + \cdots + 240.394u + 41.2322 \\ -0.000165105u^{137} + 0.00929262u^{136} + \cdots + 481.361u + 91.1423 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.00238794u^{137} + 0.00493619u^{136} + \cdots + 123.217u + 26.1622 \\ -0.00357361u^{137} + 0.00819517u^{136} + \cdots + 291.628u + 68.2308 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.00439295u^{137} - 0.00147919u^{136} + \cdots + 168.616u + 28.0993 \\ 0.00376122u^{137} + 0.00304781u^{136} + \cdots + 360.623u + 65.1201 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.00261300u^{137} - 0.00172294u^{136} + \cdots + 164.460u + 24.3159 \\ 0.00493724u^{137} + 0.00177181u^{136} + \cdots + 398.008u + 65.3723 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.00223744u^{137} + 0.00437981u^{136} + \cdots + 114.339u + 25.0860 \\ 0.00215551u^{137} + 0.00290062u^{136} + \cdots + 282.955u + 53.1853 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.00294739u^{137} + 0.000658646u^{136} + \cdots + 125.123u + 20.7746 \\ 0.00255322u^{137} + 0.00251675u^{136} + \cdots + 220.759u + 39.9007 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.00113636u^{137} - 0.000399544u^{136} + \cdots - 9.71148u - 4.35571 \\ 0.00149437u^{137} + 0.00230841u^{136} + \cdots + 154.579u + 28.1483 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0290540u^{137} + 0.0285193u^{136} + \cdots - 46.2850u + 54.5174$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{138} + 67u^{137} + \cdots + 33u + 1$
c_2, c_5	$u^{138} + 7u^{137} + \cdots + 9u + 1$
c_3	$u^{138} - 7u^{137} + \cdots - 98472303u + 13657673$
c_4, c_8	$u^{138} - u^{137} + \cdots + 20480u + 4096$
c_6	$u^{138} - 3u^{137} + \cdots + 206471u + 14069$
c_7	$u^{138} - 9u^{137} + \cdots + 30021u - 1831$
c_9, c_{11}	$u^{138} - 3u^{137} + \cdots - 23u + 1$
c_{10}	$u^{138} + 23u^{137} + \cdots + 3u + 1$
c_{12}	$u^{138} + 9u^{137} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{138} + 15y^{137} + \cdots - 35y + 1$
c_2, c_5	$y^{138} + 67y^{137} + \cdots + 33y + 1$
c_3	$y^{138} - 37y^{137} + \cdots + 2159732187820305y + 186532031774929$
c_4, c_8	$y^{138} + 65y^{137} + \cdots + 503316480y + 16777216$
c_6	$y^{138} - 109y^{137} + \cdots + 23684604833y + 197936761$
c_7	$y^{138} - 137y^{137} + \cdots - 472810103y + 3352561$
c_9, c_{11}	$y^{138} - 89y^{137} + \cdots - 23y + 1$
c_{10}	$y^{138} - 9y^{137} + \cdots - 23y + 1$
c_{12}	$y^{138} + 23y^{137} + \cdots + 9y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.225717+0.984869I$ $a=\ \ 0.579663+0.604540I$ $b=-0.387131+0.194000I$	$-2.26109+1.21839I$	0
$u=-0.225717-0.984869I$ $a=\ \ 0.579663-0.604540I$ $b=-0.387131-0.194000I$	$-2.26109-1.21839I$	0
$u=\ \ 0.968613+0.291315I$ $a=-1.180740+0.387329I$ $b=\ \ 0.252559+0.591464I$	$-3.85751-5.17156I$	0
