$12a_{0003}$ $(K12a_{0003})$

A knot diagram[1]

Linearized knot diagam

$$\to \Big| \to \Big| \to \Big| \to \Big| \to \Big| \to \Big| \to \Big| \to \Big| \to \Big| \to \Big| \to \Big| \to$$

| 3 | 5 | 6 | 8 | 2 | 9 | 11 | 4 | 1 | 12 | 7 | 10 |

Solving Sequence

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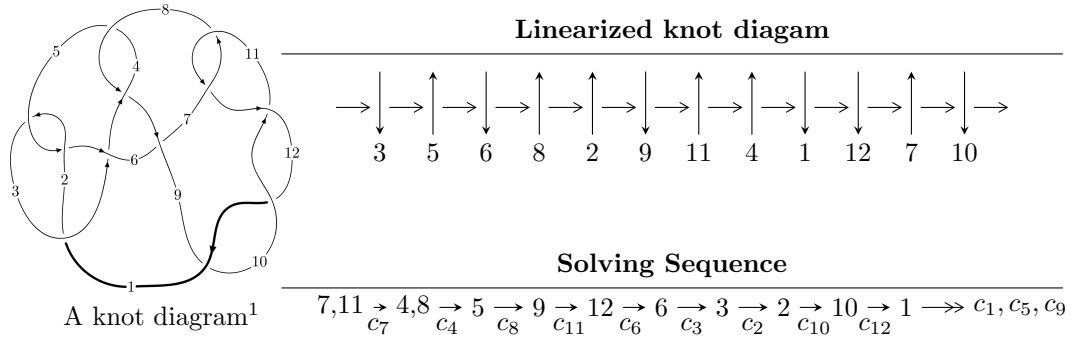
Ideals for irreducible components[2]of $X_{\mathbf{par}}$

$I_1^u = \langle -8u^{91} - 7u^{90} + \cdots + 2b - 8u, \ -8u^{91} - 24u^{90} + \cdots + 2a - 9, \ u^{92} + 3u^{91} + \cdots + 3u^2 + 1 \rangle$

