$\underline{12a_{0404}\ (K12a_{0404})}$

A knot diagram[1]

Linearized knot diagam

$$\rightarrow \Big\downarrow \rightarrow \Big\uparrow \rightarrow \Big\downarrow \rightarrow \Big\downarrow \rightarrow \Big\uparrow \rightarrow \Big\downarrow \rightarrow \Big\uparrow \rightarrow \Big\downarrow \rightarrow \Big\uparrow \rightarrow \Big\uparrow \rightarrow \Big\uparrow \rightarrow \Big\downarrow \rightarrow$$

$$3 \quad 6 \quad 9 \quad 11 \quad 7 \quad 2 \quad 12 \quad 4 \quad 1 \quad 8 \quad 5 \quad 10$$

Solving Sequence

$$4,11 \xrightarrow[c_4]{} 5,8 \xrightarrow[c_8]{} 9 \xrightarrow[c_{11}]{} 12 \xrightarrow[c_3]{} 3 \xrightarrow[c_7]{} 7 \xrightarrow[c_5]{} 6 \xrightarrow[c_2]{} 2 \xrightarrow[c_{10}]{} 10 \xrightarrow[c_{12}]{} 1 \longrightarrow\!\!\!\!\rightarrow c_1, c_6, c_9$$
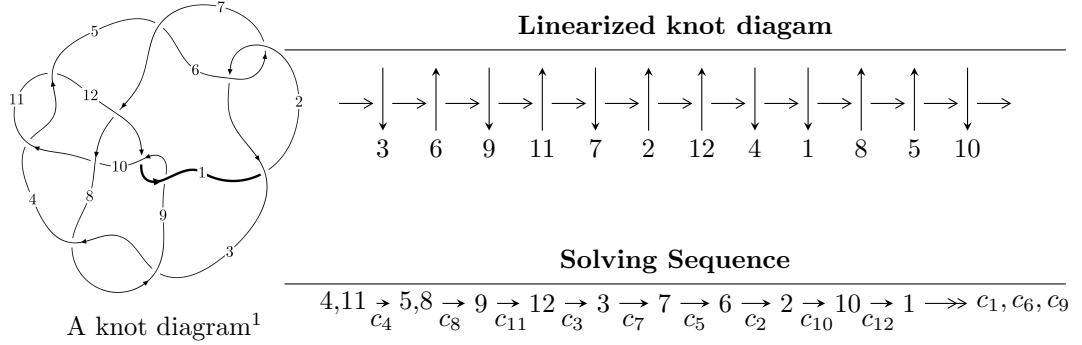
Ideals for irreducible components[2] of $X_{\mathbf{par}}$

$$I_1^u = \langle 2.48423 \times 10^{353} u^{108} - 1.06966 \times 10^{353} u^{107} + \cdots + 3.86962 \times 10^{353} b + 5.71739 \times 10^{352},$$
$$-1.59044 \times 10^{353} u^{108} + 2.79797 \times 10^{352} u^{107} + \cdots + 3.86962 \times 10^{353} a + 3.48502 \times 10^{353},$$
$$u^{109} + u^{108} + \cdots + 2u - 1 \rangle$$

$$I_2^u = \langle -37327 u^{29} + 401711 u^{28} + \cdots + 361945 b - 312854,$$
$$-496929 u^{29} + 205552 u^{28} + \cdots + 361945 a - 554238,\ u^{30} - 11u^{28} + \cdots - 11u^2 + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 139 representations.

