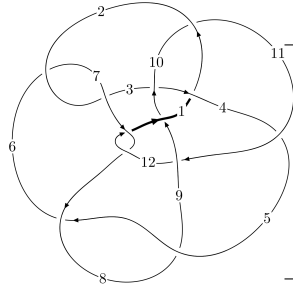
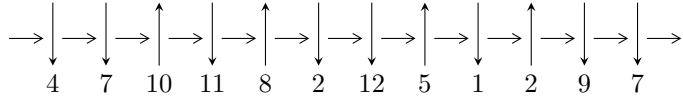


12n₀₇₉₉ (K12n₀₇₉₉)



A knot diagram¹

Linearized knot diagram



Solving Sequence

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

Ideals for irreducible components² of X_{par}

$$I_1^u = \langle 5.00355 \times 10^{780} u^{109} + 4.44505 \times 10^{780} u^{108} + \dots + 9.26593 \times 10^{783} b + 8.56922 \times 10^{784}, \\ 4.02128 \times 10^{784} u^{109} + 2.31943 \times 10^{784} u^{108} + \dots + 2.42490 \times 10^{787} a - 8.43979 \times 10^{788}, \\ u^{110} + u^{109} + \dots + 73536u + 2617 \rangle$$

$$I_2^u = \langle 2.23748 \times 10^{66} u^{40} - 3.11786 \times 10^{66} u^{39} + \dots + 5.39174 \times 10^{65} b - 5.51085 \times 10^{66}, \\ 1.57158 \times 10^{65} u^{40} - 2.36554 \times 10^{65} u^{39} + \dots + 8.04737 \times 10^{63} a - 3.17576 \times 10^{65}, u^{41} - u^{40} + \dots - 3u - 1 \rangle$$

$$I_3^u = \langle b + u - 1, a + u, u^2 - u + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 153 representations.

¹The 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>).

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

$$\mathbf{I. } I_1^u = \langle 5.00 \times 10^{780} u^{109} + 4.45 \times 10^{780} u^{108} + \dots + 9.27 \times 10^{783} b + 8.57 \times 10^{784}, 4.02 \times 10^{784} u^{109} + 2.32 \times 10^{784} u^{108} + \dots + 2.42 \times 10^{787} a - 8.44 \times 10^{788}, u^{110} + u^{109} + \dots + 73536u + 2617 \rangle$$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix} -0.00165833u^{109} - 0.000956508u^{108} + \dots + 262.589u + 34.8048 \\ -0.000539994u^{109} - 0.000479720u^{108} + \dots - 211.157u - 9.24809 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.00355770u^{109} + 0.00302258u^{108} + \dots + 1068.05u + 35.8465 \\ -0.0000360471u^{109} - 0.0000574092u^{108} + \dots - 32.5756u - 1.98675 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.00219832u^{109} - 0.00143623u^{108} + \dots + 51.4314u + 25.5567 \\ -0.000539994u^{109} - 0.000479720u^{108} + \dots - 211.157u - 9.24809 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.00184498u^{109} - 0.00143087u^{108} + \dots - 165.261u + 12.2558 \\ 0.0000480912u^{109} + 0.0000500660u^{108} + \dots - 1.21923u + 0.337163 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.00130209u^{109} + 0.00107878u^{108} + \dots + 138.910u - 3.01710 \\ -0.000105047u^{109} - 0.0000969873u^{108} + \dots - 24.1334u - 1.41572 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.00550803u^{109} - 0.00459500u^{108} + \dots - 1781.60u - 71.4609 \\ -0.000407303u^{109} - 0.000383400u^{108} + \dots - 186.765u - 8.60675 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.00130209u^{109} + 0.00107878u^{108} + \dots + 138.910u - 3.01710 \\ -0.000125326u^{109} - 0.000111403u^{108} + \dots - 37.1469u - 2.00012 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00422116u^{109} + 0.00367787u^{108} + \dots + 2016.89u + 100.317 \\ 0.0000745344u^{109} + 0.0000765968u^{108} + \dots + 24.9481u + 1.13426 \end{pmatrix}$$

