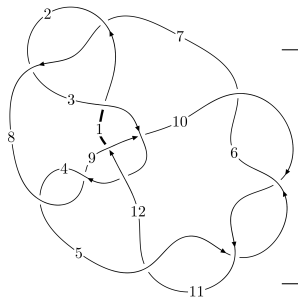
$12n_{0643}$ ($K12n_{0643}$)



A knot diagram[1]

Linearized knot diagam

$$\longrightarrow \underset{3}{\downarrow} \longrightarrow \underset{8}{\downarrow} \longrightarrow \underset{12}{\downarrow} \longrightarrow \underset{8}{\uparrow} \longrightarrow \underset{11}{\downarrow} \longrightarrow \underset{10}{\downarrow} \longrightarrow \underset{2}{\downarrow} \longrightarrow \underset{4}{\uparrow} \longrightarrow \underset{3}{\downarrow} \longrightarrow \underset{6}{\downarrow} \longrightarrow \underset{5}{\downarrow} \longrightarrow \underset{9}{\downarrow} \longrightarrow$$

Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -68009u^{16} - 44301u^{15} + \cdots + 147102b + 345073,\ a - 1,\ u^{17} + 9u^{15} + \cdots + 2u + 1\rangle \\
I_2^u &= \langle -2u^5 - 5u^4 + 13u^2 + 34b + 15u - 21,\ 59u^5 + 122u^4 + 187u^3 + 135u^2 + 34a + 25u + 628, \\
&\quad u^6 + 2u^5 + 3u^4 + 2u^3 + 10u - 1\rangle \\
I_3^u &= \langle -42u^{10} - 15u^9 - 68u^8 - 63u^7 - 114u^6 - 63u^5 + 35u^4 + 150u^3 + 89u^2 + 23b + 116u + 25,\ a + 1, \\
&\quad u^{11} + 2u^9 + u^8 + 3u^7 + u^6 - 3u^4 - u^3 - 4u^2 - 1\rangle \\
I_4^u &= \langle -6u^{11} - 5u^{10} + 48u^9 - 118u^8 + 124u^7 - 211u^6 - 246u^5 - 51u^4 - 750u^3 + 85u^2 + 236b - 746u - 12, \\
&\quad 65u^{11} - 585u^{10} + \cdots + 472a - 5416, \\
&\quad u^{12} - 5u^{11} + 15u^{10} - 32u^9 + 58u^8 - 77u^7 + 103u^6 - 93u^5 + 100u^4 - 55u^3 + 48u^2 - 12u + 8\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 46 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. $\boldsymbol{I_1^u = \langle -6.80 \times 10^4 u^{16} - 4.43 \times 10^4 u^{15} + \cdots + 1.47 \times 10^5 b + 3.45 \times 10^5,\ a - 1,\ u^{17} + 9u^{15} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0.462325u^{16} + 0.301158u^{15} + \cdots - 5.67284u - 2.34581 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.462325u^{16} - 0.301158u^{15} + \cdots + 5.67284u + 3.34581 \\ -0.287392u^{16} + 0.502305u^{15} + \cdots - 1.98646u - 0.919770 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.462325u^{16} - 0.301158u^{15} + \cdots + 5.67284u + 3.34581 \\ -0.279955u^{16} + 0.529707u^{15} + \cdots - 3.05110u - 1.22093 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.00743702u^{16} - 0.0274028u^{15} + \cdots + 1.06464u + 1.30116 \\ 0.190147u^{16} + 0.239167u^{15} + \cdots - 4.54595u - 2.01725 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -1.13202u^{16} - 0.272111u^{15} + \cdots + 8.20193u + 0.644696 \\ 0.0817596u^{16} - 0.0818956u^{15} + \cdots + 1.62497u + 0.308167 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.462325u^{16} + 0.301158u^{15} + \cdots - 5.67284u - 1.34581 \\ 0.462325u^{16} + 0.301158u^{15} + \cdots - 5.67284u - 