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[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. $I_1^u = \langle 2.48 \times 10^{353} u^{108} - 1.07 \times 10^{353} u^{107} + \cdots + 3.87 \times 10^{353} b + 5.72 \times 10^{352}, \ -1.59 \times 10^{353} u^{108} + 2.80 \times 10^{352} u^{107} + \cdots + 3.87 \times 10^{353} a + 3.49 \times 10^{353}, \ u^{109} + u^{108} + \cdots + 2u - 1 \rangle$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 0.411008u^{108} - 0.0723061u^{107} + \cdots + 70.2222u - 0.900610 \\ -0.641982u^{108} + 0.276426u^{107} + \cdots - 17.2430u - 0.147751 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.05299u^{108} - 0.348732u^{107} + \cdots + 87.4652u - 0.752859 \\ -0.641982u^{108} + 0.276426u^{107} + \cdots - 17.2430u - 0.147751 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.146173u^{108} + 0.0919442u^{107} + \cdots - 91.2533u - 10.0700 \\ 0.193937u^{108} - 0.261341u^{107} + \cdots + 2.37985u + 0.482388 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.12746u^{108} - 0.401791u^{107} + \cdots + 72.3535u - 1.66265 \\ -1.13976u^{108} + 0.503579u^{107} + \cdots - 17.9201u + 0.136140 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0937440u^{108} + 0.313213u^{107} + \cdots + 80.1708u + 14.1735 \\ 0.553987u^{108} - 0.438620u^{107} + \cdots + 0.869280u - 1.66470 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.929411u^{108} - 0.488793u^{107} + \cdots - 120.689u - 2.98918 \\ -1.13520u^{108} + 0.440053u^{107} + \cdots + 19.8376u + 2.19256 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.710297u^{108} - 1.39387u^{107} + \cdots + 67.3057u + 1.35505 \\ -0.217162u^{108} + 0.149794u^{107} + \cdots - 9.68315u + 0.0477646 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.590162u^{108} - 0.0598138u^{107} + \cdots + 71.6155u + 3.50080 \\ 0.363252u^{108} - 0.00278651u^{107} + \cdots - 16.4705u - 0.204961 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.363790u^{108} + 0.673083u^{107} + \cdots + 18.1091u + 10.0328$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{109} + 31u^{108} + \cdots - 58u - 1$
c_2, c_6	$u^{109} - 3u^{108} + \cdots - 29u^2 - 1$
c_3, c_8	$u^{109} + u^{108} + \cdots + 36101u - 3718$
c_4, c_{11}	$u^{109} + u^{108} + \cdots + 2u - 1$
c_7	$u^{109} - 3u^{108} + \cdots - 1747923u - 732778$
c_9, c_{12}	$u^{109} - 5u^{108} + \cdots + 48168u - 4657$
c_{10}	$u^{109} + 13u^{108} + \cdots + 7934796u + 816091$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{109} + 107y^{108} + \cdots + 486y - 1$
c_2, c_6	$y^{109} + 31y^{108} + \cdots - 58y - 1$
c_3, c_8	$y^{109} + 109y^{108} + \cdots - 49943387y - 13823524$
c_4, c_{11}	$y^{109} - 87y^{108} + \cdots - 130y - 1$
c_7	$y^{109} - 55y^{108} + \cdots + 33067800692205y - 536963597284$
c_9, c_{12}	$y^{109} + 91y^{108} + \cdots - 420320624y - 21687649$
c_{10}	$y^{109} - 55y^{108} + \cdots + 28553913646086y - 666004520281$

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.033343 + 0.996771I$		
$a =$	$0.537737 - 1.072490I$	$3.09309 + 6.33794I$	0
$b =$	$0.204491 - 1.283920I$		
$u =$	$0.033343 - 0.996771I$		
$a =$	$0.537737 + 1.072490I$	$3.09309 - 6.33794I$	0
$b =$	$0.204491 + 1.283920I$		
$u =$	$-0.083018 + 0.979645I$		
$a =$	$0.065424 - 0.380814I$	$0.93792 + 2.65570I$	0
$b =$	$0.0798719 + 0.0877287I$		
$u =$	$-0.083018 - 0.979645I$		
$a =$	$0.065424 + 0.380814I$	$0.93792 - 2.65570I$	0
$b =$	$0.0798719 - 0.0877287I$		
$u =$	$-1.025090 + 0.268911I$		
$a =$	$-0.689799 - 0.014786I$	$-0.81682 - 2.68878I$	0
$b =$	$-0.757790 - 0.052253I$		
$u =$	$-1.025090 - 0.268911I$		
$a =$	$-0.689799 + 0.014786I$	$-0.81682 + 2.68878I$	0
$b =$	$-0.757790 + 0.052253I$		
$u =$	$-1.078590 + 0.164066I$		
$a =$	$-0.822935 + 0.208584I$	$8.02899 - 0.83663I$	0
$b =$	$-0.34332 - 1.80976I$		
$u =$	$-1.078590 - 0.164066I$		
$a =$	$-0.822935 - 0.208584I$	$8.02899 + 0.83663I$	0
$b =$	$-0.34332 + 1.80976I$		
$u =$	$1.110560 + 0.019710I$		
$a =$	$-1.223520 + 0.577324I$	$1.93011 - 0.33723I$	0
$b =$	$-0.412338 + 0.247413I$		
$u =$	$1.110560 - 0.019710I$		
$a =$	$-1.223520 - 0.577324I$	$1.93011 + 0.33723I$	0
$b =$	$-0.412338 - 0.247413I$		

	Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.505090 + 0.716391I$		
$a =$	$0.124304 + 0.701939I$	$0.21516 + 1.88326I$	0
$b =$	$0.368446 + 0.667258I$		
$u =$	$0.505090 - 0.716391I$		
$a =$	$0.124304 - 0.701939I$	$0.21516 - 1.88326I$	0
$b =$	$0.368446 - 0.667258I$		
$u =$	1.15469		
$a =$	0.655493	2.20801	0
$b =$	0.654397		
$u =$	$0.037929 + 0.843453I$		
$a =$	$0.952314 + 0.964303I$	$5.68628 - 5.95291I$	0
$b =$	$1.090140 + 0.131358I$		
$u =$	$0.037929 - 0.843453I$		
$a =$	$0.952314 - 0.964303I$	$5.68628 + 5.95291I$	0
$b =$	$1.090140 - 0.131358I$		
$u =$	$0.042878 + 0.842993I$		
$a =$	$-1.010680 + 0.886733I$	$5.77083 - 0.16968I$	0
$b =$	$-1.076100 + 0.241905I$		
$u =$	$0.042878 - 0.842993I$		
$a =$	$-1.010680 - 0.886733I$	$5.77083 + 0.16968I$	0
$b =$	$-1.076100 - 0.241905I$		
$u =$	$-0.758819 + 0.364574I$		
$a =$	$0.611325 - 1.207200I$	$0.30581 - 4.84419I$	0
$b =$	$0.314195 + 0.698740I$		
$u =$	$-0.758819 - 0.364574I$		
$a =$	$0.611325 + 1.207200I$	$0.30581 + 4.84419I$	0
$b =$	$0.314195 - 0.698740I$		
$u =$	$1.148220 + 0.202593I$		
$a =$	$-1.30837 - 0.58788I$	$2.16765 + 1.28585I$	0
$b =$	$-0.394987 + 1.105200I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.148220 - 0.202593I$ $a = -1.30837 + 0.58788I$ $b = -0.394987 - 1.105200I$	$2.16765 - 1.28585I$	0
$u = -0.428650 + 0.692382I$ $a = 0.536353 - 0.512889I$ $b = 0.347468 + 0.369372I$	$-2.69258 - 1.01062I$	0
$u = -0.428650 - 0.692382I$ $a = 0.536353 + 0.512889I$ $b = 0.347468 - 0.369372I$	$-2.69258 + 1.01062I$	0
$u = 1.175660 + 0.243208I$ $a = -0.950702 - 0.275405I$ $b = -1.138810 + 0.131806I$	$2.39738 + 6.26878I$	0
$u = 1.175660 - 0.243208I$ $a = -0.950702 + 0.275405I$ $b = -1.138810 - 0.131806I$	$2.39738 - 6.26878I$	0
$u = -0.195336 + 0.739888I$ $a = -1.02500 - 1.16001I$ $b = -0.05710 - 1.41322I$	$6.17025 - 2.54367I$	$6.56336 + 0.I$
$u = -0.195336 - 0.739888I$ $a = -1.02500 + 1.16001I$ $b = -0.05710 + 1.41322I$	$6.17025 + 2.54367I$	$6.56336 + 0.I$
$u = -1.225900 + 0.193652I$ $a = -2.08131 + 0.91182I$ $b = -0.101223 - 1.307610I$	$5.52271 - 1.93932I$	0
$u = -1.225900 - 0.193652I$ $a = -2.08131 - 0.91182I$ $b = -0.101223 + 1.307610I$	$5.52271 + 1.93932I$	0
$u = 0.197394 + 1.232220I$ $a = -0.005870 + 0.582501I$ $b = 0.164637 + 1.044850I$	$-0.911835 - 1.039600I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.197394 - 1.232220I$		
$a = -0.005870 - 0.582501I$	$-0.911835 + 1.039600I$	0
$b = 0.164637 - 1.044850I$		
$u = -1.259570 + 0.031187I$		
$a = -0.602918 - 0.251555I$	$13.75470 - 0.11442I$	0
$b = -0.82128 + 1.99230I$		
$u = -1.259570 - 0.031187I$		
$a = -0.602918 + 0.251555I$	$13.75470 + 0.11442I$	0
$b = -0.82128 - 1.99230I$		
$u = -0.283691 + 1.243630I$		
$a = -0.566798 - 0.739563I$	$11.42350 - 4.92170I$	0
$b = -0.37226 - 1.48415I$		
$u = -0.283691 - 1.243630I$		
$a = -0.566798 + 0.739563I$	$11.42350 + 4.92170I$	0
$b = -0.37226 + 1.48415I$		
$u = -1.154790 + 0.559328I$		
$a = -0.805570 - 0.091463I$	$8.55093 - 2.12626I$	0
$b = -0.12706 - 1.56388I$		
$u = -1.154790 - 0.559328I$		
$a = -0.805570 + 0.091463I$	$8.55093 + 2.12626I$	0
$b = -0.12706 + 1.56388I$		
$u = 1.287480 + 0.042107I$		
$a = -0.703728 + 0.877715I$	$9.38679 + 3.46532I$	0
$b = -0.25001 - 1.46892I$		
$u = 1.287480 - 0.042107I$		
$a = -0.703728 - 0.877715I$	$9.38679 - 3.46532I$	0
$b = -0.25001 + 1.46892I$		
$u = 1.295770 + 0.020833I$		
$a = 0.589598 - 0.226366I$	$13.5553 - 6.0485I$	0
$b = 0.90012 + 1.92095I$		

	Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.295770 - 0.020833I$		
$a =$	$0.589598 + 0.226366I$	$13.5553 + 6.0485I$	0
$b =$	$0.90012 - 1.92095I$		
$u =$	$0.221763 + 1.286900I$		
$a =$	$0.516905 - 0.750170I$	$10.8150 + 11.2570I$	0
$b =$	$0.41853 - 1.44734I$		
$u =$	$0.221763 - 1.286900I$		
$a =$	$0.516905 + 0.750170I$	$10.8150 - 11.2570I$	0
$b =$	$0.41853 + 1.44734I$		
$u =$	$-1.305220 + 0.050689I$		
$a =$	$-0.90955 - 1.63853I$	$13.7099 - 7.1192I$	0
$b =$	$0.192471 + 1.340410I$		
$u =$	$-1.305220 - 0.050689I$		
$a =$	$-0.90955 + 1.63853I$	$13.7099 + 7.1192I$	0
$b =$	$0.192471 - 1.340410I$		
$u =$	$-1.301570 + 0.120960I$		
$a =$	$0.918003 - 0.450088I$	$4.98023 - 3.29980I$	0
$b =$	$0.567160 + 0.449045I$		
$u =$	$-1.301570 - 0.120960I$		
$a =$	$0.918003 + 0.450088I$	$4.98023 + 3.29980I$	0
$b =$	$0.567160 - 0.449045I$		
$u =$	$0.687185 + 0.047766I$		
$a =$	$-0.69676 - 1.61994I$	$0.429338 + 0.375073I$	$7.10528 - 0.69344I$
$b =$	$-0.009606 + 0.721615I$		
$u =$	$0.687185 - 0.047766I$		
$a =$	$-0.69676 + 1.61994I$	$0.429338 - 0.375073I$	$7.10528 + 0.69344I$
$b =$	$-0.009606 - 0.721615I$		
$u =$	$-1.318050 + 0.000872I$		
$a =$	$0.734081 - 0.802225I$	$9.84520 - 2.81978I$	0
$b =$	$0.35263 + 1.46855I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.318050 - 0.000872I$ $a = 0.734081 + 0.802225I$ $b = 0.35263 - 1.46855I$	$9.84520 + 2.81978I$	0
$u = 1.272920 + 0.365794I$ $a = -0.791956 - 0.247182I$ $b = -1.60507 + 0.49517I$	$9.55123 + 10.28570I$	0
$u = 1.272920 - 0.365794I$ $a = -0.791956 + 0.247182I$ $b = -1.60507 - 0.49517I$	$9.55123 - 10.28570I$	0
$u = 1.332820 + 0.017505I$ $a = 1.15883 + 1.44977I$ $b = -0.120054 - 1.392250I$	$14.9069 - 0.1064I$	0
$u = 1.332820 - 0.017505I$ $a = 1.15883 - 1.44977I$ $b = -0.120054 + 1.392250I$	$14.9069 + 0.1064I$	0
$u = 1.323580 + 0.172213I$ $a = 0.661767 + 0.112665I$ $b = 0.61850 - 1.51837I$	$7.01156 + 3.08960I$	0
$u = 1.323580 - 0.172213I$ $a = 0.661767 - 0.112665I$ $b = 0.61850 + 1.51837I$	$7.01156 - 3.08960I$	0
$u = -1.297430 + 0.346997I$ $a = 0.785264 - 0.275349I$ $b = 1.53919 + 0.59999I$	$9.96581 - 4.06472I$	0
$u = -1.297430 - 0.346997I$ $a = 0.785264 + 0.275349I$ $b = 1.53919 - 0.59999I$	$9.96581 + 4.06472I$	0
$u = -1.353370 + 0.187197I$ $a = 0.871566 - 0.465510I$ $b = 0.624480 + 0.939046I$	$5.09583 - 3.48072I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.353370 - 0.187197I$ $a = 0.871566 + 0.465510I$ $b = 0.624480 - 0.939046I$	$5.09583 + 3.48072I$	0
$u = -1.312120 + 0.392536I$ $a = -0.648864 - 0.075030I$ $b = -0.678566 - 0.234297I$	$5.03185 - 7.47638I$	0
$u = -1.312120 - 0.392536I$ $a = -0.648864 + 0.075030I$ $b = -0.678566 + 0.234297I$	$5.03185 + 7.47638I$	0
$u = 1.304430 + 0.418251I$ $a = -0.578724 + 0.805108I$ $b = 0.442765 + 0.126215I$	$9.65287 + 4.78783I$	0
$u = 1.304430 - 0.418251I$ $a = -0.578724 - 0.805108I$ $b = 0.442765 - 0.126215I$	$9.65287 - 4.78783I$	0
$u = -0.496841 + 0.386055I$ $a = -0.592985 + 0.501829I$ $b = -0.522333 + 0.458469I$	$-0.04392 + 1.98184I$	$0.61769 - 3.14501I$
$u = -0.496841 - 0.386055I$ $a = -0.592985 - 0.501829I$ $b = -0.522333 - 0.458469I$	$-0.04392 - 1.98184I$	$0.61769 + 3.14501I$
$u = 1.339200 + 0.313327I$ $a = 0.637434 - 0.056889I$ $b = 0.635736 - 0.202310I$	$5.75557 + 1.65249I$	0
$u = 1.339200 - 0.313327I$ $a = 0.637434 + 0.056889I$ $b = 0.635736 + 0.202310I$	$5.75557 - 1.65249I$	0
$u = 1.347580 + 0.302840I$ $a = 1.50454 + 0.53382I$ $b = 0.21920 - 1.45097I$	$10.98340 + 6.29629I$	0