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

(ii) Obstruction class = -1

(iii) Cusp Shapes = $-0.00328476u^{109} - 0.00285610u^{108} + \dots - 1147.32u - 43.1143$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{110} - 6u^{109} + \dots + 11u - 2$
c_2, c_6	$u^{110} + u^{109} + \dots + 73536u + 2617$
c_3	$u^{110} - 14u^{108} + \dots + 129540868u + 14647477$
c_4	$u^{110} - 2u^{109} + \dots + 124018u - 36863$
c_5, c_8	$u^{110} + 4u^{109} + \dots + 45870u + 9829$
c_7, c_{12}	$u^{110} + 2u^{109} + \dots - 559427u - 79997$
c_9	$u^{110} - u^{109} + \dots + 1686688u - 214604$
c_{10}	$u^{110} - 7u^{109} + \dots + 20930122u + 5719333$
c_{11}	$u^{110} + 10u^{109} + \dots - 1755u - 172$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{110} - 26y^{109} + \dots + 279y + 4$
c_2, c_6	$y^{110} + 83y^{109} + \dots - 338995270y + 6848689$
c_3	$y^{110} - 28y^{109} + \dots - 7442649453513616y + 214548582465529$
c_4	$y^{110} - 24y^{109} + \dots - 95798204714y + 1358880769$
c_5, c_8	$y^{110} + 52y^{109} + \dots + 4273725646y + 96609241$
c_7, c_{12}	$y^{110} + 102y^{109} + \dots + 299723255241y + 6399520009$
c_9	$y^{110} + 41y^{109} + \dots - 686133223824y + 46054876816$
c_{10}	$y^{110} - 7y^{109} + \dots + 2976938625720080y + 32710769964889$
c_{11}	$y^{110} - 34y^{109} + \dots - 926929y + 29584$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.805333 + 0.505294I$ $a = -0.596501 + 1.096150I$ $b = -0.958037 - 0.646584I$	$-4.47061 - 4.06371I$	0
$u = 0.805333 - 0.505294I$ $a = -0.596501 - 1.096150I$ $b = -0.958037 + 0.646584I$	$-4.47061 + 4.06371I$	0
$u = -0.859436 + 0.342612I$ $a = -0.210776 - 1.277940I$ $b = -0.0198737 + 0.1276830I$	$-3.05544 + 0.70231I$	0
$u = -0.859436 - 0.342612I$ $a = -0.210776 + 1.277940I$ $b = -0.0198737 - 0.1276830I$	$-3.05544 - 0.70231I$	0
$u = 0.873404 + 0.253930I$ $a = 0.708499 - 0.567565I$ $b = 0.657473 - 0.646755I$	$-1.54504 - 3.28756I$	0
$u = 0.873404 - 0.253930I$ $a = 0.708499 + 0.567565I$ $b = 0.657473 + 0.646755I$	$-1.54504 + 3.28756I$	0
$u = 0.653693 + 0.618652I$ $a = 0.559623 - 0.017173I$ $b = 0.70384 + 1.46278I$	$-2.36408 + 2.97680I$	0
$u = 0.653693 - 0.618652I$ $a = 0.559623 + 0.017173I$ $b = 0.70384 - 1.46278I$	$-2.36408 - 2.97680I$	0
$u = 0.863533 + 0.129494I$ $a = 0.335619 - 0.299751I$ $b = -0.655798 - 0.744240I$	$4.28650 + 2.21272I$	0
$u = 0.863533 - 0.129494I$ $a = 0.335619 + 0.299751I$ $b = -0.655798 + 0.744240I$	$4.28650 - 2.21272I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.558022 + 0.979364I$ $a = 1.35260 - 0.52830I$ $b = -0.224653 - 0.570124I$	$-0.50305 + 2.98066I$	0
$u = -0.558022 - 0.979364I$ $a = 1.35260 + 0.52830I$ $b = -0.224653 + 0.570124I$	$-0.50305 - 2.98066I$	0
$u = -0.222236 + 0.827366I$ $a = 1.268670 + 0.360216I$ $b = -0.429593 + 0.654843I$	$-0.031233 + 0.923019I$	0
$u = -0.222236 - 0.827366I$ $a = 1.268670 - 0.360216I$ $b = -0.429593 - 0.654843I$	$-0.031233 - 0.923019I$	0
$u = 0.298358 + 0.784801I$ $a = -0.43144 - 1.87688I$ $b = 0.278155 + 1.007320I$	$4.84274 - 0.88323I$	0
$u = 0.298358 - 0.784801I$ $a = -0.43144 + 1.87688I$ $b = 0.278155 - 1.007320I$	$4.84274 + 0.88323I$	0
$u = 0.288461 + 1.145320I$ $a = -1.72569 + 0.35399I$ $b = 0.754623 - 1.056690I$	$-0.75710 - 6.48578I$	0
$u = 0.288461 - 1.145320I$ $a = -1.72569 - 0.35399I$ $b = 0.754623 + 1.056690I$	$-0.75710 + 6.48578I$	0
$u = -0.393228 + 1.119820I$ $a = 0.943391 - 0.945950I$ $b = -0.489952 - 0.772510I$	$-0.92563 + 4.26359I$	0
$u = -0.393228 - 1.119820I$ $a = 0.943391 + 0.945950I$ $b = -0.489952 + 0.772510I$	$-0.92563 - 4.26359I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.535865 + 1.083180I$ $a = -1.92132 - 0.29525I$ $b = 1.18424 - 1.35458I$	$0.36722 - 6.89626I$	0
$u = 0.535865 - 1.083180I$ $a = -1.92132 + 0.29525I$ $b = 1.18424 + 1.35458I$	$0.36722 + 6.89626I$	0
$u = 0.675587 + 0.299878I$ $a = 0.106347 + 0.258467I$ $b = -0.680178 - 1.062790I$	$-5.78616 + 6.79535I$	0
$u = 0.675587 - 0.299878I$ $a = 0.106347 - 0.258467I$ $b = -0.680178 + 1.062790I$	$-5.78616 - 6.79535I$	0
$u = -0.644391 + 0.360817I$ $a = -0.262837 + 0.717837I$ $b = 0.513358 + 1.174010I$	$-1.08724 + 5.07336I$	0
$u = -0.644391 - 0.360817I$ $a = -0.262837 - 0.717837I$ $b = 0.513358 - 1.174010I$	$-1.08724 - 5.07336I$	0
$u = -0.585281 + 0.442144I$ $a = 0.140802 + 0.287801I$ $b = -0.193312 - 1.095270I$	$-5.63917 + 2.00864I$	0
$u = -0.585281 - 0.442144I$ $a = 0.140802 - 0.287801I$ $b = -0.193312 + 1.095270I$	$-5.63917 - 2.00864I$	0
$u = -1.085560 + 0.669522I$ $a = 0.168365 + 0.505512I$ $b = -0.202545 + 0.638160I$	$-1.84408 + 2.62374I$	0
