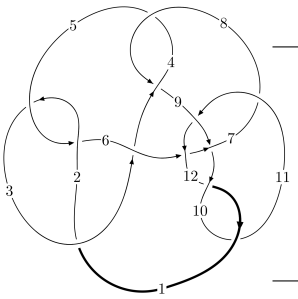
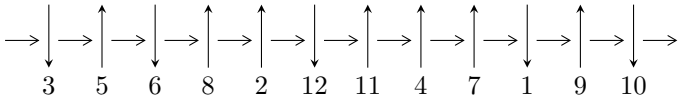
$12a_{0015}$ $(K12a_{0015})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.07638 \times 10^{604} u^{137} - 8.77338 \times 10^{604} u^{136} + \cdots + 8.40968 \times 10^{606} b - 6.86516 \times 10^{608},$$
$$1.65090 \times 10^{604} u^{137} - 8.14368 \times 10^{604} u^{136} + \cdots + 1.68194 \times 10^{607} a - 7.75391 \times 10^{608},$$
$$u^{138} - u^{137} + \cdots + 20480u + 4096\rangle$$

$$I_1^v = \langle a,\ 963772v^{11} + 658631v^{10} + \cdots + 707733b + 3141326,$$
$$v^{12} + v^{11} - 4v^{10} + 5v^9 + 19v^8 - 9v^7 - 31v^6 - 29v^5 + 31v^4 + 18v^3 + 3v^2 + 3v + 1\rangle$$

* 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. $\boldsymbol{I_1^u = \langle 2.08 \times 10^{604} u^{137} - 8.77 \times 10^{604} u^{136} + \cdots + 8.41 \times 10^{606} b - 6.87 \times 10^{608},\ 1.65 \times 10^{604} u^{137} - 8.14 \times 10^{604} u^{136} + \cdots + 1.68 \times 10^{607} a - 7.75 \times 10^{608},\ u^{138} - u^{137} + \cdots + 20480u + 4096 \rangle}$

(i) Arc colorings

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

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

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

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

$$a_{11} = \begin{pmatrix} -0.000981550u^{137} + 0.00484185u^{136} + \cdots + 217.405u + 46.1011 \\ -0.00246903u^{137} + 0.0104325u^{136} + \cdots + 395.215u + 81.6340 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.000781310u^{137} + 0.00309620u^{136} + \cdots + 139.466u + 29.2946 \\ -0.00226879u^{137} + 0.00868684u^{136} + \cdots + 317.275u + 64.8275 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.00204430u^{137} + 0.00306538u^{136} + \cdots + 227.091u + 38.9117 \\ 0.00663207u^{137} - 0.00116817u^{136} + \cdots + 254.146u + 32.6295 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.00130809u^{137} - 0.00169966u^{136} + \cdots - 15.4882u - 3.73180 \\ 0.000676355u^{137} + 0.00282735u^{136} + \cdots + 176.518u + 33.2890 \end{pmatrix}$$

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

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

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

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

(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	$u^{138} - 9u^{137} + \cdots + 30021u - 1831$
c_7	$u^{138} - 3u^{137} + \cdots + 206471u + 14069$
c_9	$u^{138} + 9u^{137} + \cdots + 3u + 1$
c_{10}, c_{12}	$u^{138} - 3u^{137} + \cdots - 23u + 1$
c_{11}	$u^{138} + 23u^{137} + \cdots + 3u + 1$

