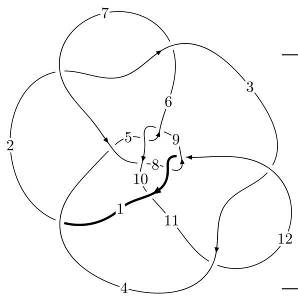
$12n_{0806}$ ($K12n_{0806}$)



A knot diagram[1]

Linearized knot diagam

4 7 12 7 10 3 10 1 6 1 4 9

Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle u^5 - u^4 + 2u^3 + b + 4u - 2,\ u^5 - u^4 + 2u^3 + a + 4u - 1,\ u^6 - 2u^5 + 3u^4 - 2u^3 + 4u^2 - 4u + 1\rangle \\
I_2^u &= \langle -u^5a - u^4a - 2u^3a - au - u^2 + b - u - 1,\ -u^5a - 2u^4a - 4u^3a - 3u^2a + a^2 - 3au + u^2 + 1, \\
&\quad u^6 + u^5 + 3u^4 + u^3 + 3u^2 - u + 1\rangle \\
I_3^u &= \langle 734u^{11} - 3080u^{10} + \cdots + 7763b - 15155,\ 1450u^{11} - 7683u^{10} + \cdots + 7763a - 6462, \\
&\quad u^{12} - 5u^{11} + 13u^{10} - 25u^9 + 45u^8 - 72u^7 + 93u^6 - 97u^5 + 87u^4 - 68u^3 + 39u^2 - 17u + 7\rangle \\
I_4^u &= \langle -u^7 - 2u^4 - u^3 + u^2 + b + 1,\ u^9 + 2u^6 + u^5 - 2u^4 + a - u,\ u^{10} + u^9 + u^7 + 2u^6 - u^5 - 3u^4 - 2u^3 + u + 1 \\
I_5^u &= \langle -u^9 - u^7 - u^6 - u^5 + u^3 + 2u^2 + b - 1,\ -u^9 - u^7 - u^6 - u^5 + u^3 + 2u^2 + a, \\
&\quad u^{10} + u^9 + u^7 + 2u^6 - u^5 - 3u^4 - 2u^3 + u + 1\rangle \\
I_6^u &= \langle u^2 + b,\ u^2 + a + 1,\ u^3 - u^2 + 2u - 1\rangle \\
I_7^u &= \langle -u^7 + 5u^6 - 12u^5 + 19u^4 - 20u^3 + 14u^2 + b - 8u + 3, \\
&\quad -3u^7 + 12u^6 - 25u^5 + 34u^4 - 29u^3 + 17u^2 + 2a - 9u + 2, \\
&\quad u^8 - 4u^7 + 9u^6 - 14u^5 + 15u^4 - 13u^3 + 9u^2 - 4u + 2\rangle \\
I_8^u &= \langle au + u^2 + b - a + u + 1,\ -u^3a - 2u^2a - u^3 + a^2 - au - u^2 - u,\ u^4 + u^3 + u^2 + 1\rangle \\
I_9^u &= \langle b + 1,\ -u^4 - u^2 + 2a,\ u^6 - u^5 + u^4 + u^3 + 2\rangle \\
I_{10}^u &= \langle b - a - 1,\ a^2 - a - 4,\ u + 1\rangle
\end{aligned}
$$

[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`).

$$I^u_{11} = \langle -u^2 + b - u,\ -u^3 - 3u^2 + a - 3u - 2,\ u^4 + 2u^3 + 2u^2 + u - 1\rangle$$
$$I^u_{12} = \langle 2u^3 + 4u^2 + b + 5u + 2,\ 2u^3 + 4u^2 + a + 5u + 3,\ u^4 + 2u^3 + 2u^2 + u - 1\rangle$$

* 12 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 85 representations.

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

I. $I_1^u = \langle u^5 - u^4 + 2u^3 + b + 4u - 2,\ u^5 - u^4 + 2u^3 + a + 4u - 1,\ u^6 - 2u^5 + 3u^4 - 2u^3 + 4u^2 - 4u + 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^5 + u^4 - 2u^3 - 4u + 1 \\ -u^5 + u^4 - 2u^3 - 4u + 2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^5 - u^4 + 2u^3 + 4u - 1 \\ u^5 - u^4 + 2u^3 + 3u - 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^5 - u^4 + 2u^3 + 4u - 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -3u^5 + 4u^4 - 6u^3 + 2u^2 - 11u + 5 \\ -u^5 + u^4 - u^3 - 3u + 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 3u^5 - 4u^4 + 7u^3 - 2u^2 + 11u - 5 \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^5 + u^4 - 2u^3 + u^2 - 4u + 1 \\ -u^5 + u^4 - 2u^3 + u^2 - 4u + 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -3u^5 + 4u^4 - 6u^3 + 2u^2 - 11u + 4 \\ -2u^5 + 3u^4 - 4u^3 + 2u^2 - 7u + 3 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -2u^5 + 3u^4 - 5u^3 + 2u^2 - 8u + 4 \\ -u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^5 - 8u^4 + 12u^3 - 4u^2 + 12u - 20$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$y^6 - 10y^5 + 33y^4 - 18y^3 - 54y^2 - 16y + 1$
c_2, c_3, c_5 c_6, c_8, c_9 c_{11}, c_{12}	$y^6 + 2y^5 + 9y^4 + 6y^3 + 6y^2 - 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.565321 + 1.037410I$ $a = 0.556120 - 0.294180I$ $b = 1.55612 - 0.29418I$	$5.73543 + 5.68242I$	$-3.14521 - 5.86849I$
$u = -0.565321 - 1.037410I$ $a = 0.556120 + 0.294180I$ $b = 1.55612 + 0.29418I$	$5.73543 - 5.68242I$	$-3.14521 + 5.86849I$
$u = 0.716429$ $a = -2.52645$ $b = -1.52645$	-9.00346	-10.3960
$u = 0.378183$ $a = -0.608191$ $b = 0.391809$	-0.650275	-15.5180
$u = 1.01802 + 1.26802I$ $a = 1.011200 - 0.788474I$ $b = 2.01120 - 0.78847I$	$-8.3108 - 15.2657I$	$-11.89809 + 7.17299I$
$u = 1.01802 - 1.26802I$ $a = 1.011200 + 0.788474I$ $b = 2.01120 + 0.78847I$	$-8.3108 + 15.2657I$	$-11.89809 - 7.17299I$

