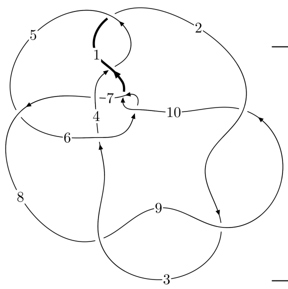
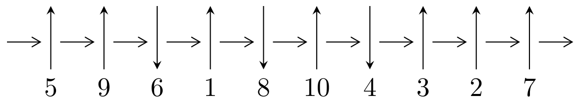
10_{103} $(K10a_{105})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle -u^{14} - 7u^{13} + \cdots + 2b + 6,\ -3u^{14} - 17u^{13} + \cdots + 4a + 24,\ u^{15} + 5u^{14} + \cdots - 22u - 4\rangle \\
I_2^u &= \langle -a^3u - a^3 + a^2u + 2u^2a + 2a^2 + 2au - 3u^2 + 4b + a - u - 7, \\
&\quad - a^3u^2 + a^4 + a^3u + a^2u^2 - 2a^3 + 6u^2a - 2a^2 - 3au + 7u^2 + 11a - 3u + 17,\ u^3 + 2u + 1\rangle \\
I_3^u &= \langle -u^6 + 2u^5 - 4u^4 + 4u^3 - 3u^2 + b + u,\ u^4 - 2u^3 + 3u^2 + a - 3u + 1,\ u^7 - u^6 + 4u^5 - 3u^4 + 4u^3 - 3u^2 - 1\rangle \\
I_4^u &= \langle -u^3a + u^2a - u^3 - 2au + u^2 + b + a - u + 1,\ u^3a + u^2a - 2u^3 + a^2 + u^2 - u,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle \\
I_5^u &= \langle b - u,\ a,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle \\
I_6^u &= \langle u^3 - 2u^2 + b + 2u - 1,\ -u^2 + a + 1,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle \\
I_7^u &= \langle b + 1,\ a,\ u + 1\rangle
\end{aligned}
$$

