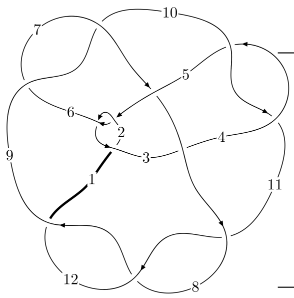
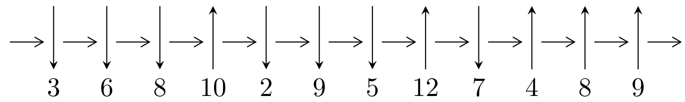
$12n_{0413}$ ($K12n_{0413}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -9.68083\times 10^{106}u^{48} + 1.80477\times 10^{107}u^{47} + \cdots + 7.70077\times 10^{108}b + 4.07046\times 10^{109}, \\
& 6.39121\times 10^{109}u^{48} - 1.62145\times 10^{110}u^{47} + \cdots + 1.28603\times 10^{111}a - 1.39682\times 10^{112}, \\
& u^{49} - 2u^{48} + \cdots - 1083u - 167\rangle \\
I_2^u = \langle & -4356880u^{16} + 8072348u^{15} + \cdots + 147225657b + 19826117, \\
& 15345062u^{16} - 28541073u^{15} + \cdots + 14725657a - 99165990,\ u^{17} - u^{16} + \cdots - 5u - 1\rangle \\
I_3^u = \langle & b+1,\ u^3 + 2u^2 + a - 1,\ u^4 + 3u^3 + 2u^2 + 1\rangle \\
I_4^u = \langle & b+1,\ a+2,\ u-1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 71 representations.

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

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

I. $\boldsymbol{I_1^u = \langle -9.68 \times 10^{106} u^{48} + 1.80 \times 10^{107} u^{47} + \cdots + 7.70 \times 10^{108} b + 4.07 \times 10^{109},\ 6.39 \times 10^{109} u^{48} - 1.62 \times 10^{110} u^{47} + \cdots + 1.29 \times 10^{111} a - 1.40 \times 10^{112},\ u^{49} - 2u^{48} + \cdots - 1083u - 167 \rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.0496973u^{48} + 0.126082u^{47} + \cdots + 51.3655u + 10.8615 \\ 0.0125713u^{48} - 0.0234362u^{47} + \cdots - 23.9191u - 5.28578 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0371260u^{48} + 0.102646u^{47} + \cdots + 27.4464u + 5.57574 \\ 0.0125713u^{48} - 0.0234362u^{47} + \cdots - 23.9191u - 5.28578 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0147332u^{48} + 0.0581855u^{47} + \cdots - 5.41058u + 0.310122 \\ 0.0402524u^{48} - 0.122863u^{47} + \cdots - 26.9497u - 3.52830 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0182261u^{48} + 0.0716241u^{47} + \cdots - 6.44692u - 6.24038 \\ -0.152512u^{48} + 0.408573u^{47} + \cdots + 193.403u + 40.3475 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.0676174u^{48} - 0.168317u^{47} + \cdots - 101.750u - 24.4584 \\ -0.182706u^{48} + 0.491490u^{47} + \cdots + 229.123u + 47.1670 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.0147332u^{48} + 0.0581855u^{47} + \cdots - 5.41058u + 0.310122 \\ 0.0101824u^{48} - 0.0352370u^{47} + \cdots + 1.69276u + 1.26781 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0328901u^{48} - 0.0927795u^{47} + \cdots - 48.5742u - 1.25960 \\ 0.0758750u^{48} - 0.205486u^{47} + \cdots - 90.6780u - 20.9576 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0537472u^{48} + 0.151765u^{47} + \cdots + 60.2707u + 8.53722 \\ 0.0318713u^{48} - 0.0804240u^{47} + \cdots - 41.2502u - 8.00996 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.462159u^{48} - 1.17412u^{47} + \cdots - 696.600u - 157.924$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{49} + 29u^{48} + \cdots + 3724u + 784$
c_2, c_5	$u^{49} - 3u^{48} + \cdots - 70u + 28$
c_3	$u^{49} + 2u^{48} + \cdots - 3520u + 227$
c_4, c_{10}	$u^{49} + 3u^{48} + \cdots - 60u + 29$
