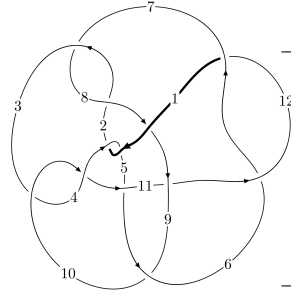
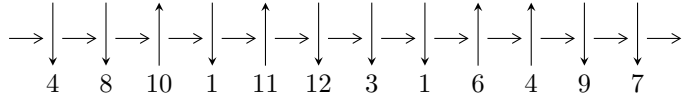


12n<sub>0864</sub> (K12n<sub>0864</sub>)



A knot diagram<sup>1</sup>

**Linearized knot diagram**



**Solving Sequence**

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

**Ideals for irreducible components<sup>2</sup> of  $X_{\text{par}}$**

$$I_1^u = \langle 1.53286 \times 10^{291}u^{92} - 4.50467 \times 10^{291}u^{91} + \dots + 3.77692 \times 10^{291}b + 9.71265 \times 10^{293}, \\ 1.02824 \times 10^{294}u^{92} - 2.85879 \times 10^{294}u^{91} + \dots + 2.69294 \times 10^{294}a + 5.18020 \times 10^{296}, \\ u^{93} - 4u^{92} + \dots - 4518u - 713 \rangle$$

$$I_2^u = \langle 2.96874 \times 10^{21}u^{27} - 7.47427 \times 10^{21}u^{26} + \dots + 2.70703 \times 10^{22}b - 6.60332 \times 10^{22}, \\ - 2.02325 \times 10^{23}u^{27} + 3.57824 \times 10^{23}u^{26} + \dots + 5.14336 \times 10^{23}a + 2.57084 \times 10^{24}, \\ u^{28} - 3u^{27} + \dots - 39u + 19 \rangle$$

\* 2 irreducible components of  $\dim_{\mathbb{C}} = 0$ , with total 121 representations.

<sup>1</sup>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>).

