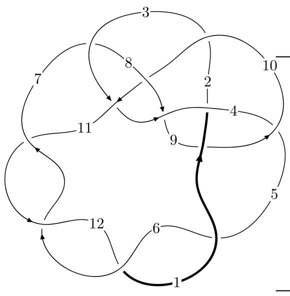
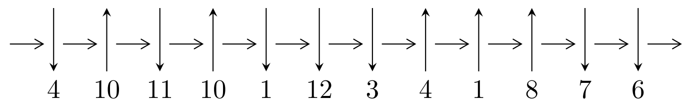
$12n_{0846}$ ($K12n_{0846}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I^u_1 &= \langle -5u^{21} + 43u^{20} + \cdots + 8b + 200,\ -15u^{21} + 129u^{20} + \cdots + 16a + 272,\ u^{22} - 9u^{21} + \cdots - 176u + 16\rangle \\
I^u_2 &= \langle u^3a - u^3 + 3au - 2u^2 + 2b + a - 3u - 5,\ 3u^3a + 2u^2a + u^3 + a^2 + 8au - 2u^2 + 3a + 2u - 2, \\
&\quad u^4 + u^3 + 3u^2 + 2u + 1\rangle \\
I^u_3 &= \langle u^{10} + 7u^8 + 17u^6 - u^5 + 17u^4 - 2u^3 + 7u^2 + b + u + 1, \\
&\quad - u^{13} - 10u^{11} - 2u^{10} - 37u^9 - 13u^8 - 61u^7 - 29u^6 - 39u^5 - 30u^4 - u^3 - 19u^2 + 2a + 2u - 1, \\
&\quad u^{14} + 10u^{12} + 39u^{10} - u^9 + 75u^8 - 5u^7 + 75u^6 - 6u^5 + 39u^4 + u^3 + 10u^2 + u + 2\rangle \\
I^u_4 &= \langle 64742a^5u^3 + 484970a^4u^3 + \cdots - 385898a - 56434,\ 3a^5u^3 - 2a^4u^3 + \cdots + 8a - 9, \\
&\quad u^4 + u^3 + 3u^2 + 2u + 1\rangle
\end{aligned}
$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 68 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. $I_1^u = \langle -5u^{21} + 43u^{20} + \cdots + 8b + 200,\ -15u^{21} + 129u^{20} + \cdots + 16a + 272,\ u^{22} - 9u^{21} + \cdots - 176u + 16\rangle$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} \frac{15}{16}u^{21} - \frac{129}{16}u^{20} + \cdots + \frac{359}{2}u - 17 \\ \frac{5}{8}u^{21} - \frac{43}{8}u^{20} + \cdots + 233u - 25 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} \frac{25}{16}u^{21} - \frac{215}{16}u^{20} + \cdots + \frac{825}{2}u - 42 \\ \frac{5}{8}u^{21} - \frac{43}{8}u^{20} + \cdots + 233u - 25 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1.37500u^{21} + 11.2500u^{20} + \cdots - 398.750u + 45.5000 \\ -\frac{9}{8}u^{21} + \frac{73}{8}u^{20} + \cdots - \frac{391}{2}u + 22 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^3 + 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.812500u^{21} - 6.81250u^{20} + \cdots + 76.7500u - 6.50000 \\ -\frac{1}{2}u^{21} + \frac{15}{4}u^{20} + \cdots - \frac{81}{2}u + 5 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{21} - \frac{67}{8}u^{20} + \cdots + \frac{837}{4}u - \frac{41}{2} \\ \frac{5}{8}u^{21} - \frac{45}{8}u^{20} + \cdots + \frac{477}{2}u - 26 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.812500u^{21} - 7.06250u^{20} + \cdots + 255.250u - 27.5000 \\ -\frac{1}{2}u^{21} + \frac{19}{4}u^{20} + \cdots - \frac{273}{2}u + 13 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1}{2}u^{21} - \frac{9}{2}u^{20} + \frac{53}{2}u^{19} - 114u^{18} + 395u^{17} - 1141u^{16} + \frac{5639}{2}u^{15} - \frac{12093}{2}u^{14} + 11359u^{13} - \frac{37595}{2}u^{12} + \frac{54937}{2}u^{11} - \frac{70905}{2}u^{10} + \frac{80651}{2}u^{9} - 40255u^8 + 35027u^7 - 26326u^6 + 16866u^5 - \frac{18113}{2}u^4 + 3971u^3 - 1368u^2 + 346u - 54$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{22} - 19u^{21} + \cdots - 640u + 256$
