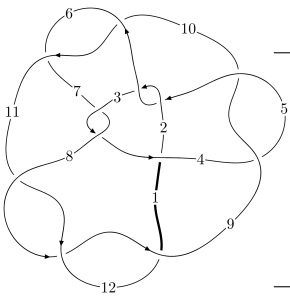
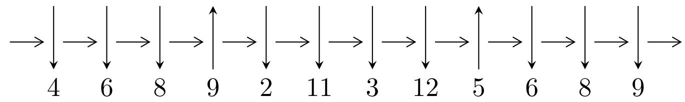
$12n_{0750}$ ($K12n_{0750}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle -2u^5 - 10u^4 - 15u^3 + 13u^2 + 5b + 45u + 19,\ -7u^5 - 25u^4 - 20u^3 + 43u^2 + 15a + 85u + 24, \\
&\quad u^6 + 4u^5 + 5u^4 - 4u^3 - 16u^2 - 12u - 3 \rangle \\
I_2^u &= \langle -2u^2 + b + u + 2,\ a - u,\ u^3 - u^2 + 1 \rangle \\
I_3^u &= \langle -2u^2 a - u^2 + b + a + u,\ a^2 + au - u^2 + u - 1,\ u^3 - u^2 + 1 \rangle \\
I_4^u &= \langle 2u^3 - u^2 + 3b - 1,\ u^3 + 4u^2 + 3a + 9u + 4,\ u^4 + 3u^3 + 5u^2 + u - 1 \rangle \\
I_5^u &= \langle u^2 + b - 3,\ -3u^3 + 4u^2 + 5a + 7u - 10,\ u^4 - 3u^3 + u^2 + 5u - 5 \rangle \\
I_6^u &= \langle -3au + 2b + 6a + u,\ 4a^2 + 2au - 6a - 5u + 3,\ u^2 - u + 2 \rangle \\
I_7^u &= \langle b^2 + b - 1,\ a + 1,\ u + 1 \rangle
\end{aligned}
$$

$$
\begin{aligned}
I_1^v &= \langle a,\ b + v - 2,\ v^2 - 3v + 1 \rangle \\
I_2^v &= \langle a,\ b - 1,\ v - 1 \rangle
\end{aligned}
$$

* 9 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 32 representations.

