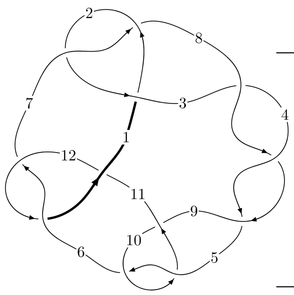
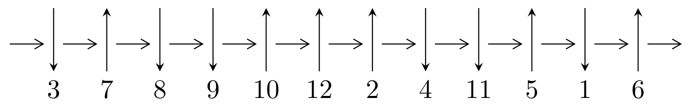
$12a_{0503}$ $(K12a_{0503})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 &= \langle -u^5 - 2u^3 + b + 1,\ u^5 + u^3 + a - 1,\ u^7 + 2u^5 + 2u^3 - u^2 - u - 1\rangle \\
I^u_2 &= \langle -u^{15} - 5u^{13} - u^{12} - 12u^{11} - 4u^{10} - 15u^9 - 8u^8 - 10u^7 - 8u^6 - 2u^5 - 5u^4 + u^3 - 2u^2 + b - 1, \\
&\quad u^{15} + 2u^{14} + 5u^{13} + 9u^{12} + 12u^{11} + 19u^{10} + 15u^9 + 19u^8 + 10u^7 + 8u^6 + 2u^5 - 2u^4 - u^2 + a + 2u, \\
&\quad u^{16} + u^{15} + 5u^{14} + 5u^{13} + 12u^{12} + 12u^{11} + 15u^{10} + 15u^9 + 10u^8 + 10u^7 + 2u^6 + 2u^5 + u^2 + 1\rangle \\
I^u_3 &= \langle -u^{15} + 2u^{14} - 7u^{13} + 9u^{12} - 18u^{11} + 16u^{10} - 21u^9 + 12u^8 - 8u^7 + 2u^6 + 4u^5 - u^4 + 2u^3 + 2u^2 + b - 3u + \\
&\quad - u^{15} - 3u^{13} - 2u^{12} - 2u^{11} - 6u^{10} + 3u^9 - 6u^8 + 4u^7 + 4u^4 - 2u^3 + 2u^2 + 2a + u - 1, \\
&\quad u^{16} - 2u^{15} + 7u^{14} - 10u^{13} + 18u^{12} - 20u^{11} + 21u^{10} - 18u^9 + 8u^8 - 4u^7 - 4u^6 + 4u^5 - 2u^4 + 3u^2 - 3u + 2\rangle \\
I^u_4 &= \langle u^{15} + 3u^{13} + 4u^{11} - u^9 - 4u^7 - 4u^5 + u^3 + b - 1,\ -u^{15} - 3u^{13} - 4u^{11} + u^9 + 4u^7 + 4u^5 - 2u^3 + a + 1, \\
&\quad u^{16} + u^{15} + 5u^{14} + 5u^{13} + 12u^{12} + 12u^{11} + 15u^{10} + 15u^9 + 10u^8 + 10u^7 + 2u^6 + 2u^5 + u^2 + 1\rangle \\
I^u_5 &= \langle b + u - 1,\ a - u + 2,\ u^2 - u + 1\rangle \\
I^u_6 &= \langle u^5 - u^2a + 2u^3 - u^2 + b - a + u - 1,\ -2u^5a - u^5 - 4u^3a + u^4 + 2u^2a - 2u^3 + a^2 - au + 4u^2 + 2a - 2u + 2 \\
&\quad u^6 + 2u^4 - u^3 + u^2 - u - 1\rangle \\
I^u_7 &= \langle b - u - 1,\ a + 2u + 1,\ u^2 + 1\rangle
\end{aligned}$$