c_6, c_9	$u^{49} + 2u^{48} + \cdots - 1083u + 167$
c_7	$u^{49} - 4u^{48} + \cdots - 400u + 79$
c_8, c_{11}, c_{12}	$u^{49} - 5u^{48} + \cdots + 127u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{49} - 13y^{48} + \cdots - 10750992y - 614656$
c_2, c_5	$y^{49} - 29y^{48} + \cdots + 3724y - 784$
c_3	$y^{49} - 86y^{48} + \cdots + 4342796y - 51529$
c_4, c_{10}	$y^{49} + 61y^{48} + \cdots - 7014y - 841$
c_6, c_9	$y^{49} - 48y^{48} + \cdots + 633479y - 27889$
c_7	$y^{49} - 6y^{48} + \cdots + 26648y - 6241$
c_8, c_{11}, c_{12}	$y^{49} - 3y^{48} + \cdots + 7771y - 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.850931 + 0.053544I$ $a = 0.104499 - 0.401543I$ $b = -0.905932 + 0.857759I$	$-3.32807 + 3.38377I$	$-7.75310 - 1.13902I$
$u = -0.850931 - 0.053544I$ $a = 0.104499 + 0.401543I$ $b = -0.905932 - 0.857759I$	$-3.32807 - 3.38377I$	$-7.75310 + 1.13902I$
$u = -0.718657 + 0.427589I$ $a = -0.668880 + 0.170629I$ $b = -0.699751 - 0.643620I$	$-3.14393 - 2.25034I$	$-3.25983 + 3.67150I$
$u = -0.718657 - 0.427589I$ $a = -0.668880 - 0.170629I$ $b = -0.699751 + 0.643620I$	$-3.14393 + 2.25034I$	$-3.25983 - 3.67150I$
$u = 0.212773 + 1.173370I$ $a = -0.478582 - 0.559994I$ $b = 1.032280 + 0.304555I$	$-0.81823 - 3.68405I$	0
$u = 0.212773 - 1.173370I$ $a = -0.478582 + 0.559994I$ $b = 1.032280 - 0.304555I$	$-0.81823 + 3.68405I$	0
$u = 0.285077 + 1.160990I$ $a = -0.507725 - 1.069200I$ $b = -0.362811 + 0.450437I$	$-3.86581 - 3.46047I$	0
$u = 0.285077 - 1.160990I$ $a = -0.507725 + 1.069200I$ $b = -0.362811 - 0.450437I$	$-3.86581 + 3.46047I$	0
$u = -1.165410 + 0.313519I$ $a = -0.211471 - 0.778096I$ $b = -0.044659 + 1.016460I$	$-1.48591 + 4.14998I$	0
$u = -1.165410 - 0.313519I$ $a = -0.211471 + 0.778096I$ $b = -0.044659 - 1.016460I$	$-1.48591 - 4.14998I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.220420 + 0.103596I$ $a = -0.409963 - 0.768191I$ $b = -1.44014 + 0.49949I$	$-5.69136 + 1.78229I$	0
$u = -1.220420 - 0.103596I$ $a = -0.409963 + 0.768191I$ $b = -1.44014 - 0.49949I$	$-5.69136 - 1.78229I$	0
$u = 1.259170 + 0.059094I$ $a = 0.228657 + 0.856126I$ $b = -0.126950 - 0.770054I$	$-2.40638 - 0.33187I$	0
$u = 1.259170 - 0.059094I$ $a = 0.228657 - 0.856126I$ $b = -0.126950 + 0.770054I$	$-2.40638 + 0.33187I$	0
$u = -1.184680 + 0.442717I$ $a = 0.330399 + 0.355978I$ $b = 0.824658 + 0.266758I$	$2.29612 - 1.29906I$	0
$u = -1.184680 - 0.442717I$ $a = 0.330399 - 0.355978I$ $b = 0.824658 - 0.266758I$	$2.29612 + 1.29906I$	0
$u = -0.268177 + 0.569650I$ $a = 0.806426 + 0.964971I$ $b = 0.227906 - 0.424848I$	$1.32877 - 0.64027I$	$5.53279 + 1.79656I$
$u = -0.268177 - 0.569650I$ $a = 0.806426 - 0.964971I$ $b = 0.227906 + 0.424848I$	$1.32877 + 0.64027I$	$5.53279 - 1.79656I$
$u = 1.367990 + 0.149902I$ $a = 0.15755 - 1.41438I$ $b = 1.29944 + 0.59734I$	$-12.95210 - 5.26540I$	0
$u = 1.367990 - 0.149902I$ $a = 0.15755 + 1.41438I$ $b = 1.29944 - 0.59734I$	$-12.95210 + 5.26540I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.28015 + 0.61372I$ $a = 0.78597 - 1.20619I$ $b = 0.988679 + 0.244010I$	$-5.81191 - 4.96842I$	0