2.34581 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.757155u^{16} - 0.173743u^{15} + \cdots - 4.75102u - 0.727196 \\ 0.294829u^{16} - 0.474902u^{15} + \cdots + 0.921816u + 0.618612 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1.21378u^{16} + 0.190215u^{15} + \cdots - 6.57697u - 0.336528 \\ 0.456629u^{16} + 0.363958u^{15} + \cdots - 1.82594u + 0.390668 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{173298}{24517}u^{16} - \frac{19700}{24517}u^{15} + \cdots + \frac{1212498}{24517}u - \frac{66405}{24517}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} + 25u^{16} + \cdots - 5u + 1$
c_2, c_7, c_{12}	$u^{17} + u^{16} + \cdots + u + 1$
c_3	$u^{17} - 11u^{16} + \cdots - 48u + 8$
c_4, c_8	$u^{17} + 9u^{15} + \cdots + 2u + 1$
c_5, c_6, c_{10} c_{11}	$u^{17} + 7u^{16} + \cdots + 72u + 8$
c_9	$u^{17} - 20u^{15} + \cdots + 194u + 259$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} - 65y^{16} + \cdots + 87y - 1$
c_2, c_7, c_{12}	$y^{17} - 25y^{16} + \cdots - 5y - 1$
c_3	$y^{17} + 3y^{16} + \cdots + 672y - 64$
c_4, c_8	$y^{17} + 18y^{16} + \cdots + 20y - 1$
c_5, c_6, c_{10} c_{11}	$y^{17} + 19y^{16} + \cdots + 288y - 64$
c_9	$y^{17} - 40y^{16} + \cdots - 96526y - 67081$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.273982 + 1.067890I$ $a = 1.00000$ $b = -0.476176 + 0.479879I$	$-0.94573 + 1.67377I$	$-6.92989 - 3.16143I$
$u = 0.273982 - 1.067890I$ $a = 1.00000$ $b = -0.476176 - 0.479879I$	$-0.94573 - 1.67377I$	$-6.92989 + 3.16143I$
$u = 0.124569 + 1.229950I$ $a = 1.00000$ $b = -0.37277 + 1.64716I$	$-5.40408 + 3.79366I$	$-9.42026 - 1.67014I$
$u = 0.124569 - 1.229950I$ $a = 1.00000$ $b = -0.37277 - 1.64716I$	$-5.40408 - 3.79366I$	$-9.42026 + 1.67014I$
$u = -0.747531 + 1.177200I$ $a = 1.00000$ $b = -0.11531 - 1.52558I$	$5.74347 - 3.70748I$	$-0.330584 + 0.385083I$
$u = -0.747531 - 1.177200I$ $a = 1.00000$ $b = -0.11531 + 1.52558I$	$5.74347 + 3.70748I$	$-0.330584 - 0.385083I$
$u = 0.18378 + 1.48034I$ $a = 1.00000$ $b = -0.958979 - 0.657777I$	$-12.88920 + 1.26003I$	$-11.26337 - 0.06200I$
$u = 0.18378 - 1.48034I$ $a = 1.00000$ $b = -0.958979 + 0.657777I$	$-12.88920 - 1.26003I$	$-11.26337 + 0.06200I$
$u = -0.435602 + 0.235065I$ $a = 1.00000$ $b = 0.02738 - 1.68451I$	$10.39050 - 1.51785I$	$0.08130 + 5.70683I$
$u = -0.435602 - 0.235065I$ $a = 1.00000$ $b = 0.02738 + 1.68451I$	$10.39050 + 1.51785I$	$0.08130 - 5.70683I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.438102 + 0.020053I$ $a = 1.00000$ $b = -0.092822 + 0.789763I$	$1.61479 + 1.53966I$	$-1.79490 - 4.96374I$
$u = 0.438102 - 0.020053I$ $a = 1.00000$ $b = -0.092822 - 0.789763I$	$1.61479 - 1.53966I$	$-1.79490 + 4.96374I$
$u = -0.52463 + 1.57423I$ $a = 1.00000$ $b = -0.970536 - 0.552496I$	$-13.1856 - 7.5502I$	$-11.07949 + 4.57676I$