* 7 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. $\boldsymbol{I_1^u = \langle -u^5 - 2u^3 + b + 1,\ u^5 + u^3 + a - 1,\ u^7 + 2u^5 + 2u^3 - u^2 - u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6u^6 - 6u^4 - 6u^2 + 6u + 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$y^7 + 16y^5 + 2y^4 + 52y^3 - 13y^2 - 9y - 1$
c_2, c_5, c_6 c_7, c_{10}, c_{12}	$y^7 + 4y^6 + 8y^5 + 6y^4 - 5y^2 - y - 1$
c_3, c_4, c_8	$y^7 - 10y^6 + 39y^5 - 74y^4 + 65y^3 - 32y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.863824$ $a = -0.125557$ $b = 0.770135$	-4.43886	0.872100
$u = -0.506221 + 1.104710I$ $a = 1.49617 + 1.94571I$ $b = 0.22746 - 2.44461I$	$-5.20269 - 11.20360I$	$-5.65627 + 10.71805I$
$u = -0.506221 - 1.104710I$ $a = 1.49617 - 1.94571I$ $b = 0.22746 + 2.44461I$	$-5.20269 + 11.20360I$	$-5.65627 - 10.71805I$
$u = -0.426442 + 0.491723I$ $a = 0.719469 - 0.043211I$ $b = -0.487688 + 0.192580I$	$0.805836 - 1.099860I$	$4.64625 + 4.74954I$
$u = -0.426442 - 0.491723I$ $a = 0.719469 + 0.043211I$ $b = -0.487688 - 0.192580I$	$0.805836 + 1.099860I$	$4.64625 - 4.74954I$
$u = 0.500751 + 1.264820I$ $a = -1.15286 + 2.51108I$ $b = -1.12484 - 3.58304I$	$-15.5903 + 14.7635I$	$-8.42603 - 8.80481I$
$u = 0.500751 - 1.264820I$ $a = -1.15286 - 2.51108I$ $b = -1.12484 + 3.58304I$	$-15.5903 - 14.7635I$	$-8.42603 + 8.80481I$

II.
$\boldsymbol{I_2^u = \langle -u^{15} - 5u^{13} + \cdots + b - 1,\ u^{15} + 2u^{14} + \cdots + a + 2u,\ u^{16} + u^{15} + \cdots + u^2 + 1 \rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{14} - 4u^{13} - 16u^{12} - 20u^{11} - 32u^{10} - 44u^9 - 28u^8 - 44u^7 - 12u^6 - 12u^5 + 4u^4 + 12u^3 - 4u^2 + 4u - 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9	$y^{16} - 3y^{15} + \cdots - 2y + 1$
c_2, c_5, c_7 c_{10}	$y^{16} + 9y^{15} + \cdots + 2y + 1$
c_3, c_4, c_8	$y^{16} - 18y^{15} + \cdots + 19y + 4$
c_6, c_{12}	$y^{16} + 10y^{15} + \cdots + 3y + 4$
c_{11}	$y^{16} - 10y^{15} + \cdots - y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.892953 + 0.035958I$ $a = -0.652536 + 1.200890I$ $b = 0.02318 + 2.24381I$	$-8.19036 + 4.73480I$	$-2.47201 - 3.02289I$