(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	$y^{138} - 137y^{137} + \cdots - 472810103y + 3352561$
c_7	$y^{138} - 109y^{137} + \cdots + 23684604833y + 197936761$
c_9	$y^{138} + 23y^{137} + \cdots + 9y + 1$
c_{10}, c_{12}	$y^{138} - 89y^{137} + \cdots - 23y + 1$
c_{11}	$y^{138} - 9y^{137} + \cdots - 23y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.225717+0.984869I$ $a=-0.294640+0.216111I$ $b=-1.54630+0.69058I$	$-2.26109+1.21839I$	0
$u=-0.225717-0.984869I$ $a=-0.294640-0.216111I$ $b=-1.54630-0.69058I$	$-2.26109-1.21839I$	0
$u=0.968613+0.291315I$ $a=0.147565-0.690953I$ $b=1.43298+0.17677I$	$-3.85751-5.17156I$	0
$u=0.968613-0.291315I$ $a=0.147565+0.690953I$ $b=1.43298-0.17677I$	$-3.85751+5.17156I$	0
$u=-0.844113+0.492611I$ $a=-0.358384-1.057380I$ $b=0.165311+0.318348I$	$2.70862+2.80444I$	0
$u=-0.844113-0.492611I$ $a=-0.358384+1.057380I$ $b=0.165311-0.318348I$	$2.70862-2.80444I$	0
$u=-0.495236+0.898497I$ $a=1.017350+0.325698I$ $b=2.36836+0.83423I$	$2.48949-5.71532I$	0
$u=-0.495236-0.898497I$ $a=1.017350-0.325698I$ $b=2.36836-0.83423I$	$2.48949+5.71532I$	0
$u=0.407051+0.951666I$ $a=-1.18240+1.26696I$ $b=-1.79540+1.09338I$	$-1.49189+2.01388I$	0
$u=0.407051-0.951666I$ $a=-1.18240-1.26696I$ $b=-1.79540-1.09338I$	$-1.49189-2.01388I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.691921 + 0.666142I$ $a = -0.667786 + 0.443380I$ $b = 0.193633 - 0.004783I$	$1.63530 + 4.17072I$	0
$u = 0.691921 - 0.666142I$ $a = -0.667786 - 0.443380I$ $b = 0.193633 + 0.004783I$	$1.63530 - 4.17072I$	0
$u = 0.647033 + 0.696244I$ $a = 0.415181 + 0.391117I$ $b = 0.727346 + 0.112079I$	$1.41425 + 1.45110I$	0
$u = 0.647033 - 0.696244I$ $a = 0.415181 - 0.391117I$ $b = 0.727346 - 0.112079I$	$1.41425 - 1.45110I$	0
$u = 0.362183 + 0.876985I$ $a = -0.05970 - 1.44009I$ $b = -0.197138 + 0.136703I$	$1.44585 + 2.70079I$	0
$u = 0.362183 - 0.876985I$ $a = -0.05970 + 1.44009I$ $b = -0.197138 - 0.136703I$	$1.44585 - 2.70079I$	0
$u = 0.924692 + 0.109605I$ $a = 0.345184 + 0.971895I$ $b = 1.52213 - 0.03534I$	$-4.26855 - 1.64031I$	0
$u = 0.924692 - 0.109605I$ $a = 0.345184 - 0.971895I$ $b = 1.52213 + 0.03534I$	$-4.26855 + 1.64031I$	0
$u = -0.790483 + 0.476530I$ $a = -0.442068 + 0.500118I$ $b = -0.611556 + 0.121924I$	$-0.04648 + 3.17550I$	0
$u = -0.790483 - 0.476530I$ $a = -0.442068 - 0.500118I$ $b = -0.611556 - 0.121924I$	$-0.04648 - 3.17550I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.883665 + 0.175408I$ $a = 0.527861 - 0.719630I$ $b = -0.049223 + 0.483166I$	$-0.821300 - 0.506241I$	0
$u = 0.883665 - 0.175408I$ $a = 0.527861 + 0.719630I$ $b = -0.049223 - 0.483166I$	$-0.821300 + 0.506241I$	0
$u = -0.466251 + 0.764985I$ $a = 0.742615 + 0.929151I$ $b = -0.156769 + 0.062810I$	$0.18427 - 8.79554I$	0
$u = -0.466251 - 0.764985I$ $a = 0.742615 - 0.929151I$ $b = -0.156769 - 0.062810I$	$0.18427 + 8.79554I$	0
$u = 1.000430 + 0.471347I$ $a = 0.281303 - 0.942139I$ $b = -0.212406 + 0.367643I$	$0.61052 - 7.36350I$	0
$u = 1.000430 - 0.471347I$ $a = 0.281303 + 0.942139I$ $b = -0.212406 - 0.367643I$	$0.61052 + 7.36350I$	0
$u = 0.390996 + 0.800553I$ $a = -1.025010 + 0.479217I$ $b = -2.38378 + 1.07374I$	$1.65391 + 0.55987I$	0
$u = 0.390996 - 0.800553I$ $a = -1.025010 - 0.479217I$ $b = -2.38378 - 1.07374I$	$1.65391 - 0.55987I$	0
