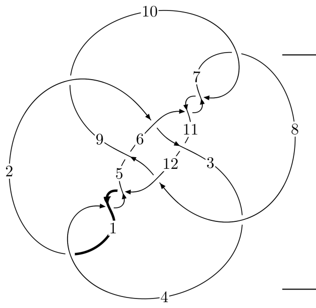
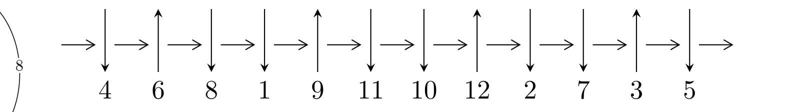
$12a_{0905}$ ($K12a_{0905}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -u^9 - u^8 - 5u^7 - 4u^6 - 8u^5 - 5u^4 - 4u^3 - u^2 + b - u + 1,\ -u^{14} - 3u^{13} + \cdots + 3a + 9, \\
&\quad u^{15} + 3u^{14} + \cdots - 6u - 3\rangle \\
I_2^u &= \langle -562052542293u^{41} - 4221685298499u^{40} + \cdots + 16148469250093b + 7465820808608, \\
&\quad 7465820808608u^{41} + 62536829180329u^{40} + \cdots + 8074234625465a + 154585802344000, \\
&\quad u^{42} + 8u^{41} + \cdots + 40u + 5\rangle \\
I_3^u &= \langle 3u^{23} - 17u^{22} + \cdots + b + 4,\ 4u^{23}a - 5u^{23} + \cdots + 9a - 20,\ u^{24} - 5u^{23} + \cdots + 4u + 1\rangle \\
I_4^u &= \langle 2u^{21} - 14u^{20} + \cdots + b - 3,\ 3u^{21} - 19u^{20} + \cdots + a - 4,\ u^{22} - 7u^{21} + \cdots - 8u + 1\rangle \\
I_5^u &= \langle -u^3 - au + u^2 + b - 2u + 1,\ u^3a + u^3 + a^2 + 2au + 2u + 1,\ u^4 - u^3 + 3u^2 - 2u + 1\rangle \\
I_6^u &= \langle u^3 - u^2 + b + 2u - 1,\ u^3 + a + 2u,\ u^4 - u^3 + 3u^2 - 2u + 1\rangle \\
I_7^u &= \langle -au - u^2 + b + u - 1,\ u^2a + a^2 - u^2 + a - 1,\ u^3 - u^2 + 2u - 1\rangle
\end{aligned}$$

$$I_1^v = \langle a,\ b + 1,\ v - 1\rangle$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 146 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.

$$I_1^u = \langle -u^9 - u^8 + \cdots + b + 1,\ -u^{14} - 3u^{13} + \cdots + 3a + 9,\ u^{15} + 3u^{14} + \cdots - 6u - 3\rangle$$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} \frac{1}{3}u^{14} + u^{13} + \cdots - \frac{8}{3}u - 3 \\ u^9 + u^8 + 5u^7 + 4u^6 + 8u^5 + 5u^4 + 4u^3 + u^2 + u - 1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} \frac{1}{3}u^{14} + u^{13} + \cdots + \frac{1}{3}u - 1 \\ u^{13} + 2u^{12} + \cdots - 2u^2 - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{3}u^{14} + u^{13} + \cdots - \frac{11}{3}u - 2 \\ u^9 + u^8 + 5u^7 + 4u^6 + 8u^5 + 5u^4 + 4u^3 + u^2 + u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{2}{3}u^{14} - u^{13} + \cdots - \frac{5}{3}u - 2 \\ -u^{13} - 3u^{12} + \cdots + 4u + 2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{2}{3}u^{14} - 3u^{13} + \cdots + \frac{13}{3}u^2 + \frac{7}{3}u \\ u^{14} + 3u^{13} + \cdots - u - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{1}{3}u^{14} + u^{13} + \cdots - \frac{5}{3}u - 1 \\ u^9 + u^8 + 5u^7 + 4u^6 + 8u^5 + 5u^4 + 4u^3 + u^2 + u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{3}u^{14} - \frac{1}{3}u^{12} + \cdots - \frac{1}{3}u^2 - \frac{7}{3}u \\ -u^{13} - 2u^{12} + \cdots + u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= -2u^{12} - 6u^{11} - 22u^{10} - 44u^9 - 84u^8 - 120u^7 - 142u^6 - 144u^5 - 102u^4 - 64u^3 - 20u^2 + 6$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$u^{15} - 3u^{14} + \cdots - 6u + 3$
c_2, c_5, c_8 c_{11}	$u^{15} + u^{14} + \cdots - 7u^2 + 1$
c_3, c_9	$u^{15} - 6u^{14} + \cdots - 24u + 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$y^{15} + 17y^{14} + \cdots + 6y - 9$
c_2, c_5, c_8 c_{11}	$y^{15} - 11y^{14} + \cdots + 14y - 1$
c_3, c_9	$y^{15} - 6y^{14} + \cdots + 224y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.795561 + 0.469588I$ $a = 0.66756 + 1.38872I$ $b = 1.18321 + 0.79133I$	$1.22894 + 9.98581I$	$-2.50504 - 9.39516I$
$u = -0.795561 - 0.469588I$ $a = 0.66756 - 1.38872I$ $b = 1.18321 - 0.79133I$	$1.22894 - 9.98581I$	$-2.50504 + 9.39516I$
$u = 0.025319 + 0.816586I$ $a = -0.509860 - 0.477335I$ $b = -0.376877 + 0.428430I$	$1.65484 - 1.30957I$	$1.85503 + 5.43942I$
$u = 0.025319 - 0.816586I$ $a = -0.509860 + 0.477335I$ $b = -0.376877 - 0.428430I$	$1.65484 + 1.30957I$	$1.85503 - 5.43942I$
$u = -0.538585 + 0.452447I$ $a = -1.298690 - 0.499892I$ $b = -0.925630 + 0.318355I$	$2.11810 - 0.75734I$	$1.216337 - 0.256399I$
$u = -0.538585 - 0.452447I$ $a = -1.298690 + 0.499892I$ $b = -0.925630 - 0.318355I$	$2.11810 + 0.75734I$	$1.216337 + 0.256399I$
$u = 0.05955 + 1.44554I$ $a = -0.511356 + 0.845268I$ $b = 1.25232 + 0.68885I$	$12.18430 - 0.89198I$	$5.76532 - 1.13067I$
$u = 0.05955 - 1.44554I$ $a = -0.511356 - 0.845268I$ $b = 1.25232 - 0.68885I$	$12.18430 + 0.89198I$	$5.76532 + 1.13067I$
$u = 0.17394 + 1.44037I$ $a = 0.383006 - 0.328634I$ $b = -0.539974 - 0.494505I$	$8.82530 - 4.42382I$	$1.11143 + 2.80902I$
$u = 0.17394 - 1.44037I$ $a = 0.383006 + 0.328634I$ $b = -0.539974 + 0.494505I$	$8.82530 + 4.42382I$	$1.11143 - 2.80902I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.34009+1.46037I$ $a=\ \ 0.223627+0.790180I$ $b=\ \ 1.230010-0.057843I$	$13.5931+6.4489I$	$7.27407-4.21866I$
$u=-0.34009-1.46037I$ $a=\ \ 0.223627-0.790180I$ $b=\ \ 1.230010+0.057843I$	$13.5931-6.4489I$	$7.27407+4.21866I$
$u=\ \ 0.436338$ $a=-0.713570$ $b=\ \ 0.311358$	-0.991071	-10.5830
$u=-0.30274+1.53981I$ $a=\ \ 0.402502-1.039480I$ $b=-1.47873-0.93447I$	$14.3514+18.1469I$	$3.57429-8.51279I$
$u=-0.30274-1.53981I$ $a=\ \ 0.402502+1.039480I$ $b=-1.47873+0.93447I$	$14.3514-18.1469I$	$3.57429+8.51279I$