$I_2^u = \langle u^2 a + b, \ u^2 a - u^3 + a^2 - au + 2u^2 + a - 2u, \ u^4 - u^3 + u^2 + 1 \rangle$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 100 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. $I_1^u = \langle -8u^{91} - 7u^{90} + \cdots + 2b - 8u,\ -8u^{91} - 24u^{90} + \cdots + 2a - 9,\ u^{92} + 3u^{91} + \cdots + 3u^2 + 1 \rangle$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 4u^{91} + 12u^{90} + \cdots + 13u^2 + \frac{9}{2} \\ 4u^{91} + \frac{7}{2}u^{90} + \cdots - \frac{9}{2}u^2 + 4u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 4u^{91} + 12u^{90} + \cdots + 13u^2 + \frac{9}{2} \\ 4u^{91} + \frac{9}{2}u^{90} + \cdots - \frac{9}{2}u^2 + 4u \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} -u^{14} - u^{12} - 4u^{10} - 3u^8 - 4u^6 - 2u^4 + 1 \\ -u^{14} - 2u^{12} - 5u^{10} - 6u^8 - 6u^6 - 4u^4 - u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{3}{2}u^{91} + 6u^{90} + \cdots + u + 3 \\ \frac{3}{2}u^{91} + u^{90} + \cdots - 3u^2 + \frac{5}{2}u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{91} - u^{90} + \cdots - \frac{13}{2}u^3 - 2u^2 \\ -\frac{1}{2}u^{91} - 5u^{89} + \cdots - \frac{3}{2}u^3 - \frac{1}{2}u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^5 + u \\ u^5 + u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{9}{2}u^{91} + 7u^{90} + \cdots + 14u - \frac{1}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{92} + 45u^{91} + \cdots + 6u + 1$
c_2, c_5	$u^{92} + 5u^{91} + \cdots + 6u + 1$
c_3	$u^{92} - 5u^{91} + \cdots - 57066u + 15489$
c_4, c_8	$u^{92} - u^{91} + \cdots + 896u + 256$
c_6	$u^{92} - 3u^{91} + \cdots - 10300u + 2425$
c_7, c_{11}	$u^{92} - 3u^{91} + \cdots + 3u^2 + 1$
c_9, c_{10}, c_{12}	$u^{92} + 23u^{91} + \cdots + 6u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{92} + 9y^{91} + \cdots + 46y + 1$
c_2, c_5	$y^{92} + 45y^{91} + \cdots + 6y + 1$
c_3	$y^{92} - 27y^{91} + \cdots - 1648615266y + 239909121$
c_4, c_8	$y^{92} + 45y^{91} + \cdots + 1327104y + 65536$
c_6	$y^{92} - 5y^{91} + \cdots - 386124150y + 5880625$
c_7, c_{11}	$y^{92} + 23y^{91} + \cdots + 6y + 1$
c_9, c_{10}, c_{12}	$y^{92} + 95y^{91} + \cdots + 46y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.693479 + 0.720110I$ $a = 0.620794 + 0.272394I$ $b = -0.270197 - 0.526769I$	$-2.50471 + 1.32727I$	0
$u = -0.693479 - 0.720110I$ $a = 0.620794 - 0.272394I$ $b = -0.270197 + 0.526769I$	$-2.50471 - 1.32727I$	0
$u = 0.137759 + 0.991033I$ $a = 0.96131 - 2.44396I$ $b = -0.226283 - 1.348390I$	$-7.08384 - 6.20405I$	0
$u = 0.137759 - 0.991033I$ $a = 0.96131 + 2.44396I$ $b = -0.226283 + 1.348390I$	$-7.08384 + 6.20405I$	0
$u = 0.198705 + 0.989118I$ $a = 1.00312 - 2.59715I$ $b = -0.30023 - 1.51641I$	$-8.51146 + 2.14258I$	0
$u = 0.198705 - 0.989118I$ $a = 1.00312 + 2.59715I$ $b = -0.30023 + 1.51641I$	$-8.51146 - 2.14258I$	0
$u = -0.323111 + 0.935504I$ $a = 1.045650 - 0.704782I$ $b = 0.190797 - 0.218407I$	$-2.70385 - 6.14257I$	0
$u = -0.323111 - 0.935504I$ $a = 1.045650 + 0.704782I$ $b = 0.190797 + 0.218407I$	$-2.70385 + 6.14257I$	0