$u=\ \ 0.968613-0.291315I$ $a=-1.180740-0.387329I$ $b=\ \ 0.252559-0.591464I$	$-3.85751+5.17156I$	0
$u=-0.844113+0.492611I$ $a=\ \ 0.158255-0.087896I$ $b=-0.269909+0.863925I$	$2.70862+2.80444I$	0
$u=-0.844113-0.492611I$ $a=\ \ 0.158255+0.087896I$ $b=-0.269909-0.863925I$	$2.70862-2.80444I$	0
$u=-0.495236+0.898497I$ $a=\ \ 0.019024-0.146844I$ $b=\ \ 0.948882-0.570151I$	$2.48949-5.71532I$	0
$u=-0.495236-0.898497I$ $a=\ \ 0.019024+0.146844I$ $b=\ \ 0.948882+0.570151I$	$2.48949+5.71532I$	0
$u=\ \ 0.407051+0.951666I$ $a=-1.52335+1.26262I$ $b=-1.074140+0.684833I$	$-1.49189+2.01388I$	0
$u=\ \ 0.407051-0.951666I$ $a=-1.52335-1.26262I$ $b=-1.074140-0.684833I$	$-1.49189-2.01388I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.691921 + 0.666142I$ $a = 0.456057 - 0.396135I$ $b = 0.126915 + 0.564332I$	$1.63530 + 4.17072I$	0
$u = 0.691921 - 0.666142I$ $a = 0.456057 + 0.396135I$ $b = 0.126915 - 0.564332I$	$1.63530 - 4.17072I$	0
$u = 0.647033 + 0.696244I$ $a = 0.422005 + 0.408919I$ $b = 0.283663 + 0.509054I$	$1.41425 + 1.45110I$	0
$u = 0.647033 - 0.696244I$ $a = 0.422005 - 0.408919I$ $b = 0.283663 - 0.509054I$	$1.41425 - 1.45110I$	0
$u = 0.362183 + 0.876985I$ $a = -0.912633 - 0.186335I$ $b = -0.132549 + 0.693970I$	$1.44585 + 2.70079I$	0
$u = 0.362183 - 0.876985I$ $a = -0.912633 + 0.186335I$ $b = -0.132549 - 0.693970I$	$1.44585 - 2.70079I$	0
$u = 0.924692 + 0.109605I$ $a = -1.024280 - 0.180693I$ $b = 0.441690 - 0.778597I$	$-4.26855 - 1.64031I$	0
$u = 0.924692 - 0.109605I$ $a = -1.024280 + 0.180693I$ $b = 0.441690 + 0.778597I$	$-4.26855 + 1.64031I$	0
$u = -0.790483 + 0.476530I$ $a = -0.438850 + 0.486313I$ $b = -0.469636 + 0.639265I$	$-0.04648 + 3.17550I$	0
$u = -0.790483 - 0.476530I$ $a = -0.438850 - 0.486313I$ $b = -0.469636 - 0.639265I$	$-0.04648 - 3.17550I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.883665 + 0.175408I$ $a = 0.321753 - 0.009471I$ $b = 0.645569 + 0.875733I$	$-0.821300 - 0.506241I$	0
$u = 0.883665 - 0.175408I$ $a = 0.321753 + 0.009471I$ $b = 0.645569 - 0.875733I$	$-0.821300 + 0.506241I$	0
$u = -0.466251 + 0.764985I$ $a = 0.069690 - 0.681203I$ $b = 0.033362 + 0.508845I$	$0.18427 - 8.79554I$	0
$u = -0.466251 - 0.764985I$ $a = 0.069690 + 0.681203I$ $b = 0.033362 - 0.508845I$	$0.18427 + 8.79554I$	0
$u = 1.000430 + 0.471347I$ $a = -0.104813 + 0.095842I$ $b = 0.303032 + 0.995610I$	$0.61052 - 7.36350I$	0
$u = 1.000430 - 0.471347I$ $a = -0.104813 - 0.095842I$ $b = 0.303032 - 0.995610I$	$0.61052 + 7.36350I$	0
$u = 0.390996 + 0.800553I$ $a = -0.178611 - 0.025175I$ $b = -1.156960 - 0.404768I$	$1.65391 + 0.55987I$	0
$u = 0.390996 - 0.800553I$ $a = -0.178611 + 0.025175I$ $b = -1.156960 + 0.404768I$	$1.65391 - 0.55987I$	0
$u = 0.354325 + 1.078600I$ $a = -0.01501 + 1.78320I$ $b = 0.04612 + 2.99480I$	$-2.10779 + 5.70362I$	0