$u = -0.892953 - 0.035958I$ $a = -0.652536 - 1.200890I$ $b = 0.02318 - 2.24381I$	$-8.19036 - 4.73480I$	$-2.47201 + 3.02289I$
$u = -0.458901 + 0.734878I$ $a = -0.104273 - 0.435411I$ $b = 0.247757 + 0.757374I$	$0.85997 - 1.95072I$	$3.06114 + 4.17042I$
$u = -0.458901 - 0.734878I$ $a = -0.104273 + 0.435411I$ $b = 0.247757 - 0.757374I$	$0.85997 + 1.95072I$	$3.06114 - 4.17042I$
$u = -0.379593 + 1.079580I$ $a = -0.56037 - 2.03187I$ $b = -1.36347 + 1.32712I$	$-7.04324 - 3.37292I$	$-8.93248 + 5.20888I$
$u = -0.379593 - 1.079580I$ $a = -0.56037 + 2.03187I$ $b = -1.36347 - 1.32712I$	$-7.04324 + 3.37292I$	$-8.93248 - 5.20888I$
$u = 0.469252 + 1.053160I$ $a = -0.371270 - 0.561834I$ $b = 0.161095 + 0.362888I$	$-2.68724 + 6.60937I$	$-2.51664 - 7.40663I$
$u = 0.469252 - 1.053160I$ $a = -0.371270 + 0.561834I$ $b = 0.161095 - 0.362888I$	$-2.68724 - 6.60937I$	$-2.51664 + 7.40663I$
$u = 0.190701 + 0.810384I$ $a = 0.33485 - 2.32194I$ $b = 0.569648 + 0.391218I$	$-3.86698 + 1.08438I$	$-3.75949 - 5.90127I$
$u = 0.190701 - 0.810384I$ $a = 0.33485 + 2.32194I$ $b = 0.569648 - 0.391218I$	$-3.86698 - 1.08438I$	$-3.75949 + 5.90127I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.487539 + 1.254270I$ $a = 0.652357 - 0.643137I$ $b = -0.736189 + 0.110556I$	$-11.8837 - 9.6751I$	$-5.50822 + 5.97678I$
$u = -0.487539 - 1.254270I$ $a = 0.652357 + 0.643137I$ $b = -0.736189 - 0.110556I$	$-11.8837 + 9.6751I$	$-5.50822 - 5.97678I$
$u = 0.469746 + 1.263010I$ $a = 0.70256 - 1.98263I$ $b = 1.83074 + 2.27175I$	$-16.0195 + 4.8597I$	$-9.14726 - 3.11789I$
$u = 0.469746 - 1.263010I$ $a = 0.70256 + 1.98263I$ $b = 1.83074 - 2.27175I$	$-16.0195 - 4.8597I$	$-9.14726 + 3.11789I$
$u = 0.589289 + 0.270476I$ $a = 0.998682 + 0.324734I$ $b = -0.232766 + 1.375450I$	$-0.51702 - 2.45923I$	$1.27496 + 3.25382I$
$u = 0.589289 - 0.270476I$ $a = 0.998682 - 0.324734I$ $b = -0.232766 - 1.375450I$	$-0.51702 + 2.45923I$	$1.27496 - 3.25382I$

