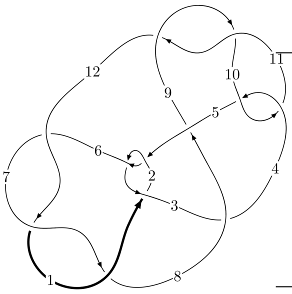
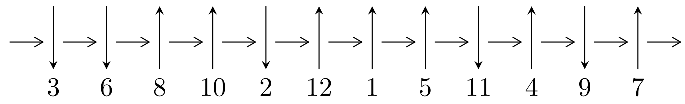
$12a_{0298}$ $(K12a_{0298})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle -u^{66} - 10u^{64} + \cdots + 4b - 4u,\ -u^{66} - 11u^{64} + \cdots + 4a - 2,\ u^{69} + 2u^{68} + \cdots - 2u^2 + 2\rangle \\
I_2^u &= \langle -412u^8a^2 + 444u^8a + \cdots - 624a + 202,\ 2u^8a^2 - u^8a + \cdots - a + 1, \\
&\quad u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1\rangle \\
I_3^u &= \langle 2u^3 + u^2 + b + u + 1,\ u^3 + 2a + 3u + 2,\ u^4 + u^2 + 2\rangle \\
I_4^u &= \langle b + u,\ a + 2u - 1,\ u^2 + 1\rangle \\
I_5^u &= \langle -u^3 - u^2 + b - 2u + 1,\ u^3 - u^2 + a - u,\ u^4 + 1\rangle
\end{aligned}
$$

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

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 107 representations.

