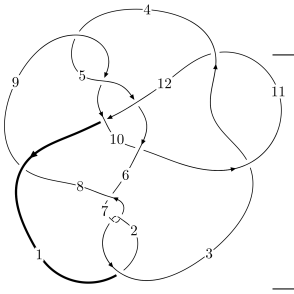
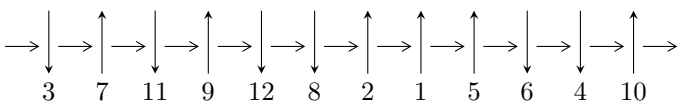
$12a_{0674}$ $(K12a_{0674})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 7.30354 \times 10^{106} u^{132} + 1.06306 \times 10^{107} u^{131} + \cdots + 2.46021 \times 10^{107} b + 6.28959 \times 10^{107},$$
$$- 1.10982 \times 10^{109} u^{132} + 1.75925 \times 10^{109} u^{131} + \cdots + 1.30391 \times 10^{109} a + 6.69976 \times 10^{107},$$
$$u^{133} - u^{132} + \cdots + 11u - 1 \rangle$$
$$I_2^u = \langle -u^{22} - 2u^{20} + \cdots + b + 1,\ u^{22} + 5u^{20} + \cdots + a - 3,\ u^{23} + 4u^{21} + \cdots - 4u^2 - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 156 representations.

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

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

I. $\boldsymbol{I_1^u = \langle 7.30 \times 10^{106} u^{132} + 1.06 \times 10^{107} u^{131} + \cdots + 2.46 \times 10^{107} b + 6.29 \times 10^{107},\ -1.11 \times 10^{109} u^{132} + 1.76 \times 10^{109} u^{131} + \cdots + 1.30 \times 10^{109} a + 6.70 \times 10^{107},\ u^{133} - u^{132} + \cdots + 11u - 1 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.851148u^{132} - 1.34921u^{131} + \cdots - 26.4094u - 0.0513820 \\ -0.296866u^{132} - 0.432100u^{131} + \cdots + 15.0390u - 2.55652 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 3.22970u^{132} - 2.96146u^{131} + \cdots - 120.446u + 17.4193 \\ -0.418462u^{132} - 0.951295u^{131} + \cdots - 20.2704u + 3.94279 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} 3.63001u^{132} - 2.81263u^{131} + \cdots - 119.194u + 18.3141 \\ 0.283591u^{132} + 0.101456u^{131} + \cdots - 4.05479u + 1.29525 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^7 + 2u^5 + 2u^3 + 2u \\ -u^9 - u^7 - u^5 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2.16708u^{132} - 2.13527u^{131} + \cdots - 100.925u + 14.9635 \\ -1.70344u^{132} - 0.445984u^{131} + \cdots - 7.88626u + 2.51137 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.14813u^{132} - 0.647471u^{131} + \cdots - 25.9002u - 0.124938 \\ -0.299784u^{132} + 0.495982u^{131} + \cdots + 22.2916u - 3.35175 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4.84648u^{132} + 2.26486u^{131} + \cdots + 85.5361u - 9.94143$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{133} + 45u^{132} + \cdots + 21u - 1$
c_2, c_7	$u^{133} + u^{132} + \cdots + 11u + 1$
c_3, c_{11}	$u^{133} - 47u^{131} + \cdots + 8432u + 2069$
c_4, c_9	$u^{133} - 40u^{131} + \cdots - 1016u - 121$
c_5	$u^{133} - u^{132} + \cdots + 17u + 3$
c_8	$u^{133} - 5u^{132} + \cdots + 5531185u + 580413$
c_{10}	$u^{133} + 3u^{132} + \cdots - 154743u - 114143$
c_{12}	$u^{133} + 19u^{132} + \cdots + 419u - 11$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{133} + 89y^{132} + \cdots + 225y - 1$
c_2, c_7	$y^{133} + 45y^{132} + \cdots + 21y - 1$
