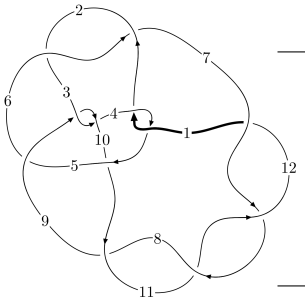
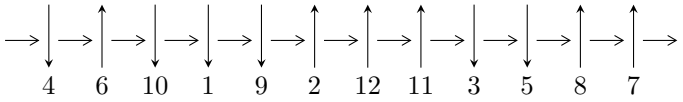
$12a_{0969}$ $(K12a_{0969})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -2.36400 \times 10^{116} u^{90} - 5.03510 \times 10^{116} u^{89} + \cdots + 7.67306 \times 10^{116} b + 1.44976 \times 10^{118},$$
$$- 8.64013 \times 10^{119} u^{90} - 2.09303 \times 10^{120} u^{89} + \cdots + 5.34812 \times 10^{119} a + 2.44441 \times 10^{121},$$
$$u^{91} + 3u^{90} + \cdots + 129u + 17 \rangle$$
$$I_2^u = \langle -u^{20} - 2u^{19} + \cdots + b - 1,\ u^{21} - u^{20} + \cdots + a - 7,\ u^{22} + 2u^{21} + \cdots + 4u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 113 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. $\boldsymbol{I_1^u = \langle -2.36 \times 10^{116} u^{90} - 5.04 \times 10^{116} u^{89} + \cdots + 7.67 \times 10^{116} b + 1.45 \times 10^{118},\ -8.64 \times 10^{119} u^{90} - 2.09 \times 10^{120} u^{89} + \cdots + 5.35 \times 10^{119} a + 2.44 \times 10^{121},\ u^{91} + 3u^{90} + \cdots + 129u + 17 \rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1.61554u^{90} + 3.91359u^{89} + \cdots - 201.269u - 45.7060 \\ 0.308091u^{90} + 0.656205u^{89} + \cdots - 77.7660u - 18.8941 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.882014u^{90} - 3.56244u^{89} + \cdots - 190.889u - 17.8701 \\ -0.381868u^{90} - 1.43162u^{89} + \cdots + 13.2970u + 4.16919 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.03636u^{90} + 2.41410u^{89} + \cdots - 137.714u - 34.4014 \\ -0.271098u^{90} - 0.843285u^{89} + \cdots - 14.2107u - 7.58951 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.62034u^{90} + 3.98249u^{89} + \cdots - 197.673u - 41.7998 \\ 0.189004u^{90} + 0.362786u^{89} + \cdots - 70.2633u - 15.9802 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.55728u^{90} + 3.97321u^{89} + \cdots + 15.5789u - 16.1108 \\ 1.11898u^{90} + 2.89964u^{89} + \cdots + 76.9656u - 2.20818 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.354207u^{90} - 2.05941u^{89} + \cdots - 175.052u - 17.2076 \\ -0.735965u^{90} - 2.79677u^{89} + \cdots - 263.469u - 28.2611 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3.24325u^{90} + 10.4665u^{89} + \cdots + 642.496u + 57.8550$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{91} - 5u^{90} + \cdots - 53u + 37$
c_2, c_6	$u^{91} - u^{90} + \cdots + 59093u + 8017$
c_3, c_9	$u^{91} + u^{90} + \cdots + 587u + 251$
c_5	$u^{91} + 3u^{90} + \cdots - 4003055u - 530711$
c_7, c_8, c_{11} c_{12}	$u^{91} + 3u^{90} + \cdots + 129u + 17$
c_{10}	$u^{91} - u^{90} + \cdots - 79317u + 19177$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{91} + 45y^{90} + \cdots - 55059y - 1369$
c_2, c_6	$y^{91} + 77y^{90} + \cdots - 1702552331y - 64272289$