$u = 0.354325 + 1.078600I$ $a = 1.182780 - 0.495498I$ $b = 2.23291 - 1.06563I$	$-2.10779 + 5.70362I$	0
$u = 0.354325 - 1.078600I$ $a = 1.182780 + 0.495498I$ $b = 2.23291 + 1.06563I$	$-2.10779 - 5.70362I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.13904$ $a = 0.622593$ $b = 0.160363$	1.10281	0
$u = -0.166480 + 1.130730I$ $a = 0.991148 + 0.913261I$ $b = 1.60834 + 0.78839I$	$-5.25889 + 0.99512I$	0
$u = -0.166480 - 1.130730I$ $a = 0.991148 - 0.913261I$ $b = 1.60834 - 0.78839I$	$-5.25889 - 0.99512I$	0
$u = -1.055350 + 0.441739I$ $a = 0.456966 + 1.245590I$ $b = -0.067158 + 0.137579I$	$-1.00538 + 8.27121I$	0
$u = -1.055350 - 0.441739I$ $a = 0.456966 - 1.245590I$ $b = -0.067158 - 0.137579I$	$-1.00538 - 8.27121I$	0
$u = -0.805473 + 0.284873I$ $a = 3.54683 + 1.54981I$ $b = 3.92832 + 1.44251I$	$-2.05908 + 3.02563I$	0
$u = -0.805473 - 0.284873I$ $a = 3.54683 - 1.54981I$ $b = 3.92832 - 1.44251I$	$-2.05908 - 3.02563I$	0
$u = -0.523047 + 0.667669I$ $a = -0.21618 - 1.43239I$ $b = 0.160767 + 0.189881I$	$3.16409 + 1.56319I$	0
$u = -0.523047 - 0.667669I$ $a = -0.21618 + 1.43239I$ $b = 0.160767 - 0.189881I$	$3.16409 - 1.56319I$	0
$u = 0.494515 + 1.057540I$ $a = 0.96886 - 2.59242I$ $b = 1.06381 - 2.11928I$	$-2.24796 + 3.24421I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.494515 - 1.057540I$ $a = 0.96886 + 2.59242I$ $b = 1.06381 + 2.11928I$	$-2.24796 - 3.24421I$	0
$u = -0.147750 + 0.819139I$ $a = -0.58094 - 1.46237I$ $b = -0.178726 + 0.046191I$	$0.93710 - 3.59535I$	0
$u = -0.147750 - 0.819139I$ $a = -0.58094 + 1.46237I$ $b = -0.178726 - 0.046191I$	$0.93710 + 3.59535I$	0
$u = -0.309016 + 0.768051I$ $a = 0.703220 - 0.056139I$ $b = 1.58701 - 1.45199I$	$-2.00907 - 3.90626I$	0
$u = -0.309016 - 0.768051I$ $a = 0.703220 + 0.056139I$ $b = 1.58701 + 1.45199I$	$-2.00907 + 3.90626I$	0
$u = -0.419130 + 1.104740I$ $a = -0.741253 + 0.461461I$ $b = -1.271310 + 0.295904I$	$-4.22588 - 1.00117I$	0
$u = -0.419130 - 1.104740I$ $a = -0.741253 - 0.461461I$ $b = -1.271310 - 0.295904I$	$-4.22588 + 1.00117I$	0
$u = -0.403023 + 1.112730I$ $a = -0.855650 + 0.551969I$ $b = -1.82414 - 0.52868I$	$-5.07002 - 1.85762I$	0
$u = -0.403023 - 1.112730I$ $a = -0.855650 - 0.551969I$ $b = -1.82414 + 0.52868I$	$-5.07002 + 1.85762I$	0
$u = -0.482224 + 1.095960I$ $a = -1.240380 - 0.414603I$ $b = -2.33757 - 0.89688I$	$-1.36324 - 11.29470I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.482224-1.095960I$ $a=-1.240380+0.414603I$ $b=-2.33757+0.89688I$	$-1.36324+11.29470I$	0
$u=0.617415+1.032780I$ $a=0.678337+0.307189I$ $b=1.188460+0.067653I$	$0.34659+3.64206I$	0
$u=0.617415-1.032780I$ $a=0.678337-0.307189I$ $b=1.188460-0.067653I$	$0.34659-3.64206I$	0
$u=-0.299210+1.174910I$ $a=-0.57189-2.80569I$ $b=-0.62514-2.34158I$	$-6.50973-0.24697I$	0
$u=-0.299210-1.174910I$ $a=-0.57189+2.80569I$ $b=-0.62514+2.34158I$	$-6.50973+0.24697I$	0
$u=0.594539+0.516126I$ $a=-2.04149+2.38783I$ $b=-2.48085+2.13800I$	$-0.564734+1.063680I$	$-9.1645-19.4771I$
$u=0.594539-0.516126I$ $a=-2.04149-2.38783I$ $b=-2.48085-2.13800I$	$-0.564734-1.063680I$	$-9.1645+19.4771I$
$u=-0.471282+1.118030I$ $a=1.30102+1.05181I$ $b=1.89906+0.90378I$	$-3.90439-6.62338I$	0
$u=-0.471282-1.118030I$ $a=1.30102-1.05181I$ $b=1.89906-0.90378I$	$-3.90439+6.62338I$	0
$u=0.468994+0.629619I$ $a=2.43302-2.37091I$ $b=2.65913-1.95873I$	$-0.61751+1.70960I$	$-9.8208+17.9498I$