II. $I^u_2 = \langle -u^5a - u^4a - 2u^3a - au - u^2 + b - u - 1,\ -u^5a - 2u^4a + \cdots + a^2 + 1,\ u^6 + u^5 + 3u^4 + u^3 + 3u^2 - u + 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_2 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix}a\\u^5a + u^4a + 2u^3a + au + u^2 + u + 1\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-a\\-u^5 - u^4 - 2u^3 + au - u + 1\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-a\\-u^5 - u^4 + u^2a - 2u^3 + au - u + 1\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-u^3 - u + 1\\-u^4a + u^5 - u^3a + u^4 - 2u^2a + 2u^3 + u^2 - a + u - 1\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}u^4a + u^5 + u^4 + u^2a + 2u^3 - au + a + 2u - 1\\u^5a + 2u^4a - u^5 + 2u^3a - u^4 + 2u^2a - 3u^3 + au - u^2 + a - u + 2\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-u^5a - u^4a - 2u^3a + u^4 + u^3 - au + u^2 + a\\u^4 + u^3 + 2u^2 + u + 1\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-u^5a - u^4a - 2u^3a + u^3 - au + a + u\\-u^5a - u^4a - 2u^3a + u^3 - au + u\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-u^4a - u^5 - u^3a - u^4 - 2u^2a - 2u^3 - a - u + 1\\-u^4a - u^3a - 2u^2a - a - 1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3u^4 - 7u^3 - 10u^2 - 9u - 16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$u^{12} - u^{11} + \cdots - 11u + 1$
c_2, c_6, c_8 c_{12}	$(u^6 - u^5 + 3u^4 - u^3 + 3u^2 + u + 1)^2$
c_3, c_5, c_9 c_{11}	$u^{12} + 5u^{11} + \cdots + 17u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$y^{12} - 19y^{11} + \cdots - 37y + 1$
c_2, c_6, c_8 c_{12}	$(y^6 + 5y^5 + 13y^4 + 21y^3 + 17y^2 + 5y + 1)^2$
c_3, c_5, c_9 c_{11}	$y^{12} + y^{11} + \cdots + 257y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.028955 + 1.263070I$ $a = 0.565560 - 0.864727I$ $b = 1.113440 - 0.846070I$	$4.88968 - 2.84039I$	$-6.95695 + 2.68362I$
$u = 0.028955 + 1.263070I$ $a = -0.374177 - 0.442775I$ $b = -1.46946 + 0.08347I$	$4.88968 - 2.84039I$	$-6.95695 + 2.68362I$
$u = 0.028955 - 1.263070I$ $a = 0.565560 + 0.864727I$ $b = 1.113440 + 0.846070I$	$4.88968 + 2.84039I$	$-6.95695 - 2.68362I$
$u = 0.028955 - 1.263070I$ $a = -0.374177 + 0.442775I$ $b = -1.46946 - 0.08347I$	$4.88968 + 2.84039I$	$-6.95695 - 2.68362I$
$u = -0.80039 + 1.17645I$ $a = -1.035600 - 0.905749I$ $b = -1.97804 - 1.00830I$	$-9.60039 + 6.66133I$	$-12.05452 - 4.58491I$
$u = -0.80039 + 1.17645I$ $a = 0.760760 + 1.153110I$ $b = 0.764071 - 0.032173I$	$-9.60039 + 6.66133I$	$-12.05452 - 4.58491I$
$u = -0.80039 - 1.17645I$ $a = -1.035600 + 0.905749I$ $b = -1.97804 + 1.00830I$	$-9.60039 - 6.66133I$	$-12.05452 + 4.58491I$
$u = -0.80039 - 1.17645I$ $a = 0.760760 - 1.153110I$ $b = 0.764071 + 0.032173I$	$-9.60039 - 6.66133I$	$-12.05452 + 4.58491I$
$u = 0.271430 + 0.485552I$ $a = 0.041323 - 0.362162I$ $b = 1.22951 + 0.79439I$	$-1.04656 + 1.35140I$	$-15.4885 - 6.6994I$
$u = 0.271430 + 0.485552I$ $a = -0.45786 + 2.36589I$ $b = 0.340472 + 0.389317I$	$-1.04656 + 1.35140I$	$-15.4885 - 6.6994I$

Solutions to I_2^u		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u =$	$0.271430 - 0.485552I$		
$a =$	$0.041323 + 0.362162I$	$-1.04656 - 1.35140I$	$-15.4885 + 6.6994I$
$b =$	$1.22951 - 0.79439I$		
$u =$	$0.271430 - 0.485552I$		
$a =$	$-0.45786 - 2.36589I$	$-1.04656 - 1.35140I$	$-15.4885 + 6.6994I$
$b =$	$0.340472 - 0.389317I$		