II. $\boldsymbol{I^u_2 = \langle -5.62\times10^{11}u^{41} - 4.22\times10^{12}u^{40} + \cdots + 1.61\times10^{12}b + 7.47\times10^{12},\ 7.47\times10^{12}u^{41} + 6.25\times10^{13}u^{40} + \cdots + 8.07\times10^{12}a + 1.55\times10^{14},\ u^{42} + 8u^{41} + \cdots + 40u + 5\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.924647u^{41} - 7.74523u^{40} + \cdots - 92.0620u - 19.1456 \\ 0.348053u^{41} + 2.61429u^{40} + \cdots - 17.8403u - 4.62324 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0122164u^{41} - 0.389943u^{40} + \cdots - 63.7656u - 7.49795 \\ 0.487674u^{41} + 5.20588u^{40} + \cdots + 8.98661u + 0.0610821 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.27270u^{41} - 10.3595u^{40} + \cdots - 74.2216u - 14.5223 \\ 0.348053u^{41} + 2.61429u^{40} + \cdots - 17.8403u - 4.62324 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.836271u^{41} - 5.05200u^{40} + \cdots - 65.6783u - 14.8968 \\ -1.14490u^{41} - 9.64683u^{40} + \cdots - 56.7466u - 9.60670 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.528605u^{41} + 3.36723u^{40} + \cdots - 8.24064u - 1.10136 \\ -0.314496u^{41} - 1.57614u^{40} + \cdots - 7.98768u - 1.64323 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.261345u^{41} + 2.30222u^{40} + \cdots + 0.106070u + 1.77076 \\ -0.347361u^{41} - 2.64299u^{40} + \cdots - 3.78133u - 0.430082 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.00701951u^{41} + 0.906686u^{40} + \cdots + 16.1301u + 2.32016 \\ -0.615275u^{41} - 4.95154u^{40} + \cdots - 14.9001u - 1.83426 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$$= \frac{113000023370492}{1614846925093}u^{41} + \frac{83794710538956}{1614846925093}u^{40} + \cdots + \frac{592947538978880}{1614846925093}u + \frac{103946797867048}{1614846925093}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$u^{42} - 8u^{41} + \cdots - 40u + 5$
c_2, c_5, c_8 c_{11}	$u^{42} - 13u^{40} + \cdots - u + 1$
c_3, c_9	$(u^{21} + 3u^{20} + \cdots - u - 5)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$y^{42} + 40y^{41} + \cdots + 100y + 25$
c_2, c_5, c_8 c_{11}	$y^{42} - 26y^{41} + \cdots - 127y + 1$
c_3, c_9	$(y^{21} + 9y^{20} + \cdots - 319y - 25)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.853330+0.522684I$ $a=-0.59606-1.28608I$ $b=-1.18084-0.78590I$	$7.6520+13.9242I$	$0.-8.90479I$
$u=-0.853330-0.522684I$ $a=-0.59606+1.28608I$ $b=-1.18084+0.78590I$	$7.6520-13.9242I$	$0.+8.90479I$
$u=-0.712897+0.659919I$ $a=\ \ 1.002160+0.322440I$ $b=\ \ 0.927217-0.431475I$	$1.79638-4.88565I$	$0.+5.93325I$
$u=-0.712897-0.659919I$ $a=\ \ 1.002160-0.322440I$ $b=\ \ 0.927217+0.431475I$	$1.79638+4.88565I$	$0.-5.93325I$
$u=\ \ 0.593838+0.841447I$ $a=-0.112224+0.107302I$ $b=\ \ 0.156931+0.030710I$	$-0.50781-2.31740I$	0
$u=\ \ 0.593838-0.841447I$ $a=-0.112224-0.107302I$ $b=\ \ 0.156931-0.030710I$	$-0.50781+2.31740I$	0
$u=-0.839691+0.678343I$ $a=-0.943185-0.221439I$ $b=-0.942195+0.453863I$	$8.04725-8.28146I$	0
$u=-0.839691-0.678343I$ $a=-0.943185+0.221439I$ $b=-0.942195-0.453863I$	$8.04725+8.28146I$	0
$u=\ \ 0.731574+0.444637I$ $a=\ \ 0.267734-0.175635I$ $b=-0.273961+0.009446I$	$2.78697-1.47830I$	$-3.32231+0.64878I$
$u=\ \ 0.731574-0.444637I$ $a=\ \ 0.267734+0.175635I$ $b=-0.273961-0.009446I$	$2.78697+1.47830I$	$-3.32231-0.64878I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.775939 + 0.274659I$ $a = 1.401210 - 0.008524I$ $b = 1.084910 - 0.391468I$	$8.03896 + 2.27731I$	$3.60405 - 1.97458I$