c_2, c_8	$u^{22} + u^{21} + \cdots - 2u + 2$
c_3, c_7	$u^{22} + 3u^{20} + \cdots - u^2 + 1$
c_4, c_9	$u^{22} + 14u^{20} + \cdots + u + 1$
c_5, c_6, c_{11} c_{12}	$u^{22} + 9u^{21} + \cdots + 176u + 16$
c_{10}	$u^{22} + 15u^{21} + \cdots + 160u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{22} - 17y^{21} + \cdots + 483328y + 65536$
c_2, c_8	$y^{22} + 3y^{21} + \cdots + 32y + 4$
c_3, c_7	$y^{22} + 6y^{21} + \cdots - 2y + 1$
c_4, c_9	$y^{22} + 28y^{21} + \cdots + 11y + 1$
c_5, c_6, c_{11} c_{12}	$y^{22} + 25y^{21} + \cdots - 384y + 256$
c_{10}	$y^{22} + 7y^{21} + \cdots + 2432y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.287964 + 0.924780I$ $a = -0.34728 + 1.43125I$ $b = -0.805889 - 0.918892I$	$2.14244 - 3.29575I$	$-1.06475 + 2.74337I$
$u = 0.287964 - 0.924780I$ $a = -0.34728 - 1.43125I$ $b = -0.805889 + 0.918892I$	$2.14244 + 3.29575I$	$-1.06475 - 2.74337I$
$u = 0.927630 + 0.184659I$ $a = 0.129761 + 0.188778I$ $b = -0.777225 + 0.767673I$	$-6.83184 + 5.48292I$	$-4.03618 - 4.85229I$
$u = 0.927630 - 0.184659I$ $a = 0.129761 - 0.188778I$ $b = -0.777225 - 0.767673I$	$-6.83184 - 5.48292I$	$-4.03618 + 4.85229I$
$u = 0.842891 + 0.639931I$ $a = 0.429405 - 0.313332I$ $b = 0.187769 + 0.832828I$	$-2.36000 - 2.86683I$	$3.02711 + 5.17659I$
$u = 0.842891 - 0.639931I$ $a = 0.429405 + 0.313332I$ $b = 0.187769 - 0.832828I$	$-2.36000 + 2.86683I$	$3.02711 - 5.17659I$
$u = 0.702570 + 0.819082I$ $a = 0.363866 - 1.106770I$ $b = 0.97246 + 1.06574I$	$-4.90801 - 10.80840I$	$-1.85897 + 7.63550I$
$u = 0.702570 - 0.819082I$ $a = 0.363866 + 1.106770I$ $b = 0.97246 - 1.06574I$	$-4.90801 + 10.80840I$	$-1.85897 - 7.63550I$
$u = 0.117025 + 0.707443I$ $a = 0.327460 + 0.729010I$ $b = -0.504470 - 0.045202I$	$0.65660 - 1.39506I$	$0.82058 + 5.90353I$
$u = 0.117025 - 0.707443I$ $a = 0.327460 - 0.729010I$ $b = -0.504470 + 0.045202I$	$0.65660 + 1.39506I$	$0.82058 - 5.90353I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.59656 + 1.29686I$ $a = -0.600773 + 0.160192I$ $b = 0.356754 - 0.547531I$	$-2.42718 + 0.16938I$	$2.49026 - 5.93197I$
$u = 0.59656 - 1.29686I$ $a = -0.600773 - 0.160192I$ $b = 0.356754 + 0.547531I$	$-2.42718 - 0.16938I$	$2.49026 + 5.93197I$
$u = 0.454810 + 0.112434I$ $a = 0.910049 + 0.178219I$ $b = 0.626422 + 0.465538I$	$-1.041380 - 0.734179I$	$-6.66165 + 2.13353I$
$u = 0.454810 - 0.112434I$ $a = 0.910049 - 0.178219I$ $b = 0.626422 - 0.465538I$	$-1.041380 + 0.734179I$	$-6.66165 - 2.13353I$
$u = 0.25923 + 1.61438I$ $a = -0.255394 + 1.262780I$ $b = -0.450728 - 1.096960I$	$5.16479 - 6.92628I$	$2.76500 + 4.70851I$
$u = 0.25923 - 1.61438I$ $a = -0.255394 - 1.262780I$ $b = -0.450728 + 1.096960I$	$5.16479 + 6.92628I$	$2.76500 - 4.70851I$
$u = 0.22193 + 1.65185I$ $a = 0.18340 + 1.86093I$ $b = -1.06261 - 1.33577I$	$3.3965 - 14.3712I$	$0.70200 + 6.98452I$