$u = -1.085560 - 0.669522I$ $a = 0.168365 - 0.505512I$ $b = -0.202545 - 0.638160I$	$-1.84408 - 2.62374I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.027705 + 1.304750I$ $a = 0.982016 - 0.483651I$ $b = -0.706143 + 0.590040I$	$-1.307970 + 0.133901I$	0
$u = -0.027705 - 1.304750I$ $a = 0.982016 + 0.483651I$ $b = -0.706143 - 0.590040I$	$-1.307970 - 0.133901I$	0
$u = -0.238231 + 1.287730I$ $a = -0.423249 - 0.478548I$ $b = 0.384314 - 1.134960I$	$3.29794 - 1.90730I$	0
$u = -0.238231 - 1.287730I$ $a = -0.423249 + 0.478548I$ $b = 0.384314 + 1.134960I$	$3.29794 + 1.90730I$	0
$u = 0.187409 + 1.313880I$ $a = 0.817507 + 0.719947I$ $b = -0.92265 - 1.46668I$	$7.16822 - 1.11216I$	0
$u = 0.187409 - 1.313880I$ $a = 0.817507 - 0.719947I$ $b = -0.92265 + 1.46668I$	$7.16822 + 1.11216I$	0
$u = -0.433977 + 0.508710I$ $a = 0.819264 - 0.192101I$ $b = 0.323074 + 0.172146I$	$-0.67695 + 1.33587I$	$-4.00000 - 4.21005I$
$u = -0.433977 - 0.508710I$ $a = 0.819264 + 0.192101I$ $b = 0.323074 - 0.172146I$	$-0.67695 - 1.33587I$	$-4.00000 + 4.21005I$
$u = 0.539885 + 0.343839I$ $a = 0.800116 - 0.417430I$ $b = 0.756613 + 1.066180I$	$-1.49814 + 2.64491I$	$-6.63643 - 2.61758I$
$u = 0.539885 - 0.343839I$ $a = 0.800116 + 0.417430I$ $b = 0.756613 - 1.066180I$	$-1.49814 - 2.64491I$	$-6.63643 + 2.61758I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.030326 + 1.376500I$ $a = 1.32862 - 0.49316I$ $b = -0.707989 + 0.080369I$	$7.26908 - 3.74883I$	0
$u = -0.030326 - 1.376500I$ $a = 1.32862 + 0.49316I$ $b = -0.707989 - 0.080369I$	$7.26908 + 3.74883I$	0
$u = -1.38161$ $a = 0.0105714$ $b = -0.514748$	-3.28566	0
$u = 0.419422 + 1.316940I$ $a = -0.589355 + 0.166815I$ $b = -0.03588 - 1.96472I$	$5.50584 + 2.61222I$	0
$u = 0.419422 - 1.316940I$ $a = -0.589355 - 0.166815I$ $b = -0.03588 + 1.96472I$	$5.50584 - 2.61222I$	0
$u = -1.391710 + 0.089752I$ $a = 0.0956448 + 0.0932804I$ $b = -1.082700 - 0.221134I$	$2.13480 - 2.90558I$	0
$u = -1.391710 - 0.089752I$ $a = 0.0956448 - 0.0932804I$ $b = -1.082700 + 0.221134I$	$2.13480 + 2.90558I$	0
$u = 1.395400 + 0.166033I$ $a = 0.23204 + 1.64147I$ $b = -0.49169 + 1.85704I$	$-6.30956 - 0.07318I$	0
$u = 1.395400 - 0.166033I$ $a = 0.23204 - 1.64147I$ $b = -0.49169 - 1.85704I$	$-6.30956 + 0.07318I$	0
$u = 0.108876 + 1.406000I$ $a = -1.081840 - 0.470227I$ $b = 1.165760 + 0.284506I$	$4.60582 + 1.28218I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.108876 - 1.406000I$ $a = -1.081840 + 0.470227I$ $b = 1.165760 - 0.284506I$	$4.60582 - 1.28218I$	0
$u = -0.58264 + 1.33284I$ $a = -0.641654 + 0.559695I$ $b = 0.769236 + 0.435275I$	$1.29427 + 3.17227I$	0
$u = -0.58264 - 1.33284I$ $a = -0.641654 - 0.559695I$ $b = 0.769236 - 0.435275I$	$1.29427 - 3.17227I$	0
$u = -0.21729 + 1.48719I$ $a = -1.240930 + 0.212693I$ $b = 0.547205 + 0.202436I$	$1.67613 + 3.56898I$	0
$u = -0.21729 - 1.48719I$ $a = -1.240930 - 0.212693I$ $b = 0.547205 - 0.202436I$	$1.67613 - 3.56898I$	0
$u = 1.50360 + 0.18567I$ $a = -0.116323 - 0.103826I$ $b = -0.520988 - 0.230205I$	$-7.27239 - 5.14922I$	0
$u = 1.50360 - 0.18567I$ $a = -0.116323 + 0.103826I$ $b = -0.520988 + 0.230205I$	$-7.27239 + 5.14922I$	0
$u = -0.13144 + 1.51101I$ $a = -1.230130 + 0.282141I$ $b = 1.87800 - 0.65109I$	$6.99249 + 3.06914I$	0
$u = -0.13144 - 1.51101I$ $a = -1.230130 - 0.282141I$ $b = 1.87800 + 0.65109I$	$6.99249 - 3.06914I$	0
$u = 0.03386 + 1.54887I$ $a = 1.227950 - 0.534366I$ $b = -2.11119 + 1.63891I$	$4.40014 - 6.65988I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.03386 - 1.54887I$ $a = 1.227950 + 0.534366I$ $b = -2.11119 - 1.63891I$	$4.40014 + 6.65988I$	0
$u = -1.55655 + 0.03086I$ $a = 0.03939 + 1.44285I$ $b = -0.218642 + 1.374580I$	$-5.52724 + 0.79368I$	0
$u = -1.55655 - 0.03086I$ $a = 0.03939 - 1.44285I$ $b = -0.218642 - 1.374580I$	$-5.52724 - 0.79368I$	0
$u = -0.57017 + 1.47209I$ $a = -0.915532 + 0.379339I$ $b = 1.211700 + 0.203889I$	$7.30049 + 3.57857I$	0
$u = -0.57017 - 1.47209I$ $a = -0.915532 - 0.379339I$ $b = 1.211700 - 0.203889I$	$7.30049 - 3.57857I$	0
$u = -1.58330 + 0.07743I$ $a = -0.0194368 + 0.0971197I$ $b = 1.125400 + 0.343635I$	$2.07841 + 3.97264I$	0
$u = -1.58330 - 0.07743I$ $a = -0.0194368 - 0.0971197I$ $b = 1.125400 - 0.343635I$	$2.07841 - 3.97264I$	0
$u = -0.134441 + 0.384397I$ $a = 2.76887 + 0.58209I$ $b = -0.126233 - 1.274790I$	$-4.66184 - 3.14847I$	$-10.60900 + 4.19793I$
$u = -0.134441 - 0.384397I$ $a = 2.76887 - 0.58209I$ $b = -0.126233 + 1.274790I$	$-4.66184 + 3.14847I$	$-10.60900 - 4.19793I$