$u = -0.775939 - 0.274659I$ $a = 1.401210 + 0.008524I$ $b = 1.084910 + 0.391468I$	$8.03896 - 2.27731I$	$3.60405 + 1.97458I$
$u = -0.682700 + 0.436541I$ $a = -0.67403 - 1.62063I$ $b = -1.16763 - 0.81216I$	$1.79638 + 4.88565I$	$-0.60467 - 5.93325I$
$u = -0.682700 - 0.436541I$ $a = -0.67403 + 1.62063I$ $b = -1.16763 + 0.81216I$	$1.79638 - 4.88565I$	$-0.60467 + 5.93325I$
$u = -0.518391 + 0.574589I$ $a = 0.25967 + 1.72822I$ $b = 1.127630 + 0.746695I$	$9.22998 + 1.82910I$	$4.46798 - 3.91898I$
$u = -0.518391 - 0.574589I$ $a = 0.25967 - 1.72822I$ $b = 1.127630 - 0.746695I$	$9.22998 - 1.82910I$	$4.46798 + 3.91898I$
$u = 0.682538 + 1.019720I$ $a = 0.179954 - 0.091678I$ $b = -0.216311 - 0.120929I$	$4.29895 - 3.75943I$	0
$u = 0.682538 - 1.019720I$ $a = 0.179954 + 0.091678I$ $b = -0.216311 + 0.120929I$	$4.29895 + 3.75943I$	0
$u = -0.052768 + 1.314890I$ $a = -0.355444 + 0.977726I$ $b = 1.266840 + 0.518962I$	10.2049	0
$u = -0.052768 - 1.314890I$ $a = -0.355444 - 0.977726I$ $b = 1.266840 - 0.518962I$	10.2049	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.027560 + 1.319270I$ $a = -0.706441 + 0.342428I$ $b = 0.471226 + 0.922552I$	$2.78697 - 1.47830I$	0
$u = 0.027560 - 1.319270I$ $a = -0.706441 - 0.342428I$ $b = 0.471226 - 0.922552I$	$2.78697 + 1.47830I$	0
$u = -0.082150 + 1.381150I$ $a = 0.871679 - 0.724775I$ $b = -0.92941 - 1.26346I$	$4.29895 + 3.75943I$	0
$u = -0.082150 - 1.381150I$ $a = 0.871679 + 0.724775I$ $b = -0.92941 + 1.26346I$	$4.29895 - 3.75943I$	0
$u = 0.014975 + 1.414050I$ $a = 0.451593 - 0.837497I$ $b = -1.191030 - 0.626035I$	$6.62865 - 0.11622I$	0
$u = 0.014975 - 1.414050I$ $a = 0.451593 + 0.837497I$ $b = -1.191030 + 0.626035I$	$6.62865 + 0.11622I$	0
$u = -0.25079 + 1.45386I$ $a = -0.056197 - 0.851127I$ $b = -1.251510 - 0.131755I$	$8.03896 + 2.27731I$	0
$u = -0.25079 - 1.45386I$ $a = -0.056197 + 0.851127I$ $b = -1.251510 + 0.131755I$	$8.03896 - 2.27731I$	0
$u = -0.24529 + 1.48742I$ $a = 0.492155 - 1.095830I$ $b = -1.50924 - 1.00084I$	$8.04725 + 8.28146I$	0
$u = -0.24529 - 1.48742I$ $a = 0.492155 + 1.095830I$ $b = -1.50924 + 1.00084I$	$8.04725 - 8.28146I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.17608+1.50947I$ $a=-0.565601+0.999475I$ $b=\ \ 1.40909+1.02974I$	$16.0135+4.3954I$	0
$u=-0.17608-1.50947I$ $a=-0.565601-0.999475I$ $b=\ \ 1.40909-1.02974I$	$16.0135-4.3954I$	0
$u=-0.28548+1.51045I$ $a=-0.425571+1.072440I$ $b=\ \ 1.49838+0.94896I$	$7.6520+13.9242I$	0
$u=-0.28548-1.51045I$ $a=-0.425571-1.072440I$ $b=\ \ 1.49838-0.94896I$	$7.6520-13.9242I$	0
$u=-0.16988+1.54466I$ $a=-0.058448+0.687065I$ $b=\ \ 1.051350+0.207003I$	$9.22998-1.82910I$	0
$u=-0.16988-1.54466I$ $a=-0.058448-0.687065I$ $b=\ \ 1.051350-0.207003I$	$9.22998+1.82910I$	0
$u=-0.348258+0.115828I$ $a=-0.24840-3.12015I$ $b=-0.447909-1.057840I$	$-0.50781+2.31740I$	$-1.63390+8.03476I$
$u=-0.348258-0.115828I$ $a=-0.24840+3.12015I$ $b=-0.447909+1.057840I$	$-0.50781-2.31740I$	$-1.63390-8.03476I$
$u=-0.19258+1.63607I$ $a=\ \ 0.008104-0.588711I$ $b=-0.961610-0.126633I$	$16.0135-4.3954I$	0
$u=-0.19258-1.63607I$ $a=\ \ 0.008104+0.588711I$ $b=-0.961610+0.126633I$	$16.0135+4.3954I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.135742 + 0.185761I$ $a = -3.19264 + 3.47066I$ $b = 1.078090 + 0.121956I$	$6.62865 - 0.11622I$	$5.95241 - 0.33252I$
$u = 0.135742 - 0.185761I$ $a = -3.19264 - 3.47066I$ $b = 1.078090 - 0.121956I$	$6.62865 + 0.11622I$	$5.95241 + 0.33252I$