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.468994-0.629619I$		
$a=$	$2.43302+2.37091I$	$-0.61751-1.70960I$	$-9.8208-17.9498I$
$b=$	$2.65913+1.95873I$		
$u=$	$0.382806+1.155410I$		
$a=$	$0.359131+0.027006I$	$-4.91525+3.17082I$	0
$b=$	$1.60372+0.55083I$		
$u=$	$0.382806-1.155410I$		
$a=$	$0.359131-0.027006I$	$-4.91525-3.17082I$	0
$b=$	$1.60372-0.55083I$		
$u=$	$0.080035+1.216100I$		
$a=$	$0.526288+0.157565I$	$-5.86217-4.68661I$	0
$b=$	$1.74683+0.65547I$		
$u=$	$0.080035-1.216100I$		
$a=$	$0.526288-0.157565I$	$-5.86217+4.68661I$	0
$b=$	$1.74683-0.65547I$		
$u=$	$1.204080+0.239536I$		
$a=$	$-0.459385+1.051260I$	$-5.12215-5.13211I$	0
$b=$	$0.090805+0.133302I$		
$u=$	$1.204080-0.239536I$		
$a=$	$-0.459385-1.051260I$	$-5.12215+5.13211I$	0
$b=$	$0.090805-0.133302I$		
$u=$	$-0.514859+1.134730I$		
$a=$	$0.541995+0.245560I$	$-4.22507-5.81215I$	0
$b=$	$1.32232-0.99331I$		
$u=$	$-0.514859-1.134730I$		
$a=$	$0.541995-0.245560I$	$-4.22507+5.81215I$	0
$b=$	$1.32232+0.99331I$		
$u=$	$-0.752443+0.039638I$		
$a=$	$-0.852096+0.385900I$	$-1.00356-2.77254I$	$0.77684+5.56890I$
$b=$	$-0.613279-0.275254I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.752443-0.039638I$ $a=-0.852096-0.385900I$ $b=-0.613279+0.275254I$	$-1.00356+2.77254I$	$0.77684-5.56890I$
$u=-0.536143+0.485236I$ $a=\ \ 0.51276+1.88327I$ $b=-0.0175137+0.1051560I$	$0.61191+7.14983I$	$3.75978-1.57652I$
$u=-0.536143-0.485236I$ $a=\ \ 0.51276-1.88327I$ $b=-0.0175137-0.1051560I$	$0.61191-7.14983I$	$3.75978+1.57652I$
$u=\ \ 0.722812$ $a=\ \ 1.01964$ $b=\ \ 0.245406$	1.24576	9.34870
$u=-0.633518+0.347110I$ $a=\ \ 0.253544-0.635653I$ $b=-1.255390+0.218624I$	$-1.79923+1.22022I$	$-1.34511-3.56182I$
$u=-0.633518-0.347110I$ $a=\ \ 0.253544+0.635653I$ $b=-1.255390-0.218624I$	$-1.79923-1.22022I$	$-1.34511+3.56182I$
$u=\ \ 0.229996+1.259400I$ $a=-0.198398+0.489472I$ $b=-0.374227+0.829231I$	$0.42778+2.94009I$	0
$u=\ \ 0.229996-1.259400I$ $a=-0.198398-0.489472I$ $b=-0.374227-0.829231I$	$0.42778-2.94009I$	0
$u=\ \ 0.237164+1.259150I$ $a=\ \ 0.793025+0.477523I$ $b=\ \ 1.72121-0.62807I$	$-9.23975-1.47869I$	0
$u=\ \ 0.237164-1.259150I$ $a=\ \ 0.793025-0.477523I$ $b=\ \ 1.72121+0.62807I$	$-9.23975+1.47869I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.625704+1.124680I$ $a=\ 0.957652+0.155716I$ $b=\ 2.25228+0.59171I$	$0.72901-8.31835I$	0
$u=-0.625704-1.124680I$ $a=\ 0.957652-0.155716I$ $b=\ 2.25228-0.59171I$	$0.72901+8.31835I$	0
$u=\ 1.179740+0.520421I$ $a=-0.361647+1.213850I$ $b=\ 0.071610+0.151034I$	$-3.53057-13.07050I$	0
$u=\ 1.179740-0.520421I$ $a=-0.361647-1.213850I$ $b=\ 0.071610-0.151034I$	$-3.53057+13.07050I$	0
$u=\ 0.185406+0.682883I$ $a=\ 0.27266+1.97980I$ $b=-0.0381996+0.1034590I$	$-0.44372-3.17076I$	$-5.30905-2.16030I$
