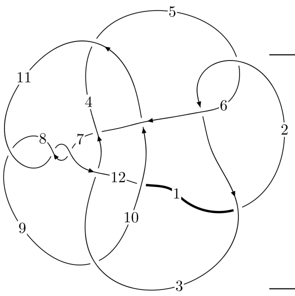
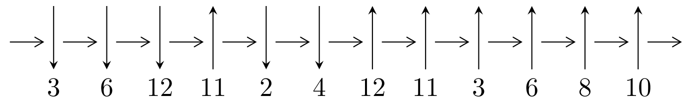
$12n_{0443}$ ($K12n_{0443}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle b-u,\ 64645u^{14} - 65427u^{13} + \cdots + 135557a + 338831, \\
&\quad u^{15} + 10u^{13} + 3u^{12} + 43u^{11} + 24u^{10} + 99u^9 + 76u^8 + 124u^7 + 108u^6 + 79u^5 + 56u^4 + 21u^3 + u^2 - 1\rangle \\
I_2^u &= \langle b+u,\ -8u^8 + 3u^7 - 25u^6 + 25u^5 - 9u^4 + 26u^3 + 23u^2 + a - 34u - 19, \\
&\quad u^9 + 3u^7 - 2u^6 - 3u^4 - 4u^3 + 3u^2 + 4u + 1\rangle \\
I_3^u &= \langle 80577u^{11} - 475411u^{10} + \cdots + 2674873b - 7542897, \\
&\quad 1788526u^{11} - 120225u^{10} + \cdots + 29423603a + 69597502, \\
&\quad u^{12} - 2u^{11} + 4u^{10} - 9u^9 + 8u^8 - 14u^7 + 17u^6 - 10u^5 + 40u^4 - u^3 + 45u^2 - 5u + 11\rangle \\
I_4^u &= \langle b-u-1,\ a,\ u^2+u+1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 38 representations.

---

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

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

I. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle b-u,\ 64645u^{14}-65427u^{13}+\cdots+135557a+338831,\ u^{15}+10u^{13}+\cdots+u^{2}-1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix}-0.476884u^{14}+0.482653u^{13}+\cdots+1.81451u-2.49955\\u\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.476884u^{14}+0.482653u^{13}+\cdots+1.81451u-2.49955\\0.00639583u^{14}-0.283881u^{13}+\cdots+0.523116u+0.482653\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-0.476884u^{14}+0.482653u^{13}+\cdots+2.81451u-2.49955\\0.00639583u^{14}-0.283881u^{13}+\cdots+0.523116u+0.482653\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-0.0111245u^{14}+0.0185605u^{13}+\cdots-0.528095u+2.36120\\0.205168u^{14}-0.302522u^{13}+\cdots-0.493778u+0.0121646\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.194044u^{14}-0.283962u^{13}+\cdots-1.02187u+2.37336\\0.205168u^{14}-0.302522u^{13}+\cdots-0.493778u+0.0121646\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-0.879586u^{14}-0.206208u^{13}+\cdots+4.63070u-0.816210\\-0.198691u^{14}+0.0715566u^{13}+\cdots+0.126183u+0.282840\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}0.897106u^{14}-0.0962326u^{13}+\cdots-5.57949u-2.06234\\-0.00639583u^{14}+0.283881u^{13}+\cdots+1.47688u-0.482653\end{pmatrix}$$

$$a_9 = \begin{pmatrix}0.475313u^{14}-0.416371u^{13}+\cdots-7.11258u+0.678549\\0.0187228u^{14}+0.0271177u^{13}+\cdots+0.579778u-0.386420\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}0.494036u^{14}-0.389253u^{13}+\cdots-6.53280u+0.292128\\0.0187228u^{14}+0.0271177u^{13}+\cdots+0.579778u-0.386420\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{335739}{135557}u^{14} - \frac{152409}{135557}u^{13} + \cdots + \frac{281645}{135557}u + \frac{754781}{135557}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{15} + 20u^{14} + \cdots + 849u + 16$