III. $I_3^u = \langle 734u^{11} - 3080u^{10} + \cdots + 7763b - 15155,\ 1450u^{11} - 7683u^{10} + \cdots + 7763a - 6462,\ u^{12} - 5u^{11} + \cdots - 17u + 7\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -0.186783u^{11} + 0.989695u^{10} + \cdots - 4.53265u + 0.832410 \\ -0.0945511u^{11} + 0.396754u^{10} + \cdots - 3.56421u + 1.95221 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.147108u^{11} + 0.473657u^{10} + \cdots + 4.45537u - 2.03465 \\ -0.261883u^{11} + 1.26240u^{10} + \cdots - 4.53549u + 1.02976 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.147108u^{11} + 0.473657u^{10} + \cdots + 4.45537u - 2.03465 \\ -0.214865u^{11} + 0.915239u^{10} + \cdots - 1.11323u - 0.803427 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.267809u^{11} + 0.983254u^{10} + \cdots + 2.83086u - 1.89733 \\ -0.107948u^{11} + 0.660054u^{10} + \cdots - 3.27631u - 0.615870 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0769033u^{11} + 0.516939u^{10} + \cdots - 1.73606u + 0.269226 \\ -0.154322u^{11} + 0.879170u^{10} + \cdots - 5.04895u + 2.11001 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.448023u^{11} + 2.12405u^{10} + \cdots - 7.41852u + 1.75486 \\ -0.355790u^{11} + 1.53111u^{10} + \cdots - 6.45008u + 2.87466 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0617029u^{11} - 0.295118u^{10} + \cdots + 1.00502u - 0.336854 \\ -0.0854051u^{11} + 0.178539u^{10} + \cdots + 5.46039u - 2.37151 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.278887u^{11} + 1.29988u^{10} + \cdots - 5.42831u + 1.17686 \\ 0.131779u^{11} - 0.397656u^{10} + \cdots - 2.68775u + 0.645627 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{21796}{7763}u^{11} - \frac{13936}{1109}u^{10} + \frac{237890}{7763}u^9 - \frac{434843}{7763}u^8 + \frac{110031}{1109}u^7 - \frac{1172937}{7763}u^6 + \frac{1426749}{7763}u^5 - \frac{1359518}{7763}u^4 + \frac{1096584}{7763}u^3 - \frac{724103}{7763}u^2 + \frac{299834}{7763}u - \frac{28345}{1109}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$u^{12} - u^{11} + \cdots - 11u + 1$
c_2, c_6, c_8 c_{12}	$u^{12} + 5u^{11} + \cdots + 17u + 7$
c_3, c_5, c_9 c_{11}	$(u^6 - u^5 + 3u^4 - u^3 + 3u^2 + u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$y^{12} - 19y^{11} + \cdots - 37y + 1$
c_2, c_6, c_8 c_{12}	$y^{12} + y^{11} + \cdots + 257y + 49$
c_3, c_5, c_9 c_{11}	$(y^6 + 5y^5 + 13y^4 + 21y^3 + 17y^2 + 5y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.239056 + 0.890852I$ $a = 0.79735 + 1.21505I$ $b = 1.22951 + 0.79439I$	$-1.04656 + 1.35140I$	$-15.4885 - 6.6994I$
$u = -0.239056 - 0.890852I$ $a = 0.79735 - 1.21505I$ $b = 1.22951 - 0.79439I$	$-1.04656 - 1.35140I$	$-15.4885 + 6.6994I$
$u = 1.176420 + 0.148869I$ $a = 0.164789 + 0.045651I$ $b = 0.340472 - 0.389317I$	$-1.04656 - 1.35140I$	$-15.4885 + 6.6994I$
$u = 1.176420 - 0.148869I$ $a = 0.164789 - 0.045651I$ $b = 0.340472 + 0.389317I$	$-1.04656 + 1.35140I$	$-15.4885 - 6.6994I$
$u = -0.007700 + 0.692554I$ $a = -0.709646 - 0.783990I$ $b = 1.113440 - 0.846070I$	$4.88968 - 2.84039I$	$-6.95695 + 2.68362I$
$u = -0.007700 - 0.692554I$ $a = -0.709646 + 0.783990I$ $b = 1.113440 + 0.846070I$	$4.88968 + 2.84039I$	$-6.95695 - 2.68362I$
$u = 0.874959 + 1.026640I$ $a = -0.92937 + 1.12242I$ $b = -1.97804 + 1.00830I$	$-9.60039 - 6.66133I$	$-12.05452 + 4.58491I$
$u = 0.874959 - 1.026640I$ $a = -0.92937 - 1.12242I$ $b = -1.97804 - 1.00830I$	$-9.60039 + 6.66133I$	$-12.05452 - 4.58491I$
$u = -0.69640 + 1.36818I$ $a = -0.727697 - 0.439865I$ $b = -1.46946 - 0.08347I$	$4.88968 + 2.84039I$	$-6.95695 - 2.68362I$
$u = -0.69640 - 1.36818I$ $a = -0.727697 + 0.439865I$ $b = -1.46946 + 0.08347I$	$4.88968 - 2.84039I$	$-6.95695 + 2.68362I$

	Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.39178 + 0.95258I$		
$a =$	$0.761714 - 0.875845I$	$-9.60039 + 6.66133I$	$-12.05452 - 4.58491I$
$b =$	$0.764071 - 0.032173I$		
$u =$	$1.39178 - 0.95258I$		
$a =$	$0.761714 + 0.875845I$	$-9.60039 - 6.66133I$	$-12.05452 + 4.58491I$
$b =$	$0.764071 + 0.032173I$		