* 7 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 51 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. $I_1^u = \langle -u^{14}-7u^{13}+\cdots+2b+6,\ -3u^{14}-17u^{13}+\cdots+4a+24,\ u^{15}+5u^{14}+\cdots-22u-4\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}\frac{3}{4}u^{14}+\frac{17}{4}u^{13}+\cdots-\frac{107}{4}u-6\\ \frac{1}{2}u^{14}+\frac{7}{2}u^{13}+\cdots-\frac{25}{2}u-3\end{pmatrix}$$
$$a_4 = \begin{pmatrix}\frac{1}{2}u^{13}+\frac{3}{2}u^{12}+\cdots+\frac{13}{2}u+\frac{5}{2}\\ \frac{1}{2}u^{14}+\frac{5}{2}u^{13}+\cdots-\frac{33}{2}u^2-\frac{7}{2}u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-\frac{1}{4}u^{14}-\frac{3}{4}u^{13}+\cdots-\frac{67}{4}u-4\\ -\frac{1}{2}u^{14}-\frac{3}{2}u^{13}+\cdots-\frac{5}{2}u-1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}\frac{3}{4}u^{14}+\frac{13}{4}u^{13}+\cdots-\frac{59}{4}u-4\\ \frac{1}{2}u^{14}+\frac{3}{2}u^{13}+\cdots-\frac{5}{2}u-1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-\frac{1}{2}u^{13}-\frac{5}{2}u^{12}+\cdots+\frac{19}{2}u+\frac{5}{2}\\ -\frac{1}{2}u^{14}-\frac{5}{2}u^{13}+\cdots+\frac{23}{2}u+2\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{14}-17u^{13}-63u^{12}-150u^{11}-301u^{10}-461u^9-582u^8-556u^7-394u^6-135u^5+61u^4+145u^3+106u^2+46u+6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_6 c_{10}	$u^{15} - 5u^{13} + 12u^{11} + u^{10} - 13u^9 - u^8 + 7u^7 - 2u^6 - 2u^5 + 6u^4 + 4u^3 - 1$
c_2, c_8, c_9	$u^{15} + 5u^{14} + \cdots - 22u - 4$
c_3, c_5	$u^{15} - u^{14} + \cdots + 7u - 1$
c_7	$u^{15} + 12u^{14} + \cdots - 352u - 64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_{10}	$y^{15} - 10y^{14} + \cdots + 12y^2 - 1$
c_2, c_8, c_9	$y^{15} + 15y^{14} + \cdots + 12y - 16$
c_3, c_5	$y^{15} - 7y^{14} + \cdots + 39y - 1$
c_7	$y^{15} + 4y^{14} + \cdots + 15360y - 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.887920 + 0.390096I$ $a = -0.456559 + 0.349463I$ $b = 1.021850 + 0.430810I$	$5.98098 - 9.46445I$	$7.81439 + 7.21994I$
$u = -0.887920 - 0.390096I$ $a = -0.456559 - 0.349463I$ $b = 1.021850 - 0.430810I$	$5.98098 + 9.46445I$	$7.81439 - 7.21994I$
$u = -0.744334 + 0.885606I$ $a = 0.126989 + 0.717975I$ $b = -0.257749 - 0.301552I$	$4.59236 + 3.90754I$	$6.20530 - 5.11964I$
$u = -0.744334 - 0.885606I$ $a = 0.126989 - 0.717975I$ $b = -0.257749 + 0.301552I$	$4.59236 - 3.90754I$	$6.20530 + 5.11964I$
$u = 0.666897$ $a = -0.432662$ $b = 0.365528$	1.03900	11.4360
$u = -0.12237 + 1.42140I$ $a = 1.69571 - 0.09050I$ $b = 2.22357 - 0.39328I$	$-6.94441 - 2.69912I$	$-1.74572 + 0.84288I$
$u = -0.12237 - 1.42140I$ $a = 1.69571 + 0.09050I$ $b = 2.22357 + 0.39328I$	$-6.94441 + 2.69912I$	$-1.74572 - 0.84288I$
$u = -0.41800 + 1.40303I$ $a = 1.190560 - 0.502109I$ $b = 1.52895 + 0.14725I$	$-2.92891 - 5.10870I$	$4.27958 + 4.78875I$
$u = -0.41800 - 1.40303I$ $a = 1.190560 + 0.502109I$ $b = 1.52895 - 0.14725I$	$-2.92891 + 5.10870I$	$4.27958 - 4.78875I$
$u = 0.00988 + 1.50056I$ $a = -0.858298 + 0.099548I$ $b = -1.290570 + 0.574441I$	$-4.75856 + 2.25763I$	$0.39685 - 3.44983I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.00988 - 1.50056I$ $a = -0.858298 - 0.099548I$ $b = -1.290570 - 0.574441I$	$-4.75856 - 2.25763I$	$0.39685 + 3.44983I$
$u = -0.33501 + 1.48524I$ $a = -1.82710 - 0.08509I$ $b = -2.42017 - 0.90791I$	$-0.04257 - 13.87480I$	$4.10212 + 7.41823I$
$u = -0.33501 - 1.48524I$ $a = -1.82710 + 0.08509I$ $b = -2.42017 + 0.90791I$	$-0.04257 + 13.87480I$	$4.10212 - 7.41823I$
$u = -0.335695 + 0.310740I$ $a = 0.095018 - 1.380210I$ $b = -0.488639 - 0.337278I$	$-1.35319 - 0.99888I$	$-2.77065 + 2.25299I$
$u = -0.335695 - 0.310740I$ $a = 0.095018 + 1.380210I$ $b = -0.488639 + 0.337278I$	$-1.35319 + 0.99888I$	$-2.77065 - 2.25299I$

II.