c_2, c_5	$u^{15} + 8u^{14} + \cdots + 23u - 4$
c_3, c_6	$u^{15} + 10u^{13} + \cdots + u^2 - 1$
c_4, c_9	$u^{15} + 13u^{13} + \cdots + u - 1$
c_7, c_8, c_{11}	$u^{15} + 6u^{14} + \cdots - 5u - 2$
c_{10}, c_{12}	$u^{15} - u^{14} + \cdots - 11u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{15} - 44y^{14} + \cdots + 606753y - 256$
c_2, c_5	$y^{15} - 20y^{14} + \cdots + 849y - 16$
c_3, c_6	$y^{15} + 20y^{14} + \cdots + 2y - 1$
c_4, c_9	$y^{15} + 26y^{14} + \cdots - 3y - 1$
c_7, c_8, c_{11}	$y^{15} + 10y^{14} + \cdots - 39y - 4$
c_{10}, c_{12}	$y^{15} + 19y^{14} + \cdots + 95y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.045427 + 1.039060I$ $a = 1.54244 - 0.28684I$ $b = 0.045427 + 1.039060I$	$-11.28150 + 1.93400I$	$-1.23160 - 1.02985I$
$u = 0.045427 - 1.039060I$ $a = 1.54244 + 0.28684I$ $b = 0.045427 - 1.039060I$	$-11.28150 - 1.93400I$	$-1.23160 + 1.02985I$
$u = -0.608111 + 0.211954I$ $a = 0.250704 - 0.629982I$ $b = -0.608111 + 0.211954I$	$-1.45492 + 0.35788I$	$-5.52968 - 1.62247I$
$u = -0.608111 - 0.211954I$ $a = 0.250704 + 0.629982I$ $b = -0.608111 - 0.211954I$	$-1.45492 - 0.35788I$	$-5.52968 + 1.62247I$
$u = 0.06518 + 1.45860I$ $a = -0.406098 - 0.405536I$ $b = 0.06518 + 1.45860I$	$3.63562 + 1.34338I$	$2.60619 - 3.21341I$
$u = 0.06518 - 1.45860I$ $a = -0.406098 + 0.405536I$ $b = 0.06518 - 1.45860I$	$3.63562 - 1.34338I$	$2.60619 + 3.21341I$
$u = -0.094803 + 0.399698I$ $a = -3.16771 + 0.99078I$ $b = -0.094803 + 0.399698I$	$-3.74744 + 2.10465I$	$5.87690 - 3.70353I$
$u = -0.094803 - 0.399698I$ $a = -3.16771 - 0.99078I$ $b = -0.094803 - 0.399698I$	$-3.74744 - 2.10465I$	$5.87690 + 3.70353I$
$u = 0.23646 + 1.59594I$ $a = 0.306052 - 0.769874I$ $b = 0.23646 + 1.59594I$	$-4.76135 - 4.08820I$	$0.76517 + 2.11409I$
$u = 0.23646 - 1.59594I$ $a = 0.306052 + 0.769874I$ $b = 0.23646 - 1.59594I$	$-4.76135 + 4.08820I$	$0.76517 - 2.11409I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.47405 + 1.56562I$ $a = \ \ 0.532315 - 0.431362I$ $b = -0.47405 + 1.56562I$	$2.30289 + 5.28134I$	$-1.29339 - 3.24953I$
$u = -0.47405 - 1.56562I$ $a = \ \ 0.532315 + 0.431362I$ $b = -0.47405 - 1.56562I$	$2.30289 - 5.28134I$	$-1.29339 + 3.24953I$
$u = \ \ 0.273398$ $a = -2.01535$ $b = \ \ 0.273398$	0.899032	11.1030
$u = \ \ 0.69320 + 1.66542I$ $a = -0.550040 - 0.669032I$ $b = \ \ 0.69320 + 1.66542I$	$-8.17186 - 11.29110I$	$-0.74494 + 5.10967I$
$u = \ \ 0.69320 - 1.66542I$ $a = -0.550040 + 0.669032I$ $b = \ \ 0.69320 - 1.66542I$	$-8.17186 + 11.29110I$	$-0.74494 - 5.10967I$

II.