<sup>2</sup>All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

$$\mathbf{I. } I_1^u = \langle 1.53 \times 10^{291} u^{92} - 4.50 \times 10^{291} u^{91} + \dots + 3.78 \times 10^{291} b + 9.71 \times 10^{293}, 1.03 \times 10^{294} u^{92} - 2.86 \times 10^{294} u^{91} + \dots + 2.69 \times 10^{294} a + 5.18 \times 10^{296}, u^{93} - 4u^{92} + \dots - 4518u - 713 \rangle$$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.381829u^{92} + 1.06158u^{91} + \dots - 1356.84u - 192.362 \\ -0.405849u^{92} + 1.19268u^{91} + \dots - 1876.85u - 257.158 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.269383u^{92} + 0.806354u^{91} + \dots - 1215.75u - 167.393 \\ -0.293403u^{92} + 0.937454u^{91} + \dots - 1735.76u - 232.189 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.198655u^{92} + 0.601956u^{91} + \dots - 857.280u - 117.454 \\ -0.0283513u^{92} + 0.170440u^{91} + \dots - 512.537u - 62.4622 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0836198u^{92} + 0.223873u^{91} + \dots - 836.341u - 115.884 \\ 0.0332956u^{92} - 0.174545u^{91} + \dots - 119.532u - 20.4044 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.200462u^{92} + 0.633350u^{91} + \dots - 886.658u - 122.121 \\ 0.179157u^{92} - 0.428392u^{91} + \dots + 718.139u + 105.165 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.166083u^{92} - 0.405497u^{91} + \dots + 735.690u + 103.184 \\ 0.673488u^{92} - 1.84254u^{91} + \dots + 2910.18u + 409.855 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.118324u^{92} + 0.280389u^{91} + \dots - 580.650u - 81.3422 \\ -1.46243u^{92} + 4.12770u^{91} + \dots - 6543.71u - 913.615 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.153240u^{92} - 0.419507u^{91} + \dots + 634.309u + 92.1542 \\ 2.16090u^{92} - 6.20878u^{91} + \dots + 9792.14u + 1358.75 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $1.46340u^{92} - 4.46296u^{91} + \dots + 8949.13u + 1229.02$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1, c_4$	$u^{93} - 7u^{92} + \dots + 24150u - 1231$
$c_2, c_7$	$3(3u^{93} - 7u^{92} + \dots + 5337u + 845)$
$c_3, c_{10}$	$3(3u^{93} - 7u^{92} + \dots - 29u - 1)$
$c_5$	$u^{93} + u^{92} + \dots - 233909u + 97395$
$c_6, c_{12}$	$u^{93} - 4u^{92} + \dots - 4518u - 713$
$c_8$	$u^{93} + 5u^{92} + \dots - 67117955u + 23409813$
$c_9$	$u^{93} + 12u^{91} + \dots - 34564u - 1089$
$c_{11}$	$9(9u^{93} - 94u^{92} + \dots + 2774u - 2627)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1, c_4$	$y^{93} - 81y^{92} + \dots + 49128530y - 1515361$
$c_2, c_7$	$9(9y^{93} + 239y^{92} + \dots - 1.29958 \times 10^7 y - 714025)$
$c_3, c_{10}$	$9(9y^{93} - 355y^{92} + \dots + 4293y - 1)$
$c_5$	$y^{93} + 35y^{92} + \dots - 415484901389y - 9485786025$
$c_6, c_{12}$	$y^{93} - 64y^{92} + \dots - 3721300y - 508369$
$c_8$	$y^{93} - 61y^{92} + \dots + 33849166602934771y - 548019344694969$
$c_9$	$y^{93} + 24y^{92} + \dots + 318031630y - 1185921$
$c_{11}$	$81(81y^{93} - 7702y^{92} + \dots + 2.17902 \times 10^8 y - 6901129)$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.970806 + 0.203578I$ $a = -1.216500 + 0.303430I$ $b = -1.087430 - 0.883567I$	$-4.33926 - 3.64290I$	0
$u = 0.970806 - 0.203578I$ $a = -1.216500 - 0.303430I$ $b = -1.087430 + 0.883567I$	$-4.33926 + 3.64290I$	0
$u = 0.966862 + 0.306426I$ $a = 2.12102 - 0.54952I$ $b = 1.140770 + 0.801410I$	$4.07438 - 4.79787I$	0
$u = 0.966862 - 0.306426I$ $a = 2.12102 + 0.54952I$ $b = 1.140770 - 0.801410I$	$4.07438 + 4.79787I$	0
$u = -1.01503$ $a = 8.34900$ $b = 8.17604$	$-3.31997$	0
$u = -1.012850 + 0.093449I$ $a = -1.87245 + 0.51826I$ $b = -1.030470 - 0.573297I$	$-0.912721 + 0.800698I$	0
$u = -1.012850 - 0.093449I$ $a = -1.87245 - 0.51826I$ $b = -1.030470 + 0.573297I$	$-0.912721 - 0.800698I$	0
