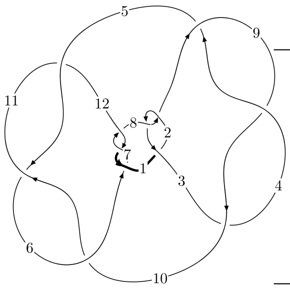
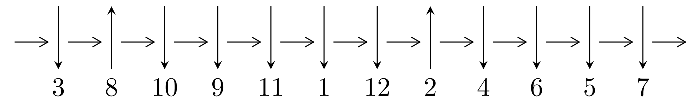
$12a_{0750}$ $(K12a_{0750})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -u^2+d,\ -u^9+2u^8-7u^7+12u^6-18u^5+23u^4-17u^3+10u^2+4c-u-3,\\
& -u^9+2u^8-7u^7+12u^6-18u^5+23u^4-17u^3+10u^2+4b-u+1,\\
& -u^9+2u^8-7u^7+12u^6-18u^5+23u^4-17u^3+10u^2+4a-u-3,\\
& u^{10}-u^9+7u^8-7u^7+18u^6-17u^5+18u^4-15u^3+3u^2+1\rangle\\
I_2^u = \langle & -u^2+d,\ u^6+2u^5+5u^4+6u^3+5u^2+c+3u+1,\ b-1,\ -u^7-2u^6-6u^5-6u^4-8u^3-3u^2+2a-u-\\
& u^8+2u^7+6u^6+8u^5+10u^4+9u^3+5u^2+3u+2\rangle\\
I_3^u = \langle & -u^6-u^5-3u^4-2u^3-u^2+d-u+1,\ -u^7-2u^6-6u^5-6u^4-8u^3-3u^2+2c-u-1,\\
& u^6+2u^5+5u^4+6u^3+5u^2+b+3u+2,\ u^6+2u^5+5u^4+6u^3+5u^2+a+3u+1,\\
& u^8+2u^7+6u^6+8u^5+10u^4+9u^3+5u^2+3u+2\rangle\\
I_4^u = \langle & -u^6-2u^4+u^3+2d+2u+2,\ u^7-u^6+3u^5-u^4+3u^3-u^2+4c+2u-4,\ b-1,\\
& u^7-u^6+3u^5-u^4+3u^3-u^2+4a+2u-4,\ u^8-u^7+3u^6-3u^5+3u^4-5u^3+4u^2-4u+4\rangle\\
I_5^u = \langle & -u^2+d,\ -u^2+c+u,\ b-1,\ a^2+2u^2-a-u+5,\ u^3+2u+1\rangle\\
I_6^u = \langle & u^2c+d+1,\ c^2+2u^2-c-u+5,\ -u^2+b+u+1,\ -u^2+a+u,\ u^3+2u+1\rangle\\
I_7^u = \langle & -u^4+d-u+1,\ -u^5-u^3+2c-u-1,\ b-1,\ -u^5-u^3+2a-u-1,\ u^6+u^4+2u^3+u^2+u+2\rangle\\
I_8^u = \langle & -u^2+d,\ -u^2+c+u,\ -u^2+b+u+1,\ -u^2+a+u,\ u^3+2u+1\rangle\\
I_9^u = \langle & -u^2+d,\ 2u^3-2u^2+c+2u-1,\ b-1,\ u^3+a+2u-1,\ u^4-u^3+2u^2-2u+1\rangle\\
I_{10}^u = \langle & -u^3+u^2+d-u+2,\ u^3+c+2u-1,\ b-1,\ -u^3+a-2u,\ u^4-u^3+2u^2-2u+1\rangle
\end{aligned}$$

[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`).