$$\boldsymbol{I^u_2 = \langle 2u^2a - 3u^2 + \cdots + a - 7,\ -a^3u^2 + a^2u^2 + \cdots + 11a + 17,\ u^3 + 2u + 1\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_{10}	$y^{12} - 6y^{11} + \cdots - 108y + 16$
c_2, c_8, c_9	$(y^3 + 4y^2 + 4y - 1)^4$
c_3, c_5	$y^{12} - 2y^{11} + \cdots + 36y + 16$
c_7	$(y^2 + y + 1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.22670 + 1.46771I$ $a = -1.269590 - 0.163681I$ $b = -1.85587 + 0.33973I$	$-4.50593 + 3.10806I$	$2.68207 + 0.25508I$
$u = 0.22670 + 1.46771I$ $a = -1.47391 - 0.21481I$ $b = -2.37427 - 0.36871I$	$-4.50593 + 7.16782I$	$2.68207 - 6.67312I$
$u = 0.22670 + 1.46771I$ $a = 0.410077 + 0.047895I$ $b = 0.496356 + 0.410508I$	$-4.50593 + 3.10806I$	$2.68207 + 0.25508I$
$u = 0.22670 + 1.46771I$ $a = 2.00394 - 0.47166I$ $b = 2.40430 - 1.18378I$	$-4.50593 + 7.16782I$	$2.68207 - 6.67312I$
$u = 0.22670 - 1.46771I$ $a = -1.269590 + 0.163681I$ $b = -1.85587 - 0.33973I$	$-4.50593 - 3.10806I$	$2.68207 - 0.25508I$
$u = 0.22670 - 1.46771I$ $a = -1.47391 + 0.21481I$ $b = -2.37427 + 0.36871I$	$-4.50593 - 7.16782I$	$2.68207 + 6.67312I$
$u = 0.22670 - 1.46771I$ $a = 0.410077 - 0.047895I$ $b = 0.496356 - 0.410508I$	$-4.50593 - 3.10806I$	$2.68207 - 0.25508I$
$u = 0.22670 - 1.46771I$ $a = 2.00394 + 0.47166I$ $b = 2.40430 + 1.18378I$	$-4.50593 - 7.16782I$	$2.68207 + 6.67312I$
$u = -0.453398$ $a = -1.28266 + 0.65754I$ $b = 1.42257 + 0.97392I$	$5.72200 + 2.02988I$	$14.6359 - 3.4641I$
$u = -0.453398$ $a = -1.28266 - 0.65754I$ $b = 1.42257 - 0.97392I$	$5.72200 - 2.02988I$	$14.6359 + 3.4641I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.453398$ $a = \quad 2.61214 + 1.64520I$ $b = -0.593090 + 0.462783I$	$5.72200 + 2.02988I$	$14.6359 - 3.4641I$
$u = -0.453398$ $a = \quad 2.61214 - 1.64520I$ $b = -0.593090 - 0.462783I$	$5.72200 - 2.02988I$	$14.6359 + 3.4641I$

III. $\boldsymbol{I^u_3 = \langle -u^6+2u^5-4u^4+4u^3-3u^2+b+u,\ u^4-2u^3+3u^2+a-3u+1,\ u^7-u^6+4u^5-3u^4+4u^3-3u^2-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_{10}	$y^7 - 7y^6 + 21y^5 - 33y^4 + 29y^3 - 15y^2 + 6y - 1$
c_2, c_8, c_9	$y^7 + 7y^6 + 18y^5 + 17y^4 - 4y^3 - 15y^2 - 6y - 1$
c_3, c_5	$y^7 + 4y^5 - 2y^4 + 4y^3 + y - 1$
c_7	$y^7 - y^6 - 4y^4 + 2y^3 - 4y^2 - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.918562$ $a = 0.0625775$ $b = 0.653034$	0.366890	-3.70900
$u = -0.067922 + 1.289750I$ $a = 1.72899 - 0.44162I$ $b = 2.07818 + 0.63907I$	$1.60291 - 2.64701I$	$5.65301 + 1.06537I$
$u = -0.067922 - 1.289750I$ $a = 1.72899 + 0.44162I$ $b = 2.07818 - 0.63907I$	$1.60291 + 2.64701I$	$5.65301 - 1.06537I$
$u = -0.187854 + 0.509305I$ $a = -0.62575 + 1.85982I$ $b = -0.882406 - 0.430998I$	$4.59137 + 1.74054I$	$6.14623 - 0.88292I$
$u = -0.187854 - 0.509305I$ $a = -0.62575 - 1.85982I$ $b = -0.882406 + 0.430998I$	$4.59137 - 1.74054I$	$6.14623 + 0.88292I$
$u = 0.29650 + 1.45837I$ $a = -1.134520 - 0.126961I$ $b = -1.52229 + 0.18408I$	$-4.73279 + 4.40574I$	$1.05528 - 5.72803I$
$u = 0.29650 - 1.45837I$ $a = -1.134520 + 0.126961I$ $b = -1.52229 - 0.18408I$	$-4.73279 - 4.40574I$	$1.05528 + 5.72803I$