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	Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.347580 - 0.302840I$		
$a =$	$1.50454 - 0.53382I$	$10.98340 - 6.29629I$	0
$b =$	$0.21920 + 1.45097I$		
$u =$	$-1.357930 + 0.334024I$		
$a =$	$0.652655 + 0.746828I$	$10.15360 + 1.63062I$	0
$b =$	$-0.373545 - 0.001179I$		
$u =$	$-1.357930 - 0.334024I$		
$a =$	$0.652655 - 0.746828I$	$10.15360 - 1.63062I$	0
$b =$	$-0.373545 + 0.001179I$		
$u =$	$-1.331960 + 0.428225I$		
$a =$	$-1.40363 + 0.22688I$	$7.41876 - 11.35260I$	0
$b =$	$-0.37501 - 1.41663I$		
$u =$	$-1.331960 - 0.428225I$		
$a =$	$-1.40363 - 0.22688I$	$7.41876 + 11.35260I$	0
$b =$	$-0.37501 + 1.41663I$		
$u =$	$-1.39228 + 0.26483I$		
$a =$	$0.921056 - 0.396910I$	$5.26861 - 3.62688I$	0
$b =$	$0.348301 + 1.057260I$		
$u =$	$-1.39228 - 0.26483I$		
$a =$	$0.921056 + 0.396910I$	$5.26861 + 3.62688I$	0
$b =$	$0.348301 - 1.057260I$		
$u =$	$1.33799 + 0.47310I$		
$a =$	$-0.981764 - 0.229399I$	$3.17088 + 6.91012I$	0
$b =$	$-0.409488 + 1.253750I$		
$u =$	$1.33799 - 0.47310I$		
$a =$	$-0.981764 + 0.229399I$	$3.17088 - 6.91012I$	0
$b =$	$-0.409488 - 1.253750I$		
$u =$	$-0.156047 + 0.527708I$		
$a =$	$0.51486 - 2.31342I$	$2.28031 - 0.67960I$	$0.732308 + 1.033375I$
$b =$	$-0.121340 - 1.245320I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.156047 - 0.527708I$ $a = 0.51486 + 2.31342I$ $b = -0.121340 + 1.245320I$	$2.28031 + 0.67960I$	$0.732308 - 1.033375I$
$u = 1.42070 + 0.44128I$ $a = 0.675293 - 0.031307I$ $b = 0.182427 - 1.301930I$	$7.51628 - 0.92397I$	0
$u = 1.42070 - 0.44128I$ $a = 0.675293 + 0.031307I$ $b = 0.182427 + 1.301930I$	$7.51628 + 0.92397I$	0
$u = 0.208039 + 0.454594I$ $a = 1.08747 + 1.87218I$ $b = 0.584768 - 0.161098I$	$-0.60236 - 3.45270I$	$-5.63234 + 0.62653I$
$u = 0.208039 - 0.454594I$ $a = 1.08747 - 1.87218I$ $b = 0.584768 + 0.161098I$	$-0.60236 + 3.45270I$	$-5.63234 - 0.62653I$
$u = 0.216800 + 0.434363I$ $a = -1.54790 + 0.41561I$ $b = -0.401847 + 0.453641I$	$0.215860 + 1.175010I$	$1.37065 - 5.42290I$
$u = 0.216800 - 0.434363I$ $a = -1.54790 - 0.41561I$ $b = -0.401847 - 0.453641I$	$0.215860 - 1.175010I$	$1.37065 + 5.42290I$
$u = 0.190182 + 0.412240I$ $a = -1.101970 + 0.671880I$ $b = -0.278370 + 0.608154I$	$0.228255 + 1.074300I$	$3.62639 - 6.00527I$
$u = 0.190182 - 0.412240I$ $a = -1.101970 - 0.671880I$ $b = -0.278370 - 0.608154I$	$0.228255 - 1.074300I$	$3.62639 + 6.00527I$
$u = 1.49310 + 0.46832I$ $a = 1.118940 + 0.319323I$ $b = 0.45876 - 1.64190I$	$17.1007 + 10.8388I$	0