$u = 1.28015 - 0.61372I$ $a = 0.78597 + 1.20619I$ $b = 0.988679 - 0.244010I$	$-5.81191 + 4.96842I$	0
$u = 1.12078 + 0.91260I$ $a = -0.551284 + 0.887947I$ $b = 0.754353 - 0.445736I$	$-5.19854 - 2.05240I$	0
$u = 1.12078 - 0.91260I$ $a = -0.551284 - 0.887947I$ $b = 0.754353 + 0.445736I$	$-5.19854 + 2.05240I$	0
$u = 1.43653 + 0.16422I$ $a = -0.358028 - 0.892202I$ $b = 0.171432 + 1.020400I$	$-9.49455 - 0.58370I$	0
$u = 1.43653 - 0.16422I$ $a = -0.358028 + 0.892202I$ $b = 0.171432 - 1.020400I$	$-9.49455 + 0.58370I$	0
$u = 0.526163$ $a = 1.19463$ $b = -0.608001$	-1.12208	-10.0430
$u = -0.520256 + 0.072784I$ $a = -0.63731 + 1.59304I$ $b = 0.871886 - 0.778003I$	$4.54654 + 2.92338I$	$-9.70360 - 6.96370I$
$u = -0.520256 - 0.072784I$ $a = -0.63731 - 1.59304I$ $b = 0.871886 + 0.778003I$	$4.54654 - 2.92338I$	$-9.70360 + 6.96370I$
$u = -1.40029 + 0.51673I$ $a = 0.253189 + 1.133510I$ $b = 1.33405 - 0.50974I$	$-5.71203 + 9.55647I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.40029 - 0.51673I$ $a = 0.253189 - 1.133510I$ $b = 1.33405 + 0.50974I$	$-5.71203 - 9.55647I$	0
$u = -1.50499 + 0.03703I$ $a = 0.135912 - 0.745098I$ $b = 1.44136 + 0.38763I$	$-15.0837 + 3.2894I$	0
$u = -1.50499 - 0.03703I$ $a = 0.135912 + 0.745098I$ $b = 1.44136 - 0.38763I$	$-15.0837 - 3.2894I$	0
$u = 1.47957 + 0.40480I$ $a = -0.074080 + 1.221990I$ $b = -1.202330 - 0.506289I$	$-5.53719 - 4.43702I$	0
$u = 1.47957 - 0.40480I$ $a = -0.074080 - 1.221990I$ $b = -1.202330 + 0.506289I$	$-5.53719 + 4.43702I$	0
$u = -1.50367 + 0.38165I$ $a = 0.139516 + 0.920366I$ $b = -0.161176 - 1.103200I$	$-9.77091 + 8.62339I$	0
$u = -1.50367 - 0.38165I$ $a = 0.139516 - 0.920366I$ $b = -0.161176 + 1.103200I$	$-9.77091 - 8.62339I$	0
$u = -0.249001 + 0.193937I$ $a = 3.79562 - 2.57743I$ $b = -0.883863 + 0.524484I$	$3.15492 + 2.13839I$	$-0.12860 - 2.71183I$
$u = -0.249001 - 0.193937I$ $a = 3.79562 + 2.57743I$ $b = -0.883863 - 0.524484I$	$3.15492 - 2.13839I$	$-0.12860 + 2.71183I$
$u = 0.197940 + 0.226170I$ $a = -4.74888 - 2.79183I$ $b = 1.246010 - 0.150153I$	$-8.82996 + 3.71591I$	$-8.95298 - 2.19762I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.197940 - 0.226170I$ $a = -4.74888 + 2.79183I$ $b = 1.246010 + 0.150153I$	$-8.82996 - 3.71591I$	$-8.95298 + 2.19762I$
$u = 1.67411 + 0.47879I$ $a = 0.207774 - 0.858058I$ $b = 1.189780 + 0.403248I$	$-6.21895 - 4.32179I$	0
$u = 1.67411 - 0.47879I$ $a = 0.207774 + 0.858058I$ $b = 1.189780 - 0.403248I$	$-6.21895 + 4.32179I$	0
$u = -1.68681 + 0.54892I$ $a = -0.116244 - 1.107380I$ $b = -1.32009 + 0.60354I$	$-13.3928 + 14.7009I$	0
$u = -1.68681 - 0.54892I$ $a = -0.116244 + 1.107380I$ $b = -1.32009 - 0.60354I$	$-13.3928 - 14.7009I$	0
$u = 1.80483 + 0.31448I$ $a = -0.085676 + 0.557680I$ $b = -1.35959 - 0.40465I$	$-14.4034 - 5.4986I$	0
$u = 1.80483 - 0.31448I$ $a = -0.085676 - 0.557680I$ $b = -1.35959 + 0.40465I$	$-14.4034 + 5.4986I$	0
$u = 0.89129 + 1.69936I$ $a = 0.290327 + 0.793046I$ $b = -1.070560 - 0.387674I$	$-5.92444 - 6.99855I$	0
$u = 0.89129 - 1.69936I$ $a = 0.290327 - 0.793046I$ $b = -1.070560 + 0.387674I$	$-5.92444 + 6.99855I$	0

II.