$u = 0.132859 + 1.039890I$ $a = 0.073148 + 0.240715I$ $b = 0.752841 - 0.369880I$	$2.92510 + 3.79910I$	0
$u = 0.132859 - 1.039890I$ $a = 0.073148 - 0.240715I$ $b = 0.752841 + 0.369880I$	$2.92510 - 3.79910I$	0
$u = 1.072560 + 0.081654I$ $a = 1.26700 - 1.92489I$ $b = 0.668861 + 0.188400I$	$-7.68862 - 0.49446I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.072560 - 0.081654I$ $a = 1.26700 + 1.92489I$ $b = 0.668861 - 0.188400I$	$-7.68862 + 0.49446I$	0
$u = -0.377912 + 1.043730I$ $a = -0.192515 - 0.154482I$ $b = -0.966009 + 0.593968I$	$-2.83740 - 0.28747I$	0
$u = -0.377912 - 1.043730I$ $a = -0.192515 + 0.154482I$ $b = -0.966009 - 0.593968I$	$-2.83740 + 0.28747I$	0
$u = 0.074277 + 0.874223I$ $a = -0.175800 + 0.171193I$ $b = -1.014600 - 0.732602I$	$-3.04223 - 5.10822I$	0
$u = 0.074277 - 0.874223I$ $a = -0.175800 - 0.171193I$ $b = -1.014600 + 0.732602I$	$-3.04223 + 5.10822I$	0
$u = -0.090255 + 1.119050I$ $a = 0.187340 + 0.249519I$ $b = 0.922770 + 0.634829I$	$-3.47535 - 4.38011I$	0
$u = -0.090255 - 1.119050I$ $a = 0.187340 - 0.249519I$ $b = 0.922770 - 0.634829I$	$-3.47535 + 4.38011I$	0
$u = -1.113330 + 0.179803I$ $a = -2.72446 + 1.29296I$ $b = -0.580050 + 0.122241I$	$-3.79023 + 7.52581I$	0
$u = -1.113330 - 0.179803I$ $a = -2.72446 - 1.29296I$ $b = -0.580050 - 0.122241I$	$-3.79023 - 7.52581I$	0
$u = 0.558600 + 0.649221I$ $a = -0.330098 - 0.251452I$ $b = 0.782526 - 0.802658I$	$5.18841 + 1.02843I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.558600 - 0.649221I$ $a = -0.330098 + 0.251452I$ $b = 0.782526 + 0.802658I$	$5.18841 - 1.02843I$	0
$u = -1.155040 + 0.103129I$ $a = 1.295920 - 0.012517I$ $b = 1.056300 - 0.235080I$	$-2.20603 + 0.06003I$	0
$u = -1.155040 - 0.103129I$ $a = 1.295920 + 0.012517I$ $b = 1.056300 + 0.235080I$	$-2.20603 - 0.06003I$	0
$u = 1.131360 + 0.303534I$ $a = 0.53883 - 1.35038I$ $b = 0.74902 - 1.89355I$	$-3.07063 - 9.09969I$	0
$u = 1.131360 - 0.303534I$ $a = 0.53883 + 1.35038I$ $b = 0.74902 + 1.89355I$	$-3.07063 + 9.09969I$	0
$u = -0.814899 + 0.094544I$ $a = -1.27335 + 1.04874I$ $b = -0.887354 - 0.420932I$	$-0.268157 + 0.195171I$	0
$u = -0.814899 - 0.094544I$ $a = -1.27335 - 1.04874I$ $b = -0.887354 + 0.420932I$	$-0.268157 - 0.195171I$	0
$u = 1.185370 + 0.047408I$ $a = -1.87899 - 0.66704I$ $b = -1.003780 - 0.320920I$	$-5.81196 - 2.66335I$	0
$u = 1.185370 - 0.047408I$ $a = -1.87899 + 0.66704I$ $b = -1.003780 + 0.320920I$	$-5.81196 + 2.66335I$	0
$u = 0.057798 + 0.804250I$ $a = 0.527881 - 0.738120I$ $b = 0.332873 + 0.542258I$	$4.07256 + 0.75772I$	$3.56181 + 0.I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.057798 - 0.804250I$ $a = 0.527881 + 0.738120I$ $b = 0.332873 - 0.542258I$	$4.07256 - 0.75772I$	$3.56181 + 0.I$
$u = 1.173730 + 0.250919I$ $a = 0.660195 + 0.121675I$ $b = 0.551275 - 0.575312I$	$0.34438 - 4.50053I$	0
$u = 1.173730 - 0.250919I$ $a = 0.660195 - 0.121675I$ $b = 0.551275 + 0.575312I$	$0.34438 + 4.50053I$	0
$u = -0.624810 + 1.034520I$ $a = 0.155627 - 0.161045I$ $b = -0.563147 - 0.194196I$	$1.82620 + 1.45624I$	0
$u = -0.624810 - 1.034520I$ $a = 0.155627 + 0.161045I$ $b = -0.563147 + 0.194196I$	$1.82620 - 1.45624I$	0
$u = 1.214470 + 0.092248I$ $a = -1.98528 - 0.50252I$ $b = -0.903679 - 0.408944I$	$-5.79506 - 2.66432I$	0
$u = 1.214470 - 0.092248I$ $a = -1.98528 + 0.50252I$ $b = -0.903679 + 0.408944I$	$-5.79506 + 2.66432I$	0
$u = -1.026460 + 0.671637I$ $a = -0.631280 - 0.516781I$ $b = -0.823668 + 0.657965I$	$0.27727 + 4.69627I$	0
$u = -1.026460 - 0.671637I$ $a = -0.631280 + 0.516781I$ $b = -0.823668 - 0.657965I$	$0.27727 - 4.69627I$	0
$u = 1.202320 + 0.265022I$ $a = -1.266800 + 0.066335I$ $b = -1.024440 - 0.779415I$	$-4.17035 - 3.28923I$	0