$u = 0.156856 + 0.960463I$ $a = -0.88681 + 2.52095I$ $b = 0.338463 + 1.363710I$	$-4.30279 - 1.37565I$	0
$u = 0.156856 - 0.960463I$ $a = -0.88681 - 2.52095I$ $b = 0.338463 - 1.363710I$	$-4.30279 + 1.37565I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.362369 + 0.977795I$		
$a = 1.23952 - 2.65966I$	$-3.12348 + 7.02740I$	0
$b = -0.32670 - 1.89189I$		
$u = 0.362369 - 0.977795I$		
$a = 1.23952 + 2.65966I$	$-3.12348 - 7.02740I$	0
$b = -0.32670 + 1.89189I$		
$u = 0.331238 + 0.895820I$		
$a = 1.32460 - 2.96062I$	$-0.69918 + 4.80724I$	0
$b = -0.54342 - 1.96702I$		
$u = 0.331238 - 0.895820I$		
$a = 1.32460 + 2.96062I$	$-0.69918 - 4.80724I$	0
$b = -0.54342 + 1.96702I$		
$u = 0.327350 + 0.992443I$		
$a = -1.17765 + 2.68899I$	$-7.76770 + 3.77242I$	0
$b = 0.32569 + 1.83006I$		
$u = 0.327350 - 0.992443I$		
$a = -1.17765 - 2.68899I$	$-7.76770 - 3.77242I$	0
$b = 0.32569 - 1.83006I$		
$u = -0.233602 + 0.910910I$		
$a = 0.846140 - 1.033200I$	$-3.23122 + 1.00291I$	0
$b = 0.094081 - 0.372222I$		
$u = -0.233602 - 0.910910I$		
$a = 0.846140 + 1.033200I$	$-3.23122 - 1.00291I$	0
$b = 0.094081 + 0.372222I$		
$u = 0.372819 + 0.996928I$		
$a = -1.21269 + 2.62443I$	$-5.72377 + 12.12640I$	0
$b = 0.29853 + 1.89032I$		
$u = 0.372819 - 0.996928I$		
$a = -1.21269 - 2.62443I$	$-5.72377 - 12.12640I$	0
$b = 0.29853 - 1.89032I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.335045 + 0.866771I$		
$a = -0.790918 + 0.569269I$	$-0.38070 - 2.07048I$	0
$b = -0.082338 + 0.179534I$		
$u = -0.335045 - 0.866771I$		
$a = -0.790918 - 0.569269I$	$-0.38070 + 2.07048I$	0
$b = -0.082338 - 0.179534I$		
$u = 0.284068 + 0.860333I$		
$a = -1.02927 + 3.20717I$	$-1.058000 - 0.279101I$	$-6.91300 + 0.I$
$b = 0.80719 + 1.83021I$		
$u = 0.284068 - 0.860333I$		
$a = -1.02927 - 3.20717I$	$-1.058000 + 0.279101I$	$-6.91300 + 0.I$
$b = 0.80719 - 1.83021I$		
$u = -0.427081 + 0.798857I$		
$a = -0.713657 + 0.121097I$	$-0.06045 - 1.88314I$	0
$b = -0.0301309 + 0.0996555I$		
$u = -0.427081 - 0.798857I$		
$a = -0.713657 - 0.121097I$	$-0.06045 + 1.88314I$	0
$b = -0.0301309 - 0.0996555I$		
$u = -0.653453 + 0.885413I$		
$a = 1.046580 + 0.507386I$	$-2.57991 + 1.44003I$	0
$b = -0.445709 + 0.180341I$		
$u = -0.653453 - 0.885413I$		
$a = 1.046580 - 0.507386I$	$-2.57991 - 1.44003I$	0
$b = -0.445709 - 0.180341I$		
$u = -0.668456 + 0.5553251I$		
$a = 0.751735 + 0.111879I$	$-1.70083 - 6.18476I$	$0. + 7.03177I$
$b = 0.203275 - 0.551941I$		
$u = -0.668456 - 0.5553251I$		
$a = 0.751735 - 0.111879I$	$-1.70083 + 6.18476I$	$0. - 7.03177I$
$b = 0.203275 + 0.551941I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.735212 + 0.893849I$		
$a = -0.937046 - 0.931574I$	$0.60676 - 2.79602I$	0
$b = 1.053810 - 0.287790I$		
$u = -0.735212 - 0.893849I$		
$a = -0.937046 + 0.931574I$	$0.60676 + 2.79602I$	0
$b = 1.053810 + 0.287790I$		
$u = 0.812449 + 0.852311I$		
$a = 0.778077 - 0.513337I$	$3.10988 + 3.40561I$	0
$b = 0.344350 - 0.859731I$		
$u = 0.812449 - 0.852311I$		