IV. $\boldsymbol{I^u_4 = \langle -u^7 - 2u^4 - u^3 + u^2 + b + 1,\ u^9 + 2u^6 + u^5 - 2u^4 + a - u,\ u^{10} + u^9 + u^7 + 2u^6 - u^5 - 3u^4 - 2u^3 + u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^9 - 2u^6 - u^5 + 2u^4 + u \\ u^7 + 2u^4 + u^3 - u^2 - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^9 - u^7 - u^6 - u^5 + u^3 + 2u^2 \\ -2u^9 - 3u^6 - u^5 + 3u^4 + 2u^3 + 2u^2 - 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^9 - u^7 - u^6 - u^5 + u^3 + 2u^2 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^8 + u^6 + u^5 + u^4 - u^2 - u \\ 2u^9 + u^8 - u^7 + 3u^6 + 2u^5 - 4u^4 - 4u^3 - 2u^2 + 2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2u^9 - u^8 + u^6 - 4u^4 - 3u^3 - u^2 + 3u + 2 \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^9 + u^8 + u^6 + 2u^5 - 3u^3 - 2u^2 + u + 1 \\ 2u^9 + u^8 + u^7 + 3u^6 + 3u^5 - 2u^3 - 3u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2u^9 + u^8 + 2u^6 + 3u^5 - 2u^4 - 4u^3 - 3u^2 + u + 2 \\ u^9 + u^8 - u^7 + u^6 + 2u^5 - 2u^4 - 3u^3 - u^2 + u + 2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^9 - u^5 + 2u^4 + 3u^3 + u^2 - 2u - 1 \\ -u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -13u^9 - 9u^8 - 2u^7 - 20u^6 - 24u^5 + 8u^4 + 21u^3 + 16u^2 + 2u - 18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{10} - 2u^9 - 2u^8 + 12u^6 + 9u^5 - 43u^4 + 11u^3 + 37u^2 - 29u + 7$
c_2, c_3, c_5 c_6, c_8, c_9 c_{11}, c_{12}	$u^{10} - u^9 - u^7 + 2u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_4, c_{10}	$(u^5 + 2u^4 - 2u^3 - 2u^2 + u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{10} - 8y^9 + \cdots - 323y + 49$
c_2, c_3, c_5 c_6, c_8, c_9 c_{11}, c_{12}	$y^{10} - y^9 + 2y^8 - 5y^7 + 10y^6 - 9y^5 + 3y^4 + 2y^3 - 2y^2 - y + 1$
c_4, c_{10}	$(y^5 - 8y^4 + 14y^3 - 12y^2 + 5y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.833438+0.554152I$ $a=-0.812076-0.979588I$ $b=-2.03262-0.35101I$	$1.24137+6.64784I$	$-13.9589-7.4975I$
$u=-0.833438-0.554152I$ $a=-0.812076+0.979588I$ $b=-2.03262+0.35101I$	$1.24137-6.64784I$	$-13.9589+7.4975I$
$u=-1.016860+0.408978I$ $a=-1.31220-0.69239I$ $b=-0.590675$	-11.5552	$-19.8669+0.I$
$u=-1.016860-0.408978I$ $a=-1.31220+0.69239I$ $b=-0.590675$	-11.5552	$-19.8669+0.I$
$u=\ 0.868230+0.062281I$ $a=\ 0.481330-0.323224I$ $b=\ 0.327959+0.538837I$	$-1.22103+1.14013I$	$-11.60766-5.93486I$
$u=\ 0.868230-0.062281I$ $a=\ 0.481330+0.323224I$ $b=\ 0.327959-0.538837I$	$-1.22103-1.14013I$	$-11.60766+5.93486I$
$u=-0.186852+0.738915I$ $a=\ 0.52801+1.66326I$ $b=\ 0.327959+0.538837I$	$-1.22103+1.14013I$	$-11.60766-5.93486I$
$u=-0.186852-0.738915I$ $a=\ 0.52801-1.66326I$ $b=\ 0.327959-0.538837I$	$-1.22103-1.14013I$	$-11.60766+5.93486I$
$u=\ 0.668920+1.200250I$ $a=-1.385060+0.017518I$ $b=-2.03262+0.35101I$	$1.24137-6.64784I$	$-13.9589+7.4975I$
$u=\ 0.668920-1.200250I$ $a=-1.385060-0.017518I$ $b=-2.03262-0.35101I$	$1.24137+6.64784I$	$-13.9589-7.4975I$