$u = 0.22193 - 1.65185I$ $a = 0.18340 - 1.86093I$ $b = -1.06261 + 1.33577I$	$3.3965 + 14.3712I$	$0.70200 - 6.98452I$
$u = 0.07299 + 1.69387I$ $a = -0.25150 - 1.73742I$ $b = 0.97828 + 1.19120I$	$11.37540 - 4.70341I$	$-1.53492 - 1.20569I$
$u = 0.07299 - 1.69387I$ $a = -0.25150 + 1.73742I$ $b = 0.97828 - 1.19120I$	$11.37540 + 4.70341I$	$-1.53492 + 1.20569I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.01640 + 1.72547I$ $a = -0.138986 - 0.857092I$ $b = 0.479233 + 0.582586I$	$9.63715 - 1.43342I$	$1.85153 + 4.64223I$
$u = 0.01640 - 1.72547I$ $a = -0.138986 + 0.857092I$ $b = 0.479233 - 0.582586I$	$9.63715 + 1.43342I$	$1.85153 - 4.64223I$

II. $I_2^u = \langle u^3a - u^3 + 3au - 2u^2 + 2b + a - 3u - 5,\ 3u^3a + u^3 + \cdots + 3a - 2,\ u^4 + u^3 + 3u^2 + 2u + 1\rangle$

(i) Arc colorings

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

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

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

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

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

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

$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -8u^3 - 8u^2 - 24u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^4+3u^3+u^2-2u+1)^2$
c_2, c_8	$u^8+2u^7+3u^6-4u^5-3u^4-12u^3+18u^2-14u+41$
c_3, c_7	$u^8+2u^7+3u^6+5u^5+15u^4+12u^3+u^2-11u+4$
c_4, c_9	$u^8-2u^7+5u^6-13u^5+15u^4-26u^3+29u^2-15u+22$
c_5, c_6, c_{11} c_{12}	$(u^4-u^3+3u^2-2u+1)^2$
c_{10}	$(u^4-u^3+u^2+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^4 - 7y^3 + 15y^2 - 2y + 1)^2$
c_2, c_8	$y^8 + 2y^7 + 19y^6 + 50y^5 + 159y^4 - 118y^3 - 258y^2 + 1280y + 1681$
c_3, c_7	$y^8 + 2y^7 + 19y^6 + 19y^5 + 163y^4 + 20y^3 + 385y^2 - 113y + 16$
c_4, c_9	$y^8 + 6y^7 + 3y^6 - 65y^5 - 177y^4 + 24y^3 + 721y^2 + 1051y + 484$
c_5, c_6, c_{11} c_{12}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^2$
c_{10}	$(y^4 + y^3 + 3y^2 + 2y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.395123+0.506844I$ $a=-0.771008-0.709655I$ $b=\ \ 1.37255+1.06120I$	$-5.35681+2.83021I$	$-5.65348-9.81749I$
$u=-0.395123+0.506844I$ $a=\ \ 0.40506-2.86559I$ $b=-0.415863+0.165981I$	$-5.35681+2.83021I$	$-5.65348-9.81749I$
$u=-0.395123-0.506844I$ $a=-0.771008+0.709655I$ $b=\ \ 1.37255-1.06120I$	$-5.35681-2.83021I$	$-5.65348+9.81749I$
$u=-0.395123-0.506844I$ $a=\ \ 0.40506+2.86559I$ $b=-0.415863-0.165981I$	$-5.35681-2.83021I$	$-5.65348+9.81749I$
$u=-0.10488+1.55249I$ $a=\ \ 0.13089+1.50540I$ $b=\ \ 0.955379-0.991300I$	$8.64668+6.32793I$	$1.65348-5.12960I$
$u=-0.10488+1.55249I$ $a=\ \ 0.23506-2.20215I$ $b=-0.91206+1.63250I$	$8.64668+6.32793I$	$1.65348-5.12960I$
$u=-0.10488-1.55249I$ $a=\ \ 0.13089-1.50540I$ $b=\ \ 0.955379+0.991300I$	$8.64668-6.32793I$	$1.65348+5.12960I$
$u=-0.10488-1.55249I$ $a=\ \ 0.23506+2.20215I$ $b=-0.91206-1.63250I$	$8.64668-6.32793I$	$1.65348+5.12960I$

III.