c_3, c_9	$y^{91} - 63y^{90} + \cdots + 809421y - 63001$
c_5	$y^{91} - 49y^{90} + \cdots + 8286890991737y - 281654165521$
c_7, c_8, c_{11} c_{12}	$y^{91} + 113y^{90} + \cdots - 12021y - 289$
c_{10}	$y^{91} - 29y^{90} + \cdots + 8475331727y - 367757329$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.253030 + 1.006480I$ $a = -0.561408 + 0.901795I$ $b = -0.239624 + 0.297217I$	$-4.37050 + 2.04930I$	0
$u = 0.253030 - 1.006480I$ $a = -0.561408 - 0.901795I$ $b = -0.239624 - 0.297217I$	$-4.37050 - 2.04930I$	0
$u = -0.382221 + 0.872059I$ $a = -0.78902 - 1.24391I$ $b = 0.134758 - 0.340393I$	$-8.78899 - 6.69200I$	0
$u = -0.382221 - 0.872059I$ $a = -0.78902 + 1.24391I$ $b = 0.134758 + 0.340393I$	$-8.78899 + 6.69200I$	0
$u = -0.592298 + 0.866037I$ $a = 1.56047 + 0.34982I$ $b = 1.01433 + 1.56620I$	$-6.4664 - 13.2635I$	0
$u = -0.592298 - 0.866037I$ $a = 1.56047 - 0.34982I$ $b = 1.01433 - 1.56620I$	$-6.4664 + 13.2635I$	0
$u = 0.630431 + 0.846412I$ $a = 1.59404 - 0.38714I$ $b = 1.09526 - 1.46656I$	$-2.07560 + 6.94469I$	0
$u = 0.630431 - 0.846412I$ $a = 1.59404 + 0.38714I$ $b = 1.09526 + 1.46656I$	$-2.07560 - 6.94469I$	0
$u = -0.586607 + 0.740100I$ $a = 1.61009 + 0.36921I$ $b = 1.27345 + 1.42934I$	$-7.28302 - 0.64493I$	0
$u = -0.586607 - 0.740100I$ $a = 1.61009 - 0.36921I$ $b = 1.27345 - 1.42934I$	$-7.28302 + 0.64493I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.383140+0.844061I$ $a=-1.168540-0.674150I$ $b=-0.25614-1.62231I$	$-1.16419-6.82328I$	0
$u=-0.383140-0.844061I$ $a=-1.168540+0.674150I$ $b=-0.25614+1.62231I$	$-1.16419+6.82328I$	0
$u=0.087898+1.089220I$ $a=0.237486-0.259927I$ $b=-0.568773+0.022573I$	$-6.24220+0.44901I$	0
$u=0.087898-1.089220I$ $a=0.237486+0.259927I$ $b=-0.568773-0.022573I$	$-6.24220-0.44901I$	0
$u=0.476782+0.744759I$ $a=-0.903469+0.549106I$ $b=-0.196827+1.373020I$	$1.29917+3.07151I$	0
$u=0.476782-0.744759I$ $a=-0.903469-0.549106I$ $b=-0.196827-1.373020I$	$1.29917-3.07151I$	0
$u=0.849193+0.173893I$ $a=-0.394385+0.552089I$ $b=0.36794+1.42466I$	$0.00220-2.00961I$	0
$u=0.849193-0.173893I$ $a=-0.394385-0.552089I$ $b=0.36794-1.42466I$	$0.00220+2.00961I$	0
$u=-0.541487+1.036860I$ $a=-0.918599-0.986195I$ $b=-0.056278-0.887212I$	$-7.38711+3.94508I$	0
$u=-0.541487-1.036860I$ $a=-0.918599+0.986195I$ $b=-0.056278+0.887212I$	$-7.38711-3.94508I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.822520+0.067120I$ $a=-0.393774-0.210431I$ $b=\ \ 0.46423-1.43268I$	$-4.04382+8.57679I$	0
$u=-0.822520-0.067120I$ $a=-0.393774+0.210431I$ $b=\ \ 0.46423+1.43268I$	$-4.04382-8.57679I$	0
$u=-0.330329+0.695994I$ $a=-0.0350586+0.1285490I$ $b=-0.446342-0.727196I$	$-4.26951-2.65656I$	0
$u=-0.330329-0.695994I$ $a=-0.0350586-0.1285490I$ $b=-0.446342+0.727196I$	$-4.26951+2.65656I$	0