$u = 0.39000 + 1.55692I$ $a = 1.210650 - 0.074619I$ $b = -1.52201 + 0.86145I$	$-0.56610 - 11.02370I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.39000 - 1.55692I$ $a = 1.210650 + 0.074619I$ $b = -1.52201 - 0.86145I$	$-0.56610 + 11.02370I$	0
$u = -0.224390 + 0.323084I$ $a = 1.138940 - 0.253466I$ $b = 0.129820 + 0.620828I$	$-0.465389 + 1.055160I$	$-6.15574 - 6.45752I$
$u = -0.224390 - 0.323084I$ $a = 1.138940 + 0.253466I$ $b = 0.129820 - 0.620828I$	$-0.465389 - 1.055160I$	$-6.15574 + 6.45752I$
$u = -0.18124 + 1.60467I$ $a = 1.075440 + 0.188232I$ $b = -1.31529 - 0.56169I$	$3.46972 + 5.53181I$	0
$u = -0.18124 - 1.60467I$ $a = 1.075440 - 0.188232I$ $b = -1.31529 + 0.56169I$	$3.46972 - 5.53181I$	0
$u = 0.63443 + 1.49950I$ $a = 0.735611 + 0.371756I$ $b = -0.888067 + 0.209595I$	$8.64171 - 3.75966I$	0
$u = 0.63443 - 1.49950I$ $a = 0.735611 - 0.371756I$ $b = -0.888067 - 0.209595I$	$8.64171 + 3.75966I$	0
$u = 0.085154 + 0.351683I$ $a = 1.57905 - 3.42818I$ $b = 0.644995 + 0.115017I$	$1.07763 + 2.58586I$	$2.24955 - 1.98143I$
$u = 0.085154 - 0.351683I$ $a = 1.57905 + 3.42818I$ $b = 0.644995 - 0.115017I$	$1.07763 - 2.58586I$	$2.24955 + 1.98143I$
$u = 0.93046 + 1.40025I$ $a = 1.184390 + 0.518390I$ $b = -1.17427 + 1.30379I$	$6.58375 - 9.03797I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.93046 - 1.40025I$		
$a = 1.184390 - 0.518390I$	$6.58375 + 9.03797I$	0
$b = -1.17427 - 1.30379I$		
$u = -0.17511 + 1.68546I$		
$a = -0.260149 + 0.492047I$	$2.25987 + 7.59630I$	0
$b = 0.273993 + 1.305930I$		
$u = -0.17511 - 1.68546I$		
$a = -0.260149 - 0.492047I$	$2.25987 - 7.59630I$	0
$b = 0.273993 - 1.305930I$		
$u = 0.01116 + 1.71770I$		
$a = -0.967157 + 0.108618I$	$5.20854 - 0.97669I$	0
$b = 2.02507 - 0.34889I$		
$u = 0.01116 - 1.71770I$		
$a = -0.967157 - 0.108618I$	$5.20854 + 0.97669I$	0
$b = 2.02507 + 0.34889I$		
$u = -0.57629 + 1.62100I$		
$a = -1.175950 + 0.111377I$	$7.80747 + 11.55220I$	0
$b = 1.34314 + 1.07205I$		
$u = -0.57629 - 1.62100I$		
$a = -1.175950 - 0.111377I$	$7.80747 - 11.55220I$	0
$b = 1.34314 - 1.07205I$		
$u = -0.85002 + 1.50698I$		
$a = 0.721941 - 0.375529I$	$5.97924 + 10.75490I$	0
$b = -0.915285 - 0.643977I$		
$u = -0.85002 - 1.50698I$		
$a = 0.721941 + 0.375529I$	$5.97924 - 10.75490I$	0
$b = -0.915285 + 0.643977I$		
$u = 0.04623 + 1.73509I$		
$a = -0.227368 - 0.655959I$	$2.61958 - 6.19065I$	0
$b = 0.61476 + 3.07339I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.04623 - 1.73509I$ $a = -0.227368 + 0.655959I$ $b = 0.61476 - 3.07339I$	$2.61958 + 6.19065I$	0
$u = -0.094667 + 0.241935I$ $a = 5.53733 + 2.42067I$ $b = -0.584625 - 1.077750I$	$-1.03771 + 7.25086I$	$-6.57226 - 7.75836I$
$u = -0.094667 - 0.241935I$ $a = 5.53733 - 2.42067I$ $b = -0.584625 + 1.077750I$	$-1.03771 - 7.25086I$	$-6.57226 + 7.75836I$
$u = -0.18843 + 1.78061I$ $a = 1.050780 + 0.143614I$ $b = -1.357100 - 0.081623I$	$7.66072 + 7.86170I$	0
$u = -0.18843 - 1.78061I$ $a = 1.050780 - 0.143614I$ $b = -1.357100 + 0.081623I$	$7.66072 - 7.86170I$	0
$u = -0.036576 + 0.200555I$ $a = 3.81052 - 9.54571I$ $b = -0.943630 + 0.281642I$	$-5.30235 + 1.62860I$	$-5.66824 + 5.78169I$
$u = -0.036576 - 0.200555I$ $a = 3.81052 + 9.54571I$ $b = -0.943630 - 0.281642I$	$-5.30235 - 1.62860I$	$-5.66824 - 5.78169I$
$u = 1.81851 + 0.26975I$ $a = 0.0537702 + 0.0196362I$ $b = 1.63126 + 0.63662I$	$0.48462 + 9.41860I$	0
$u = 1.81851 - 0.26975I$ $a = 0.0537702 - 0.0196362I$ $b = 1.63126 - 0.63662I$	$0.48462 - 9.41860I$	0
$u = 0.82536 + 1.65169I$ $a = -1.105360 - 0.293971I$ $b = 1.54187 - 1.29894I$	$4.9957 - 18.5909I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.82536 - 1.65169I$ $a = -1.105360 + 0.293971I$ $b = 1.54187 + 1.29894I$	$4.9957 + 18.5909I$	0
$u = 0.47613 + 1.79141I$ $a = -0.842954 - 0.283009I$ $b = 1.67205 - 0.30568I$	$7.79489 + 0.93405I$	0
$u = 0.47613 - 1.79141I$ $a = -0.842954 + 0.283009I$ $b = 1.67205 + 0.30568I$	$7.79489 - 0.93405I$	0
$u = -0.1214770 + 0.0473022I$ $a = 19.5541 + 13.5416I$ $b = 1.036630 + 0.085835I$	$-4.44299 - 7.53619I$	$8.62343 + 7.48479I$
$u = -0.1214770 - 0.0473022I$ $a = 19.5541 - 13.5416I$ $b = 1.036630 - 0.085835I$	$-4.44299 + 7.53619I$	$8.62343 - 7.48479I$
$u = -0.126050$ $a = 7.56620$ $b = -0.663090$	-1.78457	-5.65030
$u = 0.24856 + 1.89159I$ $a = -0.815297 - 0.159713I$ $b = 2.06200 - 0.22154I$	$5.73161 - 1.30915I$	0
$u = 0.24856 - 1.89159I$ $a = -0.815297 + 0.159713I$ $b = 2.06200 + 0.22154I$	$5.73161 + 1.30915I$	0
$u = -0.70069 + 1.82642I$ $a = 1.012740 - 0.204603I$ $b = -1.66134 - 0.84762I$	$7.63205 + 5.30313I$	0
$u = -0.70069 - 1.82642I$ $a = 1.012740 + 0.204603I$ $b = -1.66134 + 0.84762I$	$7.63205 - 5.30313I$	0