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

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

I. $I^u_1 = \langle -u^{66}-10u^{64}+\cdots+4b-4u,\ -u^{66}-11u^{64}+\cdots+4a-2,\ u^{69}+2u^{68}+\cdots-2u^2+2\rangle$

(i) Arc colorings

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

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

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

$$a_2 = \begin{pmatrix} \frac{1}{4}u^{66} + \frac{11}{4}u^{64} + \cdots - \frac{1}{2}u + \frac{1}{2} \\ \frac{1}{4}u^{66} + \frac{5}{2}u^{64} + \cdots - \frac{9}{2}u^4 + u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} \frac{1}{2}u^{68} + \frac{11}{2}u^{66} + \cdots + u - \frac{3}{2} \\ u^{68} + u^{67} + \cdots + \frac{1}{2}u + 1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{1}{4}u^{63} - \frac{5}{2}u^{61} + \cdots + \frac{1}{2}u - 1 \\ -\frac{1}{4}u^{65} - \frac{11}{4}u^{63} + \cdots - \frac{5}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^6 + u^4 + 2u^2 + 1 \\ u^8 + 2u^6 + 2u^4 + 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{13} - 2u^{11} - 5u^9 - 6u^7 - 6u^5 - 4u^3 - u \\ -u^{15} - 3u^{13} - 6u^{11} - 9u^9 - 8u^7 - 6u^5 - 2u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{4}u^{61} + \frac{5}{2}u^{59} + \cdots - u^2 + 1 \\ \frac{1}{4}u^{61} + \frac{9}{4}u^{59} + \cdots - \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^{68} + 4u^{67} + \cdots - 10u + 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{69} + 26u^{68} + \cdots + 3481u + 256$
c_2, c_5	$u^{69} + 2u^{68} + \cdots - 5u - 16$
c_3	$u^{69} - 2u^{68} + \cdots - 188076u - 54322$
c_4, c_{10}	$u^{69} - 2u^{68} + \cdots + 2u^2 - 2$
c_6, c_7, c_{12}	$u^{69} - 2u^{68} + \cdots - 37u - 16$
c_8	$u^{69} + 10u^{68} + \cdots - 2116u - 86$
c_9, c_{11}	$u^{69} + 22u^{68} + \cdots + 8u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{69} + 46y^{68} + \cdots - 2589327y - 65536$
c_2, c_5	$y^{69} - 26y^{68} + \cdots + 3481y - 256$
c_3	$y^{69} - 26y^{68} + \cdots + 15690417448y - 2950879684$
c_4, c_{10}	$y^{69} + 22y^{68} + \cdots + 8y - 4$
c_6, c_7, c_{12}	$y^{69} - 74y^{68} + \cdots - 10919y - 256$
c_8	$y^{69} - 2y^{68} + \cdots - 1189944y - 7396$
c_9, c_{11}	$y^{69} + 50y^{68} + \cdots + 768y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.735899 + 0.688576I$ $a = -1.41058 - 0.11854I$ $b = -0.96277 + 2.11478I$	$-0.240515 + 0.033439I$	$-1.48136 + 0.I$
$u = -0.735899 - 0.688576I$ $a = -1.41058 + 0.11854I$ $b = -0.96277 - 2.11478I$	$-0.240515 - 0.033439I$	$-1.48136 + 0.I$
$u = 0.338664 + 0.953969I$ $a = 0.259722 + 0.602753I$ $b = 0.242668 + 1.080750I$	$5.18981 + 0.99757I$	$4.76342 - 3.46084I$
$u = 0.338664 - 0.953969I$ $a = 0.259722 - 0.602753I$ $b = 0.242668 - 1.080750I$	$5.18981 - 0.99757I$	$4.76342 + 3.46084I$
$u = 0.484849 + 0.860276I$ $a = 1.27015 + 0.75092I$ $b = -0.89181 + 2.10893I$	$-1.85693 - 1.13119I$	$-2.07731 + 1.47337I$
$u = 0.484849 - 0.860276I$ $a = 1.27015 - 0.75092I$ $b = -0.89181 - 2.10893I$	$-1.85693 + 1.13119I$	$-2.07731 - 1.47337I$
$u = 0.058334 + 1.021690I$ $a = 0.24060 - 2.11026I$ $b = 0.529272 - 0.918124I$	$-5.74447 - 0.01900I$	$-8.65927 + 0.I$
$u = 0.058334 - 1.021690I$ $a = 0.24060 + 2.11026I$ $b = 0.529272 + 0.918124I$	$-5.74447 + 0.01900I$	$-8.65927 + 0.I$
$u = 0.154964 + 1.031240I$ $a = -0.85296 + 1.99168I$ $b = -0.216276 + 0.724886I$	$-3.54966 + 6.72812I$	$-3.30535 - 7.86468I$