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.202320 - 0.265022I$ $a = -1.266800 - 0.066335I$ $b = -1.024440 + 0.779415I$	$-4.17035 + 3.28923I$	0
$u = 0.428597 + 1.157030I$ $a = 0.284631 - 0.357098I$ $b = 0.440196 - 0.656343I$	$5.51789 - 0.51100I$	0
$u = 0.428597 - 1.157030I$ $a = 0.284631 + 0.357098I$ $b = 0.440196 + 0.656343I$	$5.51789 + 0.51100I$	0
$u = -0.034127 + 1.237840I$ $a = 0.262217 - 0.051286I$ $b = 0.974512 - 0.741654I$	$-0.91707 + 11.77280I$	0
$u = -0.034127 - 1.237840I$ $a = 0.262217 + 0.051286I$ $b = 0.974512 + 0.741654I$	$-0.91707 - 11.77280I$	0
$u = 1.104130 + 0.633695I$ $a = 1.61219 - 0.09583I$ $b = 1.205820 + 0.638774I$	$3.25583 - 5.58032I$	0
$u = 1.104130 - 0.633695I$ $a = 1.61219 + 0.09583I$ $b = 1.205820 - 0.638774I$	$3.25583 + 5.58032I$	0
$u = -1.259240 + 0.270348I$ $a = 1.305300 + 0.136781I$ $b = 0.728820 - 1.175300I$	$1.19424 + 6.48567I$	0
$u = -1.259240 - 0.270348I$ $a = 1.305300 - 0.136781I$ $b = 0.728820 + 1.175300I$	$1.19424 - 6.48567I$	0
$u = -1.307360 + 0.038712I$ $a = 2.30366 - 0.85775I$ $b = 0.678584 - 0.009011I$	$-5.16693 - 4.23111I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.307360 - 0.038712I$ $a = 2.30366 + 0.85775I$ $b = 0.678584 + 0.009011I$	$-5.16693 + 4.23111I$	0
$u = 1.283380 + 0.401547I$ $a = 0.795514 - 0.879366I$ $b = 0.870337 + 0.078006I$	$-8.48265 - 0.61979I$	0
$u = 1.283380 - 0.401547I$ $a = 0.795514 + 0.879366I$ $b = 0.870337 - 0.078006I$	$-8.48265 + 0.61979I$	0
$u = 1.284420 + 0.413668I$ $a = -0.345035 + 0.490889I$ $b = -0.285715 - 0.573754I$	$0.11501 - 5.02565I$	0
$u = 1.284420 - 0.413668I$ $a = -0.345035 - 0.490889I$ $b = -0.285715 + 0.573754I$	$0.11501 + 5.02565I$	0
$u = -1.36052$ $a = 1.22117$ $b = 1.17430$	$-2.32130$	0
$u = -1.322400 + 0.448761I$ $a = -1.81655 - 0.22447I$ $b = -1.34813 + 0.89270I$	$-7.33144 + 9.91805I$	0
$u = -1.322400 - 0.448761I$ $a = -1.81655 + 0.22447I$ $b = -1.34813 - 0.89270I$	$-7.33144 - 9.91805I$	0
$u = -1.358200 + 0.377781I$ $a = 1.47648 + 0.38131I$ $b = 0.722955 - 0.492677I$	$-0.42204 + 3.52052I$	0
$u = -1.358200 - 0.377781I$ $a = 1.47648 - 0.38131I$ $b = 0.722955 + 0.492677I$	$-0.42204 - 3.52052I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.41210 + 0.09829I$ $a = -1.52530 - 0.52170I$ $b = -1.38947 - 1.31051I$	$-7.64207 - 5.47937I$	0
$u = 1.41210 - 0.09829I$ $a = -1.52530 + 0.52170I$ $b = -1.38947 + 1.31051I$	$-7.64207 + 5.47937I$	0
$u = 1.32597 + 0.52524I$ $a = 1.332630 - 0.457053I$ $b = 1.007260 + 0.638504I$	$-0.91883 - 9.40018I$	0
$u = 1.32597 - 0.52524I$ $a = 1.332630 + 0.457053I$ $b = 1.007260 - 0.638504I$	$-0.91883 + 9.40018I$	0
$u = 1.24296 + 0.70243I$ $a = -0.546032 + 0.779638I$ $b = -0.871214 + 0.248362I$	$-5.89970 - 0.23874I$	0
$u = 1.24296 - 0.70243I$ $a = -0.546032 - 0.779638I$ $b = -0.871214 - 0.248362I$	$-5.89970 + 0.23874I$	0
$u = -0.00838 + 1.43145I$ $a = 0.123005 - 0.320045I$ $b = -0.237813 - 0.375436I$	$5.10663 - 0.60046I$	0
$u = -0.00838 - 1.43145I$ $a = 0.123005 + 0.320045I$ $b = -0.237813 + 0.375436I$	$5.10663 + 0.60046I$	0
$u = 0.206452 + 0.525183I$ $a = 2.42934 - 0.63932I$ $b = 0.835132 + 0.833288I$	$-0.36815 + 5.85720I$	$-1.31662 - 3.27309I$
$u = 0.206452 - 0.525183I$ $a = 2.42934 + 0.63932I$ $b = 0.835132 - 0.833288I$	$-0.36815 - 5.85720I$	$-1.31662 + 3.27309I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.33863 + 0.54520I$ $a = 1.67062 + 0.14858I$ $b = 1.39883 - 0.85061I$	$-7.46544 + 10.22760I$	0
$u = -1.33863 - 0.54520I$ $a = 1.67062 - 0.14858I$ $b = 1.39883 + 0.85061I$	$-7.46544 - 10.22760I$	0
$u = 1.42171 + 0.34511I$ $a = -1.65249 - 0.02833I$ $b = -1.39250 - 0.99250I$	$-8.59422 - 4.37880I$	0
$u = 1.42171 - 0.34511I$ $a = -1.65249 + 0.02833I$ $b = -1.39250 + 0.99250I$	$-8.59422 + 4.37880I$	0
$u = -0.490424 + 0.192252I$ $a = 2.02573 - 1.32129I$ $b = 0.775835 - 0.910483I$	$-2.77711 + 0.92123I$	$-2.40188 - 0.43411I$
$u = -0.490424 - 0.192252I$ $a = 2.02573 + 1.32129I$ $b = 0.775835 + 0.910483I$	$-2.77711 - 0.92123I$	$-2.40188 + 0.43411I$
$u = 1.41052 + 0.56464I$ $a = 1.63990 - 0.17204I$ $b = 1.32824 + 0.93343I$	$-5.4749 - 18.0350I$	0
$u = 1.41052 - 0.56464I$ $a = 1.63990 + 0.17204I$ $b = 1.32824 - 0.93343I$	$-5.4749 + 18.0350I$	0
$u = -0.373413 + 0.292324I$ $a = -1.23651 + 2.18723I$ $b = -0.681200 - 0.818287I$	$-1.66413 - 5.49946I$	$-1.46246 + 5.05508I$
$u = -0.373413 - 0.292324I$ $a = -1.23651 - 2.18723I$ $b = -0.681200 + 0.818287I$	$-1.66413 + 5.49946I$	$-1.46246 - 5.05508I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.34540 + 0.73623I$ $a = -0.598439 - 0.635209I$ $b = -0.986576 + 0.010327I$	$-5.63674 + 7.02123I$	0
$u = -1.34540 - 0.73623I$ $a = -0.598439 + 0.635209I$ $b = -0.986576 - 0.010327I$	$-5.63674 - 7.02123I$	0
$u = -1.43121 + 0.61007I$ $a = -1.009230 + 0.287321I$ $b = -0.948448 + 0.982762I$	$0.35724 + 7.41586I$	0
$u = -1.43121 - 0.61007I$ $a = -1.009230 - 0.287321I$ $b = -0.948448 - 0.982762I$	$0.35724 - 7.41586I$	0
$u = -0.077867 + 0.405146I$ $a = -2.14768 - 1.36570I$ $b = 0.551812 + 0.744999I$	$4.92357 - 3.65063I$	$1.05797 + 12.64547I$
$u = -0.077867 - 0.405146I$ $a = -2.14768 + 1.36570I$ $b = 0.551812 - 0.744999I$	$4.92357 + 3.65063I$	$1.05797 - 12.64547I$
$u = -0.181026 + 0.342017I$ $a = 0.500745 - 0.770110I$ $b = -0.426902 + 0.358041I$	$-0.200991 + 0.958280I$	$-3.95907 - 6.99416I$
$u = -0.181026 - 0.342017I$ $a = 0.500745 + 0.770110I$ $b = -0.426902 - 0.358041I$	$-0.200991 - 0.958280I$	$-3.95907 + 6.99416I$
$u = -0.137092 + 0.322899I$ $a = -2.24872 - 0.63912I$ $b = -0.744226 + 1.001560I$	$-1.96423 + 1.03167I$	$0.423681 + 0.449105I$
$u = -0.137092 - 0.322899I$ $a = -2.24872 + 0.63912I$ $b = -0.744226 - 1.001560I$	$-1.96423 - 1.03167I$	$0.423681 - 0.449105I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.69081$ $a = 1.34078$ $b = 0.835244$	-10.1731	0
$u = -1.63854 + 0.53885I$ $a = 0.671092 + 0.461091I$ $b = 0.850672 + 0.119820I$	$-5.87559 - 4.83598I$	0
$u = -1.63854 - 0.53885I$ $a = 0.671092 - 0.461091I$ $b = 0.850672 - 0.119820I$	$-5.87559 + 4.83598I$	0