$u = 0.354325 - 1.078600I$ $a = -0.01501 - 1.78320I$ $b = 0.04612 - 2.99480I$	$-2.10779 - 5.70362I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.13904$ $a = 1.58831$ $b = 0.875958$	1.10281	0
$u = -0.166480 + 1.130730I$ $a = 1.20669 + 0.85577I$ $b = 0.891110 + 0.421423I$	$-5.25889 + 0.99512I$	0
$u = -0.166480 - 1.130730I$ $a = 1.20669 - 0.85577I$ $b = 0.891110 - 0.421423I$	$-5.25889 - 0.99512I$	0
$u = -1.055350 + 0.441739I$ $a = -1.79162 - 0.04916I$ $b = -0.573514 - 0.036880I$	$-1.00538 + 8.27121I$	0
$u = -1.055350 - 0.441739I$ $a = -1.79162 + 0.04916I$ $b = -0.573514 + 0.036880I$	$-1.00538 - 8.27121I$	0
$u = -0.805473 + 0.284873I$ $a = 4.04788 + 1.52296I$ $b = 2.89991 + 1.17979I$	$-2.05908 + 3.02563I$	0
$u = -0.805473 - 0.284873I$ $a = 4.04788 - 1.52296I$ $b = 2.89991 - 1.17979I$	$-2.05908 - 3.02563I$	0
$u = -0.523047 + 0.667669I$ $a = 0.610017 - 0.335414I$ $b = -0.036883 + 0.691270I$	$3.16409 + 1.56319I$	0
$u = -0.523047 - 0.667669I$ $a = 0.610017 + 0.335414I$ $b = -0.036883 - 0.691270I$	$3.16409 - 1.56319I$	0
$u = 0.494515 + 1.057540I$ $a = 0.92442 - 3.10541I$ $b = 1.21282 - 3.97846I$	$-2.24796 + 3.24421I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.494515 - 1.057540I$ $a = 0.92442 + 3.10541I$ $b = 1.21282 + 3.97846I$	$-2.24796 - 3.24421I$	0
$u = -0.147750 + 0.819139I$ $a = -1.43493 - 0.11635I$ $b = -0.338924 + 0.492886I$	$0.93710 - 3.59535I$	0
$u = -0.147750 - 0.819139I$ $a = -1.43493 + 0.11635I$ $b = -0.338924 - 0.492886I$	$0.93710 + 3.59535I$	0
$u = -0.309016 + 0.768051I$ $a = -0.422181 - 1.310040I$ $b = -0.33392 - 2.93018I$	$-2.00907 - 3.90626I$	0
$u = -0.309016 - 0.768051I$ $a = -0.422181 + 1.310040I$ $b = -0.33392 + 2.93018I$	$-2.00907 + 3.90626I$	0
$u = -0.419130 + 1.104740I$ $a = -0.722537 + 0.370757I$ $b = -0.449639 + 0.201537I$	$-4.22588 - 1.00117I$	0
$u = -0.419130 - 1.104740I$ $a = -0.722537 - 0.370757I$ $b = -0.449639 - 0.201537I$	$-4.22588 + 1.00117I$	0
$u = -0.403023 + 1.112730I$ $a = 0.349765 - 0.835030I$ $b = -0.35658 - 2.02769I$	$-5.07002 - 1.85762I$	0
$u = -0.403023 - 1.112730I$ $a = 0.349765 + 0.835030I$ $b = -0.35658 + 2.02769I$	$-5.07002 + 1.85762I$	0
$u = -0.482224 + 1.095960I$ $a = 0.05969 + 1.77481I$ $b = 0.09325 + 2.95431I$	$-1.36324 - 11.29470I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.482224-1.095960I$ $a=\ 0.05969-1.77481I$ $b=\ 0.09325-2.95431I$	$-1.36324+11.29470I$	0
$u=\ 0.617415+1.032780I$ $a=\ 0.574970+0.259044I$ $b=\ 0.248447+0.180594I$	$0.34659+3.64206I$	0
$u=\ 0.617415-1.032780I$ $a=\ 0.574970-0.259044I$ $b=\ 0.248447-0.180594I$	$0.34659-3.64206I$	0
$u=-0.299210+1.174910I$ $a=-0.54234-3.33474I$ $b=-0.70530-4.23889I$	$-6.50973-0.24697I$	0
$u=-0.299210-1.174910I$ $a=-0.54234+3.33474I$ $b=-0.70530+4.23889I$	$-6.50973+0.24697I$	0