$a = 0.778077 + 0.513337I$	$3.10988 - 3.40561I$	0
$b = 0.344350 + 0.859731I$		
$u = -0.863378 + 0.806506I$		
$a = 0.305173 - 0.349815I$	$-0.06562 + 2.04123I$	0
$b = 0.99000 + 1.67872I$		
$u = -0.863378 - 0.806506I$		
$a = 0.305173 + 0.349815I$	$-0.06562 - 2.04123I$	0
$b = 0.99000 - 1.67872I$		
$u = -0.727666 + 0.941058I$		
$a = 1.26854 + 0.94209I$	$-3.02486 - 6.79677I$	0
$b = -0.832530 + 0.747199I$		
$u = -0.727666 - 0.941058I$		
$a = 1.26854 - 0.94209I$	$-3.02486 + 6.79677I$	0
$b = -0.832530 - 0.747199I$		
$u = 0.854175 + 0.832632I$		
$a = 0.906340 - 0.293878I$	$4.74497 - 3.82999I$	0
$b = 0.603181 - 0.774979I$		
$u = 0.854175 - 0.832632I$		
$a = 0.906340 + 0.293878I$	$4.74497 + 3.82999I$	0
$b = 0.603181 + 0.774979I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.841430 + 0.856318I$ $a = 0.476794 - 1.094360I$ $b = 1.98535 + 1.56704I$	$5.88107 - 3.20332I$	0
$u = -0.841430 - 0.856318I$ $a = 0.476794 + 1.094360I$ $b = 1.98535 - 1.56704I$	$5.88107 + 3.20332I$	0
$u = -0.854533 + 0.845597I$ $a = -0.579807 + 0.786808I$ $b = -1.63230 - 1.81549I$	$6.71455 + 2.11791I$	0
$u = -0.854533 - 0.845597I$ $a = -0.579807 - 0.786808I$ $b = -1.63230 + 1.81549I$	$6.71455 - 2.11791I$	0
$u = -0.878203 + 0.822809I$ $a = -0.539802 + 0.321431I$ $b = -1.06748 - 1.95673I$	$4.90178 + 4.97100I$	0
$u = -0.878203 - 0.822809I$ $a = -0.539802 - 0.321431I$ $b = -1.06748 + 1.95673I$	$4.90178 - 4.97100I$	0
$u = 0.852963 + 0.852144I$ $a = -0.800671 + 0.266145I$ $b = -0.530329 + 0.676515I$	$6.97495 + 0.83818I$	0
$u = 0.852963 - 0.852144I$ $a = -0.800671 - 0.266145I$ $b = -0.530329 - 0.676515I$	$6.97495 - 0.83818I$	0
$u = -0.887379 + 0.818068I$ $a = 0.538898 - 0.204942I$ $b = 0.93986 + 2.00633I$	$2.49798 + 10.21280I$	0
$u = -0.887379 - 0.818068I$ $a = 0.538898 + 0.204942I$ $b = 0.93986 - 2.00633I$	$2.49798 - 10.21280I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.562885 + 0.546500I$ $a = -0.780726 - 0.216705I$ $b = -0.215186 + 0.354968I$	$0.65863 - 1.83346I$	$3.56478 + 4.16412I$
$u = -0.562885 - 0.546500I$ $a = -0.780726 + 0.216705I$ $b = -0.215186 - 0.354968I$	$0.65863 + 1.83346I$	$3.56478 - 4.16412I$
$u = 0.791164 + 0.932385I$ $a = -0.309000 + 0.907116I$ $b = 0.212321 + 0.879598I$	$2.86189 + 2.60803I$	0
$u = 0.791164 - 0.932385I$ $a = -0.309000 - 0.907116I$ $b = 0.212321 - 0.879598I$	$2.86189 - 2.60803I$	0
$u = 0.868970 + 0.886551I$ $a = -0.621192 + 0.030063I$ $b = -0.516416 + 0.357413I$	$7.82228 + 2.10226I$	0
$u = 0.868970 - 0.886551I$ $a = -0.621192 - 0.030063I$ $b = -0.516416 - 0.357413I$	$7.82228 - 2.10226I$	0
$u = -0.811671 + 0.940994I$ $a = -1.53622 - 1.73359I$ $b = 1.94836 - 1.80046I$	$5.61602 - 2.96104I$	0
$u = -0.811671 - 0.940994I$ $a = -1.53622 + 1.73359I$ $b = 1.94836 + 1.80046I$	$5.61602 + 2.96104I$	0
$u = -0.101784 + 0.749735I$ $a = -0.06658 + 1.44004I$ $b = 0.335460 + 0.379358I$	$-1.52871 - 1.62635I$	$-6.71018 + 4.39612I$
$u = -0.101784 - 0.749735I$ $a = -0.06658 - 1.44004I$ $b = 0.335460 - 0.379358I$	$-1.52871 + 1.62635I$	$-6.71018 - 4.39612I$