$$\text{II. } I_2^u = \langle 2.97 \times 10^{21}u^{27} - 7.47 \times 10^{21}u^{26} + \dots + 2.71 \times 10^{22}b - 6.60 \times 10^{22}, -2.02 \times 10^{23}u^{27} + 3.58 \times 10^{23}u^{26} + \dots + 5.14 \times 10^{23}a + 2.57 \times 10^{24}, u^{28} - 3u^{27} + \dots - 39u + 19 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_7 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_{12} &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_1 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_6 &= \begin{pmatrix} u \\ u \end{pmatrix} \\ a_9 &= \begin{pmatrix} 0.393370u^{27} - 0.695700u^{26} + \dots + 7.51834u - 4.99835 \\ -0.109668u^{27} + 0.276105u^{26} + \dots - 1.97895u + 2.43932 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -0.146103u^{27} + 0.419124u^{26} + \dots - 3.87896u + 5.21050 \\ -0.649141u^{27} + 1.39093u^{26} + \dots - 13.3763u + 12.6482 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -0.348178u^{27} + 0.716088u^{26} + \dots - 5.87861u + 6.64478 \\ -0.972474u^{27} + 1.99708u^{26} + \dots - 19.5910u + 17.8836 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 0.312529u^{27} - 0.559950u^{26} + \dots + 8.78283u - 4.64925 \\ 0.185894u^{27} - 0.266959u^{26} + \dots + 6.09066u - 3.17580 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -0.435301u^{27} + 0.840298u^{26} + \dots - 8.78720u + 7.15731 \\ -0.502956u^{27} + 0.904377u^{26} + \dots - 8.48786u + 8.02330 \end{pmatrix} \\ a_4 &= \begin{pmatrix} -0.318183u^{27} + 0.702283u^{26} + \dots - 7.38719u + 6.33412 \\ -0.165206u^{27} + 0.439800u^{26} + \dots - 2.39284u + 3.96984 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.100290u^{27} + 0.134408u^{26} + \dots - 4.69317u - 0.385276 \\ -0.263668u^{27} + 0.256350u^{26} + \dots - 2.86034u + 0.586162 \end{pmatrix} \\ a_3 &= \begin{pmatrix} 0.361386u^{27} - 0.629649u^{26} + \dots + 5.94865u - 5.75225 \\ 0.812419u^{27} - 1.34489u^{26} + \dots + 16.6198u - 11.1591 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = 1