Solutions to I_1^u		$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.49310 - 0.46832I$		
$a =$	$1.118940 - 0.319323I$	$17.1007 - 10.8388I$	0
$b =$	$0.45876 + 1.64190I$		
$u =$	$-1.49250 + 0.50320I$		
$a =$	$-1.096740 + 0.277451I$	$16.2918 - 17.4531I$	0
$b =$	$-0.51382 - 1.63764I$		
$u =$	$-1.49250 - 0.50320I$		
$a =$	$-1.096740 - 0.277451I$	$16.2918 + 17.4531I$	0
$b =$	$-0.51382 + 1.63764I$		
$u =$	$0.03504 + 1.58628I$		
$a =$	$-0.003197 + 0.553019I$	$5.27490 - 3.08478I$	0
$b =$	$0.032749 + 1.362220I$		
$u =$	$0.03504 - 1.58628I$		
$a =$	$-0.003197 - 0.553019I$	$5.27490 + 3.08478I$	0
$b =$	$0.032749 - 1.362220I$		
$u =$	$1.58027 + 0.56021I$		
$a =$	$-0.826465 - 0.199655I$	$10.7105 + 10.6369I$	0
$b =$	$-0.22638 + 1.45787I$		
$u =$	$1.58027 - 0.56021I$		
$a =$	$-0.826465 + 0.199655I$	$10.7105 - 10.6369I$	0
$b =$	$-0.22638 - 1.45787I$		
$u =$	$-1.59854 + 0.51261I$		
$a =$	$0.819493 - 0.223596I$	$11.08100 - 4.33312I$	0
$b =$	$0.17679 + 1.41929I$		
$u =$	$-1.59854 - 0.51261I$		
$a =$	$0.819493 + 0.223596I$	$11.08100 + 4.33312I$	0
$b =$	$0.17679 - 1.41929I$		
$u =$	$-1.51570 + 0.76093I$		
$a =$	$-0.637864 - 0.136249I$	$15.0392 - 2.5830I$	0
$b =$	$0.15497 - 1.44628I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.51570 - 0.76093I$ $a = -0.637864 + 0.136249I$ $b = 0.15497 + 1.44628I$	$15.0392 + 2.5830I$	0
$u = 1.56175 + 0.72046I$ $a = 0.628541 - 0.121558I$ $b = -0.173454 - 1.386530I$	$14.8383 - 3.7197I$	0
$u = 1.56175 - 0.72046I$ $a = 0.628541 + 0.121558I$ $b = -0.173454 + 1.386530I$	$14.8383 + 3.7197I$	0
$u = -0.1289980 + 0.0267713I$ $a = -5.29950 - 6.43089I$ $b = 0.46231 + 1.53706I$	$10.19370 - 0.18596I$	$5.44644 - 2.57282I$
$u = -0.1289980 - 0.0267713I$ $a = -5.29950 + 6.43089I$ $b = 0.46231 - 1.53706I$	$10.19370 + 0.18596I$	$5.44644 + 2.57282I$
$u = 0.0180915 + 0.1161620I$ $a = -5.14164 - 7.85682I$ $b = -0.57239 + 1.44552I$	$9.47191 + 6.47564I$	$4.16937 - 2.00979I$
$u = 0.0180915 - 0.1161620I$ $a = -5.14164 + 7.85682I$ $b = -0.57239 - 1.44552I$	$9.47191 - 6.47564I$	$4.16937 + 2.00979I$
$u = 0.0489298 + 0.0721913I$ $a = -4.89478 + 7.41084I$ $b = -0.074746 - 1.301850I$	$5.42995 - 2.98444I$	$9.51308 + 2.68883I$
$u = 0.0489298 - 0.0721913I$ $a = -4.89478 - 7.41084I$ $b = -0.074746 + 1.301850I$	$5.42995 + 2.98444I$	$9.51308 - 2.68883I$

II.

$$I_2^u = \langle -3.73 \times 10^4 u^{29} + 4.02 \times 10^5 u^{28} + \cdots + 3.62 \times 10^5 b - 3.13 \times 10^5, \ -4.97 \times 10^5 u^{29} + 2.06 \times 10^5 u^{28} + \cdots + 3.62 \times 10^5 a - 5.54 \times 10^5, \ u^{30} - 11u^{28} + \cdots - 11u^2 + 1 \rangle$$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 1.37294u^{29} - 0.567909u^{28} + \cdots - 9.39602u + 1.53128 \\ 0.103129u^{29} - 1.10987u^{28} + \cdots + 0.447712u + 0.864369 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.26981u^{29} + 0.541958u^{28} + \cdots - 9.84373u + 0.666908 \\ 0.103129u^{29} - 1.10987u^{28} + \cdots + 0.447712u + 0.864369 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.933990u^{29} + 0.500093u^{28} + \cdots - 0.245499u + 1.35488 \\ -0.933990u^{29} + 0.499907u^{28} + \cdots + 0.245499u - 0.354877 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.01806u^{29} + 0.366080u^{28} + \cdots - 9.84518u + 1.28578 \\ 0.248159u^{29} - 1.66208u^{28} + \cdots - 0.356325u + 1.55286 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2.29964u^{29} + 0.212643u^{28} + \cdots - 3.66572u - 0.250218 \\ -1.05779u^{29} - 0.785705u^{28} + \cdots + 0.384779u + 0.815947 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.385053u^{29} - 0.849787u^{28} + \cdots + 8.59657u + 1.06908 \\ -0.418984u^{29} + 1.53828u^{28} + \cdots + 0.425054u - 1.41358 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.627059u^{29} - 0.567909u^{28} + \cdots + 3.60398u + 1.53128 \\ u^{29} - 10u^{27} + \cdots + 11u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0593654u^{29} - 1.47583u^{28} + \cdots + 10.4554u - 0.0554477 \\ -0.923781u^{29} + 0.813408u^{28} + \cdots + 0.925229u - 1.43228 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{48715}{72389}u^{29} - \frac{61106}{72389}u^{28} + \cdots + \frac{932835}{72389}u + \frac{280681}{72389}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{30} - 12u^{29} + \cdots - 22u + 1$
c_2	$u^{30} - 2u^{29} + \cdots - 2u + 1$
c_3	$u^{30} + 17u^{28} + \cdots - 6u + 1$
c_4	$u^{30} - 11u^{28} + \cdots - 11u^2 + 1$
c_6	$u^{30} + 2u^{29} + \cdots + 2u + 1$
c_7	$u^{30} - 2u^{29} + \cdots + 10u + 5$
c_8	$u^{30} + 17u^{28} + \cdots + 6u + 1$
c_9	$u^{30} - 4u^{29} + \cdots - 4u + 1$
c_{10}	$u^{30} - 6u^{29} + \cdots - 10u + 1$
c_{11}	$u^{30} - 11u^{28} + \cdots - 11u^2 + 1$
c_{12}	$u^{30} + 4u^{29} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{30} + 24y^{29} + \cdots - 30y + 1$
c_2, c_6	$y^{30} + 12y^{29} + \cdots + 22y + 1$
c_3, c_8	$y^{30} + 34y^{29} + \cdots + 22y + 1$
c_4, c_{11}	$y^{30} - 22y^{29} + \cdots - 22y + 1$
c_7	$y^{30} - 10y^{29} + \cdots - 20y + 25$
c_9, c_{12}	$y^{30} + 20y^{29} + \cdots + 12y + 1$
c_{10}	$y^{30} - 14y^{29} + \cdots - 26y + 1$