$u=\ 0.594539+0.516126I$ $a=-2.54967+2.38035I$ $b=-1.59958+1.65772I$	$-0.564734+1.063680I$	$-9.1645-19.4771I$
$u=\ 0.594539-0.516126I$ $a=-2.54967-2.38035I$ $b=-1.59958-1.65772I$	$-0.564734-1.063680I$	$-9.1645+19.4771I$
$u=-0.471282+1.118030I$ $a=\ 1.63809+0.97837I$ $b=\ 1.172440+0.508569I$	$-3.90439-6.62338I$	0
$u=-0.471282-1.118030I$ $a=\ 1.63809-0.97837I$ $b=\ 1.172440-0.508569I$	$-3.90439+6.62338I$	0
$u=\ 0.468994+0.629619I$ $a=\ 2.41337-2.87969I$ $b=\ 3.08195-3.90289I$	$-0.61751+1.70960I$	$-9.8208+17.9498I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.468994 - 0.629619I$ $a = 2.41337 + 2.87969I$ $b = 3.08195 + 3.90289I$	$-0.61751 - 1.70960I$	$-9.8208 - 17.9498I$
$u = 0.382806 + 1.155410I$ $a = -0.745030 + 0.456753I$ $b = 0.245842 + 0.145084I$	$-4.91525 + 3.17082I$	0
$u = 0.382806 - 1.155410I$ $a = -0.745030 - 0.456753I$ $b = 0.245842 - 0.145084I$	$-4.91525 - 3.17082I$	0
$u = 0.080035 + 1.216100I$ $a = -0.531168 + 0.321422I$ $b = 0.375313 - 0.020539I$	$-5.86217 - 4.68661I$	0
$u = 0.080035 - 1.216100I$ $a = -0.531168 - 0.321422I$ $b = 0.375313 + 0.020539I$	$-5.86217 + 4.68661I$	0
$u = 1.204080 + 0.239536I$ $a = 1.72562 + 0.00365I$ $b = 0.612892 - 0.138695I$	$-5.12215 - 5.13211I$	0
$u = 1.204080 - 0.239536I$ $a = 1.72562 - 0.00365I$ $b = 0.612892 + 0.138695I$	$-5.12215 + 5.13211I$	0
$u = -0.514859 + 1.134730I$ $a = -0.441182 - 1.123630I$ $b = -0.32375 - 2.37445I$	$-4.22507 - 5.81215I$	0
$u = -0.514859 - 1.134730I$ $a = -0.441182 + 1.123630I$ $b = -0.32375 + 2.37445I$	$-4.22507 + 5.81215I$	0
$u = -0.752443 + 0.039638I$ $a = -0.906999 + 0.341567I$ $b = -1.191140 + 0.091862I$	$-1.00356 - 2.77254I$	$0.77684 + 5.56890I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.752443-0.039638I$ $a=-0.906999-0.341567I$ $b=-1.191140-0.091862I$	$-1.00356+2.77254I$	$0.77684-5.56890I$
$u=-0.536143+0.485236I$ $a=-2.10804-0.38913I$ $b=-0.366338+0.077201I$	$0.61191+7.14983I$	$3.75978-1.57652I$
$u=-0.536143-0.485236I$ $a=-2.10804+0.38913I$ $b=-0.366338-0.077201I$	$0.61191-7.14983I$	$3.75978+1.57652I$
$u=\ 0.722812$ $a=\ 1.18702$ $b=\ 0.689333$	1.24576	9.34870
$u=-0.633518+0.347110I$ $a=\ 1.42170+0.53993I$ $b=-0.320511+0.451540I$	$-1.79923+1.22022I$	$-1.34511-3.56182I$
$u=-0.633518-0.347110I$ $a=\ 1.42170-0.53993I$ $b=-0.320511-0.451540I$	$-1.79923-1.22022I$	$-1.34511+3.56182I$
$u=\ 0.229996+1.259400I$ $a=\ 0.10479+1.64136I$ $b=\ 0.05206+2.34450I$	$0.42778+2.94009I$	0
$u=\ 0.229996-1.259400I$ $a=\ 0.10479-1.64136I$ $b=\ 0.05206-2.34450I$	$0.42778-2.94009I$	0
$u=\ 0.237164+1.259150I$ $a=-0.383777-0.944347I$ $b=\ 0.18273-2.13081I$	$-9.23975-1.47869I$	0
$u=\ 0.237164-1.259150I$ $a=-0.383777+0.944347I$ $b=\ 0.18273+2.13081I$	$-9.23975+1.47869I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.625704+1.124680I$ $a=-0.230028-0.241010I$ $b=\ 0.624594-0.669696I$	$0.72901-8.31835I$	0