$u=\ 0.185406-0.682883I$ $a=\ 0.27266-1.97980I$ $b=-0.0381996-0.1034590I$	$-0.44372+3.17076I$	$-5.30905+2.16030I$
$u=-0.557227+1.166990I$ $a=-0.81226-2.43716I$ $b=-0.89747-1.94437I$	$-4.70709-8.12492I$	0
$u=-0.557227-1.166990I$ $a=-0.81226+2.43716I$ $b=-0.89747+1.94437I$	$-4.70709+8.12492I$	0
$u=\ 0.484539+1.201990I$ $a=-0.873032+0.170491I$ $b=-2.13899+0.63134I$	$-4.09738+5.40863I$	0
$u=\ 0.484539-1.201990I$ $a=-0.873032-0.170491I$ $b=-2.13899-0.63134I$	$-4.09738-5.40863I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.652158+1.121780I$ $a=-0.753877+0.285874I$ $b=-1.301380+0.047036I$	$-1.92373-8.69899I$	0
$u=-0.652158-1.121780I$ $a=-0.753877-0.285874I$ $b=-1.301380-0.047036I$	$-1.92373+8.69899I$	0
$u=0.354774+1.248840I$ $a=-0.616679+0.303202I$ $b=-1.43627-0.89821I$	$-8.72518+2.65013I$	0
$u=0.354774-1.248840I$ $a=-0.616679-0.303202I$ $b=-1.43627+0.89821I$	$-8.72518-2.65013I$	0
$u=0.456208+0.530857I$ $a=1.13919-1.09802I$ $b=0.157090-0.007597I$	$2.30178-0.05398I$	$5.52630-2.50446I$
$u=0.456208-0.530857I$ $a=1.13919+1.09802I$ $b=0.157090+0.007597I$	$2.30178+0.05398I$	$5.52630+2.50446I$
$u=0.969289+0.894952I$ $a=-0.1042660-0.0526307I$ $b=0.190558-0.272536I$	$1.00721+1.59954I$	0
$u=0.969289-0.894952I$ $a=-0.1042660+0.0526307I$ $b=0.190558+0.272536I$	$1.00721-1.59954I$	0
$u=0.499313+1.221980I$ $a=0.800563+0.576581I$ $b=1.75153-0.48262I$	$-7.72780+6.66125I$	0
$u=0.499313-1.221980I$ $a=0.800563-0.576581I$ $b=1.75153+0.48262I$	$-7.72780-6.66125I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.027575+0.669982I$ $a=-0.131081+0.975115I$ $b=-0.33991+1.63785I$	$0.77901+2.40486I$	$0.57490-3.33955I$
$u=-0.027575-0.669982I$ $a=-0.131081-0.975115I$ $b=-0.33991-1.63785I$	$0.77901-2.40486I$	$0.57490+3.33955I$
$u=-1.239130+0.488019I$ $a=\ \ 0.294086-0.385560I$ $b=-0.134296-0.114140I$	$-4.27455-4.31705I$	0
$u=-1.239130-0.488019I$ $a=\ \ 0.294086+0.385560I$ $b=-0.134296+0.114140I$	$-4.27455+4.31705I$	0
$u=-0.760986+1.097480I$ $a=\ \ 0.114324-0.213713I$ $b=\ \ 0.064421-0.580905I$	$-0.61746+4.04978I$	0
$u=-0.760986-1.097480I$ $a=\ \ 0.114324+0.213713I$ $b=\ \ 0.064421+0.580905I$	$-0.61746-4.04978I$	0
$u=-0.533533+0.393622I$ $a=-0.97725+1.40364I$ $b=-1.94209+0.34526I$	$-2.78368-1.46397I$	$-3.71074+3.08918I$
$u=-0.533533-0.393622I$ $a=-0.97725-1.40364I$ $b=-1.94209-0.34526I$	$-2.78368+1.46397I$	$-3.71074-3.08918I$
$u=\ \ 0.047521+0.644878I$ $a=-1.179240-0.068407I$ $b=-2.32332-1.43336I$	$-2.35739-0.94653I$	$-10.41057-1.05373I$
$u=\ \ 0.047521-0.644878I$ $a=-1.179240+0.068407I$ $b=-2.32332+1.43336I$	$-2.35739+0.94653I$	$-10.41057+1.05373I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.589342 + 1.220770I$ $a = -0.514128 + 0.291135I$ $b = -1.27522 - 0.92426I$	$-6.77899 + 10.82090I$	0
$u = \ 0.589342 - 1.220770I$ $a = -0.514128 - 0.291135I$ $b = -1.27522 + 0.92426I$	$-6.77899 - 10.82090I$	0