$\boldsymbol{I_3^u = \langle u^{10}+7u^8+\cdots+b+1,\ -u^{13}-10u^{11}+\cdots+2a-1,\ u^{14}+10u^{12}+\cdots+u+2\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} \frac{1}{2}u^{13} + 5u^{11} + \cdots - u + \frac{1}{2} \\ -u^{10} - 7u^8 - 17u^6 + u^5 - 17u^4 + 2u^3 - 7u^2 - u - 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} \frac{1}{2}u^{13} + 5u^{11} + \cdots - 2u - \frac{1}{2} \\ -u^{10} - 7u^8 - 17u^6 + u^5 - 17u^4 + 2u^3 - 7u^2 - u - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{1}{2}u^{13} - u^{12} + \cdots - 3u - \frac{7}{2} \\ -u^{13} - 9u^{11} + \cdots - 2u + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^3 + 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{2}u^{13} - u^{12} + \cdots - u - \frac{1}{2} \\ -u^{13} - 9u^{11} - 31u^9 + u^8 - 50u^7 + 5u^6 - 36u^5 + 7u^4 - 8u^3 + 2u^2 + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{13} - 5u^{11} + \cdots - 8u + \frac{3}{2} \\ u^9 + 6u^7 + 12u^5 + 9u^3 + u^2 + 2u + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{1}{2}u^{13} + 4u^{11} + \cdots - 2u + \frac{1}{2} \\ -u^{13} - u^{12} + \cdots - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= u^{13} + 2u^{12} + 8u^{11} + 16u^{10} + 23u^9 + 45u^8 + 23u^7 + 50u^6 - 9u^5 + 14u^4 - 24u^3 - 4u^2 - 4u$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 10y^{13} + \cdots - 116y + 1$
c_2, c_8	$y^{14} + 5y^{13} + \cdots - 169y + 144$
c_3, c_7	$y^{14} + 4y^{13} + \cdots - 2y + 1$
c_4, c_9	$y^{14} + 10y^{13} + \cdots - 9y + 1$
c_5, c_6, c_{11} c_{12}	$y^{14} + 20y^{13} + \cdots + 39y + 4$
c_{10}	$y^{14} + 6y^{13} + \cdots + 10y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.216588 + 0.766661I$ $a = -0.79945 + 1.58663I$ $b = -0.734213 - 1.062220I$	$3.12382 - 4.21919I$	$5.40196 + 5.63555I$
$u = 0.216588 - 0.766661I$ $a = -0.79945 - 1.58663I$ $b = -0.734213 + 1.062220I$	$3.12382 + 4.21919I$	$5.40196 - 5.63555I$
$u = -0.378992 + 1.158350I$ $a = 0.707988 + 0.209626I$ $b = -0.481839 + 0.132352I$	$-2.78436 + 0.58627I$	$-2.37749 - 2.49068I$
$u = -0.378992 - 1.158350I$ $a = 0.707988 - 0.209626I$ $b = -0.481839 - 0.132352I$	$-2.78436 - 0.58627I$	$-2.37749 + 2.49068I$
$u = 0.370851 + 0.545702I$ $a = -1.071550 - 0.239968I$ $b = 0.288392 - 0.820734I$	$2.25383 + 2.26223I$	$8.00771 - 5.34861I$
$u = 0.370851 - 0.545702I$ $a = -1.071550 + 0.239968I$ $b = 0.288392 + 0.820734I$	$2.25383 - 2.26223I$	$8.00771 + 5.34861I$
$u = -0.304789 + 0.397142I$ $a = -0.53814 - 2.60756I$ $b = 0.717374 + 0.663663I$	$-5.08623 + 1.96121I$	$-1.63137 - 0.59067I$