$$\boldsymbol{I^u_2 = \langle -4.36\times 10^{6}u^{16} + 8.07\times 10^{6}u^{15} + \cdots + 1.47\times 10^{7}b + 1.98\times 10^{7},\ 1.53\times 10^{7}u^{16} - 2.85\times 10^{7}u^{15} + \cdots + 1.47\times 10^{7}a - 9.92\times 10^{7},\ u^{17} - u^{16} + \cdots - 5u - 1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -1.04206u^{16} + 1.93819u^{15} + \cdots + 21.4169u + 6.73423 \\ 0.295870u^{16} - 0.548183u^{15} + \cdots - 5.56821u - 1.34637 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -0.746193u^{16} + 1.39000u^{15} + \cdots + 15.8487u + 5.38787 \\ 0.295870u^{16} - 0.548183u^{15} + \cdots - 5.56821u - 1.34637 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.878435u^{16} - 0.528983u^{15} + \cdots + 7.77681u - 5.08941 \\ -0.0718985u^{16} + 0.127527u^{15} + \cdots - 0.371082u + 2.59084 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2.09405u^{16} - 2.55950u^{15} + \cdots - 6.65219u - 5.86775 \\ -1.19341u^{16} + 1.25712u^{15} + \cdots + 3.60488u + 2.71050 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 2.43046u^{16} - 2.74542u^{15} + \cdots - 5.93479u - 5.57732 \\ -1.03784u^{16} + 1.06714u^{15} + \cdots + 3.97631u + 2.57055 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.878435u^{16} - 0.528983u^{15} + \cdots + 7.77681u - 5.08941 \\ -0.231578u^{16} + 0.469827u^{15} + \cdots + 2.25461u + 2.94030 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^{16} + u^{15} + \cdots - 6u + 6 \\ 0.910587u^{16} - 1.03215u^{15} + \cdots + 1.54869u - 2.77612 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.349452u^{16} - 0.509132u^{15} + \cdots - 0.697239u + 0.878435 \\ 0.0785691u^{16} + 0.224318u^{15} + \cdots + 4.40810u + 0.117874 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{44098255}{14725657}u^{16} - \frac{9781706}{14725657}u^{15} + \cdots + \frac{81882286}{14725657}u + \frac{161815615}{14725657}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} - 9u^{16} + \cdots + 12u - 1$
c_2	$u^{17} - u^{16} + \cdots + 6u^2 - 1$
c_3	$u^{17} + u^{16} + \cdots + 13u^2 - 1$
c_4	$u^{17} + 10u^{15} + \cdots + 2u - 1$
c_5	$u^{17} + u^{16} + \cdots - 6u^2 + 1$
c_6	$u^{17} - u^{16} + \cdots - 5u - 1$
c_7	$u^{17} + 3u^{16} + \cdots - u^2 + 1$
c_8	$u^{17} - 4u^{16} + \cdots - 3u + 1$
c_9	$u^{17} + u^{16} + \cdots - 5u + 1$
c_{10}	$u^{17} + 10u^{15} + \cdots + 2u + 1$
c_{11}, c_{12}	$u^{17} + 4u^{16} + \cdots - 3u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} + 7y^{16} + \cdots + 8y - 1$
c_2, c_5	$y^{17} - 9y^{16} + \cdots + 12y - 1$
c_3	$y^{17} - 11y^{16} + \cdots + 26y - 1$
c_4, c_{10}	$y^{17} + 20y^{16} + \cdots - 28y - 1$
c_6, c_9	$y^{17} - 17y^{16} + \cdots + 37y - 1$
c_7	$y^{17} + 9y^{16} + \cdots + 2y - 1$