III. $I^u_3 = \langle 3u^{23}-17u^{22}+\cdots+b+4,\ 4u^{23}a-5u^{23}+\cdots+9a-20,\ u^{24}-5u^{23}+\cdots+4u+1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}a\\-3u^{23}+17u^{22}+\cdots-7u-4\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}3u^{23}a-u^{23}+\cdots+4a-5\\1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}3u^{23}-17u^{22}+\cdots+a+4\\-3u^{23}+17u^{22}+\cdots-7u-4\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^2+1\\u^4+2u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}3u^{23}-17u^{22}+\cdots+a+6\\-2u^{23}+11u^{22}+\cdots-4u-2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^{23}+5u^{22}+\cdots+a-5\\-u^{16}a+u^{16}+\cdots+au+1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}2u^{23}a-u^{23}+\cdots+4a-6\\u^{21}a-6u^{20}a+\cdots+2a-1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u^{22}a-u^{23}+\cdots-a-5\\u^{17}a-3u^{16}a+\cdots+a+1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -8u^{23}+48u^{22}-232u^{21}+784u^{20}-2224u^{19}+5216u^{18}-10568u^{17}+18508u^{16}-28364u^{15}+37944u^{14}-44324u^{13}+44672u^{12}-38328u^{11}+27016u^{10}-14640u^{9}+4908u^{8}+232u^{7}-1516u^{6}+800u^{5}-8u^{4}-232u^{3}+120u^{2}-16u-38$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$(u^{24} + 5u^{23} + \cdots - 4u + 1)^2$
c_2, c_5, c_8 c_{11}	$u^{48} - u^{47} + \cdots + 36u + 61$
c_3, c_9	$(u^{24} + u^{23} + \cdots - 44u + 8)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$(y^{24} + 23y^{23} + \cdots - 16y + 1)^2$
c_2, c_5, c_8 c_{11}	$y^{48} + 17y^{47} + \cdots - 19840y + 3721$
c_3, c_9	$(y^{24} + 9y^{23} + \cdots - 1040y + 64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.800271 + 0.533236I$ $a = -0.422845 + 0.739232I$ $b = -0.509225 + 0.473403I$	$-0.96728 - 2.64620I$	$-16.0316 + 9.3014I$
$u = 0.800271 + 0.533236I$ $a = 0.167698 - 0.703293I$ $b = 0.732576 - 0.366110I$	$-0.96728 - 2.64620I$	$-16.0316 + 9.3014I$
$u = 0.800271 - 0.533236I$ $a = -0.422845 - 0.739232I$ $b = -0.509225 - 0.473403I$	$-0.96728 + 2.64620I$	$-16.0316 - 9.3014I$
$u = 0.800271 - 0.533236I$ $a = 0.167698 + 0.703293I$ $b = 0.732576 + 0.366110I$	$-0.96728 + 2.64620I$	$-16.0316 - 9.3014I$
$u = 0.878799 + 0.336754I$ $a = 0.630433 - 0.599955I$ $b = 0.294705 - 0.322645I$	$2.66736 - 1.66203I$	$-6.75738 + 1.82032I$
$u = 0.878799 + 0.336754I$ $a = -0.169737 + 0.432187I$ $b = -0.756061 + 0.314940I$	$2.66736 - 1.66203I$	$-6.75738 + 1.82032I$
$u = 0.878799 - 0.336754I$ $a = 0.630433 + 0.599955I$ $b = 0.294705 + 0.322645I$	$2.66736 + 1.66203I$	$-6.75738 - 1.82032I$
$u = 0.878799 - 0.336754I$ $a = -0.169737 - 0.432187I$ $b = -0.756061 - 0.314940I$	$2.66736 + 1.66203I$	$-6.75738 - 1.82032I$
$u = 0.832655 + 0.672098I$ $a = 0.367542 - 0.698741I$ $b = 0.497125 - 0.651920I$	$3.62403 - 3.95529I$	$-3.21624 + 9.39142I$
$u = 0.832655 + 0.672098I$ $a = 0.021153 + 0.765867I$ $b = -0.775658 + 0.334786I$	$3.62403 - 3.95529I$	$-3.21624 + 9.39142I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.832655 - 0.672098I$ $a = 0.367542 + 0.698741I$ $b = 0.497125 + 0.651920I$	$3.62403 + 3.95529I$	$-3.21624 - 9.39142I$
$u = 0.832655 - 0.672098I$ $a = 0.021153 - 0.765867I$ $b = -0.775658 - 0.334786I$	$3.62403 + 3.95529I$	$-3.21624 - 9.39142I$
$u = 0.086298 + 0.746831I$ $a = 0.376144 - 1.063920I$ $b = 0.853689 - 1.098230I$	$7.62597 - 5.15237I$	$5.88005 + 4.48367I$
$u = 0.086298 + 0.746831I$ $a = 1.32079 + 1.29570I$ $b = -0.827028 - 0.189102I$	$7.62597 - 5.15237I$	$5.88005 + 4.48367I$
$u = 0.086298 - 0.746831I$ $a = 0.376144 + 1.063920I$ $b = 0.853689 + 1.098230I$	$7.62597 + 5.15237I$	$5.88005 - 4.48367I$
$u = 0.086298 - 0.746831I$ $a = 1.32079 - 1.29570I$ $b = -0.827028 + 0.189102I$	$7.62597 + 5.15237I$	$5.88005 - 4.48367I$
$u = 0.001993 + 1.316790I$ $a = -0.714558 - 0.020052I$ $b = 1.42656 + 1.02275I$	$2.66736 - 1.66203I$	$-6.75738 + 1.82032I$