Solutions to I_1^u		$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.817197 + 0.949188I$		
$a =$	$0.048839 - 0.862965I$	$6.67073 + 5.37797I$	0
$b =$	$-0.386052 - 0.727595I$		
$u =$	$0.817197 - 0.949188I$		
$a =$	$0.048839 + 0.862965I$	$6.67073 - 5.37797I$	0
$b =$	$-0.386052 + 0.727595I$		
$u =$	$-0.814785 + 0.954223I$		
$a =$	$1.69477 + 1.60012I$	$6.37439 - 8.33082I$	0
$b =$	$-1.59575 + 2.03692I$		
$u =$	$-0.814785 - 0.954223I$		
$a =$	$1.69477 - 1.60012I$	$6.37439 + 8.33082I$	0
$b =$	$-1.59575 - 2.03692I$		
$u =$	$0.808320 + 0.961873I$		
$a =$	$-0.046540 + 0.995446I$	$4.34172 + 10.02020I$	0
$b =$	$0.445311 + 0.827780I$		
$u =$	$0.808320 - 0.961873I$		
$a =$	$-0.046540 - 0.995446I$	$4.34172 - 10.02020I$	0
$b =$	$0.445311 - 0.827780I$		
$u =$	$0.881563 + 0.903602I$		
$a =$	$0.610721 + 0.184716I$	$6.33441 + 6.26253I$	0
$b =$	$0.623658 - 0.157852I$		
$u =$	$0.881563 - 0.903602I$		
$a =$	$0.610721 - 0.184716I$	$6.33441 - 6.26253I$	0
$b =$	$0.623658 + 0.157852I$		
$u =$	$0.848258 + 0.937137I$		
$a =$	$-0.161914 - 0.585796I$	$7.66246 + 4.26451I$	0
$b =$	$-0.428433 - 0.409414I$		
$u =$	$0.848258 - 0.937137I$		
$a =$	$-0.161914 + 0.585796I$	$7.66246 - 4.26451I$	0
$b =$	$-0.428433 + 0.409414I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.801039 + 0.979817I$		
$a = -1.71580 - 1.32659I$	$-0.60469 - 8.23142I$	0
$b = 0.99814 - 1.85507I$		
$u = -0.801039 - 0.979817I$		
$a = -1.71580 + 1.32659I$	$-0.60469 + 8.23142I$	0
$b = 0.99814 + 1.85507I$		
$u = -0.816244 + 0.979417I$		
$a = 1.80600 + 1.38248I$	$4.40958 - 11.25750I$	0
$b = -1.02650 + 2.12021I$		
$u = -0.816244 - 0.979417I$		
$a = 1.80600 - 1.38248I$	$4.40958 + 11.25750I$	0
$b = -1.02650 - 2.12021I$		
$u = 0.868306 + 0.933853I$		
$a = 0.389282 + 0.490502I$	$6.23833 + 0.20732I$	0
$b = 0.576752 + 0.222656I$		
$u = 0.868306 - 0.933853I$		
$a = 0.389282 - 0.490502I$	$6.23833 - 0.20732I$	0
$b = 0.576752 - 0.222656I$		
$u = -0.818315 + 0.986653I$		
$a = -1.83442 - 1.34355I$	$1.9667 - 16.5328I$	0
$b = 0.89789 - 2.14892I$		