c_3, c_{11}	$y^{133} - 94y^{132} + \cdots + 138510782y - 4280761$
c_4, c_9	$y^{133} - 80y^{132} + \cdots + 653284y - 14641$
c_5	$y^{133} + 5y^{132} + \cdots + 175y - 9$
c_8	$y^{133} + 49y^{132} + \cdots + 385483097599y - 336879250569$
c_{10}	$y^{133} - 25y^{132} + \cdots + 297383627417y - 13028624449$
c_{12}	$y^{133} - 19y^{132} + \cdots + 229791y - 121$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.829466 + 0.557218I$ $a = -0.187671 - 0.453469I$ $b = -1.222830 + 0.285357I$	$0.27659 - 1.61748I$	0
$u = 0.829466 - 0.557218I$ $a = -0.187671 + 0.453469I$ $b = -1.222830 - 0.285357I$	$0.27659 + 1.61748I$	0
$u = -0.734358 + 0.685968I$ $a = -0.716811 - 0.659771I$ $b = 1.83044 - 0.96506I$	$3.13923 + 3.76117I$	0
$u = -0.734358 - 0.685968I$ $a = -0.716811 + 0.659771I$ $b = 1.83044 + 0.96506I$	$3.13923 - 3.76117I$	0
$u = -0.721478 + 0.676585I$ $a = -1.15819 + 1.11373I$ $b = -2.41017 - 0.73023I$	$-1.030550 + 0.687025I$	0
$u = -0.721478 - 0.676585I$ $a = -1.15819 - 1.11373I$ $b = -2.41017 + 0.73023I$	$-1.030550 - 0.687025I$	0
$u = 0.031969 + 1.014520I$ $a = 2.90854 - 0.41681I$ $b = 1.91497 - 0.49345I$	$-2.20674 + 3.68448I$	0
$u = 0.031969 - 1.014520I$ $a = 2.90854 + 0.41681I$ $b = 1.91497 + 0.49345I$	$-2.20674 - 3.68448I$	0
$u = 0.016803 + 1.017960I$ $a = -2.03758 - 0.46975I$ $b = -0.510962 - 0.798251I$	$-6.25026 + 0.49451I$	0
$u = 0.016803 - 1.017960I$ $a = -2.03758 + 0.46975I$ $b = -0.510962 + 0.798251I$	$-6.25026 - 0.49451I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.685834 + 0.699198I$ $a = -0.767536 + 0.775321I$ $b = -1.028360 + 0.947545I$	$-1.47271 + 0.24934I$	0
$u = 0.685834 - 0.699198I$ $a = -0.767536 - 0.775321I$ $b = -1.028360 - 0.947545I$	$-1.47271 - 0.24934I$	0
$u = 0.727677 + 0.651708I$ $a = 0.35106 - 1.47593I$ $b = -1.36670 - 0.80541I$	$1.24829 - 2.40392I$	0
$u = 0.727677 - 0.651708I$ $a = 0.35106 + 1.47593I$ $b = -1.36670 + 0.80541I$	$1.24829 + 2.40392I$	0
$u = -0.179511 + 0.956362I$ $a = -0.351454 - 0.626307I$ $b = -0.635097 - 0.599965I$	$-0.91600 - 2.47222I$	0
$u = -0.179511 - 0.956362I$ $a = -0.351454 + 0.626307I$ $b = -0.635097 + 0.599965I$	$-0.91600 + 2.47222I$	0
$u = 0.660567 + 0.714040I$ $a = -0.58202 + 1.66891I$ $b = 2.34706 + 0.70544I$	$2.31625 + 3.39587I$	0
$u = 0.660567 - 0.714040I$ $a = -0.58202 - 1.66891I$ $b = 2.34706 - 0.70544I$	$2.31625 - 3.39587I$	0
$u = 0.620877 + 0.821547I$ $a = -0.48379 + 2.02623I$ $b = 1.33843 + 2.03608I$	$2.29662 + 5.56622I$	0
$u = 0.620877 - 0.821547I$ $a = -0.48379 - 2.02623I$ $b = 1.33843 - 2.03608I$	$2.29662 - 5.56622I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.748353 + 0.607521I$ $a = -0.64066 - 1.32225I$ $b = -2.30820 - 0.01910I$	$-0.55990 - 4.34234I$	0
$u = \quad 0.748353 - 0.607521I$ $a = -0.64066 + 1.32225I$ $b = -2.30820 + 0.01910I$	$-0.55990 + 4.34234I$	0
$u = -0.806815 + 0.650210I$ $a = \quad 0.78857 - 1.39267I$ $b = \quad 2.49807 + 0.68797I$	$-2.09601 + 6.69318I$	0