V. $\boldsymbol{I^u_5 = \langle -u^9 - u^7 - u^6 - u^5 + u^3 + 2u^2 + b - 1,\ -u^9 - u^7 - u^6 - u^5 + u^3 + 2u^2 + a,\ u^{10} + u^9 + u^7 + 2u^6 - u^5 - 3u^4 - 2u^3 + u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^9 + u^7 + u^6 + u^5 - u^3 - 2u^2 \\ u^9 + u^7 + u^6 + u^5 - u^3 - 2u^2 + 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^9 - u^8 + u^6 - u^5 - 2u^4 + 2u + 1 \\ u^9 - u^8 + u^6 - u^5 - 2u^4 + u + 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^9 - u^8 + u^6 - u^5 - 2u^4 + 2u + 1 \\ -u^9 - u^8 + u^7 - 2u^6 - 2u^5 + 2u^4 + 2u^3 - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^8 + u^6 + u^5 + u^4 - u^2 - u \\ -u^9 - u^6 - u^5 + 2u^4 + u^3 - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^9 + u^8 + 2u^6 + 2u^5 - 2u^3 - 2u^2 \\ -u^9 + u^7 - u^6 - u^5 + 4u^4 + 2u^3 - u^2 - u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^9 + u^7 + u^6 + u^5 - u^3 - u^2 \\ u^9 + u^7 + u^6 + u^5 - u^3 - u^2 + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2u^9 + u^7 + 2u^6 + 2u^5 - 2u^4 - 2u^3 - 2u^2 + 1 \\ 3u^9 - u^8 + u^7 + 3u^6 + u^5 - 4u^4 - 2u^3 - 2u^2 + 2u + 2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^9 + u^8 + 2u^6 + 2u^5 - u^4 - u^3 - u^2 - u + 1 \\ u^9 - u^8 - u^7 + u^6 - u^5 - 4u^4 - u^3 + u^2 + 2u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -13u^9 - 9u^8 - 2u^7 - 20u^6 - 24u^5 + 8u^4 + 21u^3 + 16u^2 + 2u - 18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^5 + 2u^4 - 2u^3 - 2u^2 + u + 1)^2$
c_2, c_3, c_5 c_6, c_8, c_9 c_{11}, c_{12}	$u^{10} - u^9 - u^7 + 2u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_4, c_{10}	$u^{10} - 2u^9 - 2u^8 + 12u^6 + 9u^5 - 43u^4 + 11u^3 + 37u^2 - 29u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^5 - 8y^4 + 14y^3 - 12y^2 + 5y - 1)^2$
c_2, c_3, c_5 c_6, c_8, c_9 c_{11}, c_{12}	$y^{10} - y^9 + 2y^8 - 5y^7 + 10y^6 - 9y^5 + 3y^4 + 2y^3 - 2y^2 - y + 1$
c_4, c_{10}	$y^{10} - 8y^9 + \cdots - 323y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.833438 + 0.554152I$ $a = -0.885525 - 0.234725I$ $b = 0.114475 - 0.234725I$	$1.24137 + 6.64784I$	$-13.9589 - 7.4975I$
$u = -0.833438 - 0.554152I$ $a = -0.885525 + 0.234725I$ $b = 0.114475 + 0.234725I$	$1.24137 - 6.64784I$	$-13.9589 + 7.4975I$
$u = -1.016860 + 0.408978I$ $a = 2.06801 + 0.83175I$ $b = 3.06801 + 0.83175I$	-11.5552	$-19.8669 + 0.I$
$u = -1.016860 - 0.408978I$ $a = 2.06801 - 0.83175I$ $b = 3.06801 - 0.83175I$	-11.5552	$-19.8669 + 0.I$
$u = 0.868230 + 0.062281I$ $a = -0.719333 + 0.353776I$ $b = 0.280667 + 0.353776I$	$-1.22103 + 1.14013I$	$-11.60766 - 5.93486I$
$u = 0.868230 - 0.062281I$ $a = -0.719333 - 0.353776I$ $b = 0.280667 - 0.353776I$	$-1.22103 - 1.14013I$	$-11.60766 + 5.93486I$
$u = -0.186852 + 0.738915I$ $a = 0.541694 + 0.738059I$ $b = 1.54169 + 0.73806I$	$-1.22103 + 1.14013I$	$-11.60766 - 5.93486I$
$u = -0.186852 - 0.738915I$ $a = 0.541694 - 0.738059I$ $b = 1.54169 - 0.73806I$	$-1.22103 - 1.14013I$	$-11.60766 + 5.93486I$
$u = 0.668920 + 1.200250I$ $a = 0.495151 - 0.447313I$ $b = 1.49515 - 0.44731I$	$1.24137 - 6.64784I$	$-13.9589 + 7.4975I$
$u = 0.668920 - 1.200250I$ $a = 0.495151 + 0.447313I$ $b = 1.49515 + 0.44731I$	$1.24137 + 6.64784I$	$-13.9589 - 7.4975I$

VI. $I^u_6 = \langle u^2 + b,\ u^2 + a + 1,\ u^3 - u^2 + 2u - 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -u^2 - 1 \\ -u^2 \end{pmatrix}$$

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^2 + 8u - 20$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = 0.662359 - 0.562280I$ $b = 1.66236 - 0.56228I$	$6.04826 - 5.65624I$	$-4.98049 + 5.95889I$
$u = 0.215080 - 1.307140I$ $a = 0.662359 + 0.562280I$ $b = 1.66236 + 0.56228I$	$6.04826 + 5.65624I$	$-4.98049 - 5.95889I$
$u = 0.569840$ $a = -1.32472$ $b = -0.324718$	-2.22691	-18.0390

VII.