$u=-0.625704-1.124680I$ $a=-0.230028+0.241010I$ $b=\ 0.624594+0.669696I$	$0.72901+8.31835I$	0
$u=\ 1.179740+0.520421I$ $a=\ 1.75080-0.06322I$ $b=\ 0.632833-0.021950I$	$-3.53057-13.07050I$	0
$u=\ 1.179740-0.520421I$ $a=\ 1.75080+0.06322I$ $b=\ 0.632833+0.021950I$	$-3.53057+13.07050I$	0
$u=\ 0.185406+0.682883I$ $a=\ 1.56305-0.99116I$ $b=\ 0.274608+0.247795I$	$-0.44372-3.17076I$	$-5.30905-2.16030I$
$u=\ 0.185406-0.682883I$ $a=\ 1.56305+0.99116I$ $b=\ 0.274608-0.247795I$	$-0.44372+3.17076I$	$-5.30905+2.16030I$
$u=-0.557227+1.166990I$ $a=-0.75720-2.95824I$ $b=-1.01457-3.77301I$	$-4.70709-8.12492I$	0
$u=-0.557227-1.166990I$ $a=-0.75720+2.95824I$ $b=-1.01457+3.77301I$	$-4.70709+8.12492I$	0
$u=\ 0.484539+1.201990I$ $a=\ 0.290836-0.118683I$ $b=-0.566310-0.513321I$	$-4.09738+5.40863I$	0
$u=\ 0.484539-1.201990I$ $a=\ 0.290836+0.118683I$ $b=-0.566310+0.513321I$	$-4.09738-5.40863I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.652158+1.121780I$ $a=-0.624143+0.187615I$ $b=-0.263057+0.073560I$	$-1.92373-8.69899I$	0
$u=-0.652158-1.121780I$ $a=-0.624143-0.187615I$ $b=-0.263057-0.073560I$	$-1.92373+8.69899I$	0
$u=0.354774+1.248840I$ $a=0.419133-1.108220I$ $b=0.19103-2.34062I$	$-8.72518+2.65013I$	0
$u=0.354774-1.248840I$ $a=0.419133+1.108220I$ $b=0.19103+2.34062I$	$-8.72518-2.65013I$	0
$u=0.456208+0.530857I$ $a=1.69701+0.12649I$ $b=0.452926+0.280609I$	$2.30178-0.05398I$	$5.52630-2.50446I$
$u=0.456208-0.530857I$ $a=1.69701-0.12649I$ $b=0.452926-0.280609I$	$2.30178+0.05398I$	$5.52630+2.50446I$
$u=0.969289+0.894952I$ $a=0.707471+0.556944I$ $b=0.250334+1.020810I$	$1.00721+1.59954I$	0
$u=0.969289-0.894952I$ $a=0.707471-0.556944I$ $b=0.250334-1.020810I$	$1.00721-1.59954I$	0
$u=0.499313+1.221980I$ $a=-0.429805-0.829644I$ $b=0.26451-1.93344I$	$-7.72780+6.66125I$	0
$u=0.499313-1.221980I$ $a=-0.429805+0.829644I$ $b=0.26451+1.93344I$	$-7.72780-6.66125I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.027575+0.669982I$ $a=-0.182961+0.968425I$ $b=-0.391958+1.217040I$	$0.77901+2.40486I$	$0.57490-3.33955I$
$u=-0.027575-0.669982I$ $a=-0.182961-0.968425I$ $b=-0.391958-1.217040I$	$0.77901-2.40486I$	$0.57490+3.33955I$
$u=-1.239130+0.488019I$ $a=-1.355080+0.141292I$ $b=-0.632576+0.560633I$	$-4.27455-4.31705I$	0
$u=-1.239130-0.488019I$ $a=-1.355080-0.141292I$ $b=-0.632576-0.560633I$	$-4.27455+4.31705I$	0
$u=-0.760986+1.097480I$ $a=-0.375366+1.001730I$ $b=\ \ 0.10081+1.53130I$	$-0.61746+4.04978I$	0
$u=-0.760986-1.097480I$ $a=-0.375366-1.001730I$ $b=\ \ 0.10081-1.53130I$	$-0.61746-4.04978I$	0
$u=-0.533533+0.393622I$ $a=\ \ 0.242121+0.328400I$ $b=-1.24798-0.93252I$	$-2.78368-1.46397I$	$-3.71074+3.08918I$