[1] The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

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

I. $I^u_1 = \langle -2u^5 - 10u^4 + \cdots + 5b + 19,\ -7u^5 - 25u^4 + \cdots + 15a + 24,\ u^6 + 4u^5 + 5u^4 - 4u^3 - 16u^2 - 12u - 3\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{7}{15}u^5 + \frac{5}{3}u^4 + \cdots - \frac{17}{3}u - \frac{8}{5} \\ \frac{2}{5}u^5 + 2u^4 + 3u^3 - \frac{13}{5}u^2 - 9u - \frac{19}{5} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{13}{15}u^5 + \frac{8}{3}u^4 + \cdots - \frac{29}{3}u - \frac{17}{5} \\ \frac{7}{5}u^5 + 4u^4 + 2u^3 - \frac{38}{5}u^2 - 11u - \frac{19}{5} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{7}{15}u^5 + \frac{5}{3}u^4 + \cdots - \frac{17}{3}u - \frac{8}{5} \\ \frac{3}{5}u^5 + 2u^4 + 2u^3 - \frac{17}{5}u^2 - 8u - \frac{16}{5} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{4}{15}u^5 - \frac{2}{3}u^4 + \cdots + \frac{8}{3}u + \frac{6}{5} \\ -\frac{1}{5}u^5 - u^4 - u^3 + \frac{9}{5}u^2 + 4u + \frac{7}{5} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{7}{15}u^5 - \frac{5}{3}u^4 + \cdots + \frac{20}{3}u + \frac{13}{5} \\ -\frac{1}{5}u^5 - u^4 - u^3 + \frac{9}{5}u^2 + 4u + \frac{7}{5} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{4}{15}u^5 + \frac{2}{3}u^4 + \cdots - \frac{8}{3}u - \frac{1}{5} \\ \frac{4}{5}u^5 + 2u^4 + u^3 - \frac{21}{5}u^2 - 7u - \frac{13}{5} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{2}{15}u^5 + \frac{1}{3}u^4 + \cdots - \frac{1}{3}u + \frac{7}{5} \\ -\frac{2}{5}u^5 - u^4 + \frac{8}{5}u^2 + 2u + \frac{4}{5} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{26}{5}u^5 + 18u^4 + 16u^3 - \frac{154}{5}u^2 - 72u - \frac{192}{5}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_6 c_7, c_{10}	$y^6 + 6y^5 + 25y^4 - 54y^3 + 14y^2 + 4y + 1$
c_2, c_5, c_8 c_{11}, c_{12}	$y^6 - 6y^5 + 25y^4 - 86y^3 + 130y^2 - 48y + 9$
c_4, c_9	$y^6 - 6y^5 + 9y^4 + 6y^3 - 10y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.510485 + 0.215723I$ $a = 0.602418 - 0.514537I$ $b = 0.055837 - 1.062600I$	$-0.807577 + 0.909082I$	$-9.16175 - 7.66066I$
$u = -0.510485 - 0.215723I$ $a = 0.602418 + 0.514537I$ $b = 0.055837 + 1.062600I$	$-0.807577 - 0.909082I$	$-9.16175 + 7.66066I$
$u = 1.52560$ $a = 0.702173$ $b = 1.21012$	-11.8129	-22.6370
$u = -1.70948$ $a = 0.469310$ $b = 0.240689$	-9.43829	-7.45040
$u = -1.39757 + 1.33871I$ $a = -1.188160 + 0.447062I$ $b = 3.21876 + 4.79537I$	$13.9006 + 10.5245I$	$-7.79449 - 4.24029I$
$u = -1.39757 - 1.33871I$ $a = -1.188160 - 0.447062I$ $b = 3.21876 - 4.79537I$	$13.9006 - 10.5245I$	$-7.79449 + 4.24029I$

II. $I_2^u = \langle -2u^2 + b + u + 2,\ a - u,\ u^3 - u^2 + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = 0.877439 + 0.744862I$ $b = -2.44728 + 1.86942I$	$6.04826 - 5.65624I$	$-4.98049 + 5.95889I$
$u = 0.877439 - 0.744862I$ $a = 0.877439 - 0.744862I$ $b = -2.44728 - 1.86942I$	$6.04826 + 5.65624I$	$-4.98049 - 5.95889I$
$u = -0.754878$ $a = -0.754878$ $b = -0.105442$	-2.22691	-18.0390

III. $\boldsymbol{I_3^u = \langle -2u^2a - u^2 + b + a + u,\ a^2 + au - u^2 + u - 1,\ u^3 - u^2 + 1\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

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

$$a_6 = \begin{pmatrix} -u^2a + au + u - 1 \\ au \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 8u - 18$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_6 c_7, c_{10}	$y^6 + 3y^5 - 4y^4 - 22y^3 + 12y^2 + 4y + 1$
c_2, c_5, c_8 c_{11}, c_{12}	$(y^3 - y^2 + 2y - 1)^2$
c_4, c_9	$y^6 - 9y^5 + 36y^4 - 90y^3 + 148y^2 - 136y + 25$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = -1.26420 - 0.91095I$ $b = 2.43950 - 2.22359I$	$4.40332 - 5.65624I$	$-10.98049 + 5.95889I$
$u = 0.877439 + 0.744862I$ $a = 0.386757 + 0.166085I$ $b = -1.31694 + 1.47873I$	$4.40332 - 5.65624I$	$-10.98049 + 5.95889I$
$u = 0.877439 - 0.744862I$ $a = -1.26420 + 0.91095I$ $b = 2.43950 + 2.22359I$	$4.40332 + 5.65624I$	$-10.98049 - 5.95889I$
$u = 0.877439 - 0.744862I$ $a = 0.386757 - 0.166085I$ $b = -1.31694 - 1.47873I$	$4.40332 + 5.65624I$	$-10.98049 - 5.95889I$
$u = -0.754878$ $a = -1.19329$ $b = 1.15804$	-3.87184	-24.0390
$u = -0.754878$ $a = 1.94816$ $b = 1.59684$	-3.87184	-24.0390