$u = -0.806815 - 0.650210I$ $a = \quad 0.78857 + 1.39267I$ $b = \quad 2.49807 - 0.68797I$	$-2.09601 - 6.69318I$	0
$u = -0.792322 + 0.671448I$ $a = -0.02810 + 1.77382I$ $b = -1.74411 + 0.97162I$	$5.33307 + 6.48914I$	0
$u = -0.792322 - 0.671448I$ $a = -0.02810 - 1.77382I$ $b = -1.74411 - 0.97162I$	$5.33307 - 6.48914I$	0
$u = -0.032707 + 1.038950I$ $a = -0.471645 + 0.065998I$ $b = -0.405838 + 0.767883I$	$-4.17499 - 2.01012I$	0
$u = -0.032707 - 1.038950I$ $a = -0.471645 - 0.065998I$ $b = -0.405838 - 0.767883I$	$-4.17499 + 2.01012I$	0
$u = -0.715840 + 0.754563I$ $a = \quad 0.31363 + 2.33969I$ $b = -1.53396 + 1.06766I$	$4.04153 - 3.28866I$	0
$u = -0.715840 - 0.754563I$ $a = \quad 0.31363 - 2.33969I$ $b = -1.53396 - 1.06766I$	$4.04153 + 3.28866I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.098442 + 1.043060I$ $a = -0.279989 + 0.448295I$ $b = -0.167892 - 0.716442I$	$-0.76631 + 6.36624I$	0
$u = 0.098442 - 1.043060I$ $a = -0.279989 - 0.448295I$ $b = -0.167892 + 0.716442I$	$-0.76631 - 6.36624I$	0
$u = -0.616430 + 0.717140I$ $a = -0.031952 - 0.983535I$ $b = 0.457556 - 0.705776I$	$0.299724 - 1.340940I$	0
$u = -0.616430 - 0.717140I$ $a = -0.031952 + 0.983535I$ $b = 0.457556 + 0.705776I$	$0.299724 + 1.340940I$	0
$u = 0.843693 + 0.642382I$ $a = 0.80794 + 1.17541I$ $b = 2.40663 - 0.59239I$	$1.37915 - 13.20260I$	0
$u = 0.843693 - 0.642382I$ $a = 0.80794 - 1.17541I$ $b = 2.40663 + 0.59239I$	$1.37915 + 13.20260I$	0
$u = 0.461323 + 0.958783I$ $a = -0.66581 - 1.31575I$ $b = -0.311258 - 0.419657I$	$-4.97964 + 3.27878I$	0
$u = 0.461323 - 0.958783I$ $a = -0.66581 + 1.31575I$ $b = -0.311258 + 0.419657I$	$-4.97964 - 3.27878I$	0
$u = 0.790248 + 0.731784I$ $a = 1.023070 + 0.972731I$ $b = 1.48869 - 0.73894I$	$5.35487 - 1.32108I$	0
$u = 0.790248 - 0.731784I$ $a = 1.023070 - 0.972731I$ $b = 1.48869 + 0.73894I$	$5.35487 + 1.32108I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.030359+1.083870I$ $a=-1.61526-0.02028I$ $b=-0.560913+0.624414I$	$-6.20287-3.52001I$	0
$u=-0.030359-1.083870I$ $a=-1.61526+0.02028I$ $b=-0.560913-0.624414I$	$-6.20287+3.52001I$	0
$u=0.099851+1.082680I$ $a=1.56114+1.06415I$ $b=0.75408+1.30712I$	$-8.37138+6.25937I$	0
$u=0.099851-1.082680I$ $a=1.56114-1.06415I$ $b=0.75408-1.30712I$	$-8.37138-6.25937I$	0
$u=0.804518+0.740132I$ $a=1.048500-0.016324I$ $b=0.301561-1.325510I$	$5.44222-1.54867I$	0
$u=0.804518-0.740132I$ $a=1.048500+0.016324I$ $b=0.301561+1.325510I$	$5.44222+1.54867I$	0
$u=-0.884121+0.649834I$ $a=-0.642850+0.347536I$ $b=-1.41407-0.63286I$	$0.82351+3.74039I$	0
$u=-0.884121-0.649834I$ $a=-0.642850-0.347536I$ $b=-1.41407+0.63286I$	$0.82351-3.74039I$	0
$u=-0.832739+0.318790I$ $a=-0.537634-0.247620I$ $b=-0.593936-0.023566I$	$-0.83222+2.21045I$	0
$u=-0.832739-0.318790I$ $a=-0.537634+0.247620I$ $b=-0.593936+0.023566I$	$-0.83222-2.21045I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.606513 + 0.929505I$ $a = 1.87960 + 0.63359I$ $b = 2.01659 - 0.73061I$	$1.95980 - 0.77443I$	0