$$\boldsymbol{I^u_7 = \langle -u^7+5u^6+\cdots+b+3,\ -3u^7+12u^6+\cdots+2a+2,\ u^8-4u^7+\cdots-4u+2\rangle}$$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}\frac{3}{2}u^7 - 6u^6 + \cdots + \frac{9}{2}u - 1\\ u^7 - 5u^6 + 12u^5 - 19u^4 + 20u^3 - 14u^2 + 8u - 3\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-\frac{1}{2}u^7 + 2u^6 + \cdots - \frac{7}{2}u + 1\\ u^2 - u + 1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-\frac{1}{2}u^7 + 2u^6 + \cdots - \frac{7}{2}u + 1\\ -u^3 + 2u^2 - 2u + 1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}\frac{1}{2}u^7 - 2u^6 + \cdots + \frac{3}{2}u + 1\\ u^5 - 3u^4 + 5u^3 - 6u^2 + 3u - 1\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u^7 - 2u^6 + u^5 + 3u^4 - 9u^3 + 9u^2 - 5u + 3\\ u^7 - 3u^6 + 5u^5 - 5u^4 + u^3 + 2u^2 - 2u + 2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}\frac{3}{2}u^7 - 6u^6 + \cdots + \frac{3}{2}u + 1\\ u^7 - 5u^6 + 11u^5 - 16u^4 + 15u^3 - 9u^2 + 5u - 1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}\frac{1}{2}u^7 - 3u^6 + \cdots + \frac{15}{2}u - 4\\ -u^6 + 3u^5 - 5u^4 + 6u^3 - 4u^2 + 4u - 3\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}\frac{3}{2}u^7 - 5u^6 + \cdots - \frac{1}{2}u + 2\\ u^7 - 4u^6 + 9u^5 - 13u^4 + 12u^3 - 8u^2 + 4u - 1\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^7 + 17u^6 - 40u^5 + 60u^4 - 64u^3 + 52u^2 - 32u + 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$u^8 - 2u^7 + 3u^5 - 3u^4 + 3u^2 - u + 1$
c_2, c_8	$u^8 - 4u^7 + 9u^6 - 14u^5 + 15u^4 - 13u^3 + 9u^2 - 4u + 2$
c_3, c_9	$(u^4 - u^3 + u^2 + 1)^2$
c_5, c_{11}	$(u^4 + u^3 + u^2 + 1)^2$
c_6, c_{12}	$u^8 + 4u^7 + 9u^6 + 14u^5 + 15u^4 + 13u^3 + 9u^2 + 4u + 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$y^8 - 4y^7 + 6y^6 - 3y^5 + 7y^4 - 12y^3 + 3y^2 + 5y + 1$
c_2, c_6, c_8 c_{12}	$y^8 + 2y^7 - y^6 - 12y^5 - 5y^4 + 25y^3 + 37y^2 + 20y + 4$
c_3, c_5, c_9 c_{11}	$(y^4 + y^3 + 3y^2 + 2y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_7	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.192965 + 0.870342I$ $a = -0.81301 + 1.44822I$ $b = -1.51646 + 0.88804I$	$-0.732875 - 0.991478I$	$-4.06428 - 5.52190I$
$u = 0.192965 - 0.870342I$ $a = -0.81301 - 1.44822I$ $b = -1.51646 - 0.88804I$	$-0.732875 + 0.991478I$	$-4.06428 + 5.52190I$
$u = -0.138557 + 0.767522I$ $a = 0.066843 - 1.409780I$ $b = 1.41071 - 0.54257I$	$3.20028 + 5.62938I$	$-9.43572 - 5.34414I$
$u = -0.138557 - 0.767522I$ $a = 0.066843 + 1.409780I$ $b = 1.41071 + 0.54257I$	$3.20028 - 5.62938I$	$-9.43572 + 5.34414I$
$u = 1.354460 + 0.250532I$ $a = 0.008624 + 0.392991I$ $b = 0.164655 - 0.167700I$	$-0.732875 - 0.991478I$	$-4.06428 - 5.52190I$
$u = 1.354460 - 0.250532I$ $a = 0.008624 - 0.392991I$ $b = 0.164655 + 0.167700I$	$-0.732875 + 0.991478I$	$-4.06428 + 5.52190I$
$u = 0.59113 + 1.35317I$ $a = -0.762459 + 0.087166I$ $b = -1.55891 + 0.36873I$	$3.20028 - 5.62938I$	$-9.43572 + 5.34414I$
$u = 0.59113 - 1.35317I$ $a = -0.762459 - 0.087166I$ $b = -1.55891 - 0.36873I$	$3.20028 + 5.62938I$	$-9.43572 - 5.34414I$

VIII.

$\boldsymbol{I^u_8 = \langle au+u^2+b-a+u+1,\ -u^3a-2u^2a-u^3+a^2-au-u^2-u,\ u^4+u^3+u^2+1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} a \\ -au - u^2 + a - u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -a \\ -u^3 + au + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -a \\ u^2a - u^3 + au + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -u^3a - u^2a + u^3 - au + u^2 - a - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} a \\ -u^2a + 2u^3 - 2au + u^2 - 2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^3a + a + 1 \\ -u^3a - au - u^2 + a - u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^3a + a + 1 \\ -u^3a + 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^3a + u^2a + au + a + u \\ -u^2a - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^3 + 5u^2 + 4u - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$u^8 - 2u^7 + 3u^5 - 3u^4 + 3u^2 - u + 1$
c_2, c_8	$(u^4 + u^3 + u^2 + 1)^2$
c_3, c_9	$u^8 + 4u^7 + 9u^6 + 14u^5 + 15u^4 + 13u^3 + 9u^2 + 4u + 2$
c_5, c_{11}	$u^8 - 4u^7 + 9u^6 - 14u^5 + 15u^4 - 13u^3 + 9u^2 - 4u + 2$
c_6, c_{12}	$(u^4 - u^3 + u^2 + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$y^8 - 4y^7 + 6y^6 - 3y^5 + 7y^4 - 12y^3 + 3y^2 + 5y + 1$
c_2, c_6, c_8 c_{12}	$(y^4 + y^3 + 3y^2 + 2y + 1)^2$
c_3, c_5, c_9 c_{11}	$y^8 + 2y^7 - y^6 - 12y^5 - 5y^4 + 25y^3 + 37y^2 + 20y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.351808 + 0.720342I$ $a = -0.646554 - 0.195306I$ $b = -1.51646 - 0.88804I$	$-0.732875 + 0.991478I$	$-4.06428 + 5.52190I$
$u = 0.351808 + 0.720342I$ $a = -0.29599 + 1.82302I$ $b = 0.164655 + 0.167700I$	$-0.732875 + 0.991478I$	$-4.06428 + 5.52190I$
$u = 0.351808 - 0.720342I$ $a = -0.646554 + 0.195306I$ $b = -1.51646 + 0.88804I$	$-0.732875 - 0.991478I$	$-4.06428 - 5.52190I$
$u = 0.351808 - 0.720342I$ $a = -0.29599 - 1.82302I$ $b = 0.164655 - 0.167700I$	$-0.732875 - 0.991478I$	$-4.06428 - 5.52190I$
$u = -0.851808 + 0.911292I$ $a = 0.885365 - 0.203552I$ $b = 1.41071 - 0.54257I$	$3.20028 + 5.62938I$	$-9.43572 - 5.34414I$
$u = -0.851808 + 0.911292I$ $a = -0.442818 - 0.763288I$ $b = -1.55891 - 0.36873I$	$3.20028 + 5.62938I$	$-9.43572 - 5.34414I$
$u = -0.851808 - 0.911292I$ $a = 0.885365 + 0.203552I$ $b = 1.41071 + 0.54257I$	$3.20028 - 5.62938I$	$-9.43572 + 5.34414I$
$u = -0.851808 - 0.911292I$ $a = -0.442818 + 0.763288I$ $b = -1.55891 + 0.36873I$	$3.20028 - 5.62938I$	$-9.43572 + 5.34414I$