$u=-0.533533-0.393622I$ $a=\ \ 0.242121-0.328400I$ $b=-1.24798+0.93252I$	$-2.78368+1.46397I$	$-3.71074-3.08918I$
$u=\ \ 0.047521+0.644878I$ $a=\ \ 0.02999-1.44271I$ $b=-0.44159-3.37755I$	$-2.35739-0.94653I$	$-10.41057-1.05373I$
$u=\ \ 0.047521-0.644878I$ $a=\ \ 0.02999+1.44271I$ $b=-0.44159+3.37755I$	$-2.35739+0.94653I$	$-10.41057+1.05373I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.589342 + 1.220770I$ $a = 0.441828 - 1.111100I$ $b = 0.33042 - 2.30091I$	$-6.77899 + 10.82090I$	0
$u = 0.589342 - 1.220770I$ $a = 0.441828 + 1.111100I$ $b = 0.33042 + 2.30091I$	$-6.77899 - 10.82090I$	0
$u = 0.678071 + 1.188740I$ $a = 0.287212 - 0.275191I$ $b = -0.548608 - 0.703604I$	$-1.67408 + 13.49120I$	0
$u = 0.678071 - 1.188740I$ $a = 0.287212 + 0.275191I$ $b = -0.548608 + 0.703604I$	$-1.67408 - 13.49120I$	0
$u = -0.699582 + 1.215180I$ $a = 0.08610 + 1.72627I$ $b = 0.21165 + 2.78383I$	$-3.4406 - 14.6175I$	0
$u = -0.699582 - 1.215180I$ $a = 0.08610 - 1.72627I$ $b = 0.21165 - 2.78383I$	$-3.4406 + 14.6175I$	0
$u = -0.06214 + 1.41839I$ $a = -0.04142 + 1.62093I$ $b = 0.19771 + 2.54304I$	$-7.96952 + 4.57151I$	0
$u = -0.06214 - 1.41839I$ $a = -0.04142 - 1.62093I$ $b = 0.19771 - 2.54304I$	$-7.96952 - 4.57151I$	0
$u = -0.447357 + 0.348451I$ $a = -3.07598 - 1.06452I$ $b = -4.41391 - 1.98540I$	$-1.48464 + 2.67615I$	$-11.3832 + 12.0268I$
$u = -0.447357 - 0.348451I$ $a = -3.07598 + 1.06452I$ $b = -4.41391 + 1.98540I$	$-1.48464 - 2.67615I$	$-11.3832 - 12.0268I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.36012+0.45602I$ $a=-1.64394+0.19759I$ $b=-0.945136+0.331901I$	$-2.10145+4.63629I$	0
$u=-1.36012-0.45602I$ $a=-1.64394-0.19759I$ $b=-0.945136-0.331901I$	$-2.10145-4.63629I$	0
$u=\ \ 0.60934+1.31602I$ $a=-0.06791+1.72556I$ $b=-0.13091+2.75752I$	$-8.6772+11.5041I$	0
$u=\ \ 0.60934-1.31602I$ $a=-0.06791-1.72556I$ $b=-0.13091-2.75752I$	$-8.6772-11.5041I$	0
$u=\ \ 0.69110+1.28047I$ $a=\ \ 0.21218+1.59372I$ $b=\ \ 0.02914+2.35233I$	$-2.30827+6.50477I$	0
$u=\ \ 0.69110-1.28047I$ $a=\ \ 0.21218-1.59372I$ $b=\ \ 0.02914-2.35233I$	$-2.30827-6.50477I$	0
$u=\ \ 0.76319+1.24643I$ $a=-0.08610+1.71523I$ $b=-0.22967+2.74243I$	$-5.8957+20.0114I$	0
$u=\ \ 0.76319-1.24643I$ $a=-0.08610-1.71523I$ $b=-0.22967-2.74243I$	$-5.8957-20.0114I$	0
$u=-0.76896+1.29555I$ $a=-0.21983+1.58861I$ $b=-0.02100+2.35025I$	$-4.86223-11.95560I$	0
$u=-0.76896-1.29555I$ $a=-0.21983-1.58861I$ $b=-0.02100-2.35025I$	$-4.86223+11.95560I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.07354+1.51167I$ $a=\ \ 0.05471+1.66304I$ $b=-0.11169+2.59038I$	$-11.8703-9.0599I$	0
$u=-0.07354-1.51167I$ $a=\ \ 0.05471-1.66304I$ $b=-0.11169-2.59038I$	$-11.8703+9.0599I$	0
$u=-0.269804+0.381004I$ $a=\ \ 1.65555+1.51632I$ $b=-0.276399+0.389888I$	$-1.85090+1.10618I$	$-2.51777-1.83567I$