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.937377 + 0.378504I$		
$a =$	$0.596422 - 0.700628I$	$10.35770 + 7.56618I$	$8.18111 - 6.28850I$
$b =$	$0.69890 - 1.25340I$		
$u =$	$0.937377 - 0.378504I$		
$a =$	$0.596422 + 0.700628I$	$10.35770 - 7.56618I$	$8.18111 + 6.28850I$
$b =$	$0.69890 + 1.25340I$		
$u =$	$-0.012777 + 0.988110I$		
$a =$	$-0.079898 + 0.545575I$	$-1.271860 - 0.590278I$	$-3.88310 - 2.13566I$
$b =$	$0.144558 + 0.906181I$		
$u =$	$-0.012777 - 0.988110I$		
$a =$	$-0.079898 - 0.545575I$	$-1.271860 + 0.590278I$	$-3.88310 + 2.13566I$
$b =$	$0.144558 - 0.906181I$		
$u =$	$0.007203 + 1.025820I$		
$a =$	$-0.017357 + 0.376861I$	$4.17805 - 3.01110I$	$1.19759 + 2.58313I$
$b =$	$0.050131 + 1.290590I$		
$u =$	$0.007203 - 1.025820I$		
$a =$	$-0.017357 - 0.376861I$	$4.17805 + 3.01110I$	$1.19759 - 2.58313I$
$b =$	$0.050131 - 1.290590I$		
$u =$	$-1.001740 + 0.383397I$		
$a =$	$-0.668023 - 0.474125I$	$11.14730 - 1.41554I$	$9.35828 + 1.13006I$
$b =$	$-0.65485 - 1.41833I$		
$u =$	$-1.001740 - 0.383397I$		
$a =$	$-0.668023 + 0.474125I$	$11.14730 + 1.41554I$	$9.35828 - 1.13006I$
$b =$	$-0.65485 + 1.41833I$		
$u =$	$1.070700 + 0.196551I$		
$a =$	$1.70249 + 0.20849I$	$4.78166 + 0.87366I$	$4.53227 + 0.51966I$
$b =$	$0.172363 - 1.330800I$		
$u =$	$1.070700 - 0.196551I$		
$a =$	$1.70249 - 0.20849I$	$4.78166 - 0.87366I$	$4.53227 - 0.51966I$
$b =$	$0.172363 + 1.330800I$		

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.038627 + 1.122990I$		
$a = -0.005639 + 0.656186I$	$1.55006 + 2.60292I$	$9.22285 - 2.96153I$
$b = 0.031641 + 0.673171I$		
$u = -0.038627 - 1.122990I$		
$a = -0.005639 - 0.656186I$	$1.55006 - 2.60292I$	$9.22285 + 2.96153I$
$b = 0.031641 - 0.673171I$		
$u = -1.154390 + 0.325602I$		
$a = -0.728173 + 0.090788I$	$7.87339 - 1.51827I$	$3.28090 + 3.91020I$
$b = -0.29147 - 1.71100I$		
$u = -1.154390 - 0.325602I$		
$a = -0.728173 - 0.090788I$	$7.87339 + 1.51827I$	$3.28090 - 3.91020I$
$b = -0.29147 + 1.71100I$		
$u = -1.218080 + 0.167991I$		
$a = 1.45322 - 0.75103I$	$2.88759 - 1.90731I$	$6.27017 + 4.24773I$
$b = 0.353391 + 0.933664I$		
$u = -1.218080 - 0.167991I$		
$a = 1.45322 + 0.75103I$	$2.88759 + 1.90731I$	$6.27017 - 4.24773I$
$b = 0.353391 - 0.933664I$		
$u = -1.287340 + 0.190883I$		
$a = -0.368153 + 0.655833I$	$12.56890 - 1.34907I$	$7.99639 + 2.47044I$
$b = 0.26439 - 1.65828I$		
$u = -1.287340 - 0.190883I$		
$a = -0.368153 - 0.655833I$	$12.56890 + 1.34907I$	$7.99639 - 2.47044I$
$b = 0.26439 + 1.65828I$		
$u = 1.313360 + 0.142212I$		
$a = 0.186981 + 0.756037I$	$12.21110 - 5.05134I$	$7.35134 + 2.72597I$
$b = -0.39046 - 1.56182I$		
$u = 1.313360 - 0.142212I$		
$a = 0.186981 - 0.756037I$	$12.21110 + 5.05134I$	$7.35134 - 2.72597I$
$b = -0.39046 + 1.56182I$		