$$\boldsymbol{I_2^u = \langle b+u,\ -8u^8+3u^7+\cdots+a-19,\ u^9+3u^7-2u^6-3u^4-4u^3+3u^2+4u+1\rangle}$$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}8u^8-3u^7+25u^6-25u^5+9u^4-26u^3-23u^2+34u+19\\-u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}8u^8-3u^7+25u^6-25u^5+9u^4-26u^3-23u^2+34u+19\\u^8+3u^6-2u^5-2u^3-4u^2+3u+3\end{pmatrix}$$
$$a_6 = \begin{pmatrix}8u^8-3u^7+25u^6-25u^5+9u^4-26u^3-23u^2+33u+19\\u^8+3u^6-2u^5-3u^3-4u^2+3u+3\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-11u^8+5u^7-35u^6+38u^5-16u^4+40u^3+27u^2-47u-23\\-2u^8+u^7-6u^6+7u^5-2u^4+6u^3+5u^2-10u-6\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-13u^8+6u^7-41u^6+45u^5-18u^4+46u^3+32u^2-57u-29\\-2u^8+u^7-6u^6+7u^5-2u^4+6u^3+5u^2-10u-6\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-4u^8+3u^7-14u^6+18u^5-13u^4+19u^3+2u^2-16u-3\\-3u^8+u^7-10u^6+9u^5-5u^4+11u^3+9u^2-10u-5\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}14u^8-8u^7+46u^6-54u^5+29u^4-57u^3-25u^2+58u+24\\u^8+3u^6-2u^5-2u^3-4u^2+5u+3\end{pmatrix}$$
$$a_9 = \begin{pmatrix}4u^8-3u^7+14u^6-18u^5+13u^4-20u^3-2u^2+14u+4\\3u^8-2u^7+10u^6-13u^5+7u^4-14u^3-4u^2+13u+5\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}7u^8-5u^7+24u^6-31u^5+20u^4-34u^3-6u^2+27u+9\\3u^8-2u^7+10u^6-13u^5+7u^4-14u^3-4u^2+13u+5\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 37u^8-21u^7+123u^6-143u^5+80u^4-154u^3-65u^2+148u+61$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9 - 11u^8 + \cdots + 105u - 25$
c_2	$u^9 + 5u^8 + 7u^7 - 3u^6 - 14u^5 - 4u^4 + 13u^3 + 8u^2 - 5u - 5$
c_3, c_6	$u^9 + 3u^7 - 2u^6 - 3u^4 - 4u^3 + 3u^2 + 4u + 1$
c_4, c_9	$u^9 + 4u^7 - 4u^5 + 7u^4 + 3u^3 - 4u^2 + u + 1$
c_5	$u^9 - 5u^8 + 7u^7 + 3u^6 - 14u^5 + 4u^4 + 13u^3 - 8u^2 - 5u + 5$
c_7, c_8	$u^9 + 3u^8 + 8u^7 + 13u^6 + 20u^5 + 22u^4 + 23u^3 + 17u^2 + 11u + 3$
c_{10}, c_{12}	$u^9 + u^8 + 5u^7 + 6u^6 + 8u^5 - u^3 - 3u^2 - u - 1$
c_{11}	$u^9 - 3u^8 + 8u^7 - 13u^6 + 20u^5 - 22u^4 + 23u^3 - 17u^2 + 11u - 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^9 - 19y^8 + \cdots - 675y - 625$
c_2, c_5	$y^9 - 11y^8 + \cdots + 105y - 25$
c_3, c_6	$y^9 + 6y^8 + 9y^7 - 12y^6 - 28y^5 + 27y^4 + 38y^3 - 35y^2 + 10y - 1$
c_4, c_9	$y^9 + 8y^8 + 8y^7 - 26y^6 + 42y^5 - 65y^4 + 57y^3 - 24y^2 + 9y - 1$
c_7, c_8, c_{11}	$y^9 + 7y^8 + 26y^7 + 65y^6 + 116y^5 + 152y^4 + 143y^3 + 85y^2 + 19y - 9$
c_{10}, c_{12}	$y^9 + 9y^8 + 29y^7 + 42y^6 + 58y^5 + 12y^4 - 3y^3 - 7y^2 - 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.060910 + 0.248265I$ $a = 0.603246 + 0.904793I$ $b = -1.060910 - 0.248265I$	$-14.5038 + 1.7038I$	$-5.12137 - 0.30387I$
