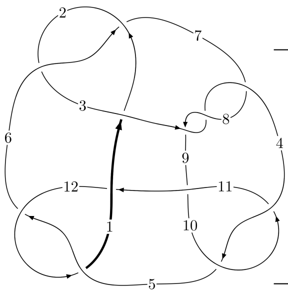
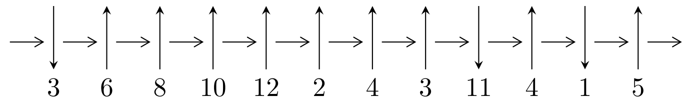
$12n_{0555}$ ($K12n_{0555}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle d-u,\ -u^4+u^3+2c-u-1,\ u^4+u^3+2b+u-1,\ -u^4-u^3+2a-u-1,\ u^5+u^3+u^2+2u-1\rangle \\
I_2^u &= \langle d-u,\ u^7+2u^3+u^2+2c-3u+1,\ b+1,\ u^7+u^2+2a-3u+1,\ u^8-u^7+2u^6-2u^5+4u^4-3u^3+2u^2 \\
I_3^u &= \langle d-u,\ u^7+2u^3+u^2+2c-3u+1,\ u^7-2u^6+2u^5-2u^4+4u^3-5u^2+2b+u-1, \\
&\quad -u^7+2u^6-2u^5+2u^4-4u^3+5u^2+2a-u-1,\ u^8-u^7+2u^6-2u^5+4u^4-3u^3+2u^2+1\rangle \\
I_4^u &= \langle -u^5-2u^3+u^2+2d+2,\ -u^7+u^6-3u^5+3u^4-3u^3+5u^2+4c-4u+4,\ b+1, \\
&\quad -u^7+u^6-3u^5+u^4-3u^3+u^2+4a-2u,\ u^8-u^7+3u^6-3u^5+3u^4-5u^3+4u^2-4u+4\rangle \\
I_5^u &= \langle u^7-2u^6+2u^5-4u^4+4u^3-5u^2+2d+3u-1,\ -u^7+u^6-2u^5+2u^4-4u^3+3u^2+c-2u, \\
&\quad u^7-2u^6+2u^5-2u^4+4u^3-5u^2+2b+u-1,\ -u^7+2u^6-2u^5+2u^4-4u^3+5u^2+2a-u-1, \\
&\quad u^8-u^7+2u^6-2u^5+4u^4-3u^3+2u^2+1\rangle \\
I_6^u &= \langle d-u,\ u^5-u^4+2u^2+c-u-2,\ b+1,\ u^5+u^3+2a+u-1,\ u^6+u^4+2u^3+u^2+u+2\rangle \\
I_7^u &= \langle -u^3+d-1,\ -u^5-u^3-2u^2+2c-u-1,\ b+1,\ u^5+u^3+2a+u-1,\ u^6+u^4+2u^3+u^2+u+2\rangle \\
I_8^u &= \langle -u^3+d-1,\ -u^5-u^3-2u^2+2c-u-1,\ -u^5-u^4-2u^2+b-3u-2,\ u^5+u^4+2u^2+a+3u+1, \\
&\quad u^6+u^4+2u^3+u^2+u+2\rangle \\
I_9^u &= \langle d-u,\ c+2,\ b+1,\ a^2-a+u+1,\ u^2+u+1\rangle \\
I_{10}^u &= \langle -u^3+d-u+1,\ -u^3+u^2+c-2u+2,\ b+1,\ -u^3+a-2u,\ u^4-u^3+2u^2-2u+1\rangle
\end{aligned}
$$

[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`).

$$I^u_{11} = \langle -u^3 + d - u + 1,\ -u^3 + u^2 + c - 2u + 2,\ b + 1,\ u^3 + a + 2u - 1,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle$$
$$I^u_{12} = \langle u^3 + d + 2u - 1,\ -u^3 + u^2 + c - 2u + 2,\ b + 1,\ -u^3 + a - 2u,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle$$
$$I^u_{13} = \langle au + d,\ c - u - 1,\ b + 1,\ a^2 - a + u + 1,\ u^2 + u + 1\rangle$$
$$I^u_{14} = \langle d^2 + du - u,\ c - u - 1,\ b + 2u,\ a - 2u - 1,\ u^2 + u + 1\rangle$$
$$I^u_{15} = \langle d,\ c - u,\ b + u + 1,\ a - u,\ u^2 + 1\rangle$$
$$I^u_{16} = \langle d + u,\ c - u + 1,\ b + 1,\ a - 1,\ u^2 + 1\rangle$$
$$I^u_{17} = \langle d + u,\ c - u + 1,\ b + u + 1,\ a - u,\ u^2 + 1\rangle$$
$$I^u_{18} = \langle d + u,\ ca - au + u + 1,\ b + a + 1,\ u^2 + 1\rangle$$

$$I^v_1 = \langle a,\ d + v,\ -av + c + v + 1,\ b + 1,\ v^2 + 1\rangle$$

* 18 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 87 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

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

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

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{2}u^4+\frac{1}{2}u^3+\frac{1}{2}u+\frac{1}{2} \\ -\frac{1}{2}u^4-\frac{1}{2}u^3-\frac{1}{2}u+\frac{1}{2} \end{pmatrix}$$