c_8, c_{11}, c_{12}	$y^{17} - 16y^{16} + \cdots + y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.957854 + 0.298951I$ $a = -0.334041 + 0.709299I$ $b = -0.650226 - 0.887312I$	$-2.95875 - 4.08497I$	$-3.71386 + 10.03298I$
$u = 0.957854 - 0.298951I$ $a = -0.334041 - 0.709299I$ $b = -0.650226 + 0.887312I$	$-2.95875 + 4.08497I$	$-3.71386 - 10.03298I$
$u = -0.963042 + 0.343353I$ $a = -0.229026 - 0.855460I$ $b = -0.904042 - 0.243298I$	$1.77275 - 1.07365I$	$-7.71871 - 0.81835I$
$u = -0.963042 - 0.343353I$ $a = -0.229026 + 0.855460I$ $b = -0.904042 + 0.243298I$	$1.77275 + 1.07365I$	$-7.71871 + 0.81835I$
$u = -1.042230 + 0.131331I$ $a = 0.46890 - 1.60505I$ $b = -0.876881 + 0.678116I$	$1.44921 + 2.62103I$	$-4.44930 - 3.32170I$
$u = -1.042230 - 0.131331I$ $a = 0.46890 + 1.60505I$ $b = -0.876881 - 0.678116I$	$1.44921 - 2.62103I$	$-4.44930 + 3.32170I$
$u = 0.764814 + 0.879583I$ $a = -0.14665 + 1.60242I$ $b = 0.601934 - 0.283302I$	$-4.94180 - 3.21948I$	$-5.99068 + 3.01805I$
$u = 0.764814 - 0.879583I$ $a = -0.14665 - 1.60242I$ $b = 0.601934 + 0.283302I$	$-4.94180 + 3.21948I$	$-5.99068 - 3.01805I$
$u = 1.300670 + 0.072680I$ $a = -0.279715 + 0.828722I$ $b = -1.283940 - 0.573989I$	$-5.30566 - 2.10327I$	$-5.60859 + 5.91464I$
$u = 1.300670 - 0.072680I$ $a = -0.279715 - 0.828722I$ $b = -1.283940 + 0.573989I$	$-5.30566 + 2.10327I$	$-5.60859 - 5.91464I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.520538$ $a = 2.67975$ $b = -0.547185$	-0.370928	3.41290
$u = 1.35710 + 1.09082I$ $a = -0.108411 - 1.235250I$ $b = 1.120510 + 0.397524I$	$-6.97220 - 6.27581I$	$-9.68626 + 6.62498I$
$u = 1.35710 - 1.09082I$ $a = -0.108411 + 1.235250I$ $b = 1.120510 - 0.397524I$	$-6.97220 + 6.27581I$	$-9.68626 - 6.62498I$
$u = -0.243492 + 0.067657I$ $a = -1.97435 + 2.90440I$ $b = 0.880570 - 0.722002I$	$4.91174 + 2.75823I$	$9.07218 + 0.56830I$
$u = -0.243492 - 0.067657I$ $a = -1.97435 - 2.90440I$ $b = 0.880570 + 0.722002I$	$4.91174 - 2.75823I$	$9.07218 - 0.56830I$
$u = -1.89195 + 0.35480I$ $a = 0.263422 - 0.162539I$ $b = 0.885671 + 0.299147I$	$-0.92930 - 1.29681I$	$-0.11122 + 4.93024I$
$u = -1.89195 - 0.35480I$ $a = 0.263422 + 0.162539I$ $b = 0.885671 - 0.299147I$	$-0.92930 + 1.29681I$	$-0.11122 - 4.93024I$

III. $\boldsymbol{I_3^u = \langle b+1,\ u^3+2u^2+a-1,\ u^4+3u^3+2u^2+1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^3-2u^2+1\\-1\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-u^3-2u^2\\-1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u^3-2u^2+1\\-1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-3u^3-5u^2\\-3u^3-4u^2+2u-3\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-1\\-u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u^2-1\\-3u^3-4u^2-1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^4$