$u = 0.606513 - 0.929505I$ $a = 1.87960 - 0.63359I$ $b = 2.01659 + 0.73061I$	$1.95980 + 0.77443I$	0
$u = 0.704739 + 0.857429I$ $a = 0.46803 + 1.67996I$ $b = 2.11240 + 0.42062I$	$4.03992 + 2.69835I$	0
$u = 0.704739 - 0.857429I$ $a = 0.46803 - 1.67996I$ $b = 2.11240 - 0.42062I$	$4.03992 - 2.69835I$	0
$u = -0.125717 + 1.119890I$ $a = 1.57286 - 0.71666I$ $b = 0.753208 - 1.001390I$	$-5.31003 - 12.57920I$	0
$u = -0.125717 - 1.119890I$ $a = 1.57286 + 0.71666I$ $b = 0.753208 + 1.001390I$	$-5.31003 + 12.57920I$	0
$u = -0.200863 + 0.846409I$ $a = 0.176375 - 0.809048I$ $b = -0.477015 - 0.916584I$	$-0.62658 - 2.37382I$	0
$u = -0.200863 - 0.846409I$ $a = 0.176375 + 0.809048I$ $b = -0.477015 + 0.916584I$	$-0.62658 + 2.37382I$	0
$u = 0.186414 + 1.114970I$ $a = -1.20302 - 0.78455I$ $b = -0.457905 - 0.542020I$	$-6.41500 + 3.24788I$	0
$u = 0.186414 - 1.114970I$ $a = -1.20302 + 0.78455I$ $b = -0.457905 + 0.542020I$	$-6.41500 - 3.24788I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.772148+0.825651I$ $a=\ \ 0.391758-1.232690I$ $b=\ \ 2.11636-0.54743I$	$7.77314-4.39597I$	0
$u=-0.772148-0.825651I$ $a=\ \ 0.391758+1.232690I$ $b=\ \ 2.11636+0.54743I$	$7.77314+4.39597I$	0
$u=-0.745875+0.851037I$ $a=\ \ 1.22426+1.56138I$ $b=-0.81524+2.03542I$	$1.29744-4.87074I$	0
$u=-0.745875-0.851037I$ $a=\ \ 1.22426-1.56138I$ $b=-0.81524-2.03542I$	$1.29744+4.87074I$	0
$u=-0.038042+0.862219I$ $a=\ \ 0.214791-0.816636I$ $b=-0.612395-1.183300I$	$-0.55150-2.37818I$	0
$u=-0.038042-0.862219I$ $a=\ \ 0.214791+0.816636I$ $b=-0.612395+1.183300I$	$-0.55150+2.37818I$	0
$u=-0.728576+0.876619I$ $a=-1.44472+0.04920I$ $b=-1.31953-1.68646I$	$1.21316-0.72689I$	0
$u=-0.728576-0.876619I$ $a=-1.44472-0.04920I$ $b=-1.31953+1.68646I$	$1.21316+0.72689I$	0
$u=\ \ 0.554991+0.997859I$ $a=\ \ 0.215405+0.642494I$ $b=-0.469581-0.086362I$	$-5.67603+0.11820I$	0
$u=\ \ 0.554991-0.997859I$ $a=\ \ 0.215405-0.642494I$ $b=-0.469581+0.086362I$	$-5.67603-0.11820I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.654255+0.529002I$ $a=-0.531318-0.948647I$ $b=-0.516446-0.824655I$	$-1.17576-2.23945I$	0
$u=-0.654255-0.529002I$ $a=-0.531318+0.948647I$ $b=-0.516446+0.824655I$	$-1.17576+2.23945I$	0
$u=-0.078490+1.156840I$ $a=-1.108160+0.588652I$ $b=-0.525310+0.610228I$	$-6.11826-0.30468I$	0
$u=-0.078490-1.156840I$ $a=-1.108160-0.588652I$ $b=-0.525310-0.610228I$	$-6.11826+0.30468I$	0
$u=-0.511698+1.051450I$ $a=0.094918-0.908934I$ $b=-0.277344-0.215663I$	$-2.94597+5.56510I$	0
$u=-0.511698-1.051450I$ $a=0.094918+0.908934I$ $b=-0.277344+0.215663I$	$-2.94597-5.56510I$	0
$u=-0.645054+0.976463I$ $a=0.803186-0.367632I$ $b=1.239910+0.095870I$	$-0.53546-3.67311I$	0
$u=-0.645054-0.976463I$ $a=0.803186+0.367632I$ $b=1.239910-0.095870I$	$-0.53546+3.67311I$	0
$u=0.341302+0.754513I$ $a=1.89377-0.51903I$ $b=0.528550-0.778640I$	$1.72664-1.39745I$	0