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

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

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

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^4+\frac{1}{2}u^3-\frac{1}{2}u-\frac{1}{2} \\ \frac{1}{2}u^4-\frac{1}{2}u^3-\frac{1}{2}u+\frac{1}{2} \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} \frac{1}{2}u^4-\frac{1}{2}u^3-\frac{1}{2}u+\frac{1}{2} \\ u \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^4+4u^3+4u+14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$y^5 + 6y^4 + 25y^3 + 55y^2 + 42y - 1$
c_2, c_3, c_4 c_5, c_6, c_7 c_8, c_{10}, c_{12}	$y^5 + 2y^4 + 5y^3 + 3y^2 + 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.828442 + 0.812698I$ $a = -0.284015 + 0.939824I$ $b = 1.28401 - 0.93982I$ $c = -1.356950 - 0.196710I$ $d = -0.828442 + 0.812698I$	$4.34615 - 6.57943I$	$7.72788 + 7.51859I$
$u = -0.828442 - 0.812698I$ $a = -0.284015 - 0.939824I$ $b = 1.28401 + 0.93982I$ $c = -1.356950 + 0.196710I$ $d = -0.828442 - 0.812698I$	$4.34615 + 6.57943I$	$7.72788 - 7.51859I$
$u = 0.633508 + 1.226040I$ $a = -1.08404 - 1.28198I$ $b = 2.08404 + 1.28198I$ $c = 1.51852 - 0.91518I$ $d = 0.633508 + 1.226040I$	$-2.1892 + 16.8691I$	$1.32766 - 10.25585I$
$u = 0.633508 - 1.226040I$ $a = -1.08404 + 1.28198I$ $b = 2.08404 - 1.28198I$ $c = 1.51852 + 0.91518I$ $d = 0.633508 - 1.226040I$	$-2.1892 - 16.8691I$	$1.32766 + 10.25585I$
$u = 0.389868$ $a = 0.736115$ $b = 0.263885$ $c = 0.676856$ $d = 0.389868$	0.620982	15.8890

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle d-u,\ u^7+2u^3+\cdots+2c+1,\ b+1,\ u^7+u^2+2a-3u+1,\ u^8-u^7+\cdots+2u^2+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^6+2u^5-4u^4+6u^3-12u^2+6u+4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^8 + 5u^7 + 9u^6 + 7u^5 + 3u^4 - u^3 + 16u + 16$
c_2, c_6	$u^8 - u^7 + 3u^6 - 3u^5 + 3u^4 - 5u^3 + 4u^2 - 4u + 4$
c_3, c_4, c_5 c_7, c_8, c_{10} c_{12}	$u^8 - u^7 + 2u^6 - 2u^5 + 4u^4 - 3u^3 + 2u^2 + 1$
c_9, c_{11}	$u^8 + 3u^7 + 8u^6 + 10u^5 + 14u^4 + 11u^3 + 12u^2 + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^8 - 7y^7 + 17y^6 + 15y^5 - 105y^4 + 63y^3 + 128y^2 - 256y + 256$
c_2, c_6	$y^8 + 5y^7 + 9y^6 + 7y^5 + 3y^4 - y^3 + 16y + 16$
c_3, c_4, c_5 c_7, c_8, c_{10} c_{12}	$y^8 + 3y^7 + 8y^6 + 10y^5 + 14y^4 + 11y^3 + 12y^2 + 4y + 1$
c_9, c_{11}	$y^8 + 7y^7 + 32y^6 + 82y^5 + 146y^4 + 151y^3 + 84y^2 + 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.862697 + 0.615401I$ $a = 0.886105 + 1.090380I$ $b = -1.00000$ $c = 1.224210 - 0.050581I$ $d = 0.862697 + 0.615401I$	$4.15083 + 0.66722I$	$8.81639 - 2.10627I$
$u = 0.862697 - 0.615401I$ $a = 0.886105 - 1.090380I$ $b = -1.00000$ $c = 1.224210 + 0.050581I$ $d = 0.862697 - 0.615401I$	$4.15083 - 0.66722I$	$8.81639 + 2.10627I$
$u = 0.578102 + 1.055330I$ $a = 0.102567 - 0.732209I$ $b = -1.00000$ $c = 1.84091 - 0.61494I$ $d = 0.578102 + 1.055330I$	$-5.02390 + 6.79402I$	$0.88161 - 7.09473I$
$u = 0.578102 - 1.055330I$ $a = 0.102567 + 0.732209I$ $b = -1.00000$ $c = 1.84091 + 0.61494I$ $d = 0.578102 - 1.055330I$	$-5.02390 - 6.79402I$	$0.88161 + 7.09473I$
$u = -0.666851 + 1.155530I$ $a = 0.821510 - 0.756488I$ $b = -1.00000$ $c = -1.55320 - 0.75511I$ $d = -0.666851 + 1.155530I$	$0.65207 - 10.98940I$	$4.47099 + 7.14773I$
$u = -0.666851 - 1.155530I$ $a = 0.821510 + 0.756488I$ $b = -1.00000$ $c = -1.55320 + 0.75511I$ $d = -0.666851 - 1.155530I$	$0.65207 + 10.98940I$	$4.47099 - 7.14773I$