$$\text{(iii) Cusp Shapes} = \frac{36346825326951087058817}{730899156647188975048731}u^{27} - \frac{381420569456833601389550}{730899156647188975048731}u^{26} + \dots + \frac{3998852031337486870792207}{730899156647188975048731}u - \frac{9592325382796608124681696}{730899156647188975048731}$$

(iv)  $u$ -Polynomials at the component



Crossings	u-Polynomials at each crossing
$c_1$	$u^{28} - 4u^{27} + \dots + 3u + 1$
$c_2$	$3(3u^{28} - 4u^{27} + \dots - 2u - 1)$
$c_3$	$3(3u^{28} - 4u^{27} + \dots - 4u - 1)$
$c_4$	$u^{28} + 4u^{27} + \dots - 3u + 1$
$c_5$	$u^{28} + 4u^{26} + \dots + 20u + 183$
$c_6$	$u^{28} + 3u^{27} + \dots + 39u + 19$
$c_7$	$3(3u^{28} + 4u^{27} + \dots + 2u - 1)$
$c_8$	$u^{28} + 4u^{27} + \dots - 550u - 393$
$c_9$	$u^{28} + u^{27} + \dots - 91u - 9$
$c_{10}$	$3(3u^{28} + 4u^{27} + \dots + 4u - 1)$
$c_{11}$	$9(9u^{28} + 11u^{27} + \dots - 9u - 1)$
$c_{12}$	$u^{28} - 3u^{27} + \dots - 39u + 19$