III.

$$\boldsymbol{I^u_3 = \langle -u^{15}+2u^{14}+\cdots+b+3,\ -u^{15}-3u^{13}+\cdots+2a-1,\ u^{16}-2u^{15}+\cdots-3u+2\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{13}+16u^{11}+24u^9+4u^7-20u^5-12u^3+4u-6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} - 10y^{15} + \cdots - y + 16$
c_2, c_7	$y^{16} + 10y^{15} + \cdots + 3y + 4$
c_3, c_4, c_8	$y^{16} - 18y^{15} + \cdots + 19y + 4$
c_5, c_6, c_{10} c_{12}	$y^{16} + 9y^{15} + \cdots + 2y + 1$
c_9, c_{11}	$y^{16} - 3y^{15} + \cdots - 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.402991+0.968083I$ $a=\ \ 0.222795-0.609931I$ $b=-0.059233+0.569202I$	$-0.51702-2.45923I$	$1.27496+3.25382I$
$u=-0.402991-0.968083I$ $a=\ \ 0.222795+0.609931I$ $b=-0.059233-0.569202I$	$-0.51702+2.45923I$	$1.27496-3.25382I$
$u=\ \ 0.921586+0.049492I$ $a=\ \ 0.594426+1.196160I$ $b=-0.09325+2.32148I$	$-11.8837-9.6751I$	$-5.50822+5.97678I$
$u=\ \ 0.921586-0.049492I$ $a=\ \ 0.594426-1.196160I$ $b=-0.09325-2.32148I$	$-11.8837+9.6751I$	$-5.50822-5.97678I$
$u=\ \ 0.059705+1.152710I$ $a=\ \ 0.23551-1.67559I$ $b=\ \ 0.10924+1.44246I$	$-3.86698-1.08438I$	$-3.75949+5.90127I$
$u=\ \ 0.059705-1.152710I$ $a=\ \ 0.23551+1.67559I$ $b=\ \ 0.10924-1.44246I$	$-3.86698+1.08438I$	$-3.75949-5.90127I$
$u=-0.270509+1.207500I$ $a=-0.55626-1.86816I$ $b=-0.82968+1.87098I$	$-7.04324+3.37292I$	$-8.93248-5.20888I$
$u=-0.270509-1.207500I$ $a=-0.55626+1.86816I$ $b=-0.82968-1.87098I$	$-7.04324-3.37292I$	$-8.93248+5.20888I$
$u=-0.724264+0.230405I$ $a=-0.784571+0.654294I$ $b=\ \ 0.31772+1.62349I$	$-2.68724+6.60937I$	$-2.51664-7.40663I$
$u=-0.724264-0.230405I$ $a=-0.784571-0.654294I$ $b=\ \ 0.31772-1.62349I$	$-2.68724-6.60937I$	$-2.51664+7.40663I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.507077 + 0.543596I$ $a = 0.458679 - 0.248786I$ $b = -0.339347 + 0.997289I$	$0.85997 - 1.95072I$	$3.06114 + 4.17042I$
$u = 0.507077 - 0.543596I$ $a = 0.458679 + 0.248786I$ $b = -0.339347 - 0.997289I$	$0.85997 + 1.95072I$	$3.06114 - 4.17042I$
$u = 0.465530 + 1.245910I$ $a = -0.629795 - 0.668340I$ $b = 0.723472 + 0.198002I$	$-8.19036 + 4.73480I$	$-2.47201 - 3.02289I$
$u = 0.465530 - 1.245910I$ $a = -0.629795 + 0.668340I$ $b = 0.723472 - 0.198002I$	$-8.19036 - 4.73480I$	$-2.47201 + 3.02289I$
$u = 0.443866 + 1.287090I$ $a = 0.70921 - 1.95738I$ $b = 1.67108 + 2.40426I$	$-16.0195 - 4.8597I$	$-9.14726 + 3.11789I$
$u = 0.443866 - 1.287090I$ $a = 0.70921 + 1.95738I$ $b = 1.67108 - 2.40426I$	$-16.0195 + 4.8597I$	$-9.14726 - 3.11789I$