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.385810 + 0.139493I$		
$a = -0.743687 - 0.518764I$	$4.82666 + 3.98570I$	$0.61584 - 11.21023I$
$b = -0.594038 + 0.955183I$		
$u = 1.385810 - 0.139493I$		
$a = -0.743687 + 0.518764I$	$4.82666 - 3.98570I$	$0.61584 + 11.21023I$
$b = -0.594038 - 0.955183I$		
$u = -1.353920 + 0.376709I$		
$a = 0.964201 - 0.014050I$	$6.16054 - 7.65753I$	$7.82628 + 6.57930I$
$b = 0.461895 + 0.703531I$		
$u = -1.353920 - 0.376709I$		
$a = 0.964201 + 0.014050I$	$6.16054 + 7.65753I$	$7.82628 - 6.57930I$
$b = 0.461895 - 0.703531I$		
$u = 1.41229 + 0.31290I$		
$a = -0.863963 - 0.138559I$	$6.86973 + 2.32439I$	$8.28392 - 1.23009I$
$b = -0.537422 + 0.731556I$		
$u = 1.41229 - 0.31290I$		
$a = -0.863963 + 0.138559I$	$6.86973 - 2.32439I$	$8.28392 + 1.23009I$
$b = -0.537422 - 0.731556I$		
$u = -0.302318 + 0.155723I$		
$a = 0.36127 + 3.28782I$	$-0.292528 + 0.166662I$	$-4.05000 + 1.84872I$
$b = -0.002854 + 0.322444I$		
$u = -0.302318 - 0.155723I$		
$a = 0.36127 - 3.28782I$	$-0.292528 - 0.166662I$	$-4.05000 - 1.84872I$
$b = -0.002854 - 0.322444I$		
$u = 0.242470 + 0.184423I$		
$a = -2.78969 - 1.53626I$	$0.04334 + 3.74824I$	$4.31615 - 5.53363I$
$b = 0.293812 - 0.128373I$		
$u = 0.242470 - 0.184423I$		
$a = -2.78969 + 1.53626I$	$0.04334 - 3.74824I$	$4.31615 + 5.53363I$
$b = 0.293812 + 0.128373I$		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^{30} - 12u^{29} + \cdots - 22u + 1)(u^{109} + 31u^{108} + \cdots - 58u - 1)$
c_2	$(u^{30} - 2u^{29} + \cdots - 2u + 1)(u^{109} - 3u^{108} + \cdots - 29u^2 - 1)$
c_3	$(u^{30} + 17u^{28} + \cdots - 6u + 1)(u^{109} + u^{108} + \cdots + 36101u - 3718)$
c_4	$(u^{30} - 11u^{28} + \cdots - 11u^2 + 1)(u^{109} + u^{108} + \cdots + 2u - 1)$
c_6	$(u^{30} + 2u^{29} + \cdots + 2u + 1)(u^{109} - 3u^{108} + \cdots - 29u^2 - 1)$
c_7	$(u^{30} - 2u^{29} + \cdots + 10u + 5)(u^{109} - 3u^{108} + \cdots - 1747923u - 732778)$
c_8	$(u^{30} + 17u^{28} + \cdots + 6u + 1)(u^{109} + u^{108} + \cdots + 36101u - 3718)$
c_9	$(u^{30} - 4u^{29} + \cdots - 4u + 1)(u^{109} - 5u^{108} + \cdots + 48168u - 4657)$
c_{10}	$(u^{30} - 6u^{29} + \cdots - 10u + 1)$ $\cdot (u^{109} + 13u^{108} + \cdots + 7934796u + 816091)$
c_{11}	$(u^{30} - 11u^{28} + \cdots - 11u^2 + 1)(u^{109} + u^{108} + \cdots + 2u - 1)$
c_{12}	$(u^{30} + 4u^{29} + \cdots + 4u + 1)(u^{109} - 5u^{108} + \cdots + 48168u - 4657)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^{30} + 24y^{29} + \cdots - 30y + 1)(y^{109} + 107y^{108} + \cdots + 486y - 1)$
c_2, c_6	$(y^{30} + 12y^{29} + \cdots + 22y + 1)(y^{109} + 31y^{108} + \cdots - 58y - 1)$
c_3, c_8	$(y^{30} + 34y^{29} + \cdots + 22y + 1)$ $\cdot (y^{109} + 109y^{108} + \cdots - 49943387y - 13823524)$
c_4, c_{11}	$(y^{30} - 22y^{29} + \cdots - 22y + 1)(y^{109} - 87y^{108} + \cdots - 130y - 1)$
c_7	$(y^{30} - 10y^{29} + \cdots - 20y + 25)$ $\cdot (y^{109} - 55y^{108} + \cdots + 33067800692205y - 536963597284)$
c_9, c_{12}	$(y^{30} + 20y^{29} + \cdots + 12y + 1)$ $\cdot (y^{109} + 91y^{108} + \cdots - 420320624y - 21687649)$
c_{10}	$(y^{30} - 14y^{29} + \cdots - 26y + 1)$ $\cdot (y^{109} - 55y^{108} + \cdots + 28553913646086y - 666004520281)$