IX. $I_9^u = \langle b+1,\ -u^4 - u^2 + 2a,\ u^6 - u^5 + u^4 + u^3 + 2\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} \frac{1}{2}u^4 + \frac{1}{2}u^2 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{2}u^4 - \frac{1}{2}u^2 \\ -\frac{1}{2}u^5 - \frac{1}{2}u^3 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{1}{2}u^4 - \frac{1}{2}u^2 \\ -u^3 - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{2}u^5 + \frac{1}{2}u^4 + \cdots + u + 1 \\ u^4 + u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{1}{2}u^5 - \frac{1}{2}u^3 - u^2 - u \\ -\frac{1}{2}u^5 - \frac{1}{2}u^3 - u^2 - u - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{1}{2}u^5 + \frac{1}{2}u^4 + \cdots - \frac{1}{2}u^2 + 1 \\ -\frac{1}{2}u^5 + \frac{1}{2}u^3 - u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{1}{2}u^5 + \frac{1}{2}u^4 + \frac{1}{2}u^3 + \frac{1}{2}u^2 + u \\ \frac{1}{2}u^5 + \frac{1}{2}u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{1}{2}u^5 - \frac{1}{2}u^4 + \frac{1}{2}u^3 + \frac{1}{2}u^2 \\ \frac{1}{2}u^5 + \frac{1}{2}u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^5 - u^3 + 2u^2 - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.822087 + 0.503636I$ $a = -0.042641 - 0.763625I$ $b = -1.00000$	$2.61340 + 3.17729I$	$-10.45631 - 2.23029I$
$u = -0.822087 - 0.503636I$ $a = -0.042641 + 0.763625I$ $b = -1.00000$	$2.61340 - 3.17729I$	$-10.45631 + 2.23029I$
$u = 0.402444 + 1.109930I$ $a = -0.361615 - 0.509199I$ $b = -1.00000$	$2.61340 - 3.17729I$	$-10.45631 + 2.23029I$
$u = 0.402444 - 1.109930I$ $a = -0.361615 + 0.509199I$ $b = -1.00000$	$2.61340 + 3.17729I$	$-10.45631 - 2.23029I$
$u = 0.919643 + 0.835431I$ $a = -1.09574 + 0.99541I$ $b = -1.00000$	-10.1616	$-13.08738 + 0.I$
$u = 0.919643 - 0.835431I$ $a = -1.09574 - 0.99541I$ $b = -1.00000$	-10.1616	$-13.08738 + 0.I$

X. $I^u_{10} = \langle b - a - 1,\ a^2 - a - 4,\ u + 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

$$a_1 = \begin{pmatrix} -3 \\ -a-1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -2a+3 \\ -2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a+1 \\ a+2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} a+4 \\ 2a+3 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} a-2 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -26$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$y^2 - 9y + 16$
c_2, c_3, c_5 c_6, c_8, c_9 c_{11}, c_{12}	$(y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{10}^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.56155$ $b = -0.561553$	-11.5145	-26.0000
$u = -1.00000$ $a = 2.56155$ $b = 3.56155$	-11.5145	-26.0000

XI. $\boldsymbol{I_{11}^u = \langle -u^2 + b - u,\ -u^3 - 3u^2 + a - 3u - 2,\ u^4 + 2u^3 + 2u^2 + u - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3 + 3u^2 + 3u + 2 \\ u^2 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2u^3 + 4u^2 + 5u + 3 \\ u^3 + 2u^2 + 2u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 2u^3 + 4u^2 + 5u + 3 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^3 - 4u^2 - 5u - 4 \\ -u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2u^3 - 7u^2 - 9u - 9 \\ -u^3 - u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^3 + 2u^2 + 2u + 2 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -2u^3 - 5u^2 - 6u - 3 \\ -u^2 - u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -2u^3 - 6u^2 - 8u - 7 \\ -u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5u^2 + 5u - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^4 - 7y^3 + 21y^2 - 35y + 25$
c_2, c_3, c_5 c_6, c_8, c_9 c_{11}, c_{12}	$y^4 - 2y^2 - 5y + 1$
c_4, c_{10}	$(y^2 - 7y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{11}^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 1.169630I$ $a = -0.927051 - 0.722871I$ $b = -1.61803$	4.60582	$-9.09017 + 0.I$
$u = -0.500000 - 1.169630I$ $a = -0.927051 + 0.722871I$ $b = -1.61803$	4.60582	$-9.09017 + 0.I$
$u = -1.43168$ $a = \quad 0.919556$ $b = \quad 0.618034$	-11.1856	2.09020
$u = \quad 0.431683$ $a = \quad 3.93455$ $b = \quad 0.618034$	-11.1856	2.09020

XII.