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

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

* 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. $\boldsymbol{I_1^u = \langle -u^2 + d,\ -u^9 + 2u^8 + \cdots + 4c - 3,\ -u^9 + 2u^8 + \cdots + 4b + 1,\ -u^9 + 2u^8 + \cdots + 4a - 3,\ u^{10} - u^9 + \cdots + 3u^2 + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_7 = \begin{pmatrix} \frac{1}{4}u^9 - \frac{1}{2}u^8 + \cdots + \frac{1}{4}u + \frac{3}{4} \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{1}{4}u^9 - \frac{1}{2}u^8 + \cdots + \frac{1}{4}u + \frac{3}{4} \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{4}u^9 + \frac{5}{4}u^7 + \cdots - \frac{7}{4}u + \frac{1}{4} \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{4}u^9 - \frac{1}{2}u^8 + \cdots + \frac{1}{4}u + \frac{3}{4} \\ \frac{1}{4}u^9 - \frac{1}{2}u^8 + \cdots + \frac{1}{4}u - \frac{1}{4} \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} \frac{1}{4}u^9 - \frac{1}{2}u^8 + \cdots + \frac{1}{4}u + \frac{3}{4} \\ \frac{1}{4}u^9 - \frac{1}{2}u^8 + \cdots + \frac{1}{4}u - \frac{1}{4} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^3 - 2u + 1 \\ -\frac{1}{4}u^9 - \frac{7}{4}u^7 + \cdots + \frac{5}{4}u + \frac{1}{4} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{1}{4}u^9 - \frac{5}{4}u^7 + \cdots + \frac{7}{4}u - \frac{1}{4} \\ -\frac{1}{4}u^9 - \frac{5}{4}u^7 + \cdots + \frac{3}{4}u - \frac{1}{4} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3u^8 - u^7 + 18u^6 - 8u^5 + 36u^4 - 19u^3 + 20u^2 - 16u - 11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{10}+3u^9+8u^8+10u^7+14u^6+8u^5+5u^4+15u^3+48u^2+48u+16$
c_2, c_8	$u^{10}-u^9+2u^8-2u^7+4u^6-6u^5+5u^4-7u^3+8u^2-4u+4$
c_3, c_4, c_5 c_6, c_7, c_9 c_{10}, c_{11}, c_{12}	$u^{10}-u^9+7u^8-7u^7+18u^6-17u^5+18u^4-15u^3+3u^2+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{10} + 7y^9 + \cdots - 768y + 256$
c_2, c_8	$y^{10} + 3y^9 + 8y^8 + 10y^7 + 14y^6 + 8y^5 + 5y^4 + 15y^3 + 48y^2 + 48y + 16$
c_3, c_4, c_5 c_6, c_7, c_9 c_{10}, c_{11}, c_{12}	$y^{10} + 13y^9 + \cdots + 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.679448 + 0.180150I$ $a = 0.359501 - 0.232867I$ $b = -0.640499 - 0.232867I$ $c = 0.359501 - 0.232867I$ $d = 0.429196 + 0.244805I$	$-3.36992 - 3.42590I$	$-13.9202 + 5.8734I$
$u = 0.679448 - 0.180150I$ $a = 0.359501 + 0.232867I$ $b = -0.640499 + 0.232867I$ $c = 0.359501 + 0.232867I$ $d = 0.429196 - 0.244805I$	$-3.36992 + 3.42590I$	$-13.9202 - 5.8734I$
$u = 0.40586 + 1.47601I$ $a = -1.82314 - 0.97271I$ $b = -2.82314 - 0.97271I$ $c = -1.82314 - 0.97271I$ $d = -2.01389 + 1.19812I$	$12.8882 - 16.0216I$	$-1.20715 + 8.19647I$
$u = 0.40586 - 1.47601I$ $a = -1.82314 + 0.97271I$ $b = -2.82314 + 0.97271I$ $c = -1.82314 + 0.97271I$ $d = -2.01389 - 1.19812I$	$12.8882 + 16.0216I$	$-1.20715 - 8.19647I$
$u = -0.34141 + 1.51774I$ $a = -1.95611 + 0.83479I$ $b = -2.95611 + 0.83479I$ $c = -1.95611 + 0.83479I$ $d = -2.18697 - 1.03634I$	$15.7344 + 9.7447I$	$1.47516 - 4.40501I$
$u = -0.34141 - 1.51774I$ $a = -1.95611 - 0.83479I$ $b = -2.95611 - 0.83479I$ $c = -1.95611 - 0.83479I$ $d = -2.18697 + 1.03634I$	$15.7344 - 9.7447I$	$1.47516 + 4.40501I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.05876 + 1.63300I$ $a = -2.18667 + 0.13692I$ $b = -3.18667 + 0.13692I$ $c = -2.18667 + 0.13692I$ $d = -2.66324 - 0.19191I$	$-19.6670 + 3.4566I$	$2.19060 - 2.42157I$
$u = -0.05876 - 1.63300I$ $a = -2.18667 - 0.13692I$ $b = -3.18667 - 0.13692I$ $c = -2.18667 - 0.13692I$ $d = -2.66324 + 0.19191I$	$-19.6670 - 3.4566I$	$2.19060 + 2.42157I$
$u = -0.185141 + 0.315240I$ $a = 1.106430 + 0.262999I$ $b = 0.106427 + 0.262999I$ $c = 1.106430 + 0.262999I$ $d = -0.0650991 - 0.1167280I$	$-0.650910 + 0.940213I$	$-10.53842 - 6.80546I$
$u = -0.185141 - 0.315240I$ $a = 1.106430 - 0.262999I$ $b = 0.106427 - 0.262999I$ $c = 1.106430 - 0.262999I$ $d = -0.0650991 + 0.1167280I$	$-0.650910 - 0.940213I$	$-10.53842 + 6.80546I$

II. $\boldsymbol{I_2^u = \langle -u^2 + d,\ u^6 + 2u^5 + \cdots + c + 1,\ b - 1,\ -u^7 - 2u^6 + \cdots + 2a - 1,\ u^8 + 2u^7 + \cdots + 3u + 2\rangle}$