<table>
<tr><th>Solutions to I_2^u</th><th>$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$</th><th>Cusp shape</th></tr>
<tr><td>$u = -0.273948 + 0.520074I$
$a = -0.810182 + 0.910843I$
$b = -1.00000$
$c = -1.011910 + 0.934421I$
$d = -0.273948 + 0.520074I$</td><td>$-3.06886 - 1.27680I$</td><td>$5.83102 + 5.88514I$</td></tr>
<tr><td>$u = -0.273948 - 0.520074I$
$a = -0.810182 - 0.910843I$
$b = -1.00000$
$c = -1.011910 - 0.934421I$
$d = -0.273948 - 0.520074I$</td><td>$-3.06886 + 1.27680I$</td><td>$5.83102 - 5.88514I$</td></tr>
</table>

III. $\boldsymbol{I_3^u = \langle d-u,\ u^7+2u^3+\cdots+2c+1,\ u^7-2u^6+\cdots+2b-1,\ -u^7+2u^6+\cdots+2a-1,\ u^8-u^7+\cdots+2u^2+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{2}u^7 - u^6 + \cdots + \frac{1}{2}u + \frac{1}{2} \\ -\frac{1}{2}u^7 + u^6 + \cdots - \frac{1}{2}u + \frac{1}{2} \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} \frac{1}{2}u^7 - u^6 + \cdots + \frac{1}{2}u + \frac{1}{2} \\ -\frac{1}{2}u^7 + u^6 + \cdots - \frac{1}{2}u + \frac{1}{2} \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} \frac{1}{2}u^7 + u^3 + \frac{1}{2}u^2 - \frac{3}{2}u + \frac{1}{2} \\ -\frac{1}{2}u^7 - u^3 - \frac{1}{2}u^2 + \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{1}{2}u^7 - u^3 - \frac{1}{2}u^2 + \frac{3}{2}u - \frac{1}{2} \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^7 - u^3 - \frac{1}{2}u^2 + \frac{1}{2}u - \frac{1}{2} \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{1}{2}u^7 - u^6 + \cdots + \frac{1}{2}u + \frac{1}{2} \\ -u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^6 + u^5 - u^4 + 2u^3 - 3u^2 + 2u \\ u^6 + u^4 - u^3 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^6 + 2u^5 - 4u^4 + 6u^3 - 12u^2 + 6u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u^8 + 3u^7 + 8u^6 + 10u^5 + 14u^4 + 11u^3 + 12u^2 + 4u + 1$
c_2, c_3, c_4 c_6, c_7, c_8 c_{10}	$u^8 - u^7 + 2u^6 - 2u^5 + 4u^4 - 3u^3 + 2u^2 + 1$
c_5, c_{12}	$u^8 - u^7 + 3u^6 - 3u^5 + 3u^4 - 5u^3 + 4u^2 - 4u + 4$
c_{11}	$u^8 + 5u^7 + 9u^6 + 7u^5 + 3u^4 - u^3 + 16u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9	$y^8 + 7y^7 + 32y^6 + 82y^5 + 146y^4 + 151y^3 + 84y^2 + 8y + 1$
c_2, c_3, c_4 c_6, c_7, c_8 c_{10}	$y^8 + 3y^7 + 8y^6 + 10y^5 + 14y^4 + 11y^3 + 12y^2 + 4y + 1$
c_5, c_{12}	$y^8 + 5y^7 + 9y^6 + 7y^5 + 3y^4 - y^3 + 16y + 16$
c_{11}	$y^8 - 7y^7 + 17y^6 + 15y^5 - 105y^4 + 63y^3 + 128y^2 - 256y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.862697 + 0.615401I$ $a = -0.087246 - 0.709742I$ $b = 1.087250 + 0.709742I$ $c = 1.224210 - 0.050581I$ $d = 0.862697 + 0.615401I$	$4.15083 + 0.66722I$	$8.81639 - 2.10627I$
$u = 0.862697 - 0.615401I$ $a = -0.087246 + 0.709742I$ $b = 1.087250 - 0.709742I$ $c = 1.224210 + 0.050581I$ $d = 0.862697 - 0.615401I$	$4.15083 - 0.66722I$	$8.81639 + 2.10627I$
$u = 0.578102 + 1.055330I$ $a = -0.71320 - 1.58728I$ $b = 1.71320 + 1.58728I$ $c = 1.84091 - 0.61494I$ $d = 0.578102 + 1.055330I$	$-5.02390 + 6.79402I$	$0.88161 - 7.09473I$
$u = 0.578102 - 1.055330I$ $a = -0.71320 + 1.58728I$ $b = 1.71320 - 1.58728I$ $c = 1.84091 + 0.61494I$ $d = 0.578102 - 1.055330I$	$-5.02390 - 6.79402I$	$0.88161 + 7.09473I$
$u = -0.666851 + 1.155530I$ $a = -0.90831 + 1.29123I$ $b = 1.90831 - 1.29123I$ $c = -1.55320 - 0.75511I$ $d = -0.666851 + 1.155530I$	$0.65207 - 10.98940I$	$4.47099 + 7.14773I$
$u = -0.666851 - 1.155530I$ $a = -0.90831 - 1.29123I$ $b = 1.90831 + 1.29123I$ $c = -1.55320 + 0.75511I$ $d = -0.666851 - 1.155530I$	$0.65207 + 10.98940I$	$4.47099 - 7.14773I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.273948+0.520074I$ $a=\ \ 1.20876+0.78225I$ $b=-0.208757-0.782252I$ $c=-1.011910+0.934421I$ $d=-0.273948+0.520074I$	$-3.06886-1.27680I$	$5.83102+5.88514I$
$u=-0.273948-0.520074I$ $a=\ \ 1.20876-0.78225I$ $b=-0.208757+0.782252I$ $c=-1.011910-0.934421I$ $d=-0.273948-0.520074I$	$-3.06886+1.27680I$	$5.83102-5.88514I$