$u = 0.154964 - 1.031240I$ $a = -0.85296 - 1.99168I$ $b = -0.216276 - 0.724886I$	$-3.54966 - 6.72812I$	$-3.30535 + 7.86468I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.718154 + 0.761613I$ $a = 0.040869 + 0.875751I$ $b = -0.531478 + 0.949465I$	$3.60394 - 0.19911I$	$9.90804 + 0.I$
$u = 0.718154 - 0.761613I$ $a = 0.040869 - 0.875751I$ $b = -0.531478 - 0.949465I$	$3.60394 + 0.19911I$	$9.90804 + 0.I$
$u = -0.422383 + 0.968673I$ $a = -0.599532 + 1.252790I$ $b = 1.85369 + 1.47586I$	$3.61056 + 4.51985I$	0
$u = -0.422383 - 0.968673I$ $a = -0.599532 - 1.252790I$ $b = 1.85369 - 1.47586I$	$3.61056 - 4.51985I$	0
$u = 0.193872 + 1.039360I$ $a = -0.624526 + 0.079575I$ $b = -0.927525 - 0.005005I$	$4.24263 + 5.04361I$	$0. - 4.03426I$
$u = 0.193872 - 1.039360I$ $a = -0.624526 - 0.079575I$ $b = -0.927525 + 0.005005I$	$4.24263 - 5.04361I$	$0. + 4.03426I$
$u = 0.721986 + 0.582383I$ $a = 1.020400 - 0.497911I$ $b = 1.35891 + 1.25471I$	$3.90829 + 1.18050I$	$7.40920 - 3.02522I$
$u = 0.721986 - 0.582383I$ $a = 1.020400 + 0.497911I$ $b = 1.35891 - 1.25471I$	$3.90829 - 1.18050I$	$7.40920 + 3.02522I$
$u = -0.814686 + 0.705728I$ $a = 2.39011 + 0.79666I$ $b = 2.59506 - 2.01293I$	$2.93810 + 6.44249I$	0
$u = -0.814686 - 0.705728I$ $a = 2.39011 - 0.79666I$ $b = 2.59506 + 2.01293I$	$2.93810 - 6.44249I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.028573+1.077810I$ $a=-0.61215-1.87207I$ $b=-0.511359-0.452462I$	$-1.60521+2.06429I$	0
$u=-0.028573-1.077810I$ $a=-0.61215+1.87207I$ $b=-0.511359+0.452462I$	$-1.60521-2.06429I$	0
$u=-0.170360+1.066470I$ $a=\ \ 0.37501+2.28994I$ $b=\ \ 0.350653+0.759401I$	$2.10642-10.83270I$	$0.+7.91871I$
$u=-0.170360-1.066470I$ $a=\ \ 0.37501-2.28994I$ $b=\ \ 0.350653-0.759401I$	$2.10642+10.83270I$	$0.-7.91871I$
$u=\ \ 0.836381+0.694622I$ $a=-2.53666+0.36324I$ $b=-2.27305-2.69677I$	$8.89008-10.76610I$	0
$u=\ \ 0.836381-0.694622I$ $a=-2.53666-0.36324I$ $b=-2.27305+2.69677I$	$8.89008+10.76610I$	0
$u=-0.833721+0.715169I$ $a=-0.612597+0.721125I$ $b=\ \ 0.402951+0.631456I$	$11.06750+4.64835I$	0
$u=-0.833721-0.715169I$ $a=-0.612597-0.721125I$ $b=\ \ 0.402951-0.631456I$	$11.06750-4.64835I$	0
$u=-0.788117+0.777559I$ $a=-0.860399-0.145200I$ $b=-1.208460-0.042361I$	$4.23303-3.52292I$	0
$u=-0.788117-0.777559I$ $a=-0.860399+0.145200I$ $b=-1.208460+0.042361I$	$4.23303+3.52292I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.821959 + 0.782703I$ $a = 1.141410 + 0.345243I$ $b = 0.680996 - 0.881071I$	$12.26590 - 0.79570I$	0
$u = -0.821959 - 0.782703I$ $a = 1.141410 - 0.345243I$ $b = 0.680996 + 0.881071I$	$12.26590 + 0.79570I$	0
$u = 0.611116 + 0.956461I$ $a = -0.49978 - 2.05095I$ $b = 2.42886 - 2.48221I$	$-2.54832 + 5.58402I$	0
$u = 0.611116 - 0.956461I$ $a = -0.49978 + 2.05095I$ $b = 2.42886 + 2.48221I$	$-2.54832 - 5.58402I$	0
$u = 0.814707 + 0.809092I$ $a = 0.295475 - 0.322981I$ $b = 0.913082 - 1.062150I$	$10.93290 + 7.02859I$	0
$u = 0.814707 - 0.809092I$ $a = 0.295475 + 0.322981I$ $b = 0.913082 + 1.062150I$	$10.93290 - 7.02859I$	0
$u = 0.695607 + 0.941949I$ $a = -0.886074 - 0.080146I$ $b = -0.262992 - 0.787216I$	$3.05990 + 5.61567I$	0
$u = 0.695607 - 0.941949I$ $a = -0.886074 + 0.080146I$ $b = -0.262992 + 0.787216I$	$3.05990 - 5.61567I$	0
$u = -0.044024 + 0.818063I$ $a = 0.652335 - 0.322162I$ $b = -0.167905 + 0.623453I$	$-1.27770 - 1.44146I$	$0.19549 + 5.54807I$