$u = -0.52463 - 1.57423I$ $a = 1.00000$ $b = -0.970536 + 0.552496I$	$-13.1856 + 7.5502I$	$-11.07949 - 4.57676I$
$u = -0.314233$ $a = 1.00000$ $b = -0.331071$	-0.707107	-14.3070
$u = 0.84444 + 1.52914I$ $a = 1.00000$ $b = -0.37526 + 1.57337I$	$-6.35474 + 12.51650I$	$-8.10916 - 5.80852I$
$u = 0.84444 - 1.52914I$ $a = 1.00000$ $b = -0.37526 - 1.57337I$	$-6.35474 - 12.51650I$	$-8.10916 + 5.80852I$

II. $\boldsymbol{I_2^u = \langle -2u^5 - 5u^4 + 13u^2 + 34b + 15u - 21,\ 59u^5 + 122u^4 + \cdots + 34a + 628,\ u^6 + 2u^5 + 3u^4 + 2u^3 + 10u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -1.73529u^5 - 3.58824u^4 + \cdots - 0.735294u - 18.4706 \\ 0.0588235u^5 + 0.147059u^4 + \cdots - 0.441176u + 0.617647 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1.47059u^5 + 3.17647u^4 + \cdots + 0.470588u + 14.9412 \\ 0.0588235u^5 + 0.147059u^4 + \cdots - 0.441176u - 0.382353 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.47059u^5 + 3.17647u^4 + \cdots + 0.470588u + 14.9412 \\ -0.0588235u^5 - 0.147059u^4 + \cdots + 0.441176u - 0.617647 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.82353u^5 - 4.05882u^4 + \cdots - 0.823529u - 18.6471 \\ 0.323529u^5 + 0.0588235u^4 + \cdots + 2.32353u + 0.147059 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2.23529u^5 + 4.58824u^4 + \cdots + 0.235294u + 22.4706 \\ -0.117647u^5 - 0.294118u^4 + \cdots - 0.117647u - 0.735294 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1.67647u^5 - 3.44118u^4 + \cdots - 1.17647u - 17.8529 \\ 0.0588235u^5 + 0.147059u^4 + \cdots - 0.441176u + 0.617647 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.882353u^5 - 1.70588u^4 + \cdots + 0.117647u - 9.26471 \\ 0.176471u^5 + 0.441176u^4 + \cdots - 0.323529u + 0.352941 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2.35294u^5 - 4.88235u^4 + \cdots - 0.352941u - 23.2059 \\ 0.117647u^5 + 0.294118u^4 + \cdots + 0.117647u + 0.735294 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{16}{17}u^5 - \frac{40}{17}u^4 - 4u^3 - \frac{100}{17}u^2 - \frac{16}{17}u - \frac{338}{17}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^6 + 6u^5 + 5u^4 - 14u^3 + 26u^2 + 144u + 121$
c_2, c_7, c_{12}	$u^6 + 2u^5 - u^4 + 2u^2 - 10u - 11$
c_3	$(u^3 + u^2 - 1)^2$
c_4, c_8	$u^6 + 2u^5 + 3u^4 + 2u^3 + 10u - 1$
c_5, c_6, c_{10} c_{11}	$(u^3 - u^2 + 2u - 1)^2$
c_9	$u^6 + 5u^5 + 4u^4 - 11u^3 - 14u^2 - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 - 26y^5 + 245y^4 - 1422y^3 + 5918y^2 - 14444y + 14641$
c_2, c_7, c_{12}	$y^6 - 6y^5 + 5y^4 + 14y^3 + 26y^2 - 144y + 121$
c_3	$(y^3 - y^2 + 2y - 1)^2$
c_4, c_8	$y^6 + 2y^5 + y^4 - 46y^3 - 46y^2 - 100y + 1$
c_5, c_6, c_{10} c_{11}	$(y^3 + 3y^2 + 2y - 1)^2$