IV. $\boldsymbol{I_4^u = \langle -u^5 - 2u^3 + u^2 + 2d + 2,\ -u^7 + u^6 + \cdots + 4c + 4,\ b + 1,\ -u^7 + u^6 + \cdots + 4a - 2u,\ u^8 - u^7 + \cdots - 4u + 4\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^7 + 3u^6 + u^5 + 3u^4 - u^3 + u^2 - 6u + 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$y^8 + 7y^7 + 32y^6 + 82y^5 + 146y^4 + 151y^3 + 84y^2 + 8y + 1$
c_2, c_4, c_5 c_6, c_{10}, c_{12}	$y^8 + 3y^7 + 8y^6 + 10y^5 + 14y^4 + 11y^3 + 12y^2 + 4y + 1$
c_3, c_7, c_8	$y^8 + 5y^7 + 9y^6 + 7y^5 + 3y^4 - y^3 + 16y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.993174 + 0.298213I$ $a = 0.70455 + 1.25219I$ $b = -1.00000$ $c = -0.923603 + 0.277324I$ $d = -0.666851 + 1.155530I$	$0.65207 - 10.98940I$	$4.47099 + 7.14773I$
$u = 0.993174 - 0.298213I$ $a = 0.70455 - 1.25219I$ $b = -1.00000$ $c = -0.923603 - 0.277324I$ $d = -0.666851 - 1.155530I$	$0.65207 + 10.98940I$	$4.47099 - 7.14773I$
$u = -0.769280 + 0.870579I$ $a = 0.905238 - 0.907210I$ $b = -1.00000$ $c = 0.569964 + 0.645017I$ $d = 0.862697 + 0.615401I$	$4.15083 + 0.66722I$	$8.81639 - 2.10627I$
$u = -0.769280 - 0.870579I$ $a = 0.905238 + 0.907210I$ $b = -1.00000$ $c = 0.569964 - 0.645017I$ $d = 0.862697 - 0.615401I$	$4.15083 - 0.66722I$	$8.81639 + 2.10627I$
$u = 0.022189 + 1.190950I$ $a = 0.559180 + 0.221811I$ $b = -1.00000$ $c = -0.015639 + 0.839373I$ $d = -0.273948 - 0.520074I$	$-3.06886 + 1.27680I$	$5.83102 - 5.88514I$
$u = 0.022189 - 1.190950I$ $a = 0.559180 - 0.221811I$ $b = -1.00000$ $c = -0.015639 - 0.839373I$ $d = -0.273948 + 0.520074I$	$-3.06886 - 1.27680I$	$5.83102 + 5.88514I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.253917 + 1.370380I$ $a = 0.331031 - 0.545807I$ $b = -1.00000$ $c = -0.130722 + 0.705502I$ $d = 0.578102 - 1.055330I$	$-5.02390 - 6.79402I$	$0.88161 + 7.09473I$
$u = 0.253917 - 1.370380I$ $a = 0.331031 + 0.545807I$ $b = -1.00000$ $c = -0.130722 - 0.705502I$ $d = 0.578102 + 1.055330I$	$-5.02390 + 6.79402I$	$0.88161 - 7.09473I$