$u = 1.060910 - 0.248265I$ $a = 0.603246 - 0.904793I$ $b = -1.060910 + 0.248265I$	$-14.5038 - 1.7038I$	$-5.12137 + 0.30387I$
$u = -0.513365 + 0.121815I$ $a = -0.35477 + 2.45080I$ $b = 0.513365 - 0.121815I$	$-4.37176 + 2.01399I$	$-7.44425 - 1.80958I$
$u = -0.513365 - 0.121815I$ $a = -0.35477 - 2.45080I$ $b = 0.513365 + 0.121815I$	$-4.37176 - 2.01399I$	$-7.44425 + 1.80958I$
$u = 0.12963 + 1.46755I$ $a = 0.724641 + 0.570324I$ $b = -0.12963 - 1.46755I$	$3.37793 - 0.60932I$	$0.678183 + 0.313757I$
$u = 0.12963 - 1.46755I$ $a = 0.724641 - 0.570324I$ $b = -0.12963 + 1.46755I$	$3.37793 + 0.60932I$	$0.678183 - 0.313757I$
$u = -0.524571$ $a = 0.862725$ $b = 0.524571$	-0.323696	2.44920
$u = -0.41489 + 1.57652I$ $a = -0.404481 + 0.632682I$ $b = 0.41489 - 1.57652I$	$4.14493 + 5.44292I$	$3.66282 - 5.29674I$
$u = -0.41489 - 1.57652I$ $a = -0.404481 - 0.632682I$ $b = 0.41489 + 1.57652I$	$4.14493 - 5.44292I$	$3.66282 + 5.29674I$

III.

$\boldsymbol{I_3^u = \langle 8.06 \times 10^4 u^{11} - 4.75 \times 10^5 u^{10} + \cdots + 2.67 \times 10^6 b - 7.54 \times 10^6,\ 1.79 \times 10^6 u^{11} - 1.20 \times 10^5 u^{10} + \cdots + 2.94 \times 10^7 a + 6.96 \times 10^7,\ u^{12} - 2u^{11} + \cdots - 5u + 11 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -0.0607854u^{11} + 0.00408601u^{10} + \cdots - 2.36373u - 2.36536 \\ -0.0301237u^{11} + 0.177732u^{10} + \cdots - 1.72718u + 2.81991 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0607854u^{11} + 0.00408601u^{10} + \cdots - 2.36373u - 2.36536 \\ -0.0213565u^{11} + 0.254975u^{10} + \cdots - 1.64596u + 4.11224 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0909091u^{11} + 0.181818u^{10} + \cdots - 4.09091u + 0.454545 \\ -0.0301237u^{11} + 0.177732u^{10} + \cdots - 0.727180u + 2.81991 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.256355u^{11} - 0.482587u^{10} + \cdots + 7.74069u + 0.445403 \\ -0.00489332u^{11} - 0.0509161u^{10} + \cdots - 0.643385u - 4.28738 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.251462u^{11} - 0.533503u^{10} + \cdots + 7.09731u - 3.84198 \\ -0.00489332u^{11} - 0.0509161u^{10} + \cdots - 0.643385u - 4.28738 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.268729u^{11} - 0.424867u^{10} + \cdots + 9.92533u + 0.682260 \\ 0.0431217u^{11} - 0.254037u^{10} + \cdots - 1.36716u - 6.19453 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0475752u^{11} + 0.137019u^{10} + \cdots - 1.83773u + 2.65443 \\ 