$u = \ 0.678071 + 1.188740I$ $a = -0.952054 + 0.115631I$ $b = -2.23325 + 0.53630I$	$-1.67408 + 13.49120I$	0
$u = \ 0.678071 - 1.188740I$ $a = -0.952054 - 0.115631I$ $b = -2.23325 - 0.53630I$	$-1.67408 - 13.49120I$	0
$u = -0.699582 + 1.215180I$ $a = -1.250860 - 0.275217I$ $b = -2.33543 - 0.61493I$	$-3.4406 - 14.6175I$	0
$u = -0.699582 - 1.215180I$ $a = -1.250860 + 0.275217I$ $b = -2.33543 + 0.61493I$	$-3.4406 + 14.6175I$	0
$u = -0.06214 + 1.41839I$ $a = \ 0.821700 - 0.319634I$ $b = \ 1.51310 - 0.76091I$	$-7.96952 + 4.57151I$	0
$u = -0.06214 - 1.41839I$ $a = \ 0.821700 + 0.319634I$ $b = \ 1.51310 + 0.76091I$	$-7.96952 - 4.57151I$	0
$u = -0.447357 + 0.348451I$ $a = -3.00586 - 0.37306I$ $b = -3.58489 + 0.07302I$	$-1.48464 + 2.67615I$	$-11.3832 + 12.0268I$
$u = -0.447357 - 0.348451I$ $a = -3.00586 + 0.37306I$ $b = -3.58489 - 0.07302I$	$-1.48464 - 2.67615I$	$-11.3832 - 12.0268I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.36012+0.45602I$ $a=-0.330074-0.370600I$ $b=-0.146651-0.049871I$	$-2.10145+4.63629I$	0
$u=-1.36012-0.45602I$ $a=-0.330074+0.370600I$ $b=-0.146651+0.049871I$	$-2.10145-4.63629I$	0
$u=\ \ 0.60934+1.31602I$ $a=\ \ 1.191370-0.282012I$ $b=\ \ 2.21784-0.64053I$	$-8.6772+11.5041I$	0
$u=\ \ 0.60934-1.31602I$ $a=\ \ 1.191370+0.282012I$ $b=\ \ 2.21784+0.64053I$	$-8.6772-11.5041I$	0
$u=\ \ 0.69110+1.28047I$ $a=-0.618692+0.364479I$ $b=-1.177280+0.552949I$	$-2.30827+6.50477I$	0
$u=\ \ 0.69110-1.28047I$ $a=-0.618692-0.364479I$ $b=-1.177280-0.552949I$	$-2.30827-6.50477I$	0
$u=\ \ 0.76319+1.24643I$ $a=\ \ 1.251390-0.245316I$ $b=\ \ 2.33016-0.55434I$	$-5.8957+20.0114I$	0
$u=\ \ 0.76319-1.24643I$ $a=\ \ 1.251390+0.245316I$ $b=\ \ 2.33016+0.55434I$	$-5.8957-20.0114I$	0
$u=-0.76896+1.29555I$ $a=\ \ 0.676542+0.349738I$ $b=\ \ 1.289450+0.515918I$	$-4.86223-11.95560I$	0
$u=-0.76896-1.29555I$ $a=\ \ 0.676542-0.349738I$ $b=\ \ 1.289450-0.515918I$	$-4.86223+11.95560I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.07354+1.51167I$ $a=-0.916297-0.278761I$ $b=-1.68989-0.67622I$	$-11.8703-9.0599I$	0
$u=-0.07354-1.51167I$ $a=-0.916297+0.278761I$ $b=-1.68989+0.67622I$	$-11.8703+9.0599I$	0
$u=-0.269804+0.381004I$ $a=\ \ 1.069040+0.014526I$ $b=-0.926287+0.440409I$	$-1.85090+1.10618I$	$-2.51777-1.83567I$
$u=-0.269804-0.381004I$ $a=\ \ 1.069040-0.014526I$ $b=-0.926287-0.440409I$	$-1.85090-1.10618I$	$-2.51777+1.83567I$
$u=\ \ 0.17686+1.52587I$ $a=-0.777083-0.221638I$ $b=-1.42378-0.57653I$	$-11.67560+0.10597I$	0
$u=\ \ 0.17686-1.52587I$ $a=-0.777083+0.221638I$ $b=-1.42378+0.57653I$	$-11.67560-0.10597I$	0
$u=-0.63750+1.40717I$ $a=\ \ 0.576430+0.245891I$ $b=\ \ 1.079120+0.326947I$	$-7.63817-3.16727I$	0
$u=-0.63750-1.40717I$ $a=\ \ 0.576430-0.245891I$ $b=\ \ 1.079120-0.326947I$	$-7.63817+3.16727I$	0