II.

$$I_2^u = \langle 2.24 \times 10^{66} u^{40} - 3.12 \times 10^{66} u^{39} + \dots + 5.39 \times 10^{65} b - 5.51 \times 10^{66}, 1.57 \times 10^{65} u^{40} - 2.37 \times 10^{65} u^{39} + \dots + 8.05 \times 10^{63} a - 3.18 \times 10^{65}, u^{41} - u^{40} + \dots - 3u - 1 \rangle$$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix} -19.5291u^{40} + 29.3952u^{39} + \dots + 40.3871u + 39.4633 \\ -4.14983u^{40} + 5.78266u^{39} + \dots + 6.90996u + 10.2209 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -21.8655u^{40} + 33.1429u^{39} + \dots + 46.3284u + 42.7793 \\ -2.25499u^{40} + 2.95959u^{39} + \dots + 2.03087u + 6.60810 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -23.6790u^{40} + 35.1778u^{39} + \dots + 47.2970u + 49.6842 \\ -4.14983u^{40} + 5.78266u^{39} + \dots + 6.90996u + 10.2209 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 32.9487u^{40} - 48.9348u^{39} + \dots - 62.9983u - 67.8981 \\ 0.888298u^{40} - 2.31565u^{39} + \dots - 5.65847u + 0.969603 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 19.8792u^{40} - 30.5410u^{39} + \dots - 43.1109u - 36.3167 \\ 6.15273u^{40} - 8.05147u^{39} + \dots - 5.95744u - 15.5284 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 8.85110u^{40} - 14.7059u^{39} + \dots - 24.3827u - 13.3340 \\ 5.40952u^{40} - 7.30710u^{39} + \dots - 4.87102u - 13.9817 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 19.8792u^{40} - 30.5410u^{39} + \dots - 43.1109u - 36.3167 \\ 0.532429u^{40} + 0.416044u^{39} + \dots + 6.14888u - 4.86655 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -25.9087u^{40} + 39.4421u^{39} + \dots + 57.5096u + 51.9080 \\ 3.69737u^{40} - 4.89585u^{39} + \dots - 7.26966u - 8.83313 \end{pmatrix}$$