IV. $\boldsymbol{I_4^u = \langle 2u^3 - u^2 + 3b - 1,\ u^3 + 4u^2 + 3a + 9u + 4,\ u^4 + 3u^3 + 5u^2 + u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_6 c_7, c_{10}	$y^4 + 12y^3 + 38y^2 - 33y + 1$
c_2, c_5, c_8 c_{11}, c_{12}	$y^4 + y^3 + 17y^2 - 11y + 1$
c_4, c_9	$(y^2 - 3y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.713039$ $a = \quad 0.248726$ $b = \quad 0.744493$	-1.31595	-7.00000
$u = \quad 0.331073$ $a = -2.48479$ $b = \quad 0.345677$	-1.31595	-7.00000
$u = -1.30902 + 1.58825I$ $a = \quad 1.118030 - 0.606658I$ $b = -5.04508 - 4.15810I$	14.4754	-7.00000
$u = -1.30902 - 1.58825I$ $a = \quad 1.118030 + 0.606658I$ $b = -5.04508 + 4.15810I$	14.4754	-7.00000

V. $\boldsymbol{I_5^u = \langle u^2 + b - 3,\ -3u^3 + 4u^2 + 5a + 7u - 10,\ u^4 - 3u^3 + u^2 + 5u - 5\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} \frac{3}{5}u^3 - \frac{4}{5}u^2 - \frac{7}{5}u + 2 \\ -u^2 + 3 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -\frac{7}{5}u^3 + \frac{11}{5}u^2 + \frac{8}{5}u - 3 \\ -2u^3 + 4u^2 + 2u - 7 \end{pmatrix}$$

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

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

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

$$a_6 = \begin{pmatrix} \frac{4}{5}u^3 - \frac{7}{5}u^2 - \frac{1}{5}u + 2 \\ u^3 - 2u^2 - u + 4 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -\frac{6}{5}u^3 + \frac{8}{5}u^2 + \frac{9}{5}u - 3 \\ -2u^3 + 3u^2 + 3u - 6 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.31651$ $a = 1.08748$ $b = 1.26680$	-11.1856	-7.00000
$u = 1.30902 + 0.72287I$ $a = -0.670820 - 0.523074I$ $b = 1.80902 - 1.89250I$	4.60582	-7.00000
$u = 1.30902 - 0.72287I$ $a = -0.670820 + 0.523074I$ $b = 1.80902 + 1.89250I$	4.60582	-7.00000
$u = 1.69848$ $a = 0.254159$ $b = 0.115171$	-11.1856	-7.00000

VI. $I_6^u = \langle -3au + 2b + 6a + u,\ 4a^2 + 2au - 6a - 5u + 3,\ u^2 - u + 2 \rangle$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

$$a_1 = \begin{pmatrix} -u + 3 \\ 5u - 6 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} a \\ \frac{1}{2}au - a - \frac{1}{2}u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} au + a + \frac{1}{2}u - \frac{5}{2} \\ -\frac{1}{2}au - a - \frac{1}{2}u + 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}au - \frac{1}{2} \\ -\frac{1}{2}au - a - \frac{1}{2}u + 2 \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_6 c_7, c_{10}	$y^4 + 7y^3 + 8y^2 + 7y + 121$
c_2, c_5, c_8 c_{11}, c_{12}	$(y^2 + 3y + 4)^2$
c_4, c_9	$(y^2 - 3y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.50000 + 1.32288I$ $a = -0.213525 - 1.070230I$ $b = 2.35410 + 1.32288I$	6.57974	−7.00000
$u = 0.50000 + 1.32288I$ $a = 1.46353 + 0.40879I$ $b = -4.35410 + 1.32288I$	6.57974	−7.00000
$u = 0.50000 - 1.32288I$ $a = -0.213525 + 1.070230I$ $b = 2.35410 - 1.32288I$	6.57974	−7.00000
$u = 0.50000 - 1.32288I$ $a = 1.46353 - 0.40879I$ $b = -4.35410 - 1.32288I$	6.57974	−7.00000