(i) Arc colorings

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

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

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

$$a_7 = \begin{pmatrix} -u^6 - 2u^5 - 5u^4 - 6u^3 - 5u^2 - 3u - 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^6 - 2u^5 - 5u^4 - 6u^3 - 6u^2 - 3u - 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^7 + 2u^6 + 5u^5 + 6u^4 + 5u^3 + 3u^2 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{2}u^7 + u^6 + \cdots + \frac{1}{2}u + \frac{1}{2} \\ 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} \frac{1}{2}u^7 + 2u^6 + \cdots + \frac{3}{2}u + \frac{1}{2} \\ u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{2}u^7 + u^6 + \cdots - \frac{3}{2}u - \frac{1}{2} \\ -u^7 - u^6 - 4u^5 - 3u^4 - 4u^3 - 2u^2 - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{1}{2}u^7 + u^6 + \cdots + \frac{5}{2}u + \frac{3}{2} \\ -u^5 - u^4 - 3u^3 - 2u^2 - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^7 - 2u^6 - 12u^5 - 2u^4 - 4u^3 + 2u^2 + 6u - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^8 + 7y^7 + 32y^6 + 82y^5 + 146y^4 + 151y^3 + 84y^2 + 8y + 1$
c_2, c_8	$y^8 + 3y^7 + 8y^6 + 10y^5 + 14y^4 + 11y^3 + 12y^2 + 4y + 1$
c_3, c_4, c_9	$y^8 + 5y^7 + 9y^6 + 7y^5 + 3y^4 - y^3 + 16y + 16$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^8 + 8y^7 + 24y^6 + 30y^5 + 8y^4 - 5y^3 + 11y^2 + 11y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.832019 + 0.315048I$ $a = 0.187629 + 1.339450I$ $b = 1.00000$ $c = 0.132804 + 0.372803I$ $d = 0.593000 - 0.524253I$	$1.55583 + 6.79402I$	$-7.11839 - 7.09473I$
$u = -0.832019 - 0.315048I$ $a = 0.187629 - 1.339450I$ $b = 1.00000$ $c = 0.132804 - 0.372803I$ $d = 0.593000 + 0.524253I$	$1.55583 - 6.79402I$	$-7.11839 + 7.09473I$
$u = 0.251759 + 0.670878I$ $a = -0.545199 - 0.612937I$ $b = 1.00000$ $c = 1.50200 - 1.37807I$ $d = -0.386695 + 0.337799I$	$3.51088 - 1.27680I$	$-2.16898 + 5.88514I$
$u = 0.251759 - 0.670878I$ $a = -0.545199 + 0.612937I$ $b = 1.00000$ $c = 1.50200 + 1.37807I$ $d = -0.386695 - 0.337799I$	$3.51088 + 1.27680I$	$-2.16898 - 5.88514I$
$u = -0.09342 + 1.48598I$ $a = 0.448861 + 0.552340I$ $b = 1.00000$ $c = -2.58269 + 0.36635I$ $d = -2.19941 - 0.27763I$	$10.73060 - 0.66722I$	$0.81639 + 2.10627I$
$u = -0.09342 - 1.48598I$ $a = 0.448861 - 0.552340I$ $b = 1.00000$ $c = -2.58269 - 0.36635I$ $d = -2.19941 + 0.27763I$	$10.73060 + 0.66722I$	$0.81639 - 2.10627I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.32632+1.45375I$ $a=\ \ 0.658708-0.606572I$ $b=\ \ 1.00000$ $c=-2.05212+0.99140I$ $d=-2.00689-0.94878I$	$7.23180+10.98940I$	$-3.52901-7.14773I$
$u=-0.32632-1.45375I$ $a=\ \ 0.658708+0.606572I$ $b=\ \ 1.00000$ $c=-2.05212-0.99140I$ $d=-2.00689+0.94878I$	$7.23180-10.98940I$	$-3.52901+7.14773I$

III. $\boldsymbol{I^u_3 = \langle -u^6 - u^5 + \cdots + d + 1,\ -u^7 - 2u^6 + \cdots + 2c - 1,\ u^6 + 2u^5 + \cdots + b + 2,\ u^6 + 2u^5 + \cdots + a + 1,\ u^8 + 2u^7 + \cdots + 3u + 2\rangle}$