0.108361u^{11} - 0.141105u^{10} + \cdots + 5.20146u - 0.289069 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.107514u^{11} - 0.277645u^{10} + \cdots + 3.09999u - 2.88464 \\ -0.159615u^{11} + 0.245201u^{10} + \cdots - 5.43439u - 0.607579 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0521010u^{11} - 0.0324441u^{10} + \cdots - 2.33440u - 3.49222 \\ -0.159615u^{11} + 0.245201u^{10} + \cdots - 5.43439u - 0.607579 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{364002}{2674873}u^{11} - \frac{239807}{2674873}u^{10} + \cdots + \frac{14456768}{2674873}u + \frac{4628741}{2674873}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6 + 10u^5 + 37u^4 + 63u^3 + 50u^2 + 8u + 1)^2$
c_2, c_5	$(u^6 - 2u^5 - 3u^4 + 5u^3 + 4u^2 - 4u + 1)^2$
c_3, c_6	$u^{12} - 2u^{11} + \cdots - 5u + 11$
c_4, c_9	$u^{12} + 10u^{10} + \cdots + 21u + 85$
c_7, c_8, c_{11}	$(u^6 - u^5 + 2u^4 - u^3 + 3u^2 - u + 2)^2$
c_{10}, c_{12}	$u^{12} + 3u^{11} + \cdots + 34u + 97$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6-26y^5+209y^4-427y^3+1566y^2+36y+1)^2$
c_2, c_5	$(y^6-10y^5+37y^4-63y^3+50y^2-8y+1)^2$
c_3, c_6	$y^{12}+4y^{11}+\cdots+965y+121$
c_4, c_9	$y^{12}+20y^{11}+\cdots+4489y+7225$
c_7, c_8, c_{11}	$(y^6+3y^5+8y^4+13y^3+15y^2+11y+4)^2$
c_{10}, c_{12}	$y^{12}+13y^{11}+\cdots+6410y+9409$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.954376 + 0.767237I$ $a = -0.347916 + 0.700187I$ $b = -0.288553 - 1.211850I$	$-1.32320 + 0.88172I$	$-1.96296 - 1.82677I$
$u = -0.954376 - 0.767237I$ $a = -0.347916 - 0.700187I$ $b = -0.288553 + 1.211850I$	$-1.32320 - 0.88172I$	$-1.96296 + 1.82677I$
$u = -0.288553 + 1.211850I$ $a = 0.768435 - 0.013672I$ $b = -0.954376 - 0.767237I$	$-1.32320 - 0.88172I$	$-1.96296 + 1.82677I$
$u = -0.288553 - 1.211850I$ $a = 0.768435 + 0.013672I$ $b = -0.954376 + 0.767237I$	$-1.32320 + 0.88172I$	$-1.96296 - 1.82677I$
$u = 0.507879 + 1.312290I$ $a = 0.416941 + 0.844475I$ $b = -0.16044 - 1.50723I$	$3.57385 - 3.35669I$	$1.80671 + 2.26936I$
$u = 0.507879 - 1.312290I$ $a = 0.416941 - 0.844475I$ $b = -0.16044 + 1.50723I$	$3.57385 + 3.35669I$	$1.80671 - 2.26936I$
$u = 0.102054 + 0.545648I$ $a = -1.46225 - 1.37604I$ $b = 1.79344 - 0.39470I$	$-12.94270 - 2.40920I$	$0.65626 + 2.92591I$
$u = 0.102054 - 0.545648I$ $a = -1.46225 + 1.37604I$ $b = 1.79344 + 0.39470I$	$-12.94270 + 2.40920I$	$0.65626 - 2.92591I$
$u = -0.16044 + 1.50723I$ $a = -0.577713 + 0.656253I$ $b = 0.507879 - 1.312290I$	$3.57385 + 3.35669I$	$1.80671 - 2.26936I$