II. $I_1^v = \langle a,\ 9.64\times 10^5 v^{11} + 6.59\times 10^5 v^{10} + \cdots + 7.08\times 10^5 b + 3.14\times 10^6,\ v^{12} + v^{11} + \cdots + 3v + 1\rangle$

(i) Arc colorings

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

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

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

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

$$a_{11} = \begin{pmatrix} 0 \\ -1.36177v^{11} - 0.930621v^{10} + \cdots - 5.08294v - 4.43857 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.222666v^{11} - 0.152658v^{10} + \cdots + 0.0683153v - 0.431153 \\ -1.36177v^{11} - 0.930621v^{10} + \cdots - 5.08294v - 4.43857 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} v \\ -0.546453v^{11} - 0.201388v^{10} + \cdots - 2.43405v - 1.91940 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.181358v^{11} + 0.113940v^{10} + \cdots + 1.48874v + 0.345065 \\ -0.678951v^{11} - 0.501804v^{10} + \cdots - 2.40704v - 2.15346 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.306346v^{11} - 0.227326v^{10} + \cdots - 1.34123v - 0.522212 \\ -0.678951v^{11} - 0.501804v^{10} + \cdots - 2.40704v - 2.15346 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.306346v^{11} + 0.227326v^{10} + \cdots + 1.34123v + 0.522212 \\ 0.678951v^{11} + 0.501804v^{10} + \cdots + 2.40704v + 2.15346 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0350655v^{11} - 0.0129173v^{10} + \cdots - 0.00328231v + 1.62035 \\ -0.678951v^{11} - 0.501804v^{10} + \cdots - 2.40704v - 1.15346 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.714016v^{11} + 0.488886v^{10} + \cdots + 2.40376v + 2.77380 \\ -0.678951v^{11} - 0.501804v^{10} + \cdots - 2.40704v - 1.15346 \end{pmatrix}$$