$u = -0.044024 - 0.818063I$ $a = 0.652335 + 0.322162I$ $b = -0.167905 - 0.623453I$	$-1.27770 + 1.44146I$	$0.19549 - 5.54807I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.613808 + 1.009340I$ $a = 0.84248 - 1.87193I$ $b = -2.04716 - 2.64513I$	$1.96131 - 8.32605I$	0
$u = -0.613808 - 1.009340I$ $a = 0.84248 + 1.87193I$ $b = -2.04716 + 2.64513I$	$1.96131 + 8.32605I$	0
$u = -0.662707 + 0.477450I$ $a = -1.86190 + 0.54426I$ $b = -0.57360 + 1.90850I$	$3.39108 + 3.42806I$	$6.35256 - 3.02642I$
$u = -0.662707 - 0.477450I$ $a = -1.86190 - 0.54426I$ $b = -0.57360 - 1.90850I$	$3.39108 - 3.42806I$	$6.35256 + 3.02642I$
$u = -0.737691 + 0.955567I$ $a = -0.388118 - 0.820537I$ $b = -0.573332 + 0.251331I$	$3.68498 - 2.23055I$	0
$u = -0.737691 - 0.955567I$ $a = -0.388118 + 0.820537I$ $b = -0.573332 - 0.251331I$	$3.68498 + 2.23055I$	0
$u = -0.689892 + 0.991018I$ $a = 0.09117 - 1.66872I$ $b = -2.85026 - 1.61053I$	$-1.14588 - 5.49156I$	0
$u = -0.689892 - 0.991018I$ $a = 0.09117 + 1.66872I$ $b = -2.85026 + 1.61053I$	$-1.14588 + 5.49156I$	0
$u = 0.659252 + 1.016190I$ $a = 0.137976 - 1.363260I$ $b = 2.56392 - 0.66959I$	$2.66779 + 4.10740I$	0
$u = 0.659252 - 1.016190I$ $a = 0.137976 + 1.363260I$ $b = 2.56392 + 0.66959I$	$2.66779 - 4.10740I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.771414 + 0.943358I$ $a = 0.552899 - 0.216552I$ $b = -0.327428 + 0.913552I$	$10.51840 - 1.09087I$	0
$u = 0.771414 - 0.943358I$ $a = 0.552899 + 0.216552I$ $b = -0.327428 - 0.913552I$	$10.51840 + 1.09087I$	0
$u = -0.764178 + 0.965173I$ $a = 0.412858 + 1.010290I$ $b = 1.49440 + 0.94058I$	$11.70390 - 5.14096I$	0
$u = -0.764178 - 0.965173I$ $a = 0.412858 - 1.010290I$ $b = 1.49440 - 0.94058I$	$11.70390 + 5.14096I$	0
$u = -0.729127 + 1.006320I$ $a = 0.85456 + 2.40770I$ $b = 4.06882 + 0.97788I$	$2.02182 - 12.24190I$	0
$u = -0.729127 - 1.006320I$ $a = 0.85456 - 2.40770I$ $b = 4.06882 - 0.97788I$	$2.02182 + 12.24190I$	0
$u = -0.741771 + 1.008840I$ $a = 0.545247 - 0.543242I$ $b = 0.321004 - 1.292670I$	$10.1674 - 10.5435I$	0
$u = -0.741771 - 1.008840I$ $a = 0.545247 + 0.543242I$ $b = 0.321004 + 1.292670I$	$10.1674 + 10.5435I$	0
$u = 0.734769 + 1.019640I$ $a = -0.36453 + 2.55787I$ $b = -4.11635 + 1.81421I$	$7.8960 + 16.6434I$	0
$u = 0.734769 - 1.019640I$ $a = -0.36453 - 2.55787I$ $b = -4.11635 - 1.81421I$	$7.8960 - 16.6434I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.670400 + 0.147828I$ $a = 1.80229 + 0.50503I$ $b = 1.30651 - 0.96838I$	$6.05766 - 8.22168I$	$7.69702 + 5.92932I$
$u = -0.670400 - 0.147828I$ $a = 1.80229 - 0.50503I$ $b = 1.30651 + 0.96838I$	$6.05766 + 8.22168I$	$7.69702 - 5.92932I$
$u = 0.656891 + 0.088355I$ $a = -0.868107 - 1.024770I$ $b = -0.163464 - 0.301668I$	$7.87968 + 2.33195I$	$10.31373 - 1.18340I$
$u = 0.656891 - 0.088355I$ $a = -0.868107 + 1.024770I$ $b = -0.163464 + 0.301668I$	$7.87968 - 2.33195I$	$10.31373 + 1.18340I$
$u = 0.412551 + 0.453150I$ $a = 1.75896 - 0.29485I$ $b = 0.385319 + 1.182700I$	$-1.61119 - 1.13122I$	$-1.25895 + 1.21665I$
$u = 0.412551 - 0.453150I$ $a = 1.75896 + 0.29485I$ $b = 0.385319 - 1.182700I$	$-1.61119 + 1.13122I$	$-1.25895 - 1.21665I$
$u = 0.591730 + 0.129745I$ $a = -1.49243 + 0.30843I$ $b = -0.650903 - 1.070410I$	$0.12986 + 4.40376I$	$4.64576 - 6.38172I$
$u = 0.591730 - 0.129745I$ $a = -1.49243 - 0.30843I$ $b = -0.650903 + 1.070410I$	$0.12986 - 4.40376I$	$4.64576 + 6.38172I$
$u = -0.371894$ $a = 0.571634$ $b = -0.480013$	0.931539	11.9680