IV. $I_4^u = \langle -u^3a + u^2a - u^3 - 2au + u^2 + b + a - u + 1,\ u^3a + u^2a - 2u^3 + a^2 + u^2 - u,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_{10}	$y^8 - 6y^7 + 17y^6 - 24y^5 - 6y^4 + 66y^3 - 52y^2 - 36y + 49$
c_2, c_8, c_9	$(y^4 + 3y^3 + 2y^2 + 1)^2$
c_3, c_5	$y^8 + 7y^7 + 32y^6 + 42y^5 + 98y^4 + 15y^3 + 68y^2 - 8y + 1$
c_7	$(y^2 + y + 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = -0.639419 - 1.130600I$ $b = 0.210602 - 0.087079I$	$1.64493 + 4.05977I$	$6.00000 - 6.92820I$
$u = 0.621744 + 0.440597I$ $a = 0.568723 + 0.157295I$ $b = -0.851993 + 0.738544I$	$1.64493 + 4.05977I$	$6.00000 - 6.92820I$
$u = 0.621744 - 0.440597I$ $a = -0.639419 + 1.130600I$ $b = 0.210602 + 0.087079I$	$1.64493 - 4.05977I$	$6.00000 + 6.92820I$
$u = 0.621744 - 0.440597I$ $a = 0.568723 - 0.157295I$ $b = -0.851993 - 0.738544I$	$1.64493 - 4.05977I$	$6.00000 + 6.92820I$
$u = -0.121744 + 1.306620I$ $a = -0.81180 + 1.76022I$ $b = -1.012310 + 0.720834I$	$1.64493 - 4.05977I$	$6.00000 + 6.92820I$
$u = -0.121744 + 1.306620I$ $a = 1.88250 + 0.73058I$ $b = 2.65370 + 1.66268I$	$1.64493 - 4.05977I$	$6.00000 + 6.92820I$
$u = -0.121744 - 1.306620I$ $a = -0.81180 - 1.76022I$ $b = -1.012310 - 0.720834I$	$1.64493 + 4.05977I$	$6.00000 - 6.92820I$
$u = -0.121744 - 1.306620I$ $a = 1.88250 - 0.73058I$ $b = 2.65370 - 1.66268I$	$1.64493 + 4.05977I$	$6.00000 - 6.92820I$

V. $I_5^u = \langle b - u,\ a,\ u^4 - u^3 + 2u^2 - 2u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = 0$ $b = 0.621744 + 0.440597I$	1.64493	6.00000
$u = 0.621744 - 0.440597I$ $a = 0$ $b = 0.621744 - 0.440597I$	1.64493	6.00000
$u = -0.121744 + 1.306620I$ $a = 0$ $b = -0.121744 + 1.306620I$	1.64493	6.00000
$u = -0.121744 - 1.306620I$ $a = 0$ $b = -0.121744 - 1.306620I$	1.64493	6.00000