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

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

$$a_1 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00000$ $a=-1.00000$ $b=\ \ 0.618034$	-3.28987	-7.00000
$u=-1.00000$ $a=-1.00000$ $b=-1.61803$	-3.28987	-7.00000

VIII. $\boldsymbol{I_1^v = \langle a,\ b+v-2,\ v^2-3v+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 0.381966$ $a = 0$ $b = 1.61803$	-3.28987	-7.00000
$v = 2.61803$ $a = 0$ $b = -0.618034$	-3.28987	-7.00000

IX. $\boldsymbol{I_2^v = \langle a,\ b-1,\ v-1\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}1\\0\end{pmatrix}$$

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

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

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

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

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

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

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

$$a_{10} = \begin{pmatrix}0\\-1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v =$	1.00000		
$a =$	0	-1.64493	-6.00000
$b =$	1.00000		

X. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3, c_6	$((u-1)^2)(u+1)(u^2-u-1)(u^3-u^2+2u-1)(u^4-3u^3+\cdots-13u+11)$ $\cdot(u^4+2u^3+2u^2+u-1)(u^4+2u^3+8u^2+7u+1)$ $\cdot(u^6-2u^5+\cdots-2u-1)(u^6+u^5+2u^4-4u^2+2u-1)$
c_2, c_8	$u^3(u-1)^2(u^2-u+2)^2(u^3-u^2+1)^2(u^3+u^2-1)$ $\cdot(u^4+3u^3+u^2-5u-5)(u^4+3u^3+5u^2+u-1)$ $\cdot(u^6+4u^5+5u^4-4u^3-16u^2-12u-3)$
c_4	$(u+1)(u^2-u-1)^8(u^3+3u^2+2u-1)(u^6+2u^5+\cdots-2u+1)$ $\cdot(u^6+3u^5-4u^3+6u^2+14u+5)$
c_5, c_{11}, c_{12}	$u^3(u+1)^2(u^2-u+2)^2(u^3-u^2+1)^3(u^4-3u^3+u^2+5u-5)$ $\cdot(u^4+3u^3+5u^2+u-1)(u^6+4u^5+5u^4-4u^3-16u^2-12u-3)$
c_7, c_{10}	$((u+1)^3)(u^2+u-1)(u^3+u^2+2u+1)(u^4-3u^3+\cdots-13u+11)$ $\cdot(u^4-2u^3+2u^2-u-1)(u^4+2u^3+8u^2+7u+1)$ $\cdot(u^6-2u^5+\cdots-2u-1)(u^6+u^5+2u^4-4u^2+2u-1)$
c_9	$(u+1)(u^2-u-1)^4(u^2+u-1)^4(u^3-3u^2+2u+1)$ $\cdot(u^6+2u^5-u^4-2u^3-2u+1)(u^6+3u^5-4u^3+6u^2+14u+5)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_6 c_7, c_{10}	$(y-1)^3(y^2-3y+1)(y^3+3y^2+2y-1)(y^4-2y^2-5y+1)$ $\cdot\,(y^4+7y^3+8y^2+7y+121)(y^4+12y^3+38y^2-33y+1)$ $\cdot\,(y^6+3y^5-4y^4-22y^3+12y^2+4y+1)$ $\cdot\,(y^6+6y^5+25y^4-54y^3+14y^2+4y+1)$
c_2, c_5, c_8 c_{11}, c_{12}	$y^3(y-1)^2(y^2+3y+4)^2(y^3-y^2+2y-1)^3$ $\cdot\,(y^4-7y^3+21y^2-35y+25)(y^4+y^3+17y^2-11y+1)$ $\cdot\,(y^6-6y^5+25y^4-86y^3+130y^2-48y+9)$
c_4, c_9	$(y-1)(y^2-3y+1)^8(y^3-5y^2+10y-1)$ $\cdot\,(y^6-9y^5+36y^4-90y^3+148y^2-136y+25)$ $\cdot\,(y^6-6y^5+9y^4+6y^3-10y^2-4y+1)$