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

(ii) Obstruction class = 1

(iii) Cusp Shapes = $-29.8534u^{40} + 43.7848u^{39} + \dots + 39.4838u + 59.7065$

(iv) u -Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{41} - 12u^{40} + \dots + 10u - 1$
c_2	$u^{41} - u^{40} + \dots - 3u - 1$
c_3	$u^{41} + 6u^{39} + \dots + u - 1$
c_4	$u^{41} - 2u^{40} + \dots - 17u - 1$
c_5	$u^{41} + 6u^{40} + \dots - 11u - 7$
c_6	$u^{41} + u^{40} + \dots - 3u + 1$
c_7	$u^{41} + 21u^{39} + \dots - 6u - 1$
c_8	$u^{41} - 6u^{40} + \dots - 11u + 7$
c_9	$u^{41} + 2u^{40} + \dots + 485u - 43$
c_{10}	$u^{41} + u^{40} + \dots + 53u - 7$
c_{11}	$u^{41} + 20u^{40} + \dots + 81u + 9$
c_{12}	$u^{41} + 21u^{39} + \dots - 6u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{41} - 18y^{40} + \dots + 8y - 1$
c_2, c_6	$y^{41} + 11y^{40} + \dots + 21y - 1$
c_3	$y^{41} + 12y^{40} + \dots - 5y - 1$
c_4	$y^{41} - 20y^{40} + \dots - 167y - 1$
c_5, c_8	$y^{41} + 20y^{40} + \dots - 887y - 49$
c_7, c_{12}	$y^{41} + 42y^{40} + \dots + 6y - 1$
c_9	$y^{41} + 6y^{40} + \dots + 42241y - 1849$
c_{10}	$y^{41} + 21y^{40} + \dots + 107y - 49$
c_{11}	$y^{41} - 26y^{40} + \dots + 189y - 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.286901 + 0.991540I$ $a = 2.29762 + 0.41484I$ $b = -1.00661 - 1.17209I$	$0.07518 + 7.84426I$	$-1.50914 - 12.20509I$
$u = -0.286901 - 0.991540I$ $a = 2.29762 - 0.41484I$ $b = -1.00661 + 1.17209I$	$0.07518 - 7.84426I$	$-1.50914 + 12.20509I$
$u = 0.949635 + 0.476458I$ $a = 0.032106 + 1.042850I$ $b = -0.143760 + 0.199137I$	$-3.57031 - 1.46409I$	$-9.22014 + 4.61604I$
$u = 0.949635 - 0.476458I$ $a = 0.032106 - 1.042850I$ $b = -0.143760 - 0.199137I$	$-3.57031 + 1.46409I$	$-9.22014 - 4.61604I$
$u = -0.899592 + 0.046634I$ $a = 0.355735 + 0.441243I$ $b = 0.768350 + 1.078400I$	$-1.50647 + 4.42138I$	$-7.52469 - 5.58697I$
$u = -0.899592 - 0.046634I$ $a = 0.355735 - 0.441243I$ $b = 0.768350 - 1.078400I$	$-1.50647 - 4.42138I$	$-7.52469 + 5.58697I$
$u = -0.345323 + 0.806861I$ $a = 0.27563 - 1.75630I$ $b = -0.333431 + 1.024460I$	$4.75667 + 0.68528I$	$-9.5465 + 15.1931I$
$u = -0.345323 - 0.806861I$ $a = 0.27563 + 1.75630I$ $b = -0.333431 - 1.024460I$	$4.75667 - 0.68528I$	$-9.5465 - 15.1931I$
$u = 0.420032 + 1.059610I$ $a = -1.30616 - 0.55865I$ $b = 0.197569 - 0.419287I$	$-1.08177 - 3.23825I$	$-12.43837 + 3.24569I$
$u = 0.420032 - 1.059610I$ $a = -1.30616 + 0.55865I$ $b = 0.197569 + 0.419287I$	$-1.08177 + 3.23825I$	$-12.43837 - 3.24569I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.792635 + 0.257658I$		
$a = 1.147710 - 0.507974I$	$0.15390 - 3.18917I$	$-5.18425 + 4.41893I$
$b = 0.362172 - 0.402883I$		
$u = 0.792635 - 0.257658I$		
$a = 1.147710 + 0.507974I$	$0.15390 + 3.18917I$	$-5.18425 - 4.41893I$
$b = 0.362172 + 0.402883I$		
$u = 1.19043$		
$a = -0.383016$	-3.64039	-15.9100
$b = -0.220413$		
$u = 0.360493 + 0.718862I$		
$a = -1.129870 + 0.522475I$	$0.303299 - 0.471773I$	$-0.99029 - 5.29265I$
$b = 0.515140 + 0.672224I$		
$u = 0.360493 - 0.718862I$		
$a = -1.129870 - 0.522475I$	$0.303299 + 0.471773I$	$-0.99029 + 5.29265I$
$b = 0.515140 - 0.672224I$		
$u = 0.672261 + 0.080239I$		
$a = -0.540607 - 1.170900I$	$-2.78242 - 4.72173I$	$-8.25284 + 7.19388I$
$b = 0.306719 - 1.230190I$		
$u = 0.672261 - 0.080239I$		
$a = -0.540607 + 1.170900I$	$-2.78242 + 4.72173I$	$-8.25284 - 7.19388I$
$b = 0.306719 + 1.230190I$		
$u = -1.310210 + 0.327576I$		
$a = 0.58215 - 1.65522I$	$-6.51522 - 1.62849I$	0
$b = -0.40928 - 1.71391I$		
$u = -1.310210 - 0.327576I$		
$a = 0.58215 + 1.65522I$	$-6.51522 + 1.62849I$	0
$b = -0.40928 + 1.71391I$		
$u = -0.502368 + 0.410820I$		
$a = -0.63838 - 3.51289I$	$-5.44009 + 2.12446I$	$-9.97382 - 8.40343I$
$b = -0.859559 + 0.274689I$		