$u=-0.269804-0.381004I$ $a=\ \ 1.65555-1.51632I$ $b=-0.276399-0.389888I$	$-1.85090-1.10618I$	$-2.51777+1.83567I$
$u=\ \ 0.17686+1.52587I$ $a=\ \ 0.09022+1.60853I$ $b=-0.14282+2.46294I$	$-11.67560+0.10597I$	0
$u=\ \ 0.17686-1.52587I$ $a=\ \ 0.09022-1.60853I$ $b=-0.14282-2.46294I$	$-11.67560-0.10597I$	0
$u=-0.63750+1.40717I$ $a=-0.22181+1.60499I$ $b=-0.02918+2.33512I$	$-7.63817-3.16727I$	0
$u=-0.63750-1.40717I$ $a=-0.22181-1.60499I$ $b=-0.02918-2.33512I$	$-7.63817+3.16727I$	0

II. $I_1^v = \langle a,\ 1.00 \times 10^6 v^{11} + 8.65 \times 10^5 v^{10} + \cdots + 7.08 \times 10^5 b + 3.12 \times 10^6,\ v^{12} + v^{11} + \cdots + 3v + 1 \rangle$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} 0 \\ -1.41784v^{11} - 1.22272v^{10} + \cdots - 4.69694v - 4.40760 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} v \\ -1.74143v^{11} - 1.34534v^{10} + \cdots - 6.17617v - 5.57425 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.174683v^{11} + 0.0995347v^{10} + \cdots + 0.446835v + 0.396087 \\ 2.02290v^{11} + 1.34063v^{10} + \cdots + 7.63126v + 6.61613 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0662595v^{11} + 0.0471520v^{10} + \cdots - 0.275427v + 0.109031 \\ -0.678951v^{11} - 0.501804v^{10} + \cdots - 2.40704v - 2.15346 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.107567v^{11} - 0.0858700v^{10} + \cdots + 0.832485v - 0.195119 \\ -1.41784v^{11} - 1.22272v^{10} + \cdots - 4.69694v - 4.40760 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0662595v^{11} - 0.0471520v^{10} + \cdots + 0.275427v - 0.109031 \\ 0.678951v^{11} + 0.501804v^{10} + \cdots + 2.40704v + 2.15346 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0701310v^{11} - 0.0258346v^{10} + \cdots - 0.00656462v + 1.24069 \\ -0.678951v^{11} - 0.501804v^{10} + \cdots - 2.40704v - 1.15346 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.749082v^{11} + 0.475969v^{10} + \cdots + 2.40047v + 2.39415 \\ -0.678951v^{11} - 0.501804v^{10} + \cdots - 2.40704v - 1.15346 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{821}{10257}v^{11} + \frac{8666}{235911}v^{10} + \cdots + \frac{189289}{10257}v + \frac{16124}{235911}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_5	$(u^2-u+1)^6$
c_2	$(u^2+u+1)^6$
c_4, c_8	u^{12}
c_6, c_{10}, c_{11}	$(u^6-u^5-u^4+2u^3-u+1)^2$
c_7, c_{12}	$(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$
c_9	$(u^6+u^5-u^4-2u^3+u+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5	$(y^2+y+1)^6$
c_4, c_8	y^{12}
c_6, c_9, c_{10} c_{11}	$(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$
c_7, c_{12}	$(y^6+y^5+5y^4+6y^2+3y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-0.695888+0.967642I$ $a=\quad 0$ $b=-0.242870+0.617226I$	$1.89061+2.95419I$	$6.39280-3.57892I$