II. $\boldsymbol{I_2^u = \langle -412u^8a^2 + 444u^8a + \cdots - 624a + 202,\ 2u^8a^2 - u^8a + \cdots - a + 1,\ u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_2 = \begin{pmatrix} a \\ 0.235026a^2u^8 - 0.253280au^8 + \cdots + 0.355961a - 0.115231 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1.13862a^2u^8 + 0.287507au^8 + \cdots + 0.190531a - 0.247576 \\ 0.854535a^2u^8 + 1.25385au^8 + \cdots - 1.11352a + 0.309184 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.983457a^2u^8 - 0.108386au^8 + \cdots - 0.0638905a - 0.851112 \\ 0.826013a^2u^8 + 1.34284au^8 + \cdots - 1.29264a + 0.565887 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^6 + u^4 + 2u^2 + 1 \\ u^8 + 2u^6 + 2u^4 + 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.142042a^2u^8 + 0.483172au^8 + \cdots - 0.652025a + 0.278380 \\ 0.157444a^2u^8 - 0.451226au^8 + \cdots - 0.771249a - 1.41700 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^7 + 4u^6 - 4u^5 + 4u^4 - 8u^3 + 4u^2 + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{27}+18u^{26}+\cdots+u+1$
c_2, c_5, c_6 c_7, c_{12}	$u^{27}-9u^{25}+\cdots+u+1$
c_3	$(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)^3$
c_4, c_{10}	$(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)^3$
c_8	$(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)^3$
c_9, c_{11}	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{27} - 18y^{26} + \cdots + y - 1$
c_2, c_5, c_6 c_7, c_{12}	$y^{27} - 18y^{26} + \cdots + y - 1$
c_3	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^3$
c_4, c_{10}	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^3$
c_8	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^3$
c_9, c_{11}	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.140343+0.966856I$ $a=\ \ 1.25673+1.05313I$ $b=\ \ 0.049646+0.706168I$	$-1.78344-2.09337I$	$-0.51499+4.16283I$
$u=-0.140343+0.966856I$ $a=\ \ 0.163898-0.278866I$ $b=\ \ 0.601292+0.256808I$	$-1.78344-2.09337I$	$-0.51499+4.16283I$
$u=-0.140343+0.966856I$ $a=-0.01736-2.34952I$ $b=-0.95932-1.47752I$	$-1.78344-2.09337I$	$-0.51499+4.16283I$
$u=-0.140343-0.966856I$ $a=\ \ 1.25673-1.05313I$ $b=\ \ 0.049646-0.706168I$	$-1.78344+2.09337I$	$-0.51499-4.16283I$
$u=-0.140343-0.966856I$ $a=\ \ 0.163898+0.278866I$ $b=\ \ 0.601292-0.256808I$	$-1.78344+2.09337I$	$-0.51499-4.16283I$
$u=-0.140343-0.966856I$ $a=-0.01736+2.34952I$ $b=-0.95932+1.47752I$	$-1.78344+2.09337I$	$-0.51499-4.16283I$
$u=-0.628449+0.875112I$ $a=\ \ 0.0738554+0.0112823I$ $b=-0.329184+0.287114I$	$0.61694-2.45442I$	$2.32792+2.91298I$
$u=-0.628449+0.875112I$ $a=-2.10033+0.25220I$ $b=-0.22682+3.11202I$	$0.61694-2.45442I$	$2.32792+2.91298I$
$u=-0.628449+0.875112I$ $a=\ \ 0.05733-2.33941I$ $b=-2.96621-2.53925I$	$0.61694-2.45442I$	$2.32792+2.91298I$