c_9	$y^6 - 17y^5 + 98y^4 - 249y^3 + 132y^2 + 224y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.714259 + 0.979949I$ $a = -1.55592 - 0.28013I$ $b = 0.215080 - 1.307140I$	$1.11345 + 5.65624I$	$-6.98049 - 5.95889I$
$u = 0.714259 - 0.979949I$ $a = -1.55592 + 0.28013I$ $b = 0.215080 + 1.307140I$	$1.11345 - 5.65624I$	$-6.98049 + 5.95889I$
$u = -1.85465$ $a = -0.0537944$ $b = 0.569840$	-7.16171	-20.0390
$u = 0.0997696$ $a = -18.5893$ $b = 0.569840$	-7.16171	-20.0390
$u = -0.83682 + 1.72481I$ $a = -0.622526 - 0.112080I$ $b = 0.215080 + 1.307140I$	$1.11345 - 5.65624I$	$-6.98049 + 5.95889I$
$u = -0.83682 - 1.72481I$ $a = -0.622526 + 0.112080I$ $b = 0.215080 - 1.307140I$	$1.11345 + 5.65624I$	$-6.98049 - 5.95889I$

III. $I^u_3 = \langle -42u^{10}-15u^9+\cdots+23b+25,\ a+1,\ u^{11}+2u^9+u^8+3u^7+u^6-3u^4-u^3-4u^2-1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -1 \\ 1.82609u^{10}+0.652174u^9+\cdots-5.04348u-1.08696 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1.82609u^{10}+0.652174u^9+\cdots-5.04348u-0.0869565 \\ 1.13043u^{10}-0.739130u^9+\cdots-2.21739u+3.56522 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.82609u^{10}+0.652174u^9+\cdots-5.04348u-0.0869565 \\ 1.82609u^{10}-0.347826u^9+\cdots-4.04348u+2.91304 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.695652u^{10}+0.391304u^9+\cdots-1.82609u-1.65217 \\ 2.30435u^{10}+0.608696u^9+\cdots-6.17391u-1.34783 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.65217u^{10}-0.695652u^9+\cdots-4.08696u+1.82609 \\ 1.08696u^{10}-1.82609u^9+\cdots-0.478261u+5.04348 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.82609u^{10}+0.652174u^9+\cdots-5.04348u-2.08696 \\ 1.82609u^{10}+0.652174u^9+\cdots-5.04348u-1.08696 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2.26087u^{10}+0.478261u^9+\cdots+5.43478u-2.13043 \\ -0.434783u^{10}+1.13043u^9+\cdots+0.391304u-4.21739 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.565217u^{10}-1.13043u^9+\cdots+3.60870u+3.21739 \\ -2.82609u^{10}-0.652174u^9+\cdots+9.04348u+1.08696 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -\frac{31}{23}u^{10}+\frac{7}{23}u^9-\frac{48}{23}u^8+\frac{11}{23}u^7-\frac{71}{23}u^6+\frac{34}{23}u^5+\frac{91}{23}u^4+\frac{137}{23}u^3-\frac{17}{23}u^2+\frac{21}{23}u-\frac{257}{23}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{11} - 11u^{10} + \cdots + 7u - 1$
c_2	$u^{11} + u^{10} - 5u^9 - 5u^8 + 9u^7 + 8u^6 - 8u^5 - 7u^4 + 4u^3 + 3u^2 - u - 1$
c_3	$u^{11} + 4u^{10} + 10u^9 + 16u^8 + 16u^7 + 7u^6 - 3u^5 - 5u^4 + 2u^2 - 1$
c_4	$u^{11} + 2u^9 + u^8 + 3u^7 + u^6 - 3u^4 - u^3 - 4u^2 - 1$
c_5, c_6	$u^{11} + 8u^9 + 23u^7 + 28u^5 + u^4 + 12u^3 + 3u^2 + 1$
c_7, c_{12}	$u^{11} - u^{10} - 5u^9 + 5u^8 + 9u^7 - 8u^6 - 8u^5 + 7u^4 + 4u^3 - 3u^2 - u + 1$