c_3, c_4, c_7 c_{10}	$y^4 + 3y^3 + 2y^2 + 1$
c_6, c_8, c_9 c_{11}, c_{12}	$y^4 - 5y^3 + 6y^2 + 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.192440 + 0.547877I$ $a = 1.69244 - 0.31815I$ $b = -1.00000$	-1.64493	-6.00000
$u = 0.192440 - 0.547877I$ $a = 1.69244 + 0.31815I$ $b = -1.00000$	-1.64493	-6.00000
$u = -1.69244 + 0.31815I$ $a = -0.192440 - 0.547877I$ $b = -1.00000$	-1.64493	-6.00000
$u = -1.69244 - 0.31815I$ $a = -0.192440 + 0.547877I$ $b = -1.00000$	-1.64493	-6.00000

IV. $I_4^u = \langle b+1,\ a+2,\ u-1 \rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -3 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_8 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -2.00000$ $b = -1.00000$	-1.64493	-6.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u+1)^5)(u^{17}-9u^{16}+\cdots+12u-1)(u^{49}+29u^{48}+\cdots+3724u+784)$
c_2	$((u+1)^5)(u^{17}-u^{16}+\cdots+6u^2-1)(u^{49}-3u^{48}+\cdots-70u+28)$
c_3	$(u-1)(u^4+u^3+2u^2+2u+1)(u^{17}+u^{16}+\cdots+13u^2-1)$ $\cdot(u^{49}+2u^{48}+\cdots-3520u+227)$
c_4	$(u-1)(u^4+u^3+2u^2+2u+1)(u^{17}+10u^{15}+\cdots+2u-1)$ $\cdot(u^{49}+3u^{48}+\cdots-60u+29)$
c_5	$((u+1)^5)(u^{17}+u^{16}+\cdots-6u^2+1)(u^{49}-3u^{48}+\cdots-70u+28)$
c_6	$(u+1)(u^4-3u^3+2u^2+1)(u^{17}-u^{16}+\cdots-5u-1)$ $\cdot(u^{49}+2u^{48}+\cdots-1083u+167)$
c_7	$(u-1)(u^4+u^3+2u^2+2u+1)(u^{17}+3u^{16}+\cdots-u^2+1)$ $\cdot(u^{49}-4u^{48}+\cdots-400u+79)$
c_8	$(u-1)(u^4+3u^3+2u^2+1)(u^{17}-4u^{16}+\cdots-3u+1)$ $\cdot(u^{49}-5u^{48}+\cdots+127u+7)$
c_9	$(u+1)(u^4-3u^3+2u^2+1)(u^{17}+u^{16}+\cdots-5u+1)$ $\cdot(u^{49}+2u^{48}+\cdots-1083u+167)$
c_{10}	$(u-1)(u^4+u^3+2u^2+2u+1)(u^{17}+10u^{15}+\cdots+2u+1)$ $\cdot(u^{49}+3u^{48}+\cdots-60u+29)$
c_{11}, c_{12}	$(u-1)(u^4+3u^3+2u^2+1)(u^{17}+4u^{16}+\cdots-3u-1)$ $\cdot(u^{49}-5u^{48}+\cdots+127u+7)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^{17}+7y^{16}+\cdots+8y-1)$ $\cdot(y^{49}-13y^{48}+\cdots-10750992y-614656)$
c_2, c_5	$((y-1)^5)(y^{17}-9y^{16}+\cdots+12y-1)(y^{49}-29y^{48}+\cdots+3724y-784)$
c_3	$(y-1)(y^4+3y^3+2y^2+1)(y^{17}-11y^{16}+\cdots+26y-1)$ $\cdot(y^{49}-86y^{48}+\cdots+4342796y-51529)$
c_4, c_{10}	$(y-1)(y^4+3y^3+2y^2+1)(y^{17}+20y^{16}+\cdots-28y-1)$ $\cdot(y^{49}+61y^{48}+\cdots-7014y-841)$
c_6, c_9	$(y-1)(y^4-5y^3+\cdots+4y+1)(y^{17}-17y^{16}+\cdots+37y-1)$ $\cdot(y^{49}-48y^{48}+\cdots+633479y-27889)$
c_7	$(y-1)(y^4+3y^3+2y^2+1)(y^{17}+9y^{16}+\cdots+2y-1)$ $\cdot(y^{49}-6y^{48}+\cdots+26648y-6241)$
c_8, c_{11}, c_{12}	$(y-1)(y^4-5y^3+\cdots+4y+1)(y^{17}-16y^{16}+\cdots+y-1)$ $\cdot(y^{49}-3y^{48}+\cdots+7771y-49)$