$u=-0.628449-0.875112I$ $a=\ \ 0.0738554-0.0112823I$ $b=-0.329184-0.287114I$	$0.61694+2.45442I$	$2.32792-2.91298I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.628449 - 0.875112I$ $a = -2.10033 - 0.25220I$ $b = -0.22682 - 3.11202I$	$0.61694 + 2.45442I$	$2.32792 - 2.91298I$
$u = -0.628449 - 0.875112I$ $a = 0.05733 + 2.33941I$ $b = -2.96621 + 2.53925I$	$0.61694 + 2.45442I$	$2.32792 - 2.91298I$
$u = 0.796005 + 0.733148I$ $a = 0.897099 + 0.478488I$ $b = 0.366734 + 0.756648I$	$4.37135 - 1.33617I$	$7.28409 + 0.70175I$
$u = 0.796005 + 0.733148I$ $a = 1.64130 - 0.08440I$ $b = 1.01907 + 2.73861I$	$4.37135 - 1.33617I$	$7.28409 + 0.70175I$
$u = 0.796005 + 0.733148I$ $a = -1.69292 + 1.13699I$ $b = -2.24611 - 0.83019I$	$4.37135 - 1.33617I$	$7.28409 + 0.70175I$
$u = 0.796005 - 0.733148I$ $a = 0.897099 - 0.478488I$ $b = 0.366734 - 0.756648I$	$4.37135 + 1.33617I$	$7.28409 - 0.70175I$
$u = 0.796005 - 0.733148I$ $a = 1.64130 + 0.08440I$ $b = 1.01907 - 2.73861I$	$4.37135 + 1.33617I$	$7.28409 - 0.70175I$
$u = 0.796005 - 0.733148I$ $a = -1.69292 - 1.13699I$ $b = -2.24611 + 0.83019I$	$4.37135 + 1.33617I$	$7.28409 - 0.70175I$
$u = 0.728966 + 0.986295I$ $a = -0.280859 - 0.864363I$ $b = 0.366463 - 0.892237I$	$3.59813 + 7.08493I$	$5.57680 - 5.91335I$
$u = 0.728966 + 0.986295I$ $a = -0.12458 - 1.78606I$ $b = 3.23510 - 2.02570I$	$3.59813 + 7.08493I$	$5.57680 - 5.91335I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.728966 + 0.986295I$ $a = -1.25383 + 1.67614I$ $b = -3.12748 - 0.01225I$	$3.59813 + 7.08493I$	$5.57680 - 5.91335I$
$u = 0.728966 - 0.986295I$ $a = -0.280859 + 0.864363I$ $b = 0.366463 + 0.892237I$	$3.59813 - 7.08493I$	$5.57680 + 5.91335I$
$u = 0.728966 - 0.986295I$ $a = -0.12458 + 1.78606I$ $b = 3.23510 + 2.02570I$	$3.59813 - 7.08493I$	$5.57680 + 5.91335I$
$u = 0.728966 - 0.986295I$ $a = -1.25383 - 1.67614I$ $b = -3.12748 + 0.01225I$	$3.59813 - 7.08493I$	$5.57680 + 5.91335I$
$u = -0.512358$ $a = 0.923120 + 0.394259I$ $b = -0.085863 - 0.444563I$	1.19845	8.65230
$u = -0.512358$ $a = 0.923120 - 0.394259I$ $b = -0.085863 + 0.444563I$	1.19845	8.65230
$u = -0.512358$ $a = -3.08692$ $b = -1.39464$	1.19845	8.65230

III. $\boldsymbol{I_3^u = \langle 2u^3 + u^2 + b + u + 1,\ u^3 + 2a + 3u + 2,\ u^4 + u^2 + 2\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.676097 + 0.978318I$ $a = -1.19802 - 1.67009I$ $b = 2.08839 - 3.11166I$	$0.82247 + 5.33349I$	$2.00000 - 5.29150I$
$u = 0.676097 - 0.978318I$ $a = -1.19802 + 1.67009I$ $b = 2.08839 + 3.11166I$	$0.82247 - 5.33349I$	$2.00000 + 5.29150I$
$u = -0.676097 + 0.978318I$ $a = -0.80198 - 1.67009I$ $b = -3.08839 - 0.46591I$	$0.82247 - 5.33349I$	$2.00000 + 5.29150I$
$u = -0.676097 - 0.978318I$ $a = -0.80