$u=\ \ 0.129252+0.718831I$ $a=\ \ 1.29791+0.61457I$ $b=\ \ 0.010107-0.407997I$	$-0.46804+2.58652I$	0
$u=\ \ 0.129252-0.718831I$ $a=\ \ 1.29791-0.61457I$ $b=\ \ 0.010107+0.407997I$	$-0.46804-2.58652I$	0
$u=\ \ 0.089930+0.719506I$ $a=-2.82227+0.94821I$ $b=-1.63207+1.65908I$	$-5.96732+3.75531I$	0
$u=\ \ 0.089930-0.719506I$ $a=-2.82227-0.94821I$ $b=-1.63207-1.65908I$	$-5.96732-3.75531I$	0
$u=\ \ 0.444816+0.571666I$ $a=-0.811182-0.626954I$ $b=-0.549553+1.222830I$	$-2.37455+4.94131I$	0
$u=\ \ 0.444816-0.571666I$ $a=-0.811182+0.626954I$ $b=-0.549553-1.222830I$	$-2.37455-4.94131I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.328418 + 1.300620I$ $a = -1.002710 + 0.773050I$ $b = -0.615435 + 0.689529I$	$-4.46238 + 2.26263I$	0
$u = 0.328418 - 1.300620I$ $a = -1.002710 - 0.773050I$ $b = -0.615435 - 0.689529I$	$-4.46238 - 2.26263I$	0
$u = 0.129039 + 1.345170I$ $a = 2.30985 - 0.06214I$ $b = 1.45692 - 0.23290I$	$-1.53404 + 3.13690I$	0
$u = 0.129039 - 1.345170I$ $a = 2.30985 + 0.06214I$ $b = 1.45692 + 0.23290I$	$-1.53404 - 3.13690I$	0
$u = -0.615697 + 0.164717I$ $a = -0.865139 - 0.742895I$ $b = 0.373819 - 1.212440I$	$-5.70084 - 3.45733I$	$-4.35538 + 2.32913I$
$u = -0.615697 - 0.164717I$ $a = -0.865139 + 0.742895I$ $b = 0.373819 + 1.212440I$	$-5.70084 + 3.45733I$	$-4.35538 - 2.32913I$
$u = -0.260413 + 0.575343I$ $a = -1.81516 + 0.48727I$ $b = -0.650904 - 1.158450I$	$-0.38808 - 3.24368I$	$-2.30026 + 0.I$
$u = -0.260413 - 0.575343I$ $a = -1.81516 - 0.48727I$ $b = -0.650904 + 1.158450I$	$-0.38808 + 3.24368I$	$-2.30026 + 0.I$
$u = 0.605745 + 0.178172I$ $a = 0.900250 + 0.429644I$ $b = 0.419929 - 1.077670I$	$3.01354 + 0.62860I$	$6.07513 - 1.71881I$
$u = 0.605745 - 0.178172I$ $a = 0.900250 - 0.429644I$ $b = 0.419929 + 1.077670I$	$3.01354 - 0.62860I$	$6.07513 + 1.71881I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.354938+0.503980I$ $a=\ \ 1.58658-0.00995I$ $b=-0.125767+0.884945I$	$-0.096196+1.233880I$	$-2.89346+1.13895I$
$u=-0.354938-0.503980I$ $a=\ \ 1.58658+0.00995I$ $b=-0.125767-0.884945I$	$-0.096196-1.233880I$	$-2.89346-1.13895I$
$u=\ \ 0.516984+0.310035I$ $a=\ \ 1.54678+0.12545I$ $b=-0.346073-0.764503I$	$-1.62456-1.58941I$	$-2.19411-0.24297I$
$u=\ \ 0.516984-0.310035I$ $a=\ \ 1.54678-0.12545I$ $b=-0.346073+0.764503I$	$-1.62456+1.58941I$	$-2.19411+0.24297I$
$u=-0.039764+0.550957I$ $a=-3.59783+0.41411I$ $b=-0.878611-0.342232I$	$0.43967-2.50241I$	$-6.35136+5.68313I$
$u=-0.039764-0.550957I$ $a=-3.59783-0.41411I$ $b=-0.878611+0.342232I$	$0.43967+2.50241I$	$-6.35136-5.68313I$
$u=-0.04384+1.49074I$ $a=\ \ 1.238740+0.265818I$ $b=\ \ 0.343289+0.401998I$	$-6.54801-0.21182I$	0
$u=-0.04384-1.49074I$ $a=\ \ 1.238740-0.265818I$ $b=\ \ 0.343289-0.401998I$	$-6.54801+0.21182I$	0