$u = 0.001993 + 1.316790I$ $a = -0.778333 + 1.082180I$ $b = -0.024981 + 0.940966I$	$2.66736 - 1.66203I$	$-6.75738 + 1.82032I$
$u = 0.001993 - 1.316790I$ $a = -0.714558 + 0.020052I$ $b = 1.42656 - 1.02275I$	$2.66736 + 1.66203I$	$-6.75738 - 1.82032I$
$u = 0.001993 - 1.316790I$ $a = -0.778333 - 1.082180I$ $b = -0.024981 - 0.940966I$	$2.66736 + 1.66203I$	$-6.75738 - 1.82032I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.066677+1.368660I$ $a=\ \ 0.347208-0.433644I$ $b=-0.14080-2.27520I$	$3.62403+3.95529I$	$-3.21624-9.39142I$
$u=-0.066677+1.368660I$ $a=\ \ 1.65342-0.18342I$ $b=-0.570359-0.504124I$	$3.62403+3.95529I$	$-3.21624-9.39142I$
$u=-0.066677-1.368660I$ $a=\ \ 0.347208+0.433644I$ $b=-0.14080+2.27520I$	$3.62403-3.95529I$	$-3.21624+9.39142I$
$u=-0.066677-1.368660I$ $a=\ \ 1.65342+0.18342I$ $b=-0.570359+0.504124I$	$3.62403-3.95529I$	$-3.21624+9.39142I$
$u=-0.09853+1.41543I$ $a=-0.177972+0.481724I$ $b=-0.57639+2.39043I$	$10.95020+8.21862I$	$4.30637-9.35603I$
$u=-0.09853+1.41543I$ $a=-1.70890-0.28826I$ $b=\ \ 0.664312+0.299373I$	$10.95020+8.21862I$	$4.30637-9.35603I$
$u=-0.09853-1.41543I$ $a=-0.177972-0.481724I$ $b=-0.57639-2.39043I$	$10.95020-8.21862I$	$4.30637+9.35603I$
$u=-0.09853-1.41543I$ $a=-1.70890+0.28826I$ $b=\ \ 0.664312-0.299373I$	$10.95020-8.21862I$	$4.30637+9.35603I$
$u=\ \ 0.18804+1.48037I$ $a=-0.334661-1.114890I$ $b=\ \ 0.773120-0.589137I$	$7.62597-5.15237I$	$5.88005+4.48367I$
$u=\ \ 0.18804+1.48037I$ $a=\ \ 0.326363+0.563705I$ $b=-1.58751+0.70507I$	$7.62597-5.15237I$	$5.88005+4.48367I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.18804 - 1.48037I$ $a = -0.334661 + 1.114890I$ $b = 0.773120 + 0.589137I$	$7.62597 + 5.15237I$	$5.88005 - 4.48367I$
$u = 0.18804 - 1.48037I$ $a = 0.326363 - 0.563705I$ $b = -1.58751 - 0.70507I$	$7.62597 + 5.15237I$	$5.88005 - 4.48367I$
$u = 0.28419 + 1.52691I$ $a = -0.420040 - 0.724771I$ $b = 1.181840 - 0.532265I$	$5.70851 - 6.62112I$	$-4.00000 + 11.74539I$
$u = 0.28419 + 1.52691I$ $a = 0.197684 + 0.810796I$ $b = -0.987293 + 0.847336I$	$5.70851 - 6.62112I$	$-4.00000 + 11.74539I$
$u = 0.28419 - 1.52691I$ $a = -0.420040 + 0.724771I$ $b = 1.181840 + 0.532265I$	$5.70851 + 6.62112I$	$-4.00000 - 11.74539I$
$u = 0.28419 - 1.52691I$ $a = 0.197684 - 0.810796I$ $b = -0.987293 - 0.847336I$	$5.70851 + 6.62112I$	$-4.00000 - 11.74539I$
$u = -0.372821 + 0.191675I$ $a = 0.20434 + 2.08277I$ $b = -0.66433 + 1.43354I$	$5.70851 + 6.62112I$	$-4.18117 - 11.74539I$
$u = -0.372821 + 0.191675I$ $a = -2.97294 + 2.31667I$ $b = 0.475400 + 0.737334I$	$5.70851 + 6.62112I$	$-4.18117 - 11.74539I$
$u = -0.372821 - 0.191675I$ $a = 0.20434 - 2.08277I$ $b = -0.66433 - 1.43354I$	$5.70851 - 6.62112I$	$-4.18117 + 11.74539I$
$u = -0.372821 - 0.191675I$ $a = -2.97294 - 2.31667I$ $b = 0.475400 - 0.737334I$	$5.70851 - 6.62112I$	$-4.18117 + 11.74539I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.30095 + 1.58206I$ $a = 0.492521 + 0.743260I$ $b = -1.117930 + 0.448505I$	$10.95020 - 8.21862I$	$4.30637 + 9.35603I$
$u = 0.30095 + 1.58206I$ $a = -0.143867 - 0.733996I$ $b = 1.02766 - 1.00288I$	$10.95020 - 8.21862I$	$4.30637 + 9.35603I$
$u = 0.30095 - 1.58206I$ $a = 0.492521 - 0.743260I$ $b = -1.117930 - 0.448505I$	$10.95020 + 8.21862I$	$4.30637 - 9.35603I$
$u = 0.30095 - 1.58206I$ $a = -0.143867 + 0.733996I$ $b = 1.02766 + 1.00288I$	$10.95020 + 8.21862I$	$4.30637 - 9.35603I$
$u = -0.335169 + 0.072286I$ $a = -0.22517 - 2.55447I$ $b = 0.37071 - 1.47486I$	$-0.96728 + 2.64620I$	$-16.0316 - 9.3014I$
$u = -0.335169 + 0.072286I$ $a = 1.96371 - 3.97683I$ $b = -0.260123 - 0.839904I$	$-0.96728 + 2.64620I$	$-16.0316 - 9.3014I$
$u = -0.335169 - 0.072286I$ $a = -0.22517 + 2.55447I$ $b = 0.37071 + 1.47486I$	$-0.96728 - 2.64620I$	$-16.0316 + 9.3014I$
$u = -0.335169 - 0.072286I$ $a = 1.96371 + 3.97683I$ $b = -0.260123 + 0.839904I$	$-0.96728 - 2.64620I$	$-16.0316 + 9.3014I$