V. $\boldsymbol{I_5^u = \langle u^7 - 2u^6 + \cdots + 2d - 1,\ -u^7 + u^6 + \cdots + c - 2u,\ u^7 - 2u^6 + \cdots + 2b - 1,\ -u^7 + 2u^6 + \cdots + 2a - 1,\ u^8 - u^7 + \cdots + 2u^2 + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^6 + 2u^5 - 4u^4 + 6u^3 - 12u^2 + 6u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^8 + 3u^7 + 8u^6 + 10u^5 + 14u^4 + 11u^3 + 12u^2 + 4u + 1$
c_2, c_3, c_5 c_6, c_7, c_8 c_{12}	$u^8 - u^7 + 2u^6 - 2u^5 + 4u^4 - 3u^3 + 2u^2 + 1$
c_4, c_{10}	$u^8 - u^7 + 3u^6 - 3u^5 + 3u^4 - 5u^3 + 4u^2 - 4u + 4$
c_9	$u^8 + 5u^7 + 9u^6 + 7u^5 + 3u^4 - u^3 + 16u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^8 + 7y^7 + 32y^6 + 82y^5 + 146y^4 + 151y^3 + 84y^2 + 8y + 1$
c_2, c_3, c_5 c_6, c_7, c_8 c_{12}	$y^8 + 3y^7 + 8y^6 + 10y^5 + 14y^4 + 11y^3 + 12y^2 + 4y + 1$
c_4, c_{10}	$y^8 + 5y^7 + 9y^6 + 7y^5 + 3y^4 - y^3 + 16y + 16$
c_9	$y^8 - 7y^7 + 17y^6 + 15y^5 - 105y^4 + 63y^3 + 128y^2 - 256y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.862697 + 0.615401I$ $a = -0.087246 - 0.709742I$ $b = 1.087250 + 0.709742I$ $c = -0.768231 + 0.548015I$ $d = -0.769280 + 0.870579I$	$4.15083 + 0.66722I$	$8.81639 - 2.10627I$
$u = 0.862697 - 0.615401I$ $a = -0.087246 + 0.709742I$ $b = 1.087250 - 0.709742I$ $c = -0.768231 - 0.548015I$ $d = -0.769280 - 0.870579I$	$4.15083 - 0.66722I$	$8.81639 + 2.10627I$
$u = 0.578102 + 1.055330I$ $a = -0.71320 - 1.58728I$ $b = 1.71320 + 1.58728I$ $c = -0.399261 + 0.728856I$ $d = 0.253917 - 1.370380I$	$-5.02390 + 6.79402I$	$0.88161 - 7.09473I$
$u = 0.578102 - 1.055330I$ $a = -0.71320 + 1.58728I$ $b = 1.71320 - 1.58728I$ $c = -0.399261 - 0.728856I$ $d = 0.253917 + 1.370380I$	$-5.02390 - 6.79402I$	$0.88161 + 7.09473I$
$u = -0.666851 + 1.155530I$ $a = -0.90831 + 1.29123I$ $b = 1.90831 - 1.29123I$ $c = 0.374646 + 0.649195I$ $d = 0.993174 + 0.298213I$	$0.65207 - 10.98940I$	$4.47099 + 7.14773I$
$u = -0.666851 - 1.155530I$ $a = -0.90831 - 1.29123I$ $b = 1.90831 + 1.29123I$ $c = 0.374646 - 0.649195I$ $d = 0.993174 - 0.298213I$	$0.65207 + 10.98940I$	$4.47099 - 7.14773I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.273948 + 0.520074I$ $a = 1.20876 + 0.78225I$ $b = -0.208757 - 0.782252I$ $c = 0.79285 + 1.50517I$ $d = 0.022189 - 1.190950I$	$-3.06886 - 1.27680I$	$5.83102 + 5.88514I$
$u = -0.273948 - 0.520074I$ $a = 1.20876 - 0.78225I$ $b = -0.208757 + 0.782252I$ $c = 0.79285 - 1.50517I$ $d = 0.022189 + 1.190950I$	$-3.06886 + 1.27680I$	$5.83102 - 5.88514I$

VI. $\boldsymbol{I_6^u =}$
$\boldsymbol{\langle d-u,\ u^5-u^4+2u^2+c-u-2,\ b+1,\ u^5+u^3+2a+u-1,\ u^6+u^4+2u^3+u^2+u+2\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $=-1$

(iii) Cusp Shapes $=-4u^4-4u^3-8u-2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$y^6 + 2y^5 + 3y^4 - 2y^3 + 13y^2 - y + 16$
c_2, c_3, c_4 c_5, c_6, c_7 c_8, c_{10}, c_{12}	$y^6 + 2y^5 + 3y^4 + 2y^3 + y^2 + 3y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.931903 + 0.428993I$ $a = 0.79897 - 1.20716I$ $b = -1.00000$ $c = -1.100360 - 0.012951I$ $d = -0.931903 + 0.428993I$	$2.86100 + 5.13794I$	$7.31793 - 3.20902I$
$u = -0.931903 - 0.428993I$ $a = 0.79897 + 1.20716I$ $b = -1.00000$ $c = -1.100360 + 0.012951I$ $d = -0.931903 - 0.428993I$	$2.86100 - 5.13794I$	$7.31793 + 3.20902I$
$u = 0.226699 + 1.074330I$ $a = 0.085258 - 0.404039I$ $b = -1.00000$ $c = 4.03505 - 1.78227I$ $d = 0.226699 + 1.074330I$	-7.36693	$-4.63587 + 0.I$
$u = 0.226699 - 1.074330I$ $a = 0.085258 + 0.404039I$ $b = -1.00000$ $c = 4.03505 + 1.78227I$ $d = 0.226699 - 1.074330I$	-7.36693	$-4.63587 + 0.I$
$u = 0.705204 + 1.038720I$ $a = 0.865771 + 0.806035I$ $b = -1.00000$ $c = 1.56530 - 0.51571I$ $d = 0.705204 + 1.038720I$	$2.86100 + 5.13794I$	$7.31793 - 3.20902I$
$u = 0.705204 - 1.038720I$ $a = 0.865771 - 0.806035I$ $b = -1.00000$ $c = 1.56530 + 0.51571I$ $d = 0.705204 - 1.038720I$	$2.86100 - 5.13794I$	$7.31793 + 3.20902I$