$u=-0.506629+0.013297I$ $a=\ \ 0.635914+1.176010I$ $b=\ \ 0.085659-1.171430I$	$1.39516-3.73965I$	$2.89170+5.40187I$
$u=-0.506629-0.013297I$ $a=\ \ 0.635914-1.176010I$ $b=\ \ 0.085659+1.171430I$	$1.39516+3.73965I$	$2.89170-5.40187I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.456972$ $a=\ \ 1.32803$ $b=-0.280726$	-2.27036	-2.15750
$u=\ \ 0.220977+0.398435I$ $a=\ \ 0.697056+0.380194I$ $b=\ \ 0.104360+0.315206I$	$0.003690+0.929769I$	$0.15778-7.14917I$
$u=\ \ 0.220977-0.398435I$ $a=\ \ 0.697056-0.380194I$ $b=\ \ 0.104360-0.315206I$	$0.003690-0.929769I$	$0.15778+7.14917I$
$u=-0.199743+0.398483I$ $a=\ \ 1.67316+0.34201I$ $b=-0.234533+0.862944I$	$0.072497+1.266220I$	$-4.46493-2.74628I$
$u=-0.199743-0.398483I$ $a=\ \ 1.67316-0.34201I$ $b=-0.234533-0.862944I$	$0.072497-1.266220I$	$-4.46493+2.74628I$
$u=\ \ 0.10145+1.56912I$ $a=-1.34483+0.73744I$ $b=-0.81044+1.53567I$	$-9.60673+6.81055I$	0
$u=\ \ 0.10145-1.56912I$ $a=-1.34483-0.73744I$ $b=-0.81044-1.53567I$	$-9.60673-6.81055I$	0
$u=-0.09827+1.57654I$ $a=-1.18204-1.29658I$ $b=-1.08401-1.66241I$	$-11.94870-4.17333I$	0
$u=-0.09827-1.57654I$ $a=-1.18204+1.29658I$ $b=-1.08401+1.66241I$	$-11.94870+4.17333I$	0
$u=\ \ 0.00011+1.58693I$ $a=\ \ 0.948307+0.856943I$ $b=\ \ 0.423379+1.197460I$	$-6.99880+1.08422I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.00011 - 1.58693I$ $a = 0.948307 - 0.856943I$ $b = 0.423379 - 1.197460I$	$-6.99880 - 1.08422I$	0
$u = -0.04388 + 1.59590I$ $a = 0.08672 - 1.66738I$ $b = -0.17594 - 1.98522I$	$-11.93620 - 3.98067I$	0
$u = -0.04388 - 1.59590I$ $a = 0.08672 + 1.66738I$ $b = -0.17594 + 1.98522I$	$-11.93620 + 3.98067I$	0
$u = -0.06162 + 1.59587I$ $a = -1.80580 - 0.79874I$ $b = -1.06224 - 1.38386I$	$-7.94061 - 4.34595I$	0
$u = -0.06162 - 1.59587I$ $a = -1.80580 + 0.79874I$ $b = -1.06224 + 1.38386I$	$-7.94061 + 4.34595I$	0
$u = -0.042082 + 0.397737I$ $a = 0.24997 - 2.36679I$ $b = -0.78595 - 1.78034I$	$-4.81875 - 3.37599I$	$-7.29184 - 1.97538I$
$u = -0.042082 - 0.397737I$ $a = 0.24997 + 2.36679I$ $b = -0.78595 + 1.78034I$	$-4.81875 + 3.37599I$	$-7.29184 + 1.97538I$
$u = -0.00951 + 1.60358I$ $a = -2.57300 - 0.18687I$ $b = -1.47153 - 0.38335I$	$-7.18483 - 2.67195I$	0
$u = -0.00951 - 1.60358I$ $a = -2.57300 + 0.18687I$ $b = -1.47153 + 0.38335I$	$-7.18483 + 2.67195I$	0
$u = 0.03262 + 1.61996I$ $a = 0.792831 - 0.242520I$ $b = 0.200055 - 0.835980I$	$-8.56287 + 3.20352I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.03262 - 1.61996I$ $a = 0.792831 + 0.242520I$ $b = 0.200055 + 0.835980I$	$-8.56287 - 3.20352I$	0
$u = 0.13259 + 1.62867I$ $a = -1.24348 + 1.20206I$ $b = -0.72606 + 1.56533I$	$-6.82850 + 5.34807I$	0
$u = 0.13259 - 1.62867I$ $a = -1.24348 - 1.20206I$ $b = -0.72606 - 1.56533I$	$-6.82850 - 5.34807I$	0