$u=0.341302-0.754513I$ $a=1.89377+0.51903I$ $b=0.528550+0.778640I$	$1.72664+1.39745I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.656822 + 0.971722I$ $a = 1.08359 + 2.42485I$ $b = 2.71943 - 0.08747I$	$1.52248 + 1.75392I$	0
$u = 0.656822 - 0.971722I$ $a = 1.08359 - 2.42485I$ $b = 2.71943 + 0.08747I$	$1.52248 - 1.75392I$	0
$u = -0.686713 + 0.950846I$ $a = -1.057780 + 0.666024I$ $b = -2.27751 - 0.44997I$	$3.44069 - 2.09453I$	0
$u = -0.686713 - 0.950846I$ $a = -1.057780 - 0.666024I$ $b = -2.27751 + 0.44997I$	$3.44069 + 2.09453I$	0
$u = -0.752125 + 0.911272I$ $a = 0.86436 - 1.70163I$ $b = 1.98830 - 0.13165I$	$7.51253 - 1.35208I$	0
$u = -0.752125 - 0.911272I$ $a = 0.86436 + 1.70163I$ $b = 1.98830 + 0.13165I$	$7.51253 + 1.35208I$	0
$u = 0.665252 + 0.980054I$ $a = 0.39895 - 1.66830I$ $b = -0.191789 - 1.109800I$	$-2.32604 + 4.99485I$	0
$u = 0.665252 - 0.980054I$ $a = 0.39895 + 1.66830I$ $b = -0.191789 + 1.109800I$	$-2.32604 - 4.99485I$	0
$u = 0.805497$ $a = -0.774031$ $b = -0.731813$	-2.39408	-14.6460
$u = -0.630426 + 1.016410I$ $a = 0.591166 + 1.183950I$ $b = 0.224770 + 0.917796I$	$-2.51213 - 2.78956I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.630426-1.016410I$ $a=\ \ 0.591166-1.183950I$ $b=\ \ 0.224770-0.917796I$	$-2.51213+2.78956I$	0
$u=\ \ 0.832129+0.866569I$ $a=-1.142190-0.113565I$ $b=-1.21470+1.17018I$	$6.18926-3.55633I$	0
$u=\ \ 0.832129-0.866569I$ $a=-1.142190+0.113565I$ $b=-1.21470-1.17018I$	$6.18926+3.55633I$	0
$u=-0.676674+0.992753I$ $a=-0.25761+2.76596I$ $b=-2.38314+1.63671I$	$-1.97758-6.05966I$	0
$u=-0.676674-0.992753I$ $a=-0.25761-2.76596I$ $b=-2.38314-1.63671I$	$-1.97758+6.05966I$	0
$u=-0.684739+0.992430I$ $a=\ \ 1.41215-1.79447I$ $b=\ \ 2.01295+0.74891I$	$2.21734-9.19561I$	0
$u=-0.684739-0.992430I$ $a=\ \ 1.41215+1.79447I$ $b=\ \ 2.01295-0.74891I$	$2.21734+9.19561I$	0
$u=\ \ 0.675705+1.002640I$ $a=-1.16510-1.04057I$ $b=-2.13223+0.29372I$	$0.20916+7.78845I$	0
$u=\ \ 0.675705-1.002640I$ $a=-1.16510+1.04057I$ $b=-2.13223-0.29372I$	$0.20916-7.78845I$	0
$u=-0.538646+1.083050I$ $a=-0.489623+0.807803I$ $b=-0.220710+0.283354I$	$-3.21572-7.12732I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.538646-1.083050I$ $a=-0.489623-0.807803I$ $b=-0.220710-0.283354I$	$-3.21572+7.12732I$	0
$u=-0.738555+0.271606I$ $a=\ \ 0.665243+1.138950I$ $b=\ \ 0.542861+0.262205I$	$-0.64572-10.08060I$	$0.+7.27179I$
$u=-0.738555-0.271606I$ $a=\ \ 0.665243-1.138950I$ $b=\ \ 0.542861-0.262205I$	$-0.64572+10.08060I$	$0.-7.27179I$
$u=\ \ 0.812978+0.902870I$ $a=\ \ 0.56029-1.43308I$ $b=-0.98178-1.56664I$	$6.07142+9.66919I$	0
$u=\ \ 0.812978-0.902870I$ $a=\ \ 0.56029+1.43308I$ $b=-0.98178+1.56664I$	$6.07142-9.66919I$	0
$u=\ \ 0.722098+0.983360I$ $a=-0.05574+1.53189I$ $b=\ \ 1.65631+1.36571I$	$4.58449+7.02851I$	0
$u=\ \ 0.722098-0.983360I$ $a=-0.05574-1.53189I$ $b=\ \ 1.65631-1.36571I$	$4.58449-7.02851I$	0