(i) Arc colorings

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

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

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

$$a_7 = \begin{pmatrix} \frac{1}{2}u^7 + u^6 + \cdots + \frac{1}{2}u + \frac{1}{2} \\ u^6 + u^5 + 3u^4 + 2u^3 + u^2 + u - 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{1}{2}u^7 + 2u^6 + \cdots + \frac{3}{2}u + \frac{1}{2} \\ u^7 + 3u^6 + 6u^5 + 8u^4 + 8u^3 + 4u^2 + 3u + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{1}{2}u^7 - u^6 + \cdots - \frac{5}{2}u - \frac{3}{2} \\ -u^5 - u^4 - 3u^3 - 2u^2 - 2u - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^6 - 2u^5 - 5u^4 - 6u^3 - 5u^2 - 3u - 1 \\ -u^6 - 2u^5 - 5u^4 - 6u^3 - 5u^2 - 3u - 2 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -u^6 - 2u^5 - 5u^4 - 6u^3 - 6u^2 - 3u - 1 \\ -u^6 - 2u^5 - 5u^4 - 6u^3 - 6u^2 - 3u - 2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{2}u^7 - 2u^4 + \cdots - \frac{3}{2}u - \frac{1}{2} \\ u^7 + u^5 - 2u^4 - 3u^3 - 3u^2 - 2u - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^7 - 2u^6 - 5u^5 - 6u^4 - 5u^3 - 3u^2 \\ -u^7 - 2u^6 - 5u^5 - 6u^4 - 5u^3 - 3u^2 - u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^7 - 2u^6 - 12u^5 - 2u^4 - 4u^3 + 2u^2 + 6u - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^8 + 7y^7 + 32y^6 + 82y^5 + 146y^4 + 151y^3 + 84y^2 + 8y + 1$
c_2, c_8	$y^8 + 3y^7 + 8y^6 + 10y^5 + 14y^4 + 11y^3 + 12y^2 + 4y + 1$
c_3, c_4, c_5 c_9, c_{10}, c_{11}	$y^8 + 8y^7 + 24y^6 + 30y^5 + 8y^4 - 5y^3 + 11y^2 + 11y + 4$
c_6, c_7, c_{12}	$y^8 + 5y^7 + 9y^6 + 7y^5 + 3y^4 - y^3 + 16y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.832019 + 0.315048I$ $a = 0.132804 + 0.372803I$ $b = -0.867196 + 0.372803I$ $c = 0.187629 + 1.339450I$ $d = -1.81347 - 0.69593I$	$1.55583 + 6.79402I$	$-7.11839 - 7.09473I$
$u = -0.832019 - 0.315048I$ $a = 0.132804 - 0.372803I$ $b = -0.867196 - 0.372803I$ $c = 0.187629 - 1.339450I$ $d = -1.81347 + 0.69593I$	$1.55583 - 6.79402I$	$-7.11839 + 7.09473I$
$u = 0.251759 + 0.670878I$ $a = 1.50200 - 1.37807I$ $b = 0.50200 - 1.37807I$ $c = -0.545199 - 0.612937I$ $d = -1.41788 - 0.05285I$	$3.51088 - 1.27680I$	$-2.16898 + 5.88514I$
$u = 0.251759 - 0.670878I$ $a = 1.50200 + 1.37807I$ $b = 0.50200 + 1.37807I$ $c = -0.545199 + 0.612937I$ $d = -1.41788 + 0.05285I$	$3.51088 + 1.27680I$	$-2.16898 - 5.88514I$
$u = -0.09342 + 1.48598I$ $a = -2.58269 + 0.36635I$ $b = -3.58269 + 0.36635I$ $c = 0.448861 + 0.552340I$ $d = -0.166115 + 1.339440I$	$10.73060 - 0.66722I$	$0.81639 + 2.10627I$
$u = -0.09342 - 1.48598I$ $a = -2.58269 - 0.36635I$ $b = -3.58269 - 0.36635I$ $c = 0.448861 - 0.552340I$ $d = -0.166115 - 1.339440I$	$10.73060 + 0.66722I$	$0.81639 - 2.10627I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.32632+1.45375I$ $a=-2.05212+0.99140I$ $b=-3.05212+0.99140I$ $c=\ \ 0.658708-0.606572I$ $d=\ \ 0.897463-0.592355I$	$7.23180+10.98940I$	$-3.52901-7.14773I$
$u=-0.32632-1.45375I$ $a=-2.05212-0.99140I$ $b=-3.05212-0.99140I$ $c=\ \ 0.658708+0.606572I$ $d=\ \ 0.897463+0.592355I$	$7.23180-10.98940I$	$-3.52901+7.14773I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^8+7y^7+32y^6+82y^5+146y^4+151y^3+84y^2+8y+1$
c_2, c_8	$y^8+3y^7+8y^6+10y^5+14y^4+11y^3+12y^2+4y+1$
c_3, c_4, c_6 c_7, c_9, c_{12}	$y^8+8y^7+24y^6+30y^5+8y^4-5y^3+11y^2+11y+4$
c_5, c_{10}, c_{11}	$y^8+5y^7+9y^6+7y^5+3y^4-y^3+16y+16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.993174 + 0.298213I$		
$a = 0.295449 - 1.252190I$		
$b = 1.00000$	$7.23180 - 10.98940I$	$-3.52901 + 7.14773I$
$c = 0.295449 - 1.252190I$		
$d = -2.00689 + 0.94878I$		
$u = 0.993174 - 0.298213I$		
$a = 0.295449 + 1.252190I$		
$b = 1.00000$	$7.23180 + 10.98940I$	$-3.52901 - 7.14773I$
$c = 0.295449 + 1.252190I$		
$d = -2.00689 - 0.94878I$		
$u = -0.769280 + 0.870579I$		
$a = 0.094762 + 0.907210I$		
$b = 1.00000$	$10.73060 + 0.66722I$	$0.81639 - 2.10627I$
$c = 0.094762 + 0.907210I$		
$d = -2.19941 + 0.27763I$		
$u = -0.769280 - 0.870579I$		
$a = 0.094762 - 0.907210I$		
$b = 1.00000$	$10.73060 - 0.66722I$	$0.81639 + 2.10627I$
$c = 0.094762 - 0.907210I$		
$d = -2.19941 - 0.27763I$		
$u = 0.022189 + 1.190950I$		
$a = 0.440820 - 0.221811I$		
$b = 1.00000$	$3.51088 + 1.27680I$	$-2.16898 - 5.88514I$
$c = 0.440820 - 0.221811I$		
$d = -0.386695 - 0.337799I$		
$u = 0.022189 - 1.190950I$		
$a = 0.440820 + 0.221811I$		
$b = 1.00000$	$3.51088 - 1.27680I$	$-2.16898 + 5.88514I$
$c = 0.440820 + 0.221811I$		
$d = -0.386695 + 0.337799I$		

	Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.253917+1.370380I$		
$a=$	$0.668969+0.545807I$		
$b=$	1.00000	$1.55583-6.79402I$	$-7.11839+7.09473I$
$c=$	$0.668969+0.545807I$		
$d=$	$0.593000+0.524253I$		
$u=$	$0.253917-1.370380I$		
$a=$	$0.668969-0.545807I$		
$b=$	1.00000	$1.55583+6.79402I$	$-7.11839-7.09473I$
$c=$	$0.668969-0.545807I$		
$d=$	$0.593000-0.524253I$		

V. $\boldsymbol{I^u_5 = \langle -u^2+d,\ -u^2+c+u,\ b-1,\ a^2+2u^2-a-u+5,\ u^3+2u+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^2+4u-10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6+2y^5+3y^4-2y^3+13y^2-y+16$
c_2, c_3, c_4 c_8, c_9	$y^6+2y^5+3y^4+2y^3+y^2+3y+4$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$(y^3+4y^2+4y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.22670 + 1.46771I$ $a = 0.618738 + 0.576047I$ $b = 1.00000$ $c = -2.32948 - 0.80225I$ $d = -2.10278 + 0.66546I$	$9.44074 - 5.13794I$	$-0.68207 + 3.20902I$
$u = 0.22670 + 1.46771I$ $a = 0.381262 - 0.576047I$ $b = 1.00000$ $c = -2.32948 - 0.80225I$ $d = -2.10278 + 0.66546I$	$9.44074 - 5.13794I$	$-0.68207 + 3.20902I$
$u = 0.22670 - 1.46771I$ $a = 0.618738 - 0.576047I$ $b = 1.00000$ $c = -2.32948 + 0.80225I$ $d = -2.10278 - 0.66546I$	$9.44074 + 5.13794I$	$-0.68207 - 3.20902I$
$u = 0.22670 - 1.46771I$ $a = 0.381262 + 0.576047I$ $b = 1.00000$ $c = -2.32948 + 0.80225I$ $d = -2.10278 - 0.66546I$	$9.44074 + 5.13794I$	$-0.68207 - 3.20902I$
$u = -0.453398$ $a = 0.50000 + 2.36950I$ $b = 1.00000$ $c = 0.658967$ $d = 0.205569$	-0.787199	-12.6360
$u = -0.453398$ $a = 0.50000 - 2.36950I$ $b = 1.00000$ $c = 0.658967$ $d = 0.205569$	-0.787199	-12.6360

VI.

$\boldsymbol{I^u_6 = \langle u^2c+d+1,\ c^2+2u^2-c-u+5,\ -u^2+b+u+1,\ -u^2+a+u,\ u^3+2u+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^2+4u-10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 + 2y^5 + 3y^4 - 2y^3 + 13y^2 - y + 16$
c_2, c_6, c_7 c_8, c_{12}	$y^6 + 2y^5 + 3y^4 + 2y^3 + y^2 + 3y + 4$
c_3, c_4, c_5 c_9, c_{10}, c_{11}	$(y^3 + 4y^2 + 4y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.22670 + 1.46771I$ $a = -2.32948 - 0.80225I$ $b = -3.32948 - 0.80225I$ $c = 0.618738 + 0.576047I$ $d = 0.684408 + 0.799560I$	$9.44074 - 5.13794I$	$-0.68207 + 3.20902I$
$u = 0.22670 + 1.46771I$ $a = -2.32948 - 0.80225I$ $b = -3.32948 - 0.80225I$ $c = 0.381262 - 0.576047I$ $d = -0.58162 - 1.46502I$	$9.44074 - 5.13794I$	$-0.68207 + 3.20902I$
$u = 0.22670 - 1.46771I$ $a = -2.32948 + 0.80225I$ $b = -3.32948 + 0.80225I$ $c = 0.618738 - 0.576047I$ $d = 0.684408 - 0.799560I$	$9.44074 + 5.13794I$	$-0.68207 - 3.20902I$
$u = 0.22670 - 1.46771I$ $a = -2.32948 + 0.80225I$ $b = -3.32948 + 0.80225I$ $c = 0.381262 + 0.576047I$ $d = -0.58162 + 1.46502I$	$9.44074 + 5.13794I$	$-0.68207 - 3.20902I$
$u = -0.453398$ $a = 0.658967$ $b = -0.341033$ $c = 0.50000 + 2.36950I$ $d = -1.102790 - 0.487097I$	-0.787199	-12.6360
$u = -0.453398$ $a = 0.658967$ $b = -0.341033$ $c = 0.50000 - 2.36950I$ $d = -1.102790 + 0.487097I$	-0.787199	-12.6360