VII. $I^u_7 = \langle -u^3 + d - 1,\ -u^5 - u^3 + \cdots + 2c - 1,\ b + 1,\ u^5 + u^3 + 2a + u - 1,\ u^6 + u^4 + 2u^3 + u^2 + u + 2\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^4 - 4u^3 - 8u - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$y^6 + 2y^5 + 3y^4 - 2y^3 + 13y^2 - y + 16$
c_2, c_3, c_4 c_5, c_6, c_7 c_8, c_{10}, c_{12}	$y^6 + 2y^5 + 3y^4 + 2y^3 + y^2 + 3y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.931903 + 0.428993I$ $a = 0.79897 - 1.20716I$ $b = -1.00000$ $c = 0.885437 + 0.407603I$ $d = 0.705204 + 1.038720I$	$2.86100 + 5.13794I$	$7.31793 - 3.20902I$
$u = -0.931903 - 0.428993I$ $a = 0.79897 + 1.20716I$ $b = -1.00000$ $c = 0.885437 - 0.407603I$ $d = 0.705204 - 1.038720I$	$2.86100 - 5.13794I$	$7.31793 + 3.20902I$
$u = 0.226699 + 1.074330I$ $a = 0.085258 - 0.404039I$ $b = -1.00000$ $c = -0.188043 + 0.891136I$ $d = 0.226699 - 1.074330I$	-7.36693	$-4.63587 + 0.I$
$u = 0.226699 - 1.074330I$ $a = 0.085258 + 0.404039I$ $b = -1.00000$ $c = -0.188043 - 0.891136I$ $d = 0.226699 + 1.074330I$	-7.36693	$-4.63587 + 0.I$
$u = 0.705204 + 1.038720I$ $a = 0.865771 + 0.806035I$ $b = -1.00000$ $c = -0.447394 + 0.658981I$ $d = -0.931903 + 0.428993I$	$2.86100 + 5.13794I$	$7.31793 - 3.20902I$
$u = 0.705204 - 1.038720I$ $a = 0.865771 - 0.806035I$ $b = -1.00000$ $c = -0.447394 - 0.658981I$ $d = -0.931903 - 0.428993I$	$2.86100 - 5.13794I$	$7.31793 + 3.20902I$

VIII. $I_8^u = \langle -u^3 + d - 1,\ -u^5 - u^3 + \cdots + 2c - 1,\ -u^5 - u^4 + \cdots + b - 2,\ u^5 + u^4 + 2u^2 + a + 3u + 1,\ u^6 + u^4 + 2u^3 + u^2 + u + 2\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^5 - u^4 - 2u^2 - 3u - 1 \\ u^5 + u^4 + 2u^2 + 3u + 2 \end{pmatrix}$$

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

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

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

$$a_6 = \begin{pmatrix} u^5 - u^4 + 2u^2 - u - 2 \\ -u^5 + u^4 - 2u^2 + 2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} \frac{1}{2}u^5 - \frac{1}{2}u^3 + u^2 + \frac{1}{2}u - \frac{1}{2} \\ u^3 + 1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -\frac{3}{2}u^5 - u^4 + \cdots - \frac{7}{2}u - \frac{1}{2} \\ u^5 + 2u^4 + 2u^2 + 4u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^4 - 4u^3 - 8u - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$y^6 + 2y^5 + 3y^4 - 2y^3 + 13y^2 - y + 16$
c_2, c_3, c_4 c_5, c_6, c_7 c_8, c_{10}, c_{12}	$y^6 + 2y^5 + 3y^4 + 2y^3 + y^2 + 3y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.931903 + 0.428993I$ $a = -0.030982 + 0.459976I$ $b = 1.030980 - 0.459976I$ $c = 0.885437 + 0.407603I$ $d = 0.705204 + 1.038720I$	$2.86100 + 5.13794I$	$7.31793 - 3.20902I$
$u = -0.931903 - 0.428993I$ $a = -0.030982 - 0.459976I$ $b = 1.030980 + 0.459976I$ $c = 0.885437 - 0.407603I$ $d = 0.705204 - 1.038720I$	$2.86100 - 5.13794I$	$7.31793 + 3.20902I$
$u = 0.226699 + 1.074330I$ $a = -1.82948 - 3.93092I$ $b = 2.82948 + 3.93092I$ $c = -0.188043 + 0.891136I$ $d = 0.226699 - 1.074330I$	-7.36693	$-4.63587 + 0.I$
$u = 0.226699 - 1.074330I$ $a = -1.82948 + 3.93092I$ $b = 2.82948 - 3.93092I$ $c = -0.188043 - 0.891136I$ $d = 0.226699 + 1.074330I$	-7.36693	$-4.63587 + 0.I$
$u = 0.705204 + 1.038720I$ $a = -0.63953 - 1.26223I$ $b = 1.63953 + 1.26223I$ $c = -0.447394 + 0.658981I$ $d = -0.931903 + 0.428993I$	$2.86100 + 5.13794I$	$7.31793 - 3.20902I$
$u = 0.705204 - 1.038720I$ $a = -0.63953 + 1.26223I$ $b = 1.63953 - 1.26223I$ $c = -0.447394 - 0.658981I$ $d = -0.931903 - 0.428993I$	$2.86100 - 5.13794I$	$7.31793 + 3.20902I$

IX. $\boldsymbol{I_9^u = \langle d-u,\ c+2,\ b+1,\ a^2-a+u+1,\ u^2+u+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u+6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=-0.070696+0.758745I$ $b=-1.00000$ $c=-2.00000$ $d=-0.500000+0.866025I$	$-3.28987-2.02988I$	$4.00000+3.46410I$
$u=-0.500000+0.866025I$ $a=\ \ 1.070700-0.758745I$ $b=-1.00000$ $c=-2.00000$ $d=-0.500000+0.866025I$	$-3.28987-2.02988I$	$4.00000+3.46410I$
$u=-0.500000-0.866025I$ $a=-0.070696-0.758745I$ $b=-1.00000$ $c=-2.00000$ $d=-0.500000-0.866025I$	$-3.28987+2.02988I$	$4.00000-3.46410I$
$u=-0.500000-0.866025I$ $a=\ \ 1.070700+0.758745I$ $b=-1.00000$ $c=-2.00000$ $d=-0.500000-0.866025I$	$-3.28987+2.02988I$	$4.00000-3.46410I$