$u = 0.02825 + 1.63775I$ $a = -2.88026 + 1.42748I$ $b = -2.20110 + 1.72105I$	$-14.2601 + 4.2220I$	0
$u = 0.02825 - 1.63775I$ $a = -2.88026 - 1.42748I$ $b = -2.20110 - 1.72105I$	$-14.2601 - 4.2220I$	0
$u = -0.18525 + 1.64009I$ $a = 2.56449 + 0.80433I$ $b = 1.93148 + 1.24752I$	$-15.3815 - 3.6242I$	0
$u = -0.18525 - 1.64009I$ $a = 2.56449 - 0.80433I$ $b = 1.93148 - 1.24752I$	$-15.3815 + 3.6242I$	0
$u = -0.10744 + 1.66260I$ $a = -0.254529 - 0.572722I$ $b = 0.135258 + 0.231828I$	$-17.5577 - 8.5967I$	0
$u = -0.10744 - 1.66260I$ $a = -0.254529 + 0.572722I$ $b = 0.135258 - 0.231828I$	$-17.5577 + 8.5967I$	0
$u = -0.10822 + 1.66536I$ $a = -1.23552 - 1.50937I$ $b = -0.60319 - 1.90161I$	$-9.88898 - 8.72775I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.10822-1.66536I$ $a=-1.23552+1.50937I$ $b=-0.60319+1.90161I$	$-9.88898+8.72775I$	0
$u=0.18270+1.66545I$ $a=2.28916-0.86051I$ $b=1.58319-1.36510I$	$-10.6371+10.0743I$	0
$u=0.18270-1.66545I$ $a=2.28916+0.86051I$ $b=1.58319+1.36510I$	$-10.6371-10.0743I$	0
$u=-0.17542+1.66854I$ $a=2.17852+1.00647I$ $b=1.46947+1.57996I$	$-15.1212-16.2518I$	0
$u=-0.17542-1.66854I$ $a=2.17852-1.00647I$ $b=1.46947-1.57996I$	$-15.1212+16.2518I$	0
$u=0.08358+1.68225I$ $a=-0.225378+0.439636I$ $b=-0.032799-0.242739I$	$-13.66210+3.50921I$	0
$u=0.08358-1.68225I$ $a=-0.225378-0.439636I$ $b=-0.032799+0.242739I$	$-13.66210-3.50921I$	0
$u=0.00179+1.73496I$ $a=-0.485440+0.047068I$ $b=-0.809096+0.227849I$	$-16.3333+0.6742I$	0
$u=0.00179-1.73496I$ $a=-0.485440-0.047068I$ $b=-0.809096-0.227849I$	$-16.3333-0.6742I$	0
$u=-0.10578+1.73887I$ $a=-0.500551-0.414501I$ $b=-0.187235-0.058990I$	$-17.2736+1.3914I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.10578-1.73887I$		
$a=-0.500551+0.414501I$	$-17.2736-1.3914I$	0
$b=-0.187235+0.058990I$		

II.

$\boldsymbol{I_2^u = \langle -u^{20}-2u^{19}+\cdots+b-1,\ u^{21}-u^{20}+\cdots+a-7,\ u^{22}+2u^{21}+\cdots+4u+1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_8 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

$$a_1 = \begin{pmatrix}u\\u\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-u^{21}+u^{20}+\cdots+13u+7\\u^{20}+2u^{19}+\cdots+5u+1\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-3u^{21}-5u^{20}+\cdots-30u-3\\u^{21}+2u^{20}+\cdots+6u+1\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-u^{21}-u^{20}+\cdots+6u+5\\-u^{20}-2u^{19}+\cdots-2u-1\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-u^{21}-13u^{19}+\cdots+10u+7\\u^7+u^6+5u^5+4u^4+7u^3+4u^2+2u\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$

$$a_9 = \begin{pmatrix}u^2+1\\-u^4-2u^2\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}2u^{21}+4u^{20}+\cdots+18u+3\\-u^{11}-2u^{10}+\cdots-4u-1\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-u^{21}-u^{20}+\cdots-10u+1\\u^{21}+2u^{20}+\cdots+4u^2+2u\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $=$