$u = -0.304789 - 0.397142I$ $a = -0.53814 + 2.60756I$ $b = 0.717374 - 0.663663I$	$-5.08623 - 1.96121I$	$-1.63137 + 0.59067I$
$u = -0.08871 + 1.55131I$ $a = 0.42730 + 1.64814I$ $b = -1.009610 - 0.964029I$	$1.73020 + 3.34530I$	$-1.14043 - 1.01217I$
$u = -0.08871 - 1.55131I$ $a = 0.42730 - 1.64814I$ $b = -1.009610 + 0.964029I$	$1.73020 - 3.34530I$	$-1.14043 + 1.01217I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.05772 + 1.67208I$ $a = -0.19555 - 1.81258I$ $b = 0.96827 + 1.26017I$	$11.81410 - 5.26341I$	$5.92578 + 7.14568I$
$u = 0.05772 - 1.67208I$ $a = -0.19555 + 1.81258I$ $b = 0.96827 - 1.26017I$	$11.81410 + 5.26341I$	$5.92578 - 7.14568I$
$u = 0.12734 + 1.69142I$ $a = 0.219396 - 0.895572I$ $b = 0.251625 + 0.782266I$	$10.33280 + 0.06735I$	$7.31384 - 0.14644I$
$u = 0.12734 - 1.69142I$ $a = 0.219396 + 0.895572I$ $b = 0.251625 - 0.782266I$	$10.33280 - 0.06735I$	$7.31384 + 0.14644I$

IV. $\boldsymbol{I_4^u = \langle 6.47 \times 10^4 a^5u^3 + 4.85 \times 10^5 a^4u^3 + \cdots - 3.86 \times 10^5 a - 5.64 \times 10^4,\ 3a^5u^3 - 2a^4u^3 + \cdots + 8a - 9,\ u^4 + u^3 + 3u^2 + 2u + 1\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} a \\ -0.0689494a^5u^3 - 0.516487a^4u^3 + \cdots + 0.410977a + 0.0601015 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -0.0689494a^5u^3 - 0.516487a^4u^3 + \cdots + 1.41098a + 0.0601015 \\ -0.0689494a^5u^3 - 0.516487a^4u^3 + \cdots + 0.410977a + 0.0601015 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.140805a^5u^3 - 0.346580a^4u^3 + \cdots - 0.706629a - 1.69831 \\ 0.160361a^5u^3 + 0.183546a^4u^3 + \cdots - 0.869155a - 1.38070 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} -0.000760401a^5u^3 - 0.631549a^4u^3 + \cdots - 1.72584a + 1.80502 \\ -0.122303a^5u^3 - 0.0408039a^4u^3 + \cdots + 0.836778a - 0.878400 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0571962a^5u^3 + 0.310935a^4u^3 + \cdots + 1.43692a - 0.163214 \\ 0.0409488a^5u^3 - 0.886450a^4u^3 + \cdots - 0.599105a - 0.139767 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.177120a^5u^3 + 0.152318a^4u^3 + \cdots + 1.00470a + 1.79206 \\ 0.101777a^5u^3 - 0.569117a^4u^3 + \cdots - 1.15970a - 1.37536 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{71470}{469489}a^5u^3 - \frac{268064}{469489}a^4u^3 + \cdots + \frac{60802}{469489}a - \frac{452394}{469489}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^4 + 3u^3 + u^2 - 2u + 1)^6$
c_2, c_8	$u^{24} - 3u^{23} + \cdots + 8u + 8$
c_3, c_7	$u^{24} - 5u^{23} + \cdots - 4u + 8$
c_4, c_9	$u^{24} + u^{23} + \cdots - 32u + 8$