IV. $\boldsymbol{I^u_4 = \langle u^{15} + 3u^{13} + 4u^{11} - u^9 - 4u^7 - 4u^5 + u^3 + b - 1,\ -u^{15} - 3u^{13} + \cdots + a + 1,\ u^{16} + u^{15} + \cdots + u^2 + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^9 + 2u^7 + u^5 - 2u^3 - u \\ -u^9 - 3u^7 - 3u^5 + u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^{15} + 3u^{13} + 4u^{11} - u^9 - 4u^7 - 4u^5 + 2u^3 - 1 \\ -u^{15} - 3u^{13} - 4u^{11} + u^9 + 4u^7 + 4u^5 - u^3 + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^{15} - 2u^{14} + \cdots - u^2 - u \\ u^{15} + 2u^{14} + \cdots + u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{15} + 3u^{13} + 4u^{11} - u^9 - 4u^7 - 3u^5 + 2u^3 - 1 \\ -u^{15} - 3u^{13} - 4u^{11} + u^9 + 5u^7 + 5u^5 + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^{15} + 3u^{13} + 4u^{11} - u^{10} - u^9 - 3u^8 - 4u^7 - 4u^6 - 4u^5 - u^4 + u^3 + u^2 - u \\ 2u^{13} + 8u^{11} + \cdots - u + 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{14} - 4u^{13} - 16u^{12} - 20u^{11} - 32u^{10} - 44u^9 - 28u^8 - 44u^7 - 12u^6 - 12u^5 + 4u^4 + 12u^3 - 4u^2 + 4u - 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{16} - 3y^{15} + \cdots - 2y + 1$
c_2, c_6, c_7 c_{12}	$y^{16} + 9y^{15} + \cdots + 2y + 1$
c_3, c_4, c_8	$y^{16} - 18y^{15} + \cdots + 19y + 4$
c_5, c_{10}	$y^{16} + 10y^{15} + \cdots + 3y + 4$
c_9	$y^{16} - 10y^{15} + \cdots - y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.892953 + 0.035958I$ $a = 0.1015470 + 0.0314751I$ $b = -0.810093 + 0.054493I$	$-8.19036 + 4.73480I$	$-2.47201 - 3.02289I$
$u = -0.892953 - 0.035958I$ $a = 0.1015470 - 0.0314751I$ $b = -0.810093 - 0.054493I$	$-8.19036 - 4.73480I$	$-2.47201 + 3.02289I$
$u = -0.458901 + 0.734878I$ $a = 1.317400 + 0.329697I$ $b = -0.670552 - 0.262290I$	$0.85997 - 1.95072I$	$3.06114 + 4.17042I$
$u = -0.458901 - 0.734878I$ $a = 1.317400 - 0.329697I$ $b = -0.670552 + 0.262290I$	$0.85997 + 1.95072I$	$3.06114 - 4.17042I$
$u = -0.379593 + 1.079580I$ $a = 2.22885 + 2.07396I$ $b = -0.95631 - 2.86552I$	$-7.04324 - 3.37292I$	$-8.93248 + 5.20888I$
$u = -0.379593 - 1.079580I$ $a = 2.22885 - 2.07396I$ $b = -0.95631 + 2.86552I$	$-7.04324 + 3.37292I$	$-8.93248 - 5.20888I$
$u = 0.469252 + 1.053160I$ $a = -1.74058 + 1.75441I$ $b = 0.28250 - 2.22682I$	$-2.68724 + 6.60937I$	$-2.51664 - 7.40663I$
$u = 0.469252 - 1.053160I$ $a = -1.74058 - 1.75441I$ $b = 0.28250 + 2.22682I$	$-2.68724 - 6.60937I$	$-2.51664 + 7.40663I$
$u = 0.190701 + 0.810384I$ $a = -2.50371 - 1.26517I$ $b = 2.13493 + 0.82139I$	$-3.86698 + 1.08438I$	$-3.75949 - 5.90127I$
$u = 0.190701 - 0.810384I$ $a = -2.50371 + 1.26517I$ $b = 2.13493 - 0.82139I$	$-3.86698 - 1.08438I$	$-3.75949 + 5.90127I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.487539 + 1.254270I$ $a = 1.21664 + 2.51902I$ $b = 0.96843 - 3.59781I$	$-11.8837 - 9.6751I$	$-5.50822 + 5.97678I$
$u = -0.487539 - 1.254270I$ $a = 1.21664 - 2.51902I$ $b = 0.96843 + 3.59781I$	$-11.8837 + 9.6751I$	$-5.50822 - 5.97678I$
$u = 0.469746 + 1.263010I$ $a = -1.23893 + 2.59409I$ $b = -0.90542 - 3.77274I$	$-16.0195 + 4.8597I$	$-9.14726 - 3.11789I$
$u = 0.469746 - 1.263010I$ $a = -1.23893 - 2.59409I$ $b = -0.90542 + 3.77274I$	$-16.0195 - 4.8597I$	$-9.14726 + 3.11789I$
$u = 0.589289 + 0.270476I$ $a = -0.381211 + 0.088717I$ $b = 0.456516 + 0.173272I$	$-0.51702 - 2.45923I$	$1.27496 + 3.25382I$
$u = 0.589289 - 0.270476I$ $a = -0.381211 - 0.088717I$ $b = 0.456516 - 0.173272I$	$-0.51702 + 2.45923I$	$1.27496 - 3.25382I$