$u = -0.16044 - 1.50723I$ $a = -0.577713 - 0.656253I$ $b = 0.507879 + 1.312290I$	$3.57385 - 3.35669I$	$1.80671 + 2.26936I$

	Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.79344 + 0.39470I$		
$a =$	$0.429775 + 0.428603I$	$-12.94270 + 2.40920I$	$0.65626 - 2.92591I$
$b =$	$0.102054 - 0.545648I$		
$u =$	$1.79344 - 0.39470I$		
$a =$	$0.429775 - 0.428603I$	$-12.94270 - 2.40920I$	$0.65626 + 2.92591I$
$b =$	$0.102054 + 0.545648I$		

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0$ $b = 0.500000 + 0.866025I$	0	3.00000
$u = -0.500000 - 0.866025I$ $a = 0$ $b = 0.500000 - 0.866025I$	0	3.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^2(u^6+10u^5+37u^4+63u^3+50u^2+8u+1)^2$ $\cdot(u^9-11u^8+\cdots+105u-25)(u^{15}+20u^{14}+\cdots+849u+16)$
c_2	$(u-1)^2(u^6-2u^5-3u^4+5u^3+4u^2-4u+1)^2$ $\cdot(u^9+5u^8+7u^7-3u^6-14u^5-4u^4+13u^3+8u^2-5u-5)$ $\cdot(u^{15}+8u^{14}+\cdots+23u-4)$
c_3, c_6	$(u^2+u+1)(u^9+3u^7-2u^6-3u^4-4u^3+3u^2+4u+1)$ $\cdot(u^{12}-2u^{11}+\cdots-5u+11)(u^{15}+10u^{13}+\cdots+u^2-1)$
c_4, c_9	$(u^2+u+1)(u^9+4u^7-4u^5+7u^4+3u^3-4u^2+u+1)$ $\cdot(u^{12}+10u^{10}+\cdots+21u+85)(u^{15}+13u^{13}+\cdots+u-1)$
c_5	$(u+1)^2(u^6-2u^5-3u^4+5u^3+4u^2-4u+1)^2$ $\cdot(u^9-5u^8+7u^7+3u^6-14u^5+4u^4+13u^3-8u^2-5u+5)$ $\cdot(u^{15}+8u^{14}+\cdots+23u-4)$
c_7, c_8	$u^2(u^6-u^5+2u^4-u^3+3u^2-u+2)^2$ $\cdot(u^9+3u^8+8u^7+13u^6+20u^5+22u^4+23u^3+17u^2+11u+3)$ $\cdot(u^{15}+6u^{14}+\cdots-5u-2)$
c_{10}, c_{12}	$(u-1)^2(u^9+u^8+5u^7+6u^6+8u^5-u^3-3u^2-u-1)$ $\cdot(u^{12}+3u^{11}+\cdots+34u+97)(u^{15}-u^{14}+\cdots-11u-1)$
c_{11}	$u^2(u^6-u^5+2u^4-u^3+3u^2-u+2)^2$ $\cdot(u^9-3u^8+8u^7-13u^6+20u^5-22u^4+23u^3-17u^2+11u-3)$ $\cdot(u^{15}+6u^{14}+\cdots-5u-2)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^2(y^6-26y^5+209y^4-427y^3+1566y^2+36y+1)^2$ $\cdot(y^9-19y^8+\cdots-675y-625)(y^{15}-44y^{14}+\cdots+606753y-256)$
c_2, c_5	$(y-1)^2(y^6-10y^5+37y^4-63y^3+50y^2-8y+1)^2$ $\cdot(y^9-11y^8+\cdots+105y-25)(y^{15}-20y^{14}+\cdots+849y-16)$
c_3, c_6	(y^2+y+1) $\cdot(y^9+6y^8+9y^7-12y^6-28y^5+27y^4+38y^3-35y^2+10y-1)$ $\cdot(y^{12}+4y^{11}+\cdots+965y+121)(y^{15}+20y^{14}+\cdots+2y-1)$
c_4, c_9	(y^2+y+1) $\cdot(y^9+8y^8+8y^7-26y^6+42y^5-65y^4+57y^3-24y^2+9y-1)$ $\cdot(y^{12}+20y^{11}+\cdots+4489y+7225)(y^{15}+26y^{14}+\cdots-3y-1)$
c_7, c_8, c_{11}	$y^2(y^6+3y^5+8y^4+13y^3+15y^2+11y+4)^2$ $\cdot(y^9+7y^8+26y^7+65y^6+116y^5+152y^4+143y^3+85y^2+19y-9)$ $\cdot(y^{15}+10y^{14}+\cdots-39y-4)$
c_{10}, c_{12}	$((y-1)^2)(y^9+9y^8+\cdots-5y-1)$ $\cdot(y^{12}+13y^{11}+\cdots+6410y+9409)(y^{15}+19y^{14}+\cdots+95y-1)$