(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1, c_4$	$y^{28} - 20y^{27} + \dots + 19y + 1$
$c_2, c_7$	$9(9y^{28} + 128y^{27} + \dots + 16y + 1)$
$c_3, c_{10}$	$9(9y^{28} - 142y^{27} + \dots - 20y + 1)$
$c_5$	$y^{28} + 8y^{27} + \dots + 73898y + 33489$
$c_6, c_{12}$	$y^{28} - 19y^{27} + \dots + 1557y + 361$
$c_8$	$y^{28} - 20y^{27} + \dots - 1881574y + 154449$
$c_9$	$y^{28} + 9y^{27} + \dots - 8281y + 81$
$c_{11}$	$81(81y^{28} - 769y^{27} + \dots - 17y + 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.521754 + 0.880090I$ $a = 0.382943 - 0.169516I$ $b = -0.411507 + 0.021686I$	$2.01994 - 1.83061I$	$1.50906 + 8.83594I$
$u = 0.521754 - 0.880090I$ $a = 0.382943 + 0.169516I$ $b = -0.411507 - 0.021686I$	$2.01994 + 1.83061I$	$1.50906 - 8.83594I$
$u = 1.004320 + 0.286358I$ $a = 1.207610 + 0.017108I$ $b = -0.009872 - 0.775666I$	$-2.87333 - 7.20168I$	$-3.49158 + 5.74174I$
$u = 1.004320 - 0.286358I$ $a = 1.207610 - 0.017108I$ $b = -0.009872 + 0.775666I$	$-2.87333 + 7.20168I$	$-3.49158 - 5.74174I$
$u = -1.070500 + 0.186519I$ $a = 0.88674 + 1.77203I$ $b = 0.680259 - 0.192286I$	$-7.57229 + 0.82853I$	$-2.46578 - 12.32293I$
$u = -1.070500 - 0.186519I$ $a = 0.88674 - 1.77203I$ $b = 0.680259 + 0.192286I$	$-7.57229 - 0.82853I$	$-2.46578 + 12.32293I$
$u = 0.562054 + 0.961301I$ $a = 0.029738 - 0.391667I$ $b = 0.648409 - 0.815439I$	$6.74803 + 0.55431I$	$4.39621 - 1.64176I$
$u = 0.562054 - 0.961301I$ $a = 0.029738 + 0.391667I$ $b = 0.648409 + 0.815439I$	$6.74803 - 0.55431I$	$4.39621 + 1.64176I$
$u = -1.12047$ $a = 2.69049$ $b = 2.60517$	$-3.44038$	$-18.1190$
$u = 1.048530 + 0.497158I$ $a = 1.81281 - 0.12113I$ $b = 1.14446 + 0.91674I$	$5.07440 - 5.77041I$	$2.11038 + 6.19669I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.048530 - 0.497158I$ $a = 1.81281 + 0.12113I$ $b = 1.14446 - 0.91674I$	$5.07440 + 5.77041I$	$2.11038 - 6.19669I$
$u = -1.255070 + 0.285789I$ $a = 1.296300 + 0.417482I$ $b = 0.676477 - 0.994621I$	$1.63709 + 6.17925I$	$3.37825 - 3.29613I$
$u = -1.255070 - 0.285789I$ $a = 1.296300 - 0.417482I$ $b = 0.676477 + 0.994621I$	$1.63709 - 6.17925I$	$3.37825 + 3.29613I$
$u = 1.340010 + 0.147694I$ $a = -1.43207 + 0.40771I$ $b = -0.460042 + 0.447927I$	$-4.26015 + 4.72994I$	$-3.25602 - 6.00078I$
$u = 1.340010 - 0.147694I$ $a = -1.43207 - 0.40771I$ $b = -0.460042 - 0.447927I$	$-4.26015 - 4.72994I$	$-3.25602 + 6.00078I$
$u = 1.283280 + 0.418019I$ $a = -1.129020 + 0.697209I$ $b = -0.681608 - 0.385401I$	$-0.85125 - 2.97639I$	$-7.07571 - 0.53480I$
$u = 1.283280 - 0.418019I$ $a = -1.129020 - 0.697209I$ $b = -0.681608 + 0.385401I$	$-0.85125 + 2.97639I$	$-7.07571 + 0.53480I$
$u = 1.396940 + 0.174140I$ $a = -1.63173 - 0.37311I$ $b = -1.43554 - 1.19718I$	$-7.54617 - 5.02484I$	$-4.07792 - 1.75277I$
$u = 1.396940 - 0.174140I$ $a = -1.63173 + 0.37311I$ $b = -1.43554 + 1.19718I$	$-7.54617 + 5.02484I$	$-4.07792 + 1.75277I$
$u = -0.294127 + 0.476992I$ $a = -1.81518 - 0.27843I$ $b = 0.543604 + 0.583954I$	$4.95221 - 3.15515I$	$2.16472 - 2.64497I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.294127 - 0.476992I$		
$a = -1.81518 + 0.27843I$	$4.95221 + 3.15515I$	$2.16472 + 2.64497I$
$b = 0.543604 - 0.583954I$		
$u = 0.057545 + 0.467455I$		
$a = 0.646815 + 0.815476I$	$-2.82369 + 2.83577I$	$-2.08018 - 2.99142I$
$b = -0.894668 + 0.734654I$		
$u = 0.057545 - 0.467455I$		
$a = 0.646815 - 0.815476I$	$-2.82369 - 2.83577I$	$-2.08018 + 2.99142I$
$b = -0.894668 - 0.734654I$		
$u = -0.26281 + 1.52272I$		
$a = -0.052675 - 0.290436I$	$4.95254 + 0.16143I$	$-7.70420 + 4.24851I$
$b = -0.419220 - 0.307941I$		
$u = -0.26281 - 1.52272I$		
$a = -0.052675 + 0.290436I$	$4.95254 - 0.16143I$	$-7.70420 - 4.24851I$
$b = -0.419220 + 0.307941I$		
$u = -1.41891 + 0.65551I$		
$a = -0.943900 + 0.122189I$	$0.74318 + 7.19731I$	$4.06191 - 4.63819I$
$b = -0.887039 + 0.838068I$		
$u = -1.41891 - 0.65551I$		
$a = -0.943900 - 0.122189I$	$0.74318 - 7.19731I$	$4.06191 + 4.63819I$
$b = -0.887039 - 0.838068I$		
$u = -1.70552$		
$a = -1.32420$	$-10.1201$	$71.7450$
$b = -0.814815$		