$-3u^{21}-u^{20}-37u^{19}-3u^{18}-173u^{17}+60u^{16}-325u^{15}+503u^{14}+127u^{13}+1730u^{12}+1703u^{11}+3228u^{10}+3241u^9+3473u^8+2947u^7+2133u^6+1361u^5+694u^4+283u^3+106u^2+25u+11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{22} - 4u^{21} + \cdots + 11u^2 + 1$
c_2	$u^{22} + 11u^{20} + \cdots + 4u + 1$
c_3	$u^{22} - 7u^{20} + \cdots - 5u^2 + 1$
c_4	$u^{22} + 4u^{21} + \cdots + 11u^2 + 1$
c_5	$u^{22} + 4u^{21} + \cdots + 2u + 1$
c_6	$u^{22} + 11u^{20} + \cdots - 4u + 1$
c_7, c_8	$u^{22} + 2u^{21} + \cdots + 4u + 1$
c_9	$u^{22} - 7u^{20} + \cdots - 5u^2 + 1$
c_{10}	$u^{22} + 4u^{19} + \cdots + 10u^2 + 1$
c_{11}, c_{12}	$u^{22} - 2u^{21} + \cdots - 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{22} + 18y^{21} + \cdots + 22y + 1$
c_2, c_6	$y^{22} + 22y^{21} + \cdots + 18y + 1$
c_3, c_9	$y^{22} - 14y^{21} + \cdots - 10y + 1$
c_5	$y^{22} - 8y^{21} + \cdots - 18y + 1$
c_7, c_8, c_{11} c_{12}	$y^{22} + 30y^{21} + \cdots + 20y + 1$
c_{10}	$y^{22} - 4y^{20} + \cdots + 20y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.221036 + 0.919122I$ $a = 0.145042 - 1.360440I$ $b = -0.52812 - 1.31209I$	$-6.33099 - 2.20918I$	$-7.01368 + 0.97003I$
$u = 0.221036 - 0.919122I$ $a = 0.145042 + 1.360440I$ $b = -0.52812 + 1.31209I$	$-6.33099 + 2.20918I$	$-7.01368 - 0.97003I$
$u = -0.331088 + 0.690472I$ $a = -1.356670 + 0.365839I$ $b = -0.519230 - 1.084080I$	$-0.57451 - 4.10173I$	$-3.58788 + 8.99122I$
$u = -0.331088 - 0.690472I$ $a = -1.356670 - 0.365839I$ $b = -0.519230 + 1.084080I$	$-0.57451 + 4.10173I$	$-3.58788 - 8.99122I$
$u = -0.135691 + 1.302840I$ $a = -2.61209 - 0.22373I$ $b = -1.71780 - 0.44212I$	$-2.23134 - 3.47589I$	$-7.21416 + 5.11537I$
$u = -0.135691 - 1.302840I$ $a = -2.61209 + 0.22373I$ $b = -1.71780 + 0.44212I$	$-2.23134 + 3.47589I$	$-7.21416 - 5.11537I$
$u = -0.579730 + 0.172913I$ $a = 0.570289 - 0.245593I$ $b = -0.411451 + 1.102200I$	$1.13557 + 1.30166I$	$3.48273 - 0.87575I$
$u = -0.579730 - 0.172913I$ $a = 0.570289 + 0.245593I$ $b = -0.411451 - 1.102200I$	$1.13557 - 1.30166I$	$3.48273 + 0.87575I$
$u = -0.300051 + 1.373820I$ $a = 0.951749 + 0.663301I$ $b = 0.375338 + 0.652780I$	$-3.85049 - 1.96930I$	$0.582471 - 0.631843I$
$u = -0.300051 - 1.373820I$ $a = 0.951749 - 0.663301I$ $b = 0.375338 - 0.652780I$	$-3.85049 + 1.96930I$	$0.582471 + 0.631843I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.248153 + 0.423204I$ $a = -1.95607 + 0.54023I$ $b = -1.15067 + 1.92517I$	$-4.66669 + 3.88902I$	$-2.31027 - 11.16379I$
$u = 0.248153 - 0.423204I$ $a = -1.95607 - 0.54023I$ $b = -1.15067 - 1.92517I$	$-4.66669 - 3.88902I$	$-2.31027 + 11.16379I$