$u=\ \ 0.671560+1.024450I$ $a=-1.03693-2.42511I$ $b=-2.67378-0.90934I$	$-1.78667+9.75979I$	0
$u=\ \ 0.671560-1.024450I$ $a=-1.03693+2.42511I$ $b=-2.67378+0.90934I$	$-1.78667-9.75979I$	0
$u=\ \ 0.736094+0.984835I$ $a=-0.955780+0.626928I$ $b=\ \ 0.06368+1.60344I$	$4.69335+7.34436I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.736094 - 0.984835I$ $a = -0.955780 - 0.626928I$ $b = 0.06368 - 1.60344I$	$4.69335 - 7.34436I$	0
$u = -0.705800 + 1.013630I$ $a = -1.58734 + 1.08076I$ $b = -2.49368 - 0.33295I$	$4.29914 - 12.14510I$	0
$u = -0.705800 - 1.013630I$ $a = -1.58734 - 1.08076I$ $b = -2.49368 + 0.33295I$	$4.29914 + 12.14510I$	0
$u = -0.705551 + 1.027400I$ $a = 0.35318 - 2.63546I$ $b = 2.77902 - 1.43894I$	$-3.23395 - 12.38490I$	0
$u = -0.705551 - 1.027400I$ $a = 0.35318 + 2.63546I$ $b = 2.77902 + 1.43894I$	$-3.23395 + 12.38490I$	0
$u = 0.681674 + 1.059760I$ $a = -0.39846 - 1.54531I$ $b = -1.58965 - 0.59813I$	$-1.21666 + 7.24848I$	0
$u = 0.681674 - 1.059760I$ $a = -0.39846 + 1.54531I$ $b = -1.58965 + 0.59813I$	$-1.21666 - 7.24848I$	0
$u = 0.716863 + 1.043940I$ $a = 0.53679 + 2.50587I$ $b = 2.65728 + 1.28174I$	$0.1571 + 19.0309I$	0
$u = 0.716863 - 1.043940I$ $a = 0.53679 - 2.50587I$ $b = 2.65728 - 1.28174I$	$0.1571 - 19.0309I$	0
$u = -0.732191 + 1.053200I$ $a = -0.13910 + 1.76630I$ $b = -1.50536 + 1.04917I$	$-0.42182 - 9.72536I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.732191-1.053200I$ $a=-0.13910-1.76630I$ $b=-1.50536-1.04917I$	$-0.42182+9.72536I$	0
$u=\ 0.631573+0.306077I$ $a=\ 0.64158-1.48302I$ $b=\ 0.465548-0.120069I$	$-3.91445+4.24438I$	$-1.92123-5.36402I$
$u=\ 0.631573-0.306077I$ $a=\ 0.64158+1.48302I$ $b=\ 0.465548+0.120069I$	$-3.91445-4.24438I$	$-1.92123+5.36402I$
$u=\ 0.551738+0.219874I$ $a=-0.21097+1.48670I$ $b=\ 0.501140+0.709999I$	$3.21681+4.50444I$	$5.50360-6.34513I$
$u=\ 0.551738-0.219874I$ $a=-0.21097-1.48670I$ $b=\ 0.501140-0.709999I$	$3.21681-4.50444I$	$5.50360+6.34513I$
$u=-0.560566+0.007908I$ $a=\ 1.368560-0.333118I$ $b=\ 0.124178-0.100284I$	$2.06758-0.05000I$	$6.46888-1.08460I$
$u=-0.560566-0.007908I$ $a=\ 1.368560+0.333118I$ $b=\ 0.124178+0.100284I$	$2.06758+0.05000I$	$6.46888+1.08460I$
$u=-0.349627+0.391770I$ $a=\ 0.471373-1.143480I$ $b=\ 0.197013-0.383361I$	$0.097287-1.096420I$	$1.55163+5.86432I$
$u=-0.349627-0.391770I$ $a=\ 0.471373+1.143480I$ $b=\ 0.197013+0.383361I$	$0.097287+1.096420I$	$1.55163-5.86432I$
$u=\ 0.456044$ $a=-1.54081$ $b=-0.959396$	-2.76051	-3.94310

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.209120 + 0.155908I$ $a = -4.65078 - 2.09516I$ $b = \quad 0.798507 - 0.007645I$	$1.44067 + 3.00795I$	$5.79511 - 9.20913I$
$u = \quad 0.209120 - 0.155908I$ $a = -4.65078 + 2.09516I$ $b = \quad 0.798507 + 0.007645I$	$1.44067 - 3.00795I$	$5.79511 + 9.20913I$
$u = \quad 0.202117$ $a = -3.78734$ $b = -1.28097$	-2.69685	-8.15030

II.