c_5, c_6, c_{11} c_{12}	$(u^4 - u^3 + 3u^2 - 2u + 1)^6$
c_{10}	$(u^4 - u^3 + u^2 + 1)^6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^4 - 7y^3 + 15y^2 - 2y + 1)^6$
c_2, c_8	$y^{24} + 9y^{23} + \cdots + 1696y + 64$
c_3, c_7	$y^{24} + 5y^{23} + \cdots + 1136y + 64$
c_4, c_9	$y^{24} + 21y^{23} + \cdots + 3808y + 64$
c_5, c_6, c_{11} c_{12}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^6$
c_{10}	$(y^4 + y^3 + 3y^2 + 2y + 1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.395123+0.506844I$ $a=-0.637870+0.739647I$ $b=\ \ 0.115226+0.635056I$	$1.64493-1.74886I$	$-2.00000-2.34394I$
$u=-0.395123+0.506844I$ $a=\ \ 1.159350+0.059125I$ $b=-0.490251-0.808077I$	$1.64493-1.74886I$	$-2.00000-2.34394I$
$u=-0.395123+0.506844I$ $a=\ \ 1.27325-0.74075I$ $b=\ \ 0.957415+0.141715I$	-5.35681	$-5.65348+0.I$
$u=-0.395123+0.506844I$ $a=\ \ 0.86187+1.25769I$ $b=\ \ 0.76295-1.20476I$	$1.64493+4.57907I$	$-2.00000-7.47354I$
$u=-0.395123+0.506844I$ $a=-1.53954-0.58632I$ $b=-0.668828+0.802618I$	$1.64493+4.57907I$	$-2.00000-7.47354I$
$u=-0.395123+0.506844I$ $a=-0.16426-2.67779I$ $b=-0.57777+1.36729I$	-5.35681	$-5.65348+0.I$
$u=-0.395123-0.506844I$ $a=-0.637870-0.739647I$ $b=\ \ 0.115226-0.635056I$	$1.64493+1.74886I$	$-2.00000+2.34394I$
$u=-0.395123-0.506844I$ $a=\ \ 1.159350-0.059125I$ $b=-0.490251+0.808077I$	$1.64493+1.74886I$	$-2.00000+2.34394I$
$u=-0.395123-0.506844I$ $a=\ \ 1.27325+0.74075I$ $b=\ \ 0.957415-0.141715I$	-5.35681	$-5.65348+0.I$
$u=-0.395123-0.506844I$ $a=\ \ 0.86187-1.25769I$ $b=\ \ 0.76295+1.20476I$	$1.64493-4.57907I$	$-2.00000+7.47354I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.395123 - 0.506844I$ $a = -1.53954 + 0.58632I$ $b = -0.668828 - 0.802618I$	$1.64493 - 4.57907I$	$-2.00000 + 7.47354I$
$u = -0.395123 - 0.506844I$ $a = -0.16426 + 2.67779I$ $b = -0.57777 - 1.36729I$	-5.35681	$-5.65348 + 0.I$
$u = -0.10488 + 1.55249I$ $a = -0.076529 + 0.814337I$ $b = 0.668148 - 0.834125I$	8.64668	$1.65348 + 0.I$
$u = -0.10488 + 1.55249I$ $a = -0.53246 - 1.31285I$ $b = -0.031326 + 0.920559I$	8.64668	$1.65348 + 0.I$
$u = -0.10488 + 1.55249I$ $a = 0.083538 + 0.334406I$ $b = -1.249390 - 0.253465I$	$1.64493 + 1.74886I$	$-2.00000 + 2.34394I$
$u = -0.10488 + 1.55249I$ $a = -0.55405 + 1.75382I$ $b = 0.023049 - 0.425939I$	$1.64493 + 4.57907I$	$-2.00000 - 7.47354I$
$u = -0.10488 + 1.55249I$ $a = 1.73172 + 0.96731I$ $b = -2.00583 - 0.96364I$	$1.64493 + 4.57907I$	$-2.00000 - 7.47354I$
$u = -0.10488 + 1.55249I$ $a = -0.10502 + 2.63055I$ $b = -0.00339 - 1.81847I$	$1.64493 + 1.74886I$	$-2.00000 + 2.34394I$