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

(i) Arc colorings

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

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

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

$$a_7 = \begin{pmatrix} \frac{1}{2}u^5 + \frac{1}{2}u^3 + \frac{1}{2}u + \frac{1}{2} \\ u^4 + u - 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} \frac{1}{2}u^5 + \frac{1}{2}u^3 + \frac{1}{2}u + \frac{1}{2} \\ 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} \frac{1}{2}u^5 + u^4 + \cdots + \frac{3}{2}u + \frac{1}{2} \\ u^4 + u^2 + u + 1 \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^4 - 4u^3 - 8u - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 + 2y^5 + 3y^4 - 2y^3 + 13y^2 - y + 16$
c_2, c_5, c_8 c_{10}, c_{11}	$y^6 + 2y^5 + 3y^4 + 2y^3 + y^2 + 3y + 4$
c_3, c_4, c_6 c_7, c_9, c_{12}	$(y^3 + 4y^2 + 4y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.931903 + 0.428993I$ $a = 0.201029 + 1.207160I$ $b = 1.00000$ $c = 0.201029 + 1.207160I$ $d = -2.10278 - 0.66546I$	$9.44074 + 5.13794I$	$-0.68207 - 3.20902I$
$u = -0.931903 - 0.428993I$ $a = 0.201029 - 1.207160I$ $b = 1.00000$ $c = 0.201029 - 1.207160I$ $d = -2.10278 + 0.66546I$	$9.44074 - 5.13794I$	$-0.68207 + 3.20902I$
$u = 0.226699 + 1.074330I$ $a = 0.914742 + 0.404039I$ $b = 1.00000$ $c = 0.914742 + 0.404039I$ $d = 0.205569$	-0.787199	$-12.63587 + 0.I$
$u = 0.226699 - 1.074330I$ $a = 0.914742 - 0.404039I$ $b = 1.00000$ $c = 0.914742 - 0.404039I$ $d = 0.205569$	-0.787199	$-12.63587 + 0.I$
$u = 0.705204 + 1.038720I$ $a = 0.134229 - 0.806035I$ $b = 1.00000$ $c = 0.134229 - 0.806035I$ $d = -2.10278 - 0.66546I$	$9.44074 + 5.13794I$	$-0.68207 - 3.20902I$
$u = 0.705204 - 1.038720I$ $a = 0.134229 + 0.806035I$ $b = 1.00000$ $c = 0.134229 + 0.806035I$ $d = -2.10278 + 0.66546I$	$9.44074 - 5.13794I$	$-0.68207 + 3.20902I$

VIII. $\boldsymbol{I_8^u = \langle -u^2+d,\ -u^2+c+u,\ -u^2+b+u+1,\ -u^2+a+u,\ u^3+2u+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^2+4u-10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^3 - 8y^2 + 24y - 1$
c_2, c_3, c_4 c_5, c_6, c_7 c_8, c_9, c_{10} c_{11}, c_{12}	$y^3 + 4y^2 + 4y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.22670 + 1.46771I$ $a = -2.32948 - 0.80225I$ $b = -3.32948 - 0.80225I$ $c = -2.32948 - 0.80225I$ $d = -2.10278 + 0.66546I$	$9.44074 - 5.13794I$	$-0.68207 + 3.20902I$
$u = 0.22670 - 1.46771I$ $a = -2.32948 + 0.80225I$ $b = -3.32948 + 0.80225I$ $c = -2.32948 + 0.80225I$ $d = -2.10278 - 0.66546I$	$9.44074 + 5.13794I$	$-0.68207 - 3.20902I$
$u = -0.453398$ $a = 0.658967$ $b = -0.341033$ $c = 0.658967$ $d = 0.205569$	-0.787199	-12.6360

IX.

$$I_9^u = \langle -u^2+d,\ 2u^3-2u^2+c+2u-1,\ b-1,\ u^3+a+2u-1,\ u^4-u^3+2u^2-2u+1\rangle$$

(i) Arc colorings

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

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

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

$$a_7 = \begin{pmatrix} -2u^3 + 2u^2 - 2u + 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -2u^3 + u^2 - 2u + 1 \\ u^3 + 2u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2u^2 + 2u - 2 \\ u \end{pmatrix}$$

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

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

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

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

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

(ii) Obstruction class $= -1$

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

(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_4 c_5, c_6, c_7 c_8, c_9, c_{10} c_{11}, c_{12}	$u^4 - u^3 + 2u^2 - 2u + 1$

(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_4 c_5, c_6, c_7 c_8, c_9, c_{10} c_{11}, c_{12}	$y^4 + 3y^3 + 2y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = -0.121744 - 1.306620I$ $b = 1.00000$ $c = 0.384881 - 0.636296I$ $d = 0.192440 + 0.547877I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$
$u = 0.621744 - 0.440597I$ $a = -0.121744 + 1.306620I$ $b = 1.00000$ $c = 0.384881 + 0.636296I$ $d = 0.192440 - 0.547877I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 + 1.306620I$ $a = 0.621744 - 0.440597I$ $b = 1.00000$ $c = -3.38488 + 1.09575I$ $d = -1.69244 - 0.31815I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 - 1.306620I$ $a = 0.621744 + 0.440597I$ $b = 1.00000$ $c = -3.38488 - 1.09575I$ $d = -1.69244 + 0.31815I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{10}	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = 1.12174 + 1.30662I$ $b = 1.00000$ $c = -0.121744 - 1.306620I$ $d = -1.69244 + 0.31815I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$
$u = 0.621744 - 0.440597I$ $a = 1.12174 - 1.30662I$ $b = 1.00000$ $c = -0.121744 + 1.306620I$ $d = -1.69244 - 0.31815I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 + 1.306620I$ $a = 0.378256 + 0.440597I$ $b = 1.00000$ $c = 0.621744 - 0.440597I$ $d = 0.192440 - 0.547877I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 - 1.306620I$ $a = 0.378256 - 0.440597I$ $b = 1.00000$ $c = 0.621744 + 0.440597I$ $d = 0.192440 + 0.547877I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(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_4 c_5, c_6, c_7 c_8, c_9, c_{10} c_{11}, c_{12}	$u^4 - u^3 + 2u^2 - 2u + 1$