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = -0.807560 + 0.547877I$ $b = 0.263136 - 0.210868I$	1.64493	6.00000
$u = 0.621744 - 0.440597I$ $a = -0.807560 - 0.547877I$ $b = 0.263136 + 0.210868I$	1.64493	6.00000
$u = -0.121744 + 1.306620I$ $a = -2.69244 - 0.31815I$ $b = -2.76314 - 1.07689I$	1.64493	6.00000
$u = -0.121744 - 1.306620I$ $a = -2.69244 + 0.31815I$ $b = -2.76314 + 1.07689I$	1.64493	6.00000

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

(i) Arc colorings

$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_6 c_8, c_9, c_{10}	$y-1$
c_7	$y-4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 0$ $b = -1.00000$	1.64493	6.00000

VIII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u-1)^5(u^4+3u^3+2u^2+1)(u^7-u^6-3u^5+3u^4+3u^3-3u^2+1)$ $\cdot(u^8+2u^7+\cdots+8u+7)(u^{12}-3u^{10}+\cdots+14u+4)$ $\cdot(u^{15}-5u^{13}+12u^{11}+u^{10}-13u^9-u^8+7u^7-2u^6-2u^5+6u^4+4u^3-1)$
c_2	$(u+1)(u^3+2u+1)^4(u^4-u^3+2u^2-2u+1)^4$ $\cdot(u^7-u^6+\cdots-3u^2-1)(u^{15}+5u^{14}+\cdots-22u-4)$
c_3, c_5	$(u+1)(u^4-3u^3+2u^2+1)(u^4-u^3+\cdots-2u+1)(u^7-2u^4+\cdots+u-1)$ $\cdot(u^8-u^7+4u^6+2u^5+6u^4-5u^3+4u^2+4u+1)$ $\cdot(u^{12}-2u^{11}+\cdots-6u+4)(u^{15}-u^{14}+\cdots+7u-1)$
c_4, c_{10}	$(u-1)^5(u^4+3u^3+2u^2+1)(u^7+u^6-3u^5-3u^4+3u^3+3u^2-1)$ $\cdot(u^8+2u^7+\cdots+8u+7)(u^{12}-3u^{10}+\cdots+14u+4)$ $\cdot(u^{15}-5u^{13}+12u^{11}+u^{10}-13u^9-u^8+7u^7-2u^6-2u^5+6u^4+4u^3-1)$
c_7	$(u+2)(u^2-u+1)^{14}(u^7+u^6+2u^4+2u^3+1)$ $\cdot(u^{15}+12u^{14}+\cdots-352u-64)$
c_8, c_9	$(u+1)(u^3+2u+1)^4(u^4-u^3+2u^2-2u+1)^4$ $\cdot(u^7+u^6+\cdots+3u^2+1)(u^{15}+5u^{14}+\cdots-22u-4)$

IX. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_{10}	$(y-1)^5(y^4-5y^3+6y^2+4y+1)$ $\cdot(y^7-7y^6+21y^5-33y^4+29y^3-15y^2+6y-1)$ $\cdot(y^8-6y^7+17y^6-24y^5-6y^4+66y^3-52y^2-36y+49)$ $\cdot(y^{12}-6y^{11}+\cdots-108y+16)(y^{15}-10y^{14}+\cdots+12y^2-1)$
c_2, c_8, c_9	$(y-1)(y^3+4y^2+4y-1)^4(y^4+3y^3+2y^2+1)^4$ $\cdot(y^7+7y^6+18y^5+17y^4-4y^3-15y^2-6y-1)$ $\cdot(y^{15}+15y^{14}+\cdots+12y-16)$
c_3, c_5	$(y-1)(y^4-5y^3+6y^2+4y+1)(y^4+3y^3+2y^2+1)$ $\cdot(y^7+4y^5-2y^4+4y^3+y-1)$ $\cdot(y^8+7y^7+32y^6+42y^5+98y^4+15y^3+68y^2-8y+1)$ $\cdot(y^{12}-2y^{11}+\cdots+36y+16)(y^{15}-7y^{14}+\cdots+39y-1)$
c_7	$(y-4)(y^2+y+1)^{14}(y^7-y^6-4y^4+2y^3-4y^2-1)$ $\cdot(y^{15}+4y^{14}+\cdots+15360y-4096)$