$u = -0.02321 + 1.54279I$ $a = 1.65026 + 0.19765I$ $b = 0.577897 - 0.040634I$	$-5.73080 + 1.71841I$	$-1.49841 - 3.09787I$
$u = -0.02321 - 1.54279I$ $a = 1.65026 - 0.19765I$ $b = 0.577897 + 0.040634I$	$-5.73080 - 1.71841I$	$-1.49841 + 3.09787I$
$u = 0.08611 + 1.56350I$ $a = -2.12464 + 1.84046I$ $b = -1.67151 + 2.21312I$	$-11.62650 + 5.14343I$	$-6.60505 - 7.08912I$
$u = 0.08611 - 1.56350I$ $a = -2.12464 - 1.84046I$ $b = -1.67151 - 2.21312I$	$-11.62650 - 5.14343I$	$-6.60505 + 7.08912I$
$u = -0.09577 + 1.61285I$ $a = -1.36329 - 0.72660I$ $b = -0.78319 - 1.36885I$	$-8.51194 - 5.69479I$	$-5.58610 + 4.79033I$
$u = -0.09577 - 1.61285I$ $a = -1.36329 + 0.72660I$ $b = -0.78319 + 1.36885I$	$-8.51194 + 5.69479I$	$-5.58610 - 4.79033I$
$u = -0.124088 + 0.350212I$ $a = 3.84928 - 0.02755I$ $b = -0.138855 + 0.251058I$	$0.93991 + 2.16737I$	$5.57514 + 0.86615I$
$u = -0.124088 - 0.350212I$ $a = 3.84928 + 0.02755I$ $b = -0.138855 - 0.251058I$	$0.93991 - 2.16737I$	$5.57514 - 0.86615I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.03433 + 1.74192I$		
$a = -0.253862 - 0.661352I$	$-16.1249 - 1.2255I$	$-3.32478 + 7.09444I$
$b = -0.532411 - 0.633806I$		
$u = \quad 0.03433 - 1.74192I$		
$a = -0.253862 + 0.661352I$	$-16.1249 + 1.2255I$	$-3.32478 - 7.09444I$
$b = -0.532411 + 0.633806I$		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{22}-4u^{21}+\cdots+11u^2+1)(u^{91}-5u^{90}+\cdots-53u+37)$
c_2	$(u^{22}+11u^{20}+\cdots+4u+1)(u^{91}-u^{90}+\cdots+59093u+8017)$
c_3	$(u^{22}-7u^{20}+\cdots-5u^2+1)(u^{91}+u^{90}+\cdots+587u+251)$
c_4	$(u^{22}+4u^{21}+\cdots+11u^2+1)(u^{91}-5u^{90}+\cdots-53u+37)$
c_5	$(u^{22}+4u^{21}+\cdots+2u+1)(u^{91}+3u^{90}+\cdots-4003055u-530711)$
c_6	$(u^{22}+11u^{20}+\cdots-4u+1)(u^{91}-u^{90}+\cdots+59093u+8017)$
c_7, c_8	$(u^{22}+2u^{21}+\cdots+4u+1)(u^{91}+3u^{90}+\cdots+129u+17)$
c_9	$(u^{22}-7u^{20}+\cdots-5u^2+1)(u^{91}+u^{90}+\cdots+587u+251)$
c_{10}	$(u^{22}+4u^{19}+\cdots+10u^2+1)(u^{91}-u^{90}+\cdots-79317u+19177)$
c_{11}, c_{12}	$(u^{22}-2u^{21}+\cdots-4u+1)(u^{91}+3u^{90}+\cdots+129u+17)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^{22} + 18y^{21} + \cdots + 22y + 1)(y^{91} + 45y^{90} + \cdots - 55059y - 1369)$
c_2, c_6	$(y^{22} + 22y^{21} + \cdots + 18y + 1)$ $\cdot (y^{91} + 77y^{90} + \cdots - 1702552331y - 64272289)$
c_3, c_9	$(y^{22} - 14y^{21} + \cdots - 10y + 1)(y^{91} - 63y^{90} + \cdots + 809421y - 63001)$
c_5	$(y^{22} - 8y^{21} + \cdots - 18y + 1)$ $\cdot (y^{91} - 49y^{90} + \cdots + 8286890991737y - 281654165521)$
c_7, c_8, c_{11} c_{12}	$(y^{22} + 30y^{21} + \cdots + 20y + 1)(y^{91} + 113y^{90} + \cdots - 12021y - 289)$
c_{10}	$(y^{22} - 4y^{20} + \cdots + 20y + 1)$ $\cdot (y^{91} - 29y^{90} + \cdots + 8475331727y - 367757329)$