(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_4 c_5, c_6, c_7 c_8, c_9, c_{10} c_{11}, c_{12}	$y^4 + 3y^3 + 2y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{11}	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = -0.121744 - 1.306620I$ $b = 1.00000$ $c = -0.121744 - 1.306620I$ $d = -1.69244 + 0.31815I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$
$u = 0.621744 - 0.440597I$ $a = -0.121744 + 1.306620I$ $b = 1.00000$ $c = -0.121744 + 1.306620I$ $d = -1.69244 - 0.31815I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 + 1.306620I$ $a = 0.621744 - 0.440597I$ $b = 1.00000$ $c = 0.621744 - 0.440597I$ $d = 0.192440 - 0.547877I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 - 1.306620I$ $a = 0.621744 + 0.440597I$ $b = 1.00000$ $c = 0.621744 + 0.440597I$ $d = 0.192440 + 0.547877I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$

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

(i) Arc colorings

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

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

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

$$a_7 = \begin{pmatrix} -u^3-2u+1 \\ u^3-u^2+u-2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$

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

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

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

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

$$a_3 = \begin{pmatrix} -2u^3+u^2-2u+1 \\ -2u^3+u^2-2u \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

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

(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_4 c_5, c_6, c_7 c_8, c_9, c_{10} c_{11}, c_{12}	$u^4 - u^3 + 2u^2 - 2u + 1$

(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_4 c_5, c_6, c_7 c_8, c_9, c_{10} c_{11}, c_{12}	$y^4 + 3y^3 + 2y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{12}	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = 0.384881 - 0.636296I$ $b = -0.615119 - 0.636296I$ $c = -0.121744 - 1.306620I$ $d = -1.69244 + 0.31815I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$
$u = 0.621744 - 0.440597I$ $a = 0.384881 + 0.636296I$ $b = -0.615119 + 0.636296I$ $c = -0.121744 + 1.306620I$ $d = -1.69244 - 0.31815I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 + 1.306620I$ $a = -3.38488 + 1.09575I$ $b = -4.38488 + 1.09575I$ $c = 0.621744 - 0.440597I$ $d = 0.192440 - 0.547877I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 - 1.306620I$ $a = -3.38488 - 1.09575I$ $b = -4.38488 - 1.09575I$ $c = 0.621744 + 0.440597I$ $d = 0.192440 + 0.547877I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$

XIII.

$\boldsymbol{I^u_{13} = \langle u^3+d+u,\ -u^3+c-2u,\ b-1,\ u^3+a+2u-1,\ u^4-u^3+2u^2-2u+1\rangle}$

(i) Arc colorings

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

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

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

$$a_7 = \begin{pmatrix} u^3+2u \\ -u^3-u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^2+u+1 \\ -u^3-u-1 \end{pmatrix}$$

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

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

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

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

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

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{13}	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = -0.121744 - 1.306620I$ $b = 1.00000$ $c = 1.12174 + 1.30662I$ $d = -0.500000 - 0.866025I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$
$u = 0.621744 - 0.440597I$ $a = -0.121744 + 1.306620I$ $b = 1.00000$ $c = 1.12174 - 1.30662I$ $d = -0.500000 + 0.866025I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 + 1.306620I$ $a = 0.621744 - 0.440597I$ $b = 1.00000$ $c = 0.378256 + 0.440597I$ $d = -0.500000 + 0.866025I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.121744 - 1.306620I$ $a = 0.621744 + 0.440597I$ $b = 1.00000$ $c = 0.378256 - 0.440597I$ $d = -0.500000 - 0.866025I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{14}	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -0.070696 + 0.758745I$ $b = 1.00000$ $c = 1.070700 - 0.758745I$ $d = 0.192440 + 0.547877I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$
$u = -0.500000 + 0.866025I$ $a = 1.070700 - 0.758745I$ $b = 1.00000$ $c = -0.070696 + 0.758745I$ $d = -1.69244 + 0.31815I$	$3.28987 - 2.02988I$	$-4.00000 + 3.46410I$
$u = -0.500000 - 0.866025I$ $a = -0.070696 - 0.758745I$ $b = 1.00000$ $c = 1.070700 + 0.758745I$ $d = 0.192440 - 0.547877I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$
$u = -0.500000 - 0.866025I$ $a = 1.070700 + 0.758745I$ $b = 1.00000$ $c = -0.070696 - 0.758745I$ $d = -1.69244 - 0.31815I$	$3.28987 + 2.02988I$	$-4.00000 - 3.46410I$