(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_9	$(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$
c_7, c_{12}	$(u^6-u^5-u^4+2u^3-u+1)^2$
c_{10}, c_{11}	$(u^6+u^5-u^4-2u^3+u+1)^2$

(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	$(y^6+y^5+5y^4+6y^2+3y+1)^2$
c_7, c_{10}, c_{11} c_{12}	$(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-0.695888+0.967642I$ $a=\quad 0$ $b=\quad 0.289622+0.827421I$	$1.89061+2.95419I$	$6.39280-3.57892I$
$v=-0.695888-0.967642I$ $a=\quad 0$ $b=\quad 0.289622-0.827421I$	$1.89061-2.95419I$	$6.39280+3.57892I$
$v=\quad 1.185950+0.118836I$ $a=\quad 0$ $b=-0.861379-0.162890I$	$1.89061-1.10558I$	$3.63443+2.52768I$
$v=\quad 1.185950-0.118836I$ $a=\quad 0$ $b=-0.861379+0.162890I$	$1.89061+1.10558I$	$3.63443-2.52768I$
$v=-0.383184+0.075842I$ $a=\quad 0$ $b=-0.74515-1.88172I$	$-1.89061-2.95419I$	$-7.91752+1.81989I$
$v=-0.383184-0.075842I$ $a=\quad 0$ $b=-0.74515+1.88172I$	$-1.89061+2.95419I$	$-7.91752-1.81989I$
$v=\quad 0.125911+0.369768I$ $a=\quad 0$ $b=-1.25704-1.58618I$	$-1.89061-1.10558I$	$3.59610+6.57635I$
$v=\quad 0.125911-0.369768I$ $a=\quad 0$ $b=-1.25704+1.58618I$	$-1.89061+1.10558I$	$3.59610-6.57635I$
$v=\quad 1.38214+1.64413I$ $a=\quad 0$ $b=\quad 0.520868-0.215334I$	$3.66314I$	$2.83009-6.37777I$
$v=\quad 1.38214-1.64413I$ $a=\quad 0$ $b=\quad 0.520868+0.215334I$	$-3.66314I$	$2.83009+6.37777I$

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-2.11493+0.37491I$		
$a=\quad 0$	$7.72290I$	$-2.53591-7.46338I$
$b=-0.446919-0.343418I$		
$v=-2.11493-0.37491I$		
$a=\quad 0$	$-7.72290I$	$-2.53591+7.46338I$
$b=-0.446919+0.343418I$		

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	$(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot(u^{138}-9u^{137}+\cdots+30021u-1831)$
c_7	$((u^6-u^5-u^4+2u^3-u+1)^2)(u^{138}-3u^{137}+\cdots+206471u+14069)$
c_9	$((u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2)(u^{138}+9u^{137}+\cdots+3u+1)$
c_{10}	$((u^6+u^5-u^4-2u^3+u+1)^2)(u^{138}-3u^{137}+\cdots-23u+1)$
c_{11}	$((u^6+u^5-u^4-2u^3+u+1)^2)(u^{138}+23u^{137}+\cdots+3u+1)$
c_{12}	$((u^6-u^5-u^4+2u^3-u+1)^2)(u^{138}-3u^{137}+\cdots-23u+1)$

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	$(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot(y^{138}-137y^{137}+\cdots-472810103y+3352561)$
c_7	$(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot(y^{138}-109y^{137}+\cdots+23684604833y+197936761)$
c_9	$((y^6+y^5+5y^4+6y^2+3y+1)^2)(y^{138}+23y^{137}+\cdots+9y+1)$
c_{10}, c_{12}	$((y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2)(y^{138}-89y^{137}+\cdots-23y+1)$
c_{11}	$((y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2)(y^{138}-9y^{137}+\cdots-23y+1)$