$u = -0.818315 - 0.986653I$		
$a = -1.83442 + 1.34355I$	$1.9667 + 16.5328I$	0
$b = 0.89789 + 2.14892I$		
$u = 0.674010 + 0.203348I$		
$a = 0.613340 + 0.206566I$	$-3.20101 - 8.37938I$	$0.15662 + 6.12005I$
$b = 0.37126 - 1.44491I$		
$u = 0.674010 - 0.203348I$		
$a = 0.613340 - 0.206566I$	$-3.20101 + 8.37938I$	$0.15662 - 6.12005I$
$b = 0.37126 + 1.44491I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.628567 + 0.200115I$		
$a = -0.621094 - 0.343985I$	$-0.69747 - 3.45110I$	$3.26566 + 2.67965I$
$b = -0.365652 + 1.365960I$		
$u = 0.628567 - 0.200115I$		
$a = -0.621094 + 0.343985I$	$-0.69747 + 3.45110I$	$3.26566 - 2.67965I$
$b = -0.365652 - 1.365960I$		
$u = 0.642317 + 0.116320I$		
$a = 0.360274 + 0.327324I$	$-5.03596 - 0.37833I$	$-2.76050 - 0.07845I$
$b = 0.215439 - 1.390060I$		
$u = 0.642317 - 0.116320I$		
$a = 0.360274 - 0.327324I$	$-5.03596 + 0.37833I$	$-2.76050 + 0.07845I$
$b = 0.215439 + 1.390060I$		
$u = -0.444878 + 0.339614I$		
$a = -1.085110 - 0.365153I$	$1.18331 - 0.98447I$	$6.29127 + 3.05890I$
$b = -0.430908 + 0.198336I$		
$u = -0.444878 - 0.339614I$		
$a = -1.085110 + 0.365153I$	$1.18331 + 0.98447I$	$6.29127 - 3.05890I$
$b = -0.430908 - 0.198336I$		
$u = 0.318472 + 0.447529I$		
$a = 1.53585 + 1.38352I$	$0.26493 + 2.75405I$	$2.72287 + 0.06903I$
$b = 0.982985 - 0.758758I$		
$u = 0.318472 - 0.447529I$		
$a = 1.53585 - 1.38352I$	$0.26493 - 2.75405I$	$2.72287 - 0.06903I$
$b = 0.982985 + 0.758758I$		
$u = 0.440699 + 0.296262I$		
$a = -1.026060 - 0.907308I$	$1.09659 - 1.79042I$	$4.77815 + 4.51916I$
$b = -0.574497 + 1.035600I$		
$u = 0.440699 - 0.296262I$		
$a = -1.026060 + 0.907308I$	$1.09659 + 1.79042I$	$4.77815 - 4.51916I$
$b = -0.574497 - 1.035600I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.484962 + 0.157585I$		
$a = 1.300650 + 0.177463I$	$-0.44498 + 3.10475I$	$2.64129 - 3.31218I$
$b = 0.544891 - 0.124438I$		
$u = -0.484962 - 0.157585I$		
$a = 1.300650 - 0.177463I$	$-0.44498 - 3.10475I$	$2.64129 + 3.31218I$
$b = 0.544891 + 0.124438I$		