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

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{15}	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -1.000000I$ $b = 1.00000 - 1.00000I$ $c = 1.000000I$ $d = -1.00000$	4.93480	4.00000
$u = -1.000000I$ $a = 1.000000I$ $b = 1.00000 + 1.00000I$ $c = -1.000000I$ $d = -1.00000$	4.93480	4.00000

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

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{16}		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u =$	$1.000000I$		
$a =$	$1.000000I$		
$b =$	$1.00000 + 1.00000I$	1.64493	−8.00000
$c =$	1.00000		
$d =$	0		
$u =$	$-1.000000I$		
$a =$	$-1.000000I$		
$b =$	$1.00000 - 1.00000I$	1.64493	−8.00000
$c =$	1.00000		
$d =$	0		

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

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{17}	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 1.00000$ $b = 1.00000$ $c = -1.000000I$ $d = -1.00000$	1.64493	−8.00000
$u = -1.000000I$ $a = 1.00000$ $b = 1.00000$ $c = 1.000000I$ $d = -1.00000$	1.64493	−8.00000

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

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

$$a_9 = \begin{pmatrix} -au+u \\ -au \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2$

(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^u_{18}	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$		
$a = \cdots$		
$b = \cdots$	3.28987	-2.00000
$c = \cdots$		
$d = \cdots$		

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

(i) Arc colorings

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

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

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

$a_7 = \begin{pmatrix}v+2\\-1\end{pmatrix}$

$a_{12} = \begin{pmatrix}v\\0\end{pmatrix}$

$a_8 = \begin{pmatrix}v+1\\-1\end{pmatrix}$

$a_1 = \begin{pmatrix}-v+1\\v\end{pmatrix}$

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

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

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

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

$a_9 = \begin{pmatrix}v\\-v\end{pmatrix}$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.000000I$ $a = 0$ $b = 1.00000$ $c = 2.00000 + 1.00000I$ $d = -1.00000$	1.64493	-8.00000
$v = -1.000000I$ $a = 0$ $b = 1.00000$ $c = 2.00000 - 1.00000I$ $d = -1.00000$	1.64493	-8.00000

XX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^2(u-1)^6(u^2+u+1)^6(u^3+4u^2+4u-1)(u^4+3u^3+2u^2+1)^3$ $\cdot(u^6+2u^5+3u^4+2u^3+u^2+3u+4)^3$ $\cdot(u^8+3u^7+8u^6+10u^5+14u^4+11u^3+12u^2+4u+1)^3$ $\cdot(u^{10}+3u^9+8u^8+10u^7+14u^6+8u^5+5u^4+15u^3+48u^2+48u+16)$
c_2, c_8	$u^2(u^2+1)^3(u^2+u+1)^6(u^3+2u+1)(u^4-u^3+2u^2-2u+1)^3$ $\cdot(u^6+u^4+2u^3+u^2+u+2)^3$ $\cdot(u^8-u^7+2u^6-2u^5+4u^4-3u^3+2u^2+1)^3$ $\cdot(u^{10}-u^9+2u^8-2u^7+4u^6-6u^5+5u^4-7u^3+8u^2-4u+4)$
c_3, c_4, c_5 c_6, c_7, c_9 c_{10}, c_{11}, c_{12}	$u^2(u^2+1)^3(u^2+u+1)^2(u^3+2u+1)^5(u^4-u^3+2u^2-2u+1)^5$ $\cdot(u^6+u^4+2u^3+u^2+u+2)$ $\cdot(u^8-u^7+3u^6-3u^5+3u^4-5u^3+4u^2-4u+4)$ $\cdot(u^8+2u^7+6u^6+8u^5+10u^4+9u^3+5u^2+3u+2)^2$ $\cdot(u^{10}-u^9+7u^8-7u^7+18u^6-17u^5+18u^4-15u^3+3u^2+1)$

XXI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^2(y-1)^6(y^2+y+1)^6(y^3-8y^2+24y-1)$ $\cdot(y^4-5y^3+6y^2+4y+1)^3(y^6+2y^5+3y^4-2y^3+13y^2-y+16)^3$ $\cdot(y^8+7y^7+32y^6+82y^5+146y^4+151y^3+84y^2+8y+1)^3$ $\cdot(y^{10}+7y^9+\cdots-768y+256)$
c_2, c_8	$y^2(y+1)^6(y^2+y+1)^6(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)^3$ $\cdot(y^6+2y^5+3y^4+2y^3+y^2+3y+4)^3$ $\cdot(y^8+3y^7+8y^6+10y^5+14y^4+11y^3+12y^2+4y+1)^3$ $\cdot(y^{10}+3y^9+8y^8+10y^7+14y^6+8y^5+5y^4+15y^3+48y^2+48y+16)$
c_3, c_4, c_5 c_6, c_7, c_9 c_{10}, c_{11}, c_{12}	$y^2(y+1)^6(y^2+y+1)^2(y^3+4y^2+4y-1)^5(y^4+3y^3+2y^2+1)^5$ $\cdot(y^6+2y^5+3y^4+2y^3+y^2+3y+4)$ $\cdot(y^8+5y^7+9y^6+7y^5+3y^4-y^3+16y+16)$ $\cdot(y^8+8y^7+24y^6+30y^5+8y^4-5y^3+11y^2+11y+4)^2$ $\cdot(y^{10}+13y^9+\cdots+6y+1)$