$\boldsymbol{I^u_{12} = \langle 2u^3+4u^2+b+5u+2,\ 2u^3+4u^2+a+5u+3,\ u^4+2u^3+2u^2+u-1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2u^3-4u^2-5u-3 \\ -2u^3-4u^2-5u-2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^2+2u+2 \\ u^2+u+2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^2+2u+2 \\ u^2+2u+1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^3-4u^2-5u-4 \\ -u^3-4u^2-4u-3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3+3u^2+5u+3 \\ u^3+3u^2+4u+2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -2u^3-3u^2-5u-3 \\ -2u^3-3u^2-5u-2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -5u^3-10u^2-13u-8 \\ -5u^3-9u^2-11u-6 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u+1 \\ u+1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5u^2+5u-1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^2 - 7y + 1)^2$
c_2, c_3, c_5 c_6, c_8, c_9 c_{11}, c_{12}	$y^4 - 2y^2 - 5y + 1$
c_4, c_{10}	$y^4 - 7y^3 + 21y^2 - 35y + 25$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{12}	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+1.169630I$ $a=\ \ 0.118034+0.276112I$ $b=\ \ 1.118030+0.276112I$	4.60582	$-9.09017+0.I$
$u=-0.500000-1.169630I$ $a=\ \ 0.118034-0.276112I$ $b=\ \ 1.118030-0.276112I$	4.60582	$-9.09017+0.I$
$u=-1.43168$ $a=\ \ 1.82864$ $b=\ \ 2.82864$	-11.1856	2.09020
$u=\ \ 0.431683$ $a=-6.06471$ $b=-5.06471$	-11.1856	2.09020

XIII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$(u^2-3u+1)^2(u^2+u-4)(u^3+u^2-1)(u^3+u^2-u+1)^2$ $\cdot(u^4+3u^3+u^2-5u-5)(u^5+2u^4-2u^3-2u^2+u+1)^2$ $\cdot(u^6-2u^5-3u^4+6u^3+4u+1)(u^8-2u^7+3u^5-3u^4+3u^2-u+1)^2$ $\cdot(u^{10}-2u^9-2u^8+12u^6+9u^5-43u^4+11u^3+37u^2-29u+7)$ $\cdot(u^{12}-u^{11}+\cdots-11u+1)^2$
c_2, c_5, c_8 c_{11}	$((u-1)^2)(u^3-u^2+2u-1)(u^4+u^3+u^2+1)^2(u^4+2u^3+\cdots+u-1)^2$ $\cdot(u^6-u^5+3u^4-u^3+3u^2+u+1)^2(u^6+u^5+u^4-u^3+2)$ $\cdot(u^6+2u^5+3u^4+2u^3+4u^2+4u+1)$ $\cdot(u^8-4u^7+9u^6-14u^5+15u^4-13u^3+9u^2-4u+2)$ $\cdot(u^{10}-u^9-u^7+2u^6+u^5-3u^4+2u^3-u+1)^2$ $\cdot(u^{12}+5u^{11}+\cdots+17u+7)$
c_3, c_6, c_9 c_{12}	$((u-1)^2)(u^3+u^2+2u+1)(u^4-2u^3+\cdots-u-1)^2(u^4-u^3+u^2+1)^2$ $\cdot(u^6-u^5+3u^4-u^3+3u^2+u+1)^2(u^6+u^5+u^4-u^3+2)$ $\cdot(u^6+2u^5+3u^4+2u^3+4u^2+4u+1)$ $\cdot(u^8+4u^7+9u^6+14u^5+15u^4+13u^3+9u^2+4u+2)$ $\cdot(u^{10}-u^9-u^7+2u^6+u^5-3u^4+2u^3-u+1)^2$ $\cdot(u^{12}+5u^{11}+\cdots+17u+7)$

XIV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}	$(y^2-9y+16)(y^2-7y+1)^2(y^3-3y^2-y-1)^2(y^3-y^2+2y-1)$ $\cdot(y^4-7y^3+21y^2-35y+25)(y^5-8y^4+14y^3-12y^2+5y-1)^2$ $\cdot(y^6-10y^5+33y^4-18y^3-54y^2-16y+1)$ $\cdot(y^8-4y^7+6y^6-3y^5+7y^4-12y^3+3y^2+5y+1)^2$ $\cdot(y^{10}-8y^9+\cdots-323y+49)(y^{12}-19y^{11}+\cdots-37y+1)^2$
c_2, c_3, c_5 c_6, c_8, c_9 c_{11}, c_{12}	$(y-1)^2(y^3+3y^2+2y-1)(y^4-2y^2-5y+1)^2$ $\cdot(y^4+y^3+3y^2+2y+1)^2(y^6+y^5+3y^4+3y^3+4y^2+4)$ $\cdot(y^6+2y^5+9y^4+6y^3+6y^2-8y+1)$ $\cdot(y^6+5y^5+13y^4+21y^3+17y^2+5y+1)^2$ $\cdot(y^8+2y^7-y^6-12y^5-5y^4+25y^3+37y^2+20y+4)$ $\cdot(y^{10}-y^9+2y^8-5y^7+10y^6-9y^5+3y^4+2y^3-2y^2-y+1)^2$ $\cdot(y^{12}+y^{11}+\cdots+257y+49)$