c_8	$u^{11} + 2u^9 - u^8 + 3u^7 - u^6 + 3u^4 - u^3 + 4u^2 + 1$
c_9	$u^{11} - 5u^9 - 2u^8 + 4u^7 + 9u^6 + 5u^5 - 2u^4 - 13u^3 + 7u^2 + 2u + 1$
c_{10}, c_{11}	$u^{11} + 8u^9 + 23u^7 + 28u^5 - u^4 + 12u^3 - 3u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{11} - 15y^{10} + \cdots - 13y - 1$
c_2, c_7, c_{12}	$y^{11} - 11y^{10} + \cdots + 7y - 1$
c_3	$y^{11} + 4y^{10} + \cdots + 4y - 1$
c_4, c_8	$y^{11} + 4y^{10} + \cdots - 8y - 1$
c_5, c_6, c_{10} c_{11}	$y^{11} + 16y^{10} + \cdots - 6y - 1$
c_9	$y^{11} - 10y^{10} + \cdots - 10y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.02184$ $a = -1.00000$ $b = -0.445195$	-6.47878	-5.43850
$u = -0.960985 + 0.510912I$ $a = -1.00000$ $b = -0.233007 + 1.358440I$	$-1.89567 + 2.51034I$	$-5.23089 - 0.60579I$
$u = -0.960985 - 0.510912I$ $a = -1.00000$ $b = -0.233007 - 1.358440I$	$-1.89567 - 2.51034I$	$-5.23089 + 0.60579I$
$u = 0.062554 + 0.872739I$ $a = -1.00000$ $b = 0.166908 + 0.916041I$	$0.12106 + 1.89765I$	$-8.02738 - 3.63931I$
$u = 0.062554 - 0.872739I$ $a = -1.00000$ $b = 0.166908 - 0.916041I$	$0.12106 - 1.89765I$	$-8.02738 + 3.63931I$
$u = -0.448669 + 1.127200I$ $a = -1.00000$ $b = 0.193075 + 0.390923I$	$-1.65984 - 3.19570I$	$-7.07775 + 5.40642I$
$u = -0.448669 - 1.127200I$ $a = -1.00000$ $b = 0.193075 - 0.390923I$	$-1.65984 + 3.19570I$	$-7.07775 - 5.40642I$
$u = 0.065465 + 0.570358I$ $a = -1.00000$ $b = 0.02836 - 1.73242I$	$9.80306 - 1.15540I$	$-10.75281 - 0.76912I$
$u = 0.065465 - 0.570358I$ $a = -1.00000$ $b = 0.02836 + 1.73242I$	$9.80306 + 1.15540I$	$-10.75281 + 0.76912I$
$u = 0.77071 + 1.27691I$ $a = -1.00000$ $b = 0.06726 - 1.54442I$	$5.09546 + 4.16451I$	$-9.19190 - 5.51053I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.77071 - 1.27691I$ $a = -1.00000$ $b = \quad 0.06726 + 1.54442I$	$5.09546 - 4.16451I$	$-9.19190 + 5.51053I$

IV. $\boldsymbol{I_4^u = \langle -6u^{11} - 5u^{10} + \cdots + 236b - 12,\ 65u^{11} - 585u^{10} + \cdots + 472a - 5416,\ u^{12} - 5u^{11} + \cdots - 12u + 8\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.137712u^{11} + 1.23941u^{10} + \cdots - 19.0805u + 11.4746 \\ 0.0254237u^{11} + 0.0211864u^{10} + \cdots + 3.16102u + 0.0508475 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.502119u^{11} - 2.51907u^{10} + \cdots + 13.3051u - 3.74576 \\ -0.555085u^{11} + 2.74576u^{10} + \cdots - 8.43220u + 0.389831 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.502119u^{11} - 2.51907u^{10} + \cdots + 13.3051u - 3.74576 \\ -0.338983u^{11} + 1.80085u^{10} + \cdots - 4.31356u + 0.322034 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.252119u^{11} + 1.76907u^{10} + \cdots - 15.5551u + 9.74576 \\ 0.0805085u^{11} - 0.224576u^{10} + \cdots + 7.09322u - 1.33898 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.646186u^{11} + 