IV.
$\boldsymbol{I^u_4 = \langle 2u^{21} - 14u^{20} + \cdots + b - 3,\ 3u^{21} - 19u^{20} + \cdots + a - 4,\ u^{22} - 7u^{21} + \cdots - 8u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -3u^{21} + 19u^{20} + \cdots - 34u + 4 \\ -2u^{21} + 14u^{20} + \cdots - 20u + 3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^{20} + 7u^{19} + \cdots + 30u - 8 \\ -u^{21} + 7u^{20} + \cdots + 30u^2 - 7u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{21} + 5u^{20} + \cdots - 14u + 1 \\ -2u^{21} + 14u^{20} + \cdots - 20u + 3 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -2u^{21} + 12u^{20} + \cdots - 26u + 3 \\ -2u^{21} + 14u^{20} + \cdots - 21u + 3 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{21} - 8u^{20} + \cdots + 21u - 5 \\ -u^{21} + 7u^{20} + \cdots + 10u^2 - 3u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^{21} - 7u^{20} + \cdots + 37u - 6 \\ u^3 - u^2 + 2u - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{21} + 7u^{20} + \cdots - 32u + 5 \\ u^6 - 2u^5 + 5u^4 - 6u^3 + 6u^2 - 4u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12u^{21} - 80u^{20} + 384u^{19} - 1324u^{18} + 3749u^{17} - 8823u^{16} + 17896u^{15} - 31489u^{14} + 48734u^{13} - 66430u^{12} + 80127u^{11} - 85246u^{10} + 79895u^9 - 65373u^8 + 46397u^7 - 28047u^6 + 14285u^5 - 5940u^4 + 2052u^3 - 566u^2 + 165u - 22$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6, c_7 c_{12}	$u^{22} - 7u^{21} + \cdots - 8u + 1$
c_2, c_5, c_8 c_{11}	$u^{22} + u^{21} + \cdots - u + 1$
c_3, c_9	$(u^{11} + 2u^9 + 5u^7 + 2u^6 + 6u^5 + 3u^4 + 5u^3 + 2u^2 + u + 1)^2$
c_4, c_{10}	$u^{22} + 7u^{21} + \cdots + 8u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$y^{22} + 21y^{21} + \cdots + 12y + 1$
c_2, c_5, c_8 c_{11}	$y^{22} + 7y^{21} + \cdots - 3y + 1$
c_3, c_9	$(y^{11} + 4y^{10} + \cdots - 3y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.701458 + 0.669132I$ $a = 0.159011 - 0.625712I$ $b = 0.530223 - 0.332512I$	$-0.42163 - 2.68760I$	$3.09765 + 11.77435I$
$u = 0.701458 - 0.669132I$ $a = 0.159011 + 0.625712I$ $b = 0.530223 + 0.332512I$	$-0.42163 + 2.68760I$	$3.09765 - 11.77435I$
$u = 0.306394 + 1.001770I$ $a = 0.712038 - 0.152788I$ $b = 0.371222 + 0.666483I$	1.24246	$-1.82703 + 0.I$
$u = 0.306394 - 1.001770I$ $a = 0.712038 + 0.152788I$ $b = 0.371222 - 0.666483I$	1.24246	$-1.82703 + 0.I$
$u = 0.977693 + 0.488890I$ $a = -0.508696 + 0.517538I$ $b = -0.750367 + 0.257297I$	$3.38298 - 2.17320I$	$3.73471 + 5.95234I$
$u = 0.977693 - 0.488890I$ $a = -0.508696 - 0.517538I$ $b = -0.750367 - 0.257297I$	$3.38298 + 2.17320I$	$3.73471 - 5.95234I$
$u = 0.808804 + 0.951830I$ $a = -0.230626 + 0.430869I$ $b = -0.596645 + 0.128972I$	$4.68143 - 4.04785I$	$8.87355 + 7.54462I$
$u = 0.808804 - 0.951830I$ $a = -0.230626 - 0.430869I$ $b = -0.596645 - 0.128972I$	$4.68143 + 4.04785I$	$8.87355 - 7.54462I$
$u = 0.010703 + 1.336580I$ $a = 0.974927 + 0.360971I$ $b = -0.472031 + 1.306930I$	$3.38298 + 2.17320I$	$3.73471 - 5.95234I$
$u = 0.010703 - 1.336580I$ $a = 0.974927 - 0.360971I$ $b = -0.472031 - 1.306930I$	$3.38298 - 2.17320I$	$3.73471 + 5.95234I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.083085+1.339270I$ $a=-0.858696-0.249299I$ $b=\ \ 0.405223-1.129310I$	$10.02040+6.88319I$	$2.75997-4.69096I$
$u=-0.083085-1.339270I$ $a=-0.858696+0.249299I$ $b=\ \ 0.405223+1.129310I$	$10.02040-6.88319I$	$2.75997+4.69096I$
$u=\ \ 0.088002+1.392780I$ $a=-0.943305-0.633826I$ $b=\ \ 0.79977-1.36959I$	$4.68143-4.04785I$	$8.87355+7.54462I$
$u=\ \ 0.088002-1.392780I$ $a=-0.943305+0.633826I$ $b=\ \ 0.79977+1.36959I$	$4.68143+4.04785I$	$8.87355-7.54462I$
$u=\ \ 0.23816+1.51409I$ $a=-0.369383-0.803694I$ $b=\ \ 1.128900-0.750687I$	$6.38960-5.97093I$	$2.44763+4.64423I$
$u=\ \ 0.23816-1.51409I$ $a=-0.369383+0.803694I$ $b=\ \ 1.128900+0.750687I$	$6.38960+5.97093I$	$2.44763-4.64423I$
$u=\ \ 0.33294+1.54797I$ $a=\ \ 0.183469+0.728798I$ $b=-1.067070+0.526649I$	$10.02040-6.88319I$	$2.75997+4.69096I$
$u=\ \ 0.33294-1.54797I$ $a=\ \ 0.183469-0.728798I$ $b=-1.067070-0.526649I$	$10.02040+6.88319I$	$2.75997-4.69096I$
$u=-0.135179+0.339713I$ $a=\ \ 2.39203-0.69379I$ $b=-0.087661+0.906387I$	$6.38960-5.97093I$	$2.44763+4.64423I$
$u=-0.135179-0.339713I$ $a=\ \ 2.39203+0.69379I$ $b=-0.087661-0.906387I$	$6.38960+5.97093I$	$2.44763-4.64423I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.254113 + 0.202182I$ $a = -1.51077 - 3.07819I$ $b = \quad 0.238449 - 1.087660I$	$-0.42163 - 2.68760I$	$3.09765 + 11.77435I$
$u = \quad 0.254113 - 0.202182I$ $a = -1.51077 + 3.07819I$ $b = \quad 0.238449 + 1.087660I$	$-0.42163 + 2.68760I$	$3.09765 - 11.77435I$