$\boldsymbol{I_2^u = \langle -u^{22}-2u^{20}+\cdots+b+1,\ u^{22}+5u^{20}+\cdots+a-3,\ u^{23}+4u^{21}+\cdots-4u^2-1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^{22} - 5u^{20} + \cdots + 3u^2 + 3 \\ u^{22} + 2u^{20} + \cdots + 2u - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{21} + 3u^{19} + \cdots + 2u - 1 \\ u^{21} + 4u^{19} + \cdots - u^2 - 2u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -2u^{22} + 2u^{21} + \cdots + 2u + 1 \\ u^{21} + 6u^{19} + \cdots - 11u^2 - 3 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^7 + 2u^5 + 2u^3 + 2u \\ -u^9 - u^7 - u^5 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2u^{21} + 7u^{19} + \cdots + 4u - 3 \\ u^{21} + 4u^{19} + \cdots - u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{22} - 5u^{20} + \cdots + 4u^2 + 3 \\ u^{22} + 2u^{20} + \cdots - 2u^2 + 2u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= -5u^{21} + 2u^{20} - 19u^{19} + 7u^{18} - 56u^{17} + 20u^{16} - 102u^{15} + 36u^{14} - 148u^{13} + 58u^{12} - 163u^{11} + 74u^{10} - 140u^9 + 85u^8 - 103u^7 + 77u^6 - 49u^5 + 54u^4 - 22u^3 + 22u^2 - 4u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{23} - 8u^{22} + \cdots - 8u + 1$
c_2	$u^{23} + 4u^{21} + \cdots - 4u^2 - 1$
c_3	$u^{23} - u^{22} + \cdots - u + 1$
c_4	$u^{23} - u^{22} + \cdots - u + 1$
c_5	$u^{23} + 2u^{20} + \cdots + 3u^2 + 1$
c_7	$u^{23} + 4u^{21} + \cdots + 4u^2 + 1$
c_8	$u^{23} + 4u^{21} + \cdots + 7u^2 + 1$
c_9	$u^{23} + u^{22} + \cdots - u - 1$
c_{10}	$u^{23} + 3u^{21} + \cdots + 2u^3 + 1$
c_{11}	$u^{23} + u^{22} + \cdots - u - 1$
c_{12}	$u^{23} - 4u^{21} + \cdots - 6u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{23} + 16y^{22} + \cdots - 56y^2 - 1$
c_2, c_7	$y^{23} + 8y^{22} + \cdots - 8y - 1$
c_3, c_{11}	$y^{23} - 23y^{22} + \cdots + 17y - 1$
c_4, c_9	$y^{23} - 17y^{22} + \cdots + 23y - 1$
c_5	$y^{23} - 2y^{21} + \cdots - 6y - 1$
c_8	$y^{23} + 8y^{22} + \cdots - 14y - 1$
c_{10}	$y^{23} + 6y^{22} + \cdots + 2y^2 - 1$
c_{12}	$y^{23} - 8y^{22} + \cdots + 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.814070+0.582429I$ $a=-0.372018+0.525342I$ $b=-1.50347-0.15021I$	$0.21086+3.10823I$	$-0.15383-2.88731I$
$u=-0.814070-0.582429I$ $a=-0.372018-0.525342I$ $b=-1.50347+0.15021I$	$0.21086-3.10823I$	$-0.15383+2.88731I$
$u=-0.675659+0.801513I$ $a=-0.73256-2.61620I$ $b=\ \ 2.05121-1.79003I$	$3.21677-4.42137I$	$5.15637+7.65571I$
$u=-0.675659-0.801513I$ $a=-0.73256+2.61620I$ $b=\ \ 2.05121+1.79003I$	$3.21677+4.42137I$	$5.15637-7.65571I$
$u=\ \ 0.586855+0.709510I$ $a=-0.869331+0.406673I$ $b=-1.39499+0.90288I$	$-2.10023+0.99265I$	$-4.85391-4.50359I$
$u=\ \ 0.586855-0.709510I$ $a=-0.869331-0.406673I$ $b=-1.39499-0.90288I$	$-2.10023-0.99265I$	$-4.85391+4.50359I$
$u=-0.084974+0.905200I$ $a=\ \ 0.998136+0.073773I$ $b=\ \ 1.40800+0.57777I$	$-0.49803-3.52111I$	$-0.85255+7.82342I$
$u=-0.084974-0.905200I$ $a=\ \ 0.998136-0.073773I$ $b=\ \ 1.40800-0.57777I$	$-0.49803+3.52111I$	$-0.85255-7.82342I$
$u=\ \ 0.085110+1.090360I$ $a=-1.55525-0.35317I$ $b=-0.542269-0.433067I$	$-6.06125+2.26227I$	$-5.59951-1.37868I$
$u=\ \ 0.085110-1.090360I$ $a=-1.55525+0.35317I$ $b=-0.542269+0.433067I$	$-6.06125-2.26227I$	$-5.59951+1.37868I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.792977 + 0.771338I$ $a = -1.271050 + 0.212145I$ $b = -0.315322 + 1.322290I$	$5.19516 - 2.16291I$	$2.01913 + 5.25864I$