$v=-0.695888-0.967642I$ $a=\quad 0$ $b=-0.242870-0.617226I$	$1.89061-2.95419I$	$6.39280+3.57892I$
$v=\quad 1.185950+0.118836I$ $a=\quad 0$ $b=-0.413098-0.518944I$	$1.89061-1.10558I$	$3.63443+2.52768I$
$v=\quad 1.185950-0.118836I$ $a=\quad 0$ $b=-0.413098+0.518944I$	$1.89061+1.10558I$	$3.63443-2.52768I$
$v=-0.383184+0.075842I$ $a=\quad 0$ $b=-2.36994-1.24035I$	$-1.89061-2.95419I$	$-7.91752+1.81989I$
$v=-0.383184-0.075842I$ $a=\quad 0$ $b=-2.36994+1.24035I$	$-1.89061+2.95419I$	$-7.91752-1.81989I$
$v=\quad 0.125911+0.369768I$ $a=\quad 0$ $b=\quad 0.11079-2.67260I$	$-1.89061-1.10558I$	$3.59610+6.57635I$
$v=\quad 0.125911-0.369768I$ $a=\quad 0$ $b=\quad 0.11079+2.67260I$	$-1.89061+1.10558I$	$3.59610-6.57635I$
$v=\quad 1.38214+1.64413I$ $a=\quad 0$ $b=-0.122617+0.550125I$	$3.66314I$	$2.83009-6.37777I$
$v=\quad 1.38214-1.64413I$ $a=\quad 0$ $b=-0.122617-0.550125I$	$-3.66314I$	$2.83009+6.37777I$

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-2.11493+0.37491I$		
$a=\quad 0$	$7.72290I$	$-2.53591-7.46338I$
$b=\quad 0.537731-0.168873I$		
$v=-2.11493-0.37491I$		
$a=\quad 0$	$-7.72290I$	$-2.53591+7.46338I$
$b=\quad 0.537731+0.168873I$		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^6)(u^{138}+67u^{137}+\cdots+33u+1)$
c_2	$((u^2+u+1)^6)(u^{138}+7u^{137}+\cdots+9u+1)$
c_3	$((u^2-u+1)^6)(u^{138}-7u^{137}+\cdots-9.84723\times10^7u+1.36577\times10^7)$
c_4, c_8	$u^{12}(u^{138}-u^{137}+\cdots+20480u+4096)$
c_5	$((u^2-u+1)^6)(u^{138}+7u^{137}+\cdots+9u+1)$
c_6	$((u^6-u^5-u^4+2u^3-u+1)^2)(u^{138}-3u^{137}+\cdots+206471u+14069)$
c_7	$(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot(u^{138}-9u^{137}+\cdots+30021u-1831)$
c_9	$((u^6+u^5-u^4-2u^3+u+1)^2)(u^{138}-3u^{137}+\cdots-23u+1)$
c_{10}	$((u^6-u^5-u^4+2u^3-u+1)^2)(u^{138}+23u^{137}+\cdots+3u+1)$
c_{11}	$((u^6-u^5-u^4+2u^3-u+1)^2)(u^{138}-3u^{137}+\cdots-23u+1)$
c_{12}	$((u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2)(u^{138}+9u^{137}+\cdots+3u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^6)(y^{138}+15y^{137}+\cdots-35y+1)$
c_2, c_5	$((y^2+y+1)^6)(y^{138}+67y^{137}+\cdots+33y+1)$
c_3	$(y^2+y+1)^6$ $\cdot(y^{138}-37y^{137}+\cdots+2159732187820305y+186532031774929)$
c_4, c_8	$y^{12}(y^{138}+65y^{137}+\cdots+5.03316\times10^8y+1.67772\times10^7)$
c_6	$(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot(y^{138}-109y^{137}+\cdots+23684604833y+197936761)$
c_7	$(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot(y^{138}-137y^{137}+\cdots-472810103y+3352561)$
c_9, c_{11}	$((y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2)(y^{138}-89y^{137}+\cdots-23y+1)$
c_{10}	$((y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2)(y^{138}-9y^{137}+\cdots-23y+1)$
c_{12}	$((y^6+y^5+5y^4+6y^2+3y+1)^2)(y^{138}+23y^{137}+\cdots+9y+1)$