X. $I^u_{10} =$ $\langle -u^3+d-u+1,\ -u^3+u^2+c-2u+2,\ b+1,\ -u^3+a-2u,\ u^4-u^3+2u^2-2u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{10}^{u}	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = 1.12174 + 1.30662I$ $b = -1.00000$ $c = -1.070700 + 0.758745I$ $d = -0.500000 + 0.866025I$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$
$u = 0.621744 - 0.440597I$ $a = 1.12174 - 1.30662I$ $b = -1.00000$ $c = -1.070700 - 0.758745I$ $d = -0.500000 - 0.866025I$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$
$u = -0.121744 + 1.306620I$ $a = 0.378256 + 0.440597I$ $b = -1.00000$ $c = 0.070696 + 0.758745I$ $d = -0.500000 - 0.866025I$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$
$u = -0.121744 - 1.306620I$ $a = 0.378256 - 0.440597I$ $b = -1.00000$ $c = 0.070696 - 0.758745I$ $d = -0.500000 + 0.866025I$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$

XI. $I^u_{11} = \langle -u^3+d-u+1,\ -u^3+u^2+c-2u+2,\ b+1,\ u^3+a+2u-1,\ u^4-u^3+2u^2-2u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{11}	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.621744 + 0.440597I$ $a = -0.121744 - 1.306620I$ $b = -1.00000$ $c = -1.070700 + 0.758745I$ $d = -0.500000 + 0.866025I$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$
$u = \quad 0.621744 - 0.440597I$ $a = -0.121744 + 1.306620I$ $b = -1.00000$ $c = -1.070700 - 0.758745I$ $d = -0.500000 - 0.866025I$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$
$u = -0.121744 + 1.306620I$ $a = \quad 0.621744 - 0.440597I$ $b = -1.00000$ $c = \quad 0.070696 + 0.758745I$ $d = -0.500000 - 0.866025I$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$
$u = -0.121744 - 1.306620I$ $a = \quad 0.621744 + 0.440597I$ $b = -1.00000$ $c = \quad 0.070696 - 0.758745I$ $d = -0.500000 + 0.866025I$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$

XII. $I^u_{12} =$
$\langle u^3+d+2u-1,\ -u^3+u^2+c-2u+2,\ b+1,\ -u^3+a-2u,\ u^4-u^3+2u^2-2u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{12}	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = 1.12174 + 1.30662I$ $b = -1.00000$ $c = -1.070700 + 0.758745I$ $d = -0.121744 - 1.306620I$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$
$u = 0.621744 - 0.440597I$ $a = 1.12174 - 1.30662I$ $b = -1.00000$ $c = -1.070700 - 0.758745I$ $d = -0.121744 + 1.306620I$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$
$u = -0.121744 + 1.306620I$ $a = 0.378256 + 0.440597I$ $b = -1.00000$ $c = 0.070696 + 0.758745I$ $d = 0.621744 - 0.440597I$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$
$u = -0.121744 - 1.306620I$ $a = 0.378256 - 0.440597I$ $b = -1.00000$ $c = 0.070696 - 0.758745I$ $d = 0.621744 + 0.440597I$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$

XIII. $\boldsymbol{I^u_{13} = \langle au + d,\ c - u - 1,\ b + 1,\ a^2 - a + u + 1,\ u^2 + u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_9 = \begin{pmatrix} u \\ u + 1 \end{pmatrix}$$

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

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

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

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u + 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{13}^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$		
$a = -0.070696 + 0.758745I$		
$b = -1.00000$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$
$c = 0.500000 + 0.866025I$		
$d = 0.621744 + 0.440597I$		
$u = -0.500000 + 0.866025I$		
$a = 1.070700 - 0.758745I$		
$b = -1.00000$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$
$c = 0.500000 + 0.866025I$		
$d = -0.121744 - 1.306620I$		
$u = -0.500000 - 0.866025I$		
$a = -0.070696 - 0.758745I$		
$b = -1.00000$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$
$c = 0.500000 - 0.866025I$		
$d = 0.621744 - 0.440597I$		
$u = -0.500000 - 0.866025I$		
$a = 1.070700 + 0.758745I$		
$b = -1.00000$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$
$c = 0.500000 - 0.866025I$		
$d = -0.121744 + 1.306620I$		

XIV. $\boldsymbol{I^u_{14} = \langle d^2 + du - u,\ c - u - 1,\ b + 2u,\ a - 2u - 1,\ u^2 + u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_9 = \begin{pmatrix} u \\ u+1 \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} 2 \\ -u-2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u+1 \\ d \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -d+u+1 \\ d \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} du+d+2u+1 \\ -du-u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u + 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{14}	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 1.73205I$ $b = 1.00000 - 1.73205I$ $c = 0.500000 + 0.866025I$ $d = 0.621744 + 0.440597I$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$
$u = -0.500000 + 0.866025I$ $a = 1.73205I$ $b = 1.00000 - 1.73205I$ $c = 0.500000 + 0.866025I$ $d = -0.121744 - 1.306620I$	$-3.28987 - 2.02988I$	$4.00000 + 3.46410I$
$u = -0.500000 - 0.866025I$ $a = - 1.73205I$ $b = 1.00000 + 1.73205I$ $c = 0.500000 - 0.866025I$ $d = 0.621744 - 0.440597I$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$
$u = -0.500000 - 0.866025I$ $a = - 1.73205I$ $b = 1.00000 + 1.73205I$ $c = 0.500000 - 0.866025I$ $d = -0.121744 + 1.306620I$	$-3.28987 + 2.02988I$	$4.00000 - 3.46410I$