II. $I_2^u = \langle u^2a + b, \ u^2a - u^3 + a^2 - au + 2u^2 + a - 2u, \ u^4 - u^3 + u^2 + 1 \rangle$

(i) Arc colorings

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

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

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

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

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

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

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

$$a_6 = \begin{pmatrix} u^2 + 1 \\ -u^3 + u^2 + 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3a + 2a \\ -u^3a - 2u^2a - au \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^3a + u^2 + 2a - u + 1 \\ -u^3a - 2u^2a - au + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 - 1 \\ u^3 - u^2 - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^3a + 4u^2a - u^3 - 2au - 2u^2 + a + 2u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_5	$(u^2 - u + 1)^4$
c_2	$(u^2 + u + 1)^4$
c_4, c_8	u^8
c_6, c_9, c_{10}	$(u^4 - u^3 + 3u^2 - 2u + 1)^2$
c_7	$(u^4 - u^3 + u^2 + 1)^2$
c_{11}	$(u^4 + u^3 + u^2 + 1)^2$
c_{12}	$(u^4 + u^3 + 3u^2 + 2u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5	$(y^2 + y + 1)^4$
c_4, c_8	y^8
c_6, c_9, c_{10} c_{12}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^2$
c_7, c_{11}	$(y^4 + y^3 + 3y^2 + 2y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.351808 + 0.720342I$ $a = -1.54112 - 0.21492I$ $b = -0.500000 - 0.866025I$	$-0.211005 + 0.614778I$	$2.20786 + 0.04655I$
$u = -0.351808 + 0.720342I$ $a = \;\;\;0.58443 + 1.44211I$ $b = -0.500000 + 0.866025I$	$-0.21101 - 3.44499I$	$-2.55284 + 7.82341I$
$u = -0.351808 - 0.720342I$ $a = -1.54112 + 0.21492I$ $b = -0.500000 + 0.866025I$	$-0.211005 - 0.614778I$	$2.20786 - 0.04655I$
$u = -0.351808 - 0.720342I$ $a = \;\;\;0.58443 - 1.44211I$ $b = -0.500000 - 0.866025I$	$-0.21101 + 3.44499I$	$-2.55284 - 7.82341I$
$u = \;\;\;0.851808 + 0.911292I$ $a = -0.576953 - 0.283088I$ $b = -0.500000 + 0.866025I$	$6.79074 + 5.19385I$	$2.09237 - 4.44058I$
$u = \;\;\;0.851808 + 0.911292I$ $a = \;\;\;0.533637 - 0.358112I$ $b = -0.500000 - 0.866025I$	$6.79074 + 1.13408I$	$2.75261 - 0.95911I$
$u = \;\;\;0.851808 - 0.911292I$ $a = -0.576953 + 0.283088I$ $b = -0.500000 - 0.866025I$	$6.79074 - 5.19385I$	$2.09237 + 4.44058I$
$u = \;\;\;0.851808 - 0.911292I$ $a = \;\;\;0.533637 + 0.358112I$ $b = -0.500000 + 0.866025I$	$6.79074 - 1.13408I$	$2.75261 + 0.95911I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2 - u + 1)^4)(u^{92} + 45u^{91} + \cdots + 6u + 1)$
c_2	$((u^2 + u + 1)^4)(u^{92} + 5u^{91} + \cdots + 6u + 1)$
c_3	$((u^2 - u + 1)^4)(u^{92} - 5u^{91} + \cdots - 57066u + 15489)$
c_4, c_8	$u^8(u^{92} - u^{91} + \cdots + 896u + 256)$
c_5	$((u^2 - u + 1)^4)(u^{92} + 5u^{91} + \cdots + 6u + 1)$
c_6	$((u^4 - u^3 + 3u^2 - 2u + 1)^2)(u^{92} - 3u^{91} + \cdots - 10300u + 2425)$
c_7	$((u^4 - u^3 + u^2 + 1)^2)(u^{92} - 3u^{91} + \cdots + 3u^2 + 1)$
c_9, c_{10}	$((u^4 - u^3 + 3u^2 - 2u + 1)^2)(u^{92} + 23u^{91} + \cdots + 6u + 1)$
c_{11}	$((u^4 + u^3 + u^2 + 1)^2)(u^{92} - 3u^{91} + \cdots + 3u^2 + 1)$
c_{12}	$((u^4 + u^3 + 3u^2 + 2u + 1)^2)(u^{92} + 23u^{91} + \cdots + 6u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2 + y + 1)^4)(y^{92} + 9y^{91} + \cdots + 46y + 1)$
c_2, c_5	$((y^2 + y + 1)^4)(y^{92} + 45y^{91} + \cdots + 6y + 1)$
c_3	$((y^2 + y + 1)^4)(y^{92} - 27y^{91} + \cdots - 1.64862 \times 10^9 y + 2.39909 \times 10^8)$
c_4, c_8	$y^8(y^{92} + 45y^{91} + \cdots + 1327104y + 65536)$
c_6	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^2$ $\cdot (y^{92} - 5y^{91} + \cdots - 386124150y + 5880625)$
c_7, c_{11}	$((y^4 + y^3 + 3y^2 + 2y + 1)^2)(y^{92} + 23y^{91} + \cdots + 6y + 1)$
c_9, c_{10}, c_{12}	$((y^4 + 5y^3 + 7y^2 + 2y + 1)^2)(y^{92} + 95y^{91} + \cdots + 46y + 1)$