V. $\boldsymbol{I^u_5} =$
$\boldsymbol{\langle -u^3-au+u^2+b-2u+1,\ u^3a+u^3+a^2+2au+2u+1,\ u^4-u^3+3u^2-2u+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 8u^3-8u^2+24u-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$(u^4 + u^3 + 3u^2 + 2u + 1)^2$
c_2, c_5, c_8 c_{11}	$u^8 + u^7 - 2u^6 - 4u^5 + 9u^4 + u^3 - 7u^2 + u + 2$
c_3, c_9	$u^8 - 7u^7 + 30u^6 - 78u^5 + 137u^4 - 163u^3 + 131u^2 - 65u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^2$
c_2, c_5, c_8 c_{11}	$y^8 - 5y^7 + 30y^6 - 68y^5 + 119y^4 - 127y^3 + 83y^2 - 29y + 4$
c_3, c_9	$y^8 + 11y^7 + 82y^6 + 116y^5 + 323y^4 + 145y^3 + 355y^2 - 33y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.395123 + 0.506844I$ $a = -0.570974 + 0.808855I$ $b = -0.987376 + 0.750545I$	$1.22292 - 2.83021I$	$2.34652 + 9.81749I$
$u = 0.395123 + 0.506844I$ $a = 0.02355 - 1.92973I$ $b = 0.635568 - 0.030203I$	$1.22292 - 2.83021I$	$2.34652 + 9.81749I$
$u = 0.395123 - 0.506844I$ $a = -0.570974 - 0.808855I$ $b = -0.987376 - 0.750545I$	$1.22292 + 2.83021I$	$2.34652 - 9.81749I$
$u = 0.395123 - 0.506844I$ $a = 0.02355 + 1.92973I$ $b = 0.635568 + 0.030203I$	$1.22292 + 2.83021I$	$2.34652 - 9.81749I$
$u = 0.10488 + 1.55249I$ $a = 0.729106 + 1.111840I$ $b = -0.797853 + 0.337246I$	$15.2264 - 6.3279I$	$9.65348 + 5.12960I$
$u = 0.10488 + 1.55249I$ $a = -0.181683 - 0.526191I$ $b = 1.64966 - 1.24854I$	$15.2264 - 6.3279I$	$9.65348 + 5.12960I$
$u = 0.10488 - 1.55249I$ $a = 0.729106 - 1.111840I$ $b = -0.797853 - 0.337246I$	$15.2264 + 6.3279I$	$9.65348 - 5.12960I$
$u = 0.10488 - 1.55249I$ $a = -0.181683 + 0.526191I$ $b = 1.64966 + 1.24854I$	$15.2264 + 6.3279I$	$9.65348 - 5.12960I$