### III. u-Polynomials

Crossings	u-Polynomials at each crossing
$c_1$	$(u^{28} - 4u^{27} + \dots + 3u + 1)(u^{93} - 7u^{92} + \dots + 24150u - 1231)$
$c_2$	$9(3u^{28} - 4u^{27} + \dots - 2u - 1)(3u^{93} - 7u^{92} + \dots + 5337u + 845)$
$c_3$	$9(3u^{28} - 4u^{27} + \dots - 4u - 1)(3u^{93} - 7u^{92} + \dots - 29u - 1)$
$c_4$	$(u^{28} + 4u^{27} + \dots - 3u + 1)(u^{93} - 7u^{92} + \dots + 24150u - 1231)$
$c_5$	$(u^{28} + 4u^{26} + \dots + 20u + 183)(u^{93} + u^{92} + \dots - 233909u + 97395)$
$c_6$	$(u^{28} + 3u^{27} + \dots + 39u + 19)(u^{93} - 4u^{92} + \dots - 4518u - 713)$
$c_7$	$9(3u^{28} + 4u^{27} + \dots + 2u - 1)(3u^{93} - 7u^{92} + \dots + 5337u + 845)$
$c_8$	$(u^{28} + 4u^{27} + \dots - 550u - 393)$ $\cdot (u^{93} + 5u^{92} + \dots - 67117955u + 23409813)$
$c_9$	$(u^{28} + u^{27} + \dots - 91u - 9)(u^{93} + 12u^{91} + \dots - 34564u - 1089)$
$c_{10}$	$9(3u^{28} + 4u^{27} + \dots + 4u - 1)(3u^{93} - 7u^{92} + \dots - 29u - 1)$
$c_{11}$	$81(9u^{28} + 11u^{27} + \dots - 9u - 1)(9u^{93} - 94u^{92} + \dots + 2774u - 2627)$
$c_{12}$	$(u^{28} - 3u^{27} + \dots - 39u + 19)(u^{93} - 4u^{92} + \dots - 4518u - 713)$

#### IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
$c_1, c_4$	$(y^{28} - 20y^{27} + \dots + 19y + 1)$ $\cdot (y^{93} - 81y^{92} + \dots + 49128530y - 1515361)$
$c_2, c_7$	$81(9y^{28} + 128y^{27} + \dots + 16y + 1)$ $\cdot (9y^{93} + 239y^{92} + \dots - 12995791y - 714025)$
$c_3, c_{10}$	$81(9y^{28} - 142y^{27} + \dots - 20y + 1)(9y^{93} - 355y^{92} + \dots + 4293y - 1)$
$c_5$	$(y^{28} + 8y^{27} + \dots + 73898y + 33489)$ $\cdot (y^{93} + 35y^{92} + \dots - 415484901389y - 9485786025)$
$c_6, c_{12}$	$(y^{28} - 19y^{27} + \dots + 1557y + 361)$ $\cdot (y^{93} - 64y^{92} + \dots - 3721300y - 508369)$
$c_8$	$(y^{28} - 20y^{27} + \dots - 1881574y + 154449)$ $\cdot (y^{93} - 61y^{92} + \dots + 33849166602934771y - 548019344694969)$
$c_9$	$(y^{28} + 9y^{27} + \dots - 8281y + 81)$ $\cdot (y^{93} + 24y^{92} + \dots + 318031630y - 1185921)$
$c_{11}$	$6561(81y^{28} - 769y^{27} + \dots - 17y + 1)$ $\cdot (81y^{93} - 7702y^{92} + \dots + 217902362y - 6901129)$