3.56568u^{10} + \cdots - 20.8008u + 7.95763 \\ -0.00423729u^{11} + 0.0381356u^{10} + \cdots + 2.38983u + 0.491525 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.112288u^{11} + 1.26059u^{10} + \cdots - 15.9195u + 11.5254 \\ 0.0254237u^{11} + 0.0211864u^{10} + \cdots + 3.16102u + 0.0508475 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1.18432u^{11} - 5.65890u^{10} + \cdots + 17.5424u + 4.11864 \\ 0.0296610u^{11} - 0.0169492u^{10} + \cdots + 0.771186u - 1.44068 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.641949u^{11} - 3.52754u^{10} + \cdots + 23.1907u - 7.46610 \\ 0.00423729u^{11} - 0.0381356u^{10} + \cdots - 2.38983u - 0.491525 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{4}{59}u^{11} - \frac{95}{59}u^{10} + \frac{440}{59}u^9 - 21u^8 + \frac{2474}{59}u^7 - \frac{4068}{59}u^6 + \frac{4884}{59}u^5 - \frac{5807}{59}u^4 + \frac{4512}{59}u^3 - \frac{4344}{59}u^2 + \frac{1638}{59}u - \frac{1762}{59}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12} + 15u^{11} + \cdots + 96u + 64$
c_2, c_7, c_{12}	$u^{12} - 3u^{11} + \cdots - 8u + 8$
c_3	$(u^3 + u^2 - 1)^4$
c_4, c_8	$u^{12} - 5u^{11} + \cdots - 12u + 8$
c_5, c_6, c_{10} c_{11}	$(u^3 - u^2 + 2u - 1)^4$
c_9	$u^{12} - 6u^{11} + \cdots + 18u + 59$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} - 15y^{11} + \cdots - 18944y + 4096$
c_2, c_7, c_{12}	$y^{12} - 15y^{11} + \cdots - 96y + 64$
c_3	$(y^3 - y^2 + 2y - 1)^4$
c_4, c_8	$y^{12} + 5y^{11} + \cdots + 624y + 64$
c_5, c_6, c_{10} c_{11}	$(y^3 + 3y^2 + 2y - 1)^4$
c_9	$y^{12} - 16y^{11} + \cdots - 8820y + 3481$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.044973 + 0.916855I$ $a = -1.22501 - 0.79096I$ $b = 0.215080 + 1.307140I$	1.11345	$-6.98049 + 0.I$
$u = 0.044973 - 0.916855I$ $a = -1.22501 + 0.79096I$ $b = 0.215080 - 1.307140I$	1.11345	$-6.98049 + 0.I$
$u = -0.404600 + 1.033930I$ $a = -1.272350 + 0.353092I$ $b = 0.569840$	$-3.02413 - 2.82812I$	$-13.50976 + 2.97945I$
$u = -0.404600 - 1.033930I$ $a = -1.272350 - 0.353092I$ $b = 0.569840$	$-3.02413 + 2.82812I$	$-13.50976 - 2.97945I$
$u = 0.670107 + 1.158730I$ $a = -0.576131 - 0.371997I$ $b = 0.215080 - 1.307140I$	1.11345	$-6.98049 + 0.I$
$u = 0.670107 - 1.158730I$ $a = -0.576131 + 0.371997I$ $b = 0.215080 + 1.307140I$	1.11345	$-6.98049 + 0.I$
$u = 0.076727 + 0.622517I$ $a = 2.13780 - 2.88995I$ $b = 0.215080 + 1.307140I$	$-3.02413 - 2.82812I$	$-13.50976 + 2.97945I$
$u = 0.076727 - 0.622517I$ $a = 2.13780 + 2.88995I$ $b = 0.215080 - 1.307140I$	$-3.02413 + 2.82812I$	$-13.50976 - 2.97945I$
$u = 0.14972 + 1.45838I$ $a = -0.729747 + 0.202513I$ $b = 0.569840$	$-3.02413 + 2.82812I$	$-13.50976 - 2.97945I$
$u = 0.14972 - 1.45838I$ $a = -0.729747 - 0.202513I$ $b = 0.569840$	$-3.02413 - 2.82812I$	$-13.50976 + 2.97945I$

	Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$1.96307+1.10908I$		
$a=$	$0.165439+0.223646I$	$-3.02413-2.82812I$	$-13.50976+2.97945I$
$b=$	$0.215080+1.307140I$		
$u=$	$1.96307-1.10908I$		
$a=$	$0.165439-0.223646I$	$-3.02413+2.82812I$	$-13.50976-2.97945I$
$b=$	$0.215080-1.307140I$		

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^6+6u^5+5u^4-14u^3+26u^2+144u+121)$ $\cdot(u^{11}-11u^{10}+\cdots+7u-1)(u^{12}+15u^{11}+\cdots+96u+64)$ $\cdot(u^{17}+25u^{16}+\cdots-5u+1)$
c_2	$(u^6+2u^5-u^4+2u^2-10u-11)$ $\cdot(u^{11}+u^{10}-5u^9-5u^8+9u^7+8u^6-8u^5-7u^4+4u^3+3u^2-u-1)$ $\cdot(u^{12}-3u^{11}+\cdots-8u+8)(u^{17}+u^{16}+\cdots+u+1)$
c_3	$(u^3+u^2-1)^6$ $\cdot(u^{11}+4u^{10}+10u^9+16u^8+16u^7+7u^6-3u^5-5u^4+2u^2-1)$ $\cdot(u^{17}-11u^{16}+\cdots-48u+8)$
c_4	$(u^6+2u^5+3u^4+2u^3+10u-1)$ $\cdot(u^{11}+2u^9+u^8+3u^7+u^6-3u^4-u^3-4u^2-1)$ $\cdot(u^{12}-5u^{11}+\cdots-12u+8)(u^{17}+9u^{15}+\cdots+2u+1)$
c_5, c_6	$(u^3-u^2+2u-1)^6(u^{11}+8u^9+23u^7+28u^5+u^4+12u^3+3u^2+1)$ $\cdot(u^{17}+7u^{16}+\cdots+72u+8)$
c_7, c_{12}	$(u^6+2u^5-u^4+2u^2-10u-11)$ $\cdot(u^{11}-u^{10}-5u^9+5u^8+9u^7-8u^6-8u^5+7u^4+4u^3-3u^2-u+1)$ $\cdot(u^{12}-3u^{11}+\cdots-8u+8)(u^{17}+u^{16}+\cdots+u+1)$
c_8	$(u^6+2u^5+3u^4+2u^3+10u-1)$ $\cdot(u^{11}+2u^9-u^8+3u^7-u^6+3u^4-u^3+4u^2+1)$ $\cdot(u^{12}-5u^{11}+\cdots-12u+8)(u^{17}+9u^{15}+\cdots+2u+1)$
c_9	$(u^6+5u^5+4u^4-11u^3-14u^2-8)$ $\cdot(u^{11}-5u^9-2u^8+4u^7+9u^6+5u^5-2u^4-13u^3+7u^2+2u+1)$ $\cdot(u^{12}-6u^{11}+\cdots+18u+59)(u^{17}-20u^{15}+\cdots+194u+259)$
c_{10}, c_{11}	$(u^3-u^2+2u-1)^6(u^{11}+8u^9+23u^7+28u^5-u^4+12u^3-3u^2-1)$ $\cdot(u^{17}+7u^{16}+\cdots+72u+8)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 - 26y^5 + 245y^4 - 1422y^3 + 5918y^2 - 14444y + 14641)$ $\cdot (y^{11} - 15y^{10} + \cdots - 13y - 1)(y^{12} - 15y^{11} + \cdots - 18944y + 4096)$ $\cdot (y^{17} - 65y^{16} + \cdots + 87y - 1)$
c_2, c_7, c_{12}	$(y^6 - 6y^5 + 5y^4 + 14y^3 + 26y^2 - 144y + 121)$ $\cdot (y^{11} - 11y^{10} + \cdots + 7y - 1)(y^{12} - 15y^{11} + \cdots - 96y + 64)$ $\cdot (y^{17} - 25y^{16} + \cdots - 5y - 1)$
c_3	$((y^3 - y^2 + 2y - 1)^6)(y^{11} + 4y^{10} + \cdots + 4y - 1)$ $\cdot (y^{17} + 3y^{16} + \cdots + 672y - 64)$
c_4, c_8	$(y^6 + 2y^5 + \cdots - 100y + 1)(y^{11} + 4y^{10} + \cdots - 8y - 1)$ $\cdot (y^{12} + 5y^{11} + \cdots + 624y + 64)(y^{17} + 18y^{16} + \cdots + 20y - 1)$
c_5, c_6, c_{10} c_{11}	$((y^3 + 3y^2 + 2y - 1)^6)(y^{11} + 16y^{10} + \cdots - 6y - 1)$ $\cdot (y^{17} + 19y^{16} + \cdots + 288y - 64)$
c_9	$(y^6 - 17y^5 + 98y^4 - 249y^3 + 132y^2 + 224y + 64)$ $\cdot (y^{11} - 10y^{10} + \cdots - 10y - 1)(y^{12} - 16y^{11} + \cdots - 8820y + 3481)$ $\cdot (y^{17} - 40y^{16} + \cdots - 96526y - 67081)$