VI. $\boldsymbol{I^u_6 = \langle u^3 - u^2 + b + 2u - 1,\ u^3 + a + 2u,\ u^4 - u^3 + 3u^2 - 2u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u^3 - 8u^2 + 24u - 12$

(iv) u-Polynomials at the component

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

(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}, c_{12}	$y^4 + 5y^3 + 7y^2 + 2y + 1$
c_2, c_5, c_8 c_{11}	$y^4 + y^3 + 3y^2 + 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.395123 + 0.506844I$ $a = -0.547424 - 1.120870I$ $b = 0.351808 - 0.720342I$	$-0.42201 - 2.83021I$	$-3.65348 + 9.81749I$
$u = 0.395123 - 0.506844I$ $a = -0.547424 + 1.120870I$ $b = 0.351808 + 0.720342I$	$-0.42201 + 2.83021I$	$-3.65348 - 9.81749I$
$u = 0.10488 + 1.55249I$ $a = 0.547424 + 0.585652I$ $b = -0.851808 + 0.911292I$	$13.5815 - 6.3279I$	$3.65348 + 5.12960I$
$u = 0.10488 - 1.55249I$ $a = 0.547424 - 0.585652I$ $b = -0.851808 - 0.911292I$	$13.5815 + 6.3279I$	$3.65348 - 5.12960I$

VII. $\boldsymbol{I^u_7 = \langle -au - u^2 + b + u - 1,\ u^2a + a^2 - u^2 + a - 1,\ u^3 - u^2 + 2u - 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} -u^2a + au + u^2 - a - u + 1 \\ 1 \end{pmatrix}$$

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

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

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

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

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

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

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = 0.103733 - 1.107850I$ $b = 0.592989 - 0.847544I$	$7.69319 - 5.65624I$	$1.01951 + 5.95889I$
$u = 0.215080 + 1.307140I$ $a = 0.558626 + 0.545571I$ $b = -1.47043 + 0.10268I$	$7.69319 - 5.65624I$	$1.01951 + 5.95889I$
$u = 0.215080 - 1.307140I$ $a = 0.103733 + 1.107850I$ $b = 0.592989 + 0.847544I$	$7.69319 + 5.65624I$	$1.01951 - 5.95889I$
$u = 0.215080 - 1.307140I$ $a = 0.558626 - 0.545571I$ $b = -1.47043 - 0.10268I$	$7.69319 + 5.65624I$	$1.01951 - 5.95889I$
$u = 0.569840$ $a = 0.665586$ $b = 1.13416$	-0.581975	-12.0390
$u = 0.569840$ $a = -1.99030$ $b = -0.379278$	-0.581975	-12.0390

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = -1.00000$	1.64493	6.00000

IX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6, c_7 c_{12}	$u(u^3+u^2+2u+1)^2(u^4-u^3+\cdots-2u+1)(u^4+u^3+\cdots+2u+1)^2$ $\cdot(u^{15}-3u^{14}+\cdots-6u+3)(u^{22}-7u^{21}+\cdots-8u+1)$ $\cdot((u^{24}+5u^{23}+\cdots-4u+1)^2)(u^{42}-8u^{41}+\cdots-40u+5)$
c_2, c_5, c_8 c_{11}	$(u-1)(u^4-u^3+u^2+1)(u^6-u^5-2u^4+2u^2+2u-1)$ $\cdot(u^8+u^7+\cdots+u+2)(u^{15}+u^{14}+\cdots-7u^2+1)$ $\cdot(u^{22}+u^{21}+\cdots-u+1)(u^{42}-13u^{40}+\cdots-u+1)$ $\cdot(u^{48}-u^{47}+\cdots+36u+61)$
c_3, c_9	$(u-1)(u+1)^6(u^4-u^3+3u^2-2u+1)$ $\cdot(u^8-7u^7+30u^6-78u^5+137u^4-163u^3+131u^2-65u+16)$ $\cdot(u^{11}+2u^9+5u^7+2u^6+6u^5+3u^4+5u^3+2u^2+u+1)^2$ $\cdot(u^{15}-6u^{14}+\cdots-24u+8)(u^{21}+3u^{20}+\cdots-u-5)^2$ $\cdot(u^{24}+u^{23}+\cdots-44u+8)^2$
c_4, c_{10}	$u(u^3+u^2+2u+1)^2(u^4+u^3+3u^2+2u+1)^3$ $\cdot(u^{15}-3u^{14}+\cdots-6u+3)(u^{22}+7u^{21}+\cdots+8u+1)$ $\cdot((u^{24}+5u^{23}+\cdots-4u+1)^2)(u^{42}-8u^{41}+\cdots-40u+5)$

X. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_7, c_{10}, c_{12}	$y(y^3+3y^2+2y-1)^2(y^4+5y^3+7y^2+2y+1)^3$ $\cdot(y^{15}+17y^{14}+\cdots+6y-9)(y^{22}+21y^{21}+\cdots+12y+1)$ $\cdot((y^{24}+23y^{23}+\cdots-16y+1)^2)(y^{42}+40y^{41}+\cdots+100y+25)$
c_2, c_5, c_8 c_{11}	$(y-1)(y^4+y^3+3y^2+2y+1)(y^6-5y^5+\cdots-8y+1)$ $\cdot(y^8-5y^7+30y^6-68y^5+119y^4-127y^3+83y^2-29y+4)$ $\cdot(y^{15}-11y^{14}+\cdots+14y-1)(y^{22}+7y^{21}+\cdots-3y+1)$ $\cdot(y^{42}-26y^{41}+\cdots-127y+1)(y^{48}+17y^{47}+\cdots-19840y+3721)$
c_3, c_9	$(y-1)^7(y^4+5y^3+7y^2+2y+1)$ $\cdot(y^8+11y^7+82y^6+116y^5+323y^4+145y^3+355y^2-33y+256)$ $\cdot((y^{11}+4y^{10}+\cdots-3y-1)^2)(y^{15}-6y^{14}+\cdots+224y-64)$ $\cdot((y^{21}+9y^{20}+\cdots-319y-25)^2)(y^{24}+9y^{23}+\cdots-1040y+64)^2$