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.502368 - 0.410820I$ $a = -0.63838 + 3.51289I$ $b = -0.859559 - 0.274689I$	$-5.44009 - 2.12446I$	$-9.97382 + 8.40343I$
$u = 0.401097 + 1.333910I$ $a = -0.553696 - 0.053351I$ $b = 0.06596 - 1.65982I$	$5.48877 + 2.19517I$	0
$u = 0.401097 - 1.333910I$ $a = -0.553696 + 0.053351I$ $b = 0.06596 + 1.65982I$	$5.48877 - 2.19517I$	0
$u = -1.41107 + 0.24308I$ $a = -0.189673 - 0.021720I$ $b = -0.461540 + 0.351123I$	$-7.43232 + 5.03659I$	0
$u = -1.41107 - 0.24308I$ $a = -0.189673 + 0.021720I$ $b = -0.461540 - 0.351123I$	$-7.43232 - 5.03659I$	0
$u = -0.23932 + 1.42324I$ $a = -0.896034 + 0.562801I$ $b = 1.29334 - 1.01356I$	$7.44726 + 2.10768I$	0
$u = -0.23932 - 1.42324I$ $a = -0.896034 - 0.562801I$ $b = 1.29334 + 1.01356I$	$7.44726 - 2.10768I$	0
$u = -0.514178 + 0.015201I$ $a = 5.56707 + 1.24682I$ $b = 0.988002 + 0.045844I$	$-4.70734 - 7.51754I$	$-21.6272 + 5.6178I$
$u = -0.514178 - 0.015201I$ $a = 5.56707 - 1.24682I$ $b = 0.988002 - 0.045844I$	$-4.70734 + 7.51754I$	$-21.6272 - 5.6178I$
$u = 0.290580 + 0.310278I$ $a = 0.110050 - 1.394070I$ $b = -0.265452 + 1.184150I$	$-5.41853 - 1.52083I$	$-6.22450 - 4.47748I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.290580 - 0.310278I$		
$a = 0.110050 + 1.394070I$	$-5.41853 + 1.52083I$	$-6.22450 + 4.47748I$
$b = -0.265452 - 1.184150I$		
$u = -0.394652 + 0.120998I$		
$a = 0.382806 - 1.235690I$	$-5.44395 - 7.17213I$	$-2.82395 + 10.85616I$
$b = -0.539317 + 1.053190I$		
$u = -0.394652 - 0.120998I$		
$a = 0.382806 + 1.235690I$	$-5.44395 + 7.17213I$	$-2.82395 - 10.85616I$
$b = -0.539317 - 1.053190I$		
$u = 1.60797 + 0.05379I$		
$a = 0.109373 + 1.377310I$	$-5.32151 - 0.15355I$	0
$b = -0.14063 + 1.52178I$		
$u = 1.60797 - 0.05379I$		
$a = 0.109373 - 1.377310I$	$-5.32151 + 0.15355I$	0
$b = -0.14063 - 1.52178I$		
$u = 0.04081 + 1.65518I$		
$a = 0.262184 - 0.375485I$	$3.23612 - 6.49647I$	0
$b = -0.46928 + 2.29406I$		
$u = 0.04081 - 1.65518I$		
$a = 0.262184 + 0.375485I$	$3.23612 + 6.49647I$	0
$b = -0.46928 - 2.29406I$		
$u = 0.48340 + 1.68903I$		
$a = 1.139760 + 0.082046I$	$7.30187 - 6.63414I$	0
$b = -1.33828 + 0.53878I$		
$u = 0.48340 - 1.68903I$		
$a = 1.139760 - 0.082046I$	$7.30187 + 6.63414I$	0
$b = -1.33828 - 0.53878I$		
$u = -0.21050 + 1.90619I$		
$a = -0.816278 + 0.118820I$	$5.82770 + 1.19857I$	0
$b = 2.08010 + 0.22568I$		