V. $I_5^u = \langle b + u - 1,\ a - u + 2,\ u^2 - u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -12u + 6$

(iv) u-Polynomials at the component

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

(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}	$y^2 + y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -1.50000 + 0.86603I$ $b = 0.500000 - 0.866025I$	$6.08965I$	$0. - 10.39230I$
$u = 0.500000 - 0.866025I$ $a = -1.50000 - 0.86603I$ $b = 0.500000 + 0.866025I$	$-6.08965I$	$0. + 10.39230I$

VI. $\boldsymbol{I^u_6 = \langle u^5 - u^2a + 2u^3 - u^2 + b - a + u - 1,\ -2u^5a - u^5 + \cdots + 2a + 2,\ u^6 + 2u^4 - u^3 + u^2 - u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$(y^6 - 4y^5 + 18y^4 - 35y^3 + 43y^2 - 19y + 1)^2$
c_2, c_5, c_6 c_7, c_{10}, c_{12}	$(y^6 + 4y^5 + 6y^4 + y^3 - 5y^2 - 3y + 1)^2$
c_3, c_4, c_8	$(y^2 - 3y + 1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.896795$ $a = 0.66668 + 1.26617I$ $b = 0.08778 + 2.28447I$	-12.1725	-6.00000
$u = 0.896795$ $a = 0.66668 - 1.26617I$ $b = 0.08778 - 2.28447I$	-12.1725	-6.00000
$u = 0.248003 + 1.088360I$ $a = -0.296970 - 0.873464I$ $b = 0.309017 + 0.820596I$	-4.27683	-6.00000
$u = 0.248003 + 1.088360I$ $a = 0.44704 - 1.96182I$ $b = 0.80502 + 1.35611I$	-4.27683	-6.00000
$u = 0.248003 - 1.088360I$ $a = -0.296970 + 0.873464I$ $b = 0.309017 - 0.820596I$	-4.27683	-6.00000
$u = 0.248003 - 1.088360I$ $a = 0.44704 + 1.96182I$ $b = 0.80502 - 1.35611I$	-4.27683	-6.00000
$u = -0.448397 + 1.266170I$ $a = 0.648271 - 0.701773I$ $b = -0.809017 + 0.247864I$	-12.1725	-6.00000
$u = -0.448397 + 1.266170I$ $a = -0.69692 - 1.96794I$ $b = -1.70581 + 2.28447I$	-12.1725	-6.00000
$u = -0.448397 - 1.266170I$ $a = 0.648271 + 0.701773I$ $b = -0.809017 - 0.247864I$	-12.1725	-6.00000
$u = -0.448397 - 1.266170I$ $a = -0.69692 + 1.96794I$ $b = -1.70581 - 2.28447I$	-12.1725	-6.00000

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.496006$ $a=-1.76810+1.08835I$ $b=-0.186989+1.356110I$	-4.27683	-6.00000
$u=-0.496006$ $a=-1.76810-1.08835I$ $b=-0.186989-1.356110I$	-4.27683	-6.00000

VII. $I_7^u = \langle b - u - 1,\ a + 2u + 1,\ u^2 + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -1.00000 - 2.00000I$ $b = 1.00000 + 1.00000I$	-4.93480	-12.0000
$u = -1.000000I$ $a = -1.00000 + 2.00000I$ $b = 1.00000 - 1.00000I$	-4.93480	-12.0000

VIII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_9, c_{11}	$(u-1)^2(u^2+u+1)(u^6+4u^5+6u^4+u^3-5u^2-3u+1)^2$ $\cdot(u^7+4u^6+8u^5+6u^4-5u^2-u-1)(u^{16}+9u^{15}+\cdots+2u+1)^2$ $\cdot(u^{16}+10u^{15}+\cdots+3u+4)$
c_2, c_5, c_6 c_7, c_{10}, c_{12}	$(u^2+1)(u^2+u+1)(u^6+2u^4+u^3+u^2+u-1)^2$ $\cdot(u^7+2u^5+2u^3+u^2-u+1)(u^{16}-u^{15}+\cdots+u^2+1)^2$ $\cdot(u^{16}+2u^{15}+\cdots+3u+2)$
c_3, c_4, c_8	$u^2(u^2-u+1)(u^2+u-1)^6(u^7-5u^5-2u^4+7u^3+4u^2+4)$ $\cdot(u^{16}-2u^{15}+\cdots-u+2)^3$

IX. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$(y-1)^2(y^2+y+1)(y^6-4y^5+18y^4-35y^3+43y^2-19y+1)^2$ $\cdot\,(y^7+16y^5+\cdots-9y-1)(y^{16}-10y^{15}+\cdots-y+16)$ $\cdot\,(y^{16}-3y^{15}+\cdots-2y+1)^2$
c_2, c_5, c_6 c_7, c_{10}, c_{12}	$(y+1)^2(y^2+y+1)(y^6+4y^5+6y^4+y^3-5y^2-3y+1)^2$ $\cdot\,(y^7+4y^6+8y^5+6y^4-5y^2-y-1)(y^{16}+9y^{15}+\cdots+2y+1)^2$ $\cdot\,(y^{16}+10y^{15}+\cdots+3y+4)$
c_3, c_4, c_8	$y^2(y^2-3y+1)^6(y^2+y+1)$ $\cdot\,(y^7-10y^6+39y^5-74y^4+65y^3-32y-16)$ $\cdot\,(y^{16}-18y^{15}+\cdots+19y+4)^3$