$u = -0.10488 - 1.55249I$ $a = -0.076529 - 0.814337I$ $b = 0.668148 + 0.834125I$	8.64668	$1.65348 + 0.I$
$u = -0.10488 - 1.55249I$ $a = -0.53246 + 1.31285I$ $b = -0.031326 - 0.920559I$	8.64668	$1.65348 + 0.I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.10488 - 1.55249I$ $a = 0.083538 - 0.334406I$ $b = -1.249390 + 0.253465I$	$1.64493 - 1.74886I$	$-2.00000 - 2.34394I$
$u = -0.10488 - 1.55249I$ $a = -0.55405 - 1.75382I$ $b = 0.023049 + 0.425939I$	$1.64493 - 4.57907I$	$-2.00000 + 7.47354I$
$u = -0.10488 - 1.55249I$ $a = 1.73172 - 0.96731I$ $b = -2.00583 + 0.96364I$	$1.64493 - 4.57907I$	$-2.00000 + 7.47354I$
$u = -0.10488 - 1.55249I$ $a = -0.10502 - 2.63055I$ $b = -0.00339 + 1.81847I$	$1.64493 - 1.74886I$	$-2.00000 - 2.34394I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^4+3u^3+u^2-2u+1)^8)(u^{14}-10u^{13}+\cdots+16u+1)$ $\cdot(u^{22}-19u^{21}+\cdots-640u+256)$
c_2, c_8	$(u^8+2u^7+3u^6-4u^5-3u^4-12u^3+18u^2-14u+41)$ $\cdot(u^{14}-u^{13}+\cdots-11u+12)(u^{22}+u^{21}+\cdots-2u+2)$ $\cdot(u^{24}-3u^{23}+\cdots+8u+8)$
c_3, c_7	$(u^8+2u^7+3u^6+5u^5+15u^4+12u^3+u^2-11u+4)$ $\cdot(u^{14}+2u^{12}+\cdots-2u+1)(u^{22}+3u^{20}+\cdots-u^2+1)$ $\cdot(u^{24}-5u^{23}+\cdots-4u+8)$
c_4, c_9	$(u^8-2u^7+5u^6-13u^5+15u^4-26u^3+29u^2-15u+22)$ $\cdot(u^{14}+5u^{12}+\cdots+u+1)(u^{22}+14u^{20}+\cdots+u+1)$ $\cdot(u^{24}+u^{23}+\cdots-32u+8)$
c_5, c_6	$((u^4-u^3+3u^2-2u+1)^8)(u^{14}+10u^{12}+\cdots-u+2)$ $\cdot(u^{22}+9u^{21}+\cdots+176u+16)$
c_{10}	$((u^4-u^3+u^2+1)^8)(u^{14}-4u^{13}+\cdots+5u^2+1)$ $\cdot(u^{22}+15u^{21}+\cdots+160u+16)$
c_{11}, c_{12}	$((u^4-u^3+3u^2-2u+1)^8)(u^{14}+10u^{12}+\cdots+u+2)$ $\cdot(u^{22}+9u^{21}+\cdots+176u+16)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^4-7y^3+15y^2-2y+1)^8)(y^{14}-10y^{13}+\cdots-116y+1)$ $\cdot(y^{22}-17y^{21}+\cdots+483328y+65536)$
c_2, c_8	$(y^8+2y^7+19y^6+50y^5+159y^4-118y^3-258y^2+1280y+1681)$ $\cdot(y^{14}+5y^{13}+\cdots-169y+144)(y^{22}+3y^{21}+\cdots+32y+4)$ $\cdot(y^{24}+9y^{23}+\cdots+1696y+64)$
c_3, c_7	$(y^8+2y^7+19y^6+19y^5+163y^4+20y^3+385y^2-113y+16)$ $\cdot(y^{14}+4y^{13}+\cdots-2y+1)(y^{22}+6y^{21}+\cdots-2y+1)$ $\cdot(y^{24}+5y^{23}+\cdots+1136y+64)$
c_4, c_9	$(y^8+6y^7+3y^6-65y^5-177y^4+24y^3+721y^2+1051y+484)$ $\cdot(y^{14}+10y^{13}+\cdots-9y+1)(y^{22}+28y^{21}+\cdots+11y+1)$ $\cdot(y^{24}+21y^{23}+\cdots+3808y+64)$
c_5, c_6, c_{11} c_{12}	$((y^4+5y^3+7y^2+2y+1)^8)(y^{14}+20y^{13}+\cdots+39y+4)$ $\cdot(y^{22}+25y^{21}+\cdots-384y+256)$
c_{10}	$((y^4+y^3+3y^2+2y+1)^8)(y^{14}+6y^{13}+\cdots+10y+1)$ $\cdot(y^{22}+7y^{21}+\cdots+2432y+256)$