XV. $I^u_{15} = \langle d,\ c-u,\ b+u+1,\ a-u,\ u^2+1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

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

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

$$a_{10} = \begin{pmatrix} u \\ 0 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{15}	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$		
$a = 1.000000I$		
$b = -1.00000 - 1.00000I$	-4.93480	0
$c = 1.000000I$		
$d = 0$		
$u = -1.000000I$		
$a = -1.000000I$		
$b = -1.00000 + 1.00000I$	-4.93480	0
$c = -1.000000I$		
$d = 0$		

XVI. $I_{16}^u = \langle d+u,\ c-u+1,\ b+1,\ a-1,\ u^2+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{16}	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.000000I$ $a = \quad 1.00000$ $b = -1.00000$ $c = -1.00000 + 1.00000I$ $d = \quad - 1.000000I$	-4.93480	0
$u = \quad - 1.000000I$ $a = \quad 1.00000$ $b = -1.00000$ $c = -1.00000 - 1.00000I$ $d = \quad 1.000000I$	-4.93480	0

XVII. $I^u_{17} = \langle d + u,\ c - u + 1,\ b + u + 1,\ a - u,\ u^2 + 1\rangle$

(i) Arc colorings

$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{17}	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 1.000000I$ $b = -1.00000 - 1.00000I$ $c = -1.00000 + 1.00000I$ $d = -1.000000I$	-4.93480	0
$u = -1.000000I$ $a = -1.000000I$ $b = -1.00000 + 1.00000I$ $c = -1.00000 - 1.00000I$ $d = 1.000000I$	-4.93480	0

XVIII. $\boldsymbol{I^u_{18} = \langle d+u,\ ca-au+u+1,\ b+a+1,\ u^2+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

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

$$a_{11} = \begin{pmatrix} c \\ -u \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} c+a-1 \\ -a-u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_{18}^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$ $c = \cdots$ $d = \cdots$	-6.57974	-6.00000

XIX. $I_1^v = \langle a,\ d+v,\ -av+c+v+1,\ b+1,\ v^2+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9, c_{11}	$(u-1)^2$
c_2, c_4, c_5 c_6, c_{10}, c_{12}	u^2+1
c_3, c_7, 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_4, c_5 c_6, c_{10}, c_{12}	$(y+1)^2$
c_3, c_7, c_8	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 1.000000I$		
$a = 0$		
$b = -1.00000$	-4.93480	0
$c = -1.00000 - 1.00000I$		
$d = -1.000000I$		
$v = -1.000000I$		
$a = 0$		
$b = -1.00000$	-4.93480	0
$c = -1.00000 + 1.00000I$		
$d = 1.000000I$		

XX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_9, c_{11}	$u^2(u-1)^6(u^2+u+1)^6(u^4+3u^3+2u^2+1)^3$ $\cdot(u^5+2u^4+5u^3+3u^2+6u-1)(u^6+2u^5+3u^4+2u^3+u^2+3u+4)^3$ $\cdot(u^8+3u^7+8u^6+10u^5+14u^4+11u^3+12u^2+4u+1)^3$ $\cdot(u^8+5u^7+9u^6+7u^5+3u^4-u^3+16u+16)$
c_2, c_3, c_4 c_5, c_6, c_7 c_8, c_{10}, c_{12}	$u^2(u^2+1)^3(u^2+u+1)^6(u^4-u^3+2u^2-2u+1)^3$ $\cdot(u^5+u^3+u^2+2u-1)(u^6+u^4+2u^3+u^2+u+2)^3$ $\cdot(u^8-u^7+2u^6-2u^5+4u^4-3u^3+2u^2+1)^3$ $\cdot(u^8-u^7+3u^6-3u^5+3u^4-5u^3+4u^2-4u+4)$

XXI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$y^2(y-1)^6(y^2+y+1)^6(y^4-5y^3+6y^2+4y+1)^3$ $\cdot(y^5+6y^4+25y^3+55y^2+42y-1)$ $\cdot(y^6+2y^5+3y^4-2y^3+13y^2-y+16)^3$ $\cdot(y^8-7y^7+17y^6+15y^5-105y^4+63y^3+128y^2-256y+256)$ $\cdot(y^8+7y^7+32y^6+82y^5+146y^4+151y^3+84y^2+8y+1)^3$
c_2, c_3, c_4 c_5, c_6, c_7 c_8, c_{10}, c_{12}	$y^2(y+1)^6(y^2+y+1)^6(y^4+3y^3+2y^2+1)^3$ $\cdot(y^5+2y^4+5y^3+3y^2+6y-1)(y^6+2y^5+3y^4+2y^3+y^2+3y+4)^3$ $\cdot(y^8+3y^7+8y^6+10y^5+14y^4+11y^3+12y^2+4y+1)^3$ $\cdot(y^8+5y^7+9y^6+7y^5+3y^4-y^3+16y+16)$