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.21050 - 1.90619I$		
$a = -0.816278 - 0.118820I$	$5.82770 - 1.19857I$	0
$b = 2.08010 - 0.22568I$		

$$\text{III. } I_3^u = \langle b + u - 1, a + u, u^2 - u + 1 \rangle$$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix} -u \\ -u + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u + 2 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -2u + 1 \\ -u + 1 \end{pmatrix}$$

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

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

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

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

$$a_8 = \begin{pmatrix} 1 \\ u + 1 \end{pmatrix}$$

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

(ii) Obstruction class = 1

(iii) Cusp Shapes = $8u - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5, c_6, c_7 c_8, c_{10}, c_{11} c_{12}	$y^2 + y + 1$
c_4	$y^2 - 3y + 9$
c_9	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.500000 - 0.866025I$ $b = 0.500000 - 0.866025I$	$-4.05977I$	$0. + 6.92820I$
$u = 0.500000 - 0.866025I$ $a = -0.500000 + 0.866025I$ $b = 0.500000 + 0.866025I$	$4.05977I$	$0. - 6.92820I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2 - u + 1)(u^{41} - 12u^{40} + \dots + 10u - 1)(u^{110} - 6u^{109} + \dots + 11u - 2)$
c_2	$(u^2 - u + 1)(u^{41} - u^{40} + \dots - 3u - 1)(u^{110} + u^{109} + \dots + 73536u + 2617)$
c_3	$(u^2 + u + 1)(u^{41} + 6u^{39} + \dots + u - 1)$ $\cdot (u^{110} - 14u^{108} + \dots + 129540868u + 14647477)$
c_4	$(u^2 + 3u + 3)(u^{41} - 2u^{40} + \dots - 17u - 1)$ $\cdot (u^{110} - 2u^{109} + \dots + 124018u - 36863)$
c_5	$(u^2 + u + 1)(u^{41} + 6u^{40} + \dots - 11u - 7)$ $\cdot (u^{110} + 4u^{109} + \dots + 45870u + 9829)$
c_6	$(u^2 + u + 1)(u^{41} + u^{40} + \dots - 3u + 1)(u^{110} + u^{109} + \dots + 73536u + 2617)$
c_7	$(u^2 + u + 1)(u^{41} + 21u^{39} + \dots - 6u - 1)$ $\cdot (u^{110} + 2u^{109} + \dots - 559427u - 79997)$
c_8	$(u^2 - u + 1)(u^{41} - 6u^{40} + \dots - 11u + 7)$ $\cdot (u^{110} + 4u^{109} + \dots + 45870u + 9829)$
c_9	$u^2(u^{41} + 2u^{40} + \dots + 485u - 43)$ $\cdot (u^{110} - u^{109} + \dots + 1686688u - 214604)$
c_{10}	$(u^2 + u + 1)(u^{41} + u^{40} + \dots + 53u - 7)$ $\cdot (u^{110} - 7u^{109} + \dots + 20930122u + 5719333)$
c_{11}	$(u^2 + u + 1)(u^{41} + 20u^{40} + \dots + 81u + 9)$ $\cdot (u^{110} + 10u^{109} + \dots - 1755u - 172)$
c_{12}	$(u^2 - u + 1)(u^{41} + 21u^{39} + \dots - 6u + 1)$ $\cdot (u^{110} + 2u^{109} + \dots - 559427u - 79997)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^2 + y + 1)(y^{41} - 18y^{40} + \dots + 8y - 1)(y^{110} - 26y^{109} + \dots + 279y + 4)$
c_2, c_6	$(y^2 + y + 1)(y^{41} + 11y^{40} + \dots + 21y - 1)$ $\cdot (y^{110} + 83y^{109} + \dots - 338995270y + 6848689)$
c_3	$(y^2 + y + 1)(y^{41} + 12y^{40} + \dots - 5y - 1)$ $\cdot (y^{110} - 28y^{109} + \dots - 7442649453513616y + 214548582465529)$
c_4	$(y^2 - 3y + 9)(y^{41} - 20y^{40} + \dots - 167y - 1)$ $\cdot (y^{110} - 24y^{109} + \dots - 95798204714y + 1358880769)$
c_5, c_8	$(y^2 + y + 1)(y^{41} + 20y^{40} + \dots - 887y - 49)$ $\cdot (y^{110} + 52y^{109} + \dots + 4273725646y + 96609241)$
c_7, c_{12}	$(y^2 + y + 1)(y^{41} + 42y^{40} + \dots + 6y - 1)$ $\cdot (y^{110} + 102y^{109} + \dots + 299723255241y + 6399520009)$
c_9	$y^2(y^{41} + 6y^{40} + \dots + 42241y - 1849)$ $\cdot (y^{110} + 41y^{109} + \dots - 686133223824y + 46054876816)$
c_{10}	$(y^2 + y + 1)(y^{41} + 21y^{40} + \dots + 107y - 49)$ $\cdot (y^{110} - 7y^{109} + \dots + 2976938625720080y + 32710769964889)$
c_{11}	$(y^2 + y + 1)(y^{41} - 26y^{40} + \dots + 189y - 81)$ $\cdot (y^{110} - 34y^{109} + \dots - 926929y + 29584)$