$u = 0.792977 - 0.771338I$ $a = -1.271050 - 0.212145I$ $b = -0.315322 - 1.322290I$	$5.19516 + 2.16291I$	$2.01913 - 5.25864I$
$u = -0.669570 + 0.917361I$ $a = 1.67756 - 1.13767I$ $b = 2.65981 + 1.12563I$	$2.85498 - 0.78537I$	$4.77130 - 1.23542I$
$u = -0.669570 - 0.917361I$ $a = 1.67756 + 1.13767I$ $b = 2.65981 - 1.12563I$	$2.85498 + 0.78537I$	$4.77130 + 1.23542I$
$u = 0.616988 + 0.981935I$ $a = 0.22665 - 1.78791I$ $b = -0.460344 - 1.107710I$	$-2.98881 + 3.82032I$	$-4.40423 - 3.41712I$
$u = 0.616988 - 0.981935I$ $a = 0.22665 + 1.78791I$ $b = -0.460344 + 1.107710I$	$-2.98881 - 3.82032I$	$-4.40423 + 3.41712I$
$u = 0.735897 + 0.965972I$ $a = 0.848544 - 0.642851I$ $b = 0.00491 - 1.70327I$	$4.59134 + 7.92747I$	$1.75433 - 12.19435I$
$u = 0.735897 - 0.965972I$ $a = 0.848544 + 0.642851I$ $b = 0.00491 + 1.70327I$	$4.59134 - 7.92747I$	$1.75433 + 12.19435I$
$u = -0.683453 + 1.043280I$ $a = -0.67535 + 1.86304I$ $b = -1.89207 + 0.65020I$	$-1.15495 - 8.70555I$	$-0.88484 + 6.87448I$
$u = -0.683453 - 1.043280I$ $a = -0.67535 - 1.86304I$ $b = -1.89207 - 0.65020I$	$-1.15495 + 8.70555I$	$-0.88484 - 6.87448I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.655917$ $a = -0.874755$ $b = -0.939296$	-1.99490	8.35720
$u = -0.218060 + 0.540058I$ $a = \quad 2.16205 - 0.85092I$ $b = -0.045811 + 0.685467I$	$1.02147 + 2.40878I$	$-1.13085 - 1.54968I$
$u = -0.218060 - 0.540058I$ $a = \quad 2.16205 + 0.85092I$ $b = -0.045811 - 0.685467I$	$1.02147 - 2.40878I$	$-1.13085 + 1.54968I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u^{23} - 8u^{22} + \cdots - 8u + 1)(u^{133} + 45u^{132} + \cdots + 21u - 1)$
c_2	$(u^{23} + 4u^{21} + \cdots - 4u^2 - 1)(u^{133} + u^{132} + \cdots + 11u + 1)$
c_3	$(u^{23} - u^{22} + \cdots - u + 1)(u^{133} - 47u^{131} + \cdots + 8432u + 2069)$
c_4	$(u^{23} - u^{22} + \cdots - u + 1)(u^{133} - 40u^{131} + \cdots - 1016u - 121)$
c_5	$(u^{23} + 2u^{20} + \cdots + 3u^2 + 1)(u^{133} - u^{132} + \cdots + 17u + 3)$
c_7	$(u^{23} + 4u^{21} + \cdots + 4u^2 + 1)(u^{133} + u^{132} + \cdots + 11u + 1)$
c_8	$(u^{23} + 4u^{21} + \cdots + 7u^2 + 1)(u^{133} - 5u^{132} + \cdots + 5531185u + 580413)$
c_9	$(u^{23} + u^{22} + \cdots - u - 1)(u^{133} - 40u^{131} + \cdots - 1016u - 121)$
c_{10}	$(u^{23} + 3u^{21} + \cdots + 2u^3 + 1)(u^{133} + 3u^{132} + \cdots - 154743u - 114143)$
c_{11}	$(u^{23} + u^{22} + \cdots - u - 1)(u^{133} - 47u^{131} + \cdots + 8432u + 2069)$
c_{12}	$(u^{23} - 4u^{21} + \cdots - 6u + 1)(u^{133} + 19u^{132} + \cdots + 419u - 11)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^{23}+16y^{22}+\cdots-56y^2-1)(y^{133}+89y^{132}+\cdots+225y-1)$
c_2, c_7	$(y^{23}+8y^{22}+\cdots-8y-1)(y^{133}+45y^{132}+\cdots+21y-1)$
c_3, c_{11}	$(y^{23}-23y^{22}+\cdots+17y-1)$ $\cdot(y^{133}-94y^{132}+\cdots+138510782y-4280761)$
c_4, c_9	$(y^{23}-17y^{22}+\cdots+23y-1)(y^{133}-80y^{132}+\cdots+653284y-14641)$
c_5	$(y^{23}-2y^{21}+\cdots-6y-1)(y^{133}+5y^{132}+\cdots+175y-9)$
c_8	$(y^{23}+8y^{22}+\cdots-14y-1)$ $\cdot(y^{133}+49y^{132}+\cdots+385483097599y-336879250569)$
c_{10}	$(y^{23}+6y^{22}+\cdots+2y^2-1)$ $\cdot(y^{133}-25y^{132}+\cdots+297383627417y-13028624449)$
c_{12}	$(y^{23}-8y^{22}+\cdots+6y-1)(y^{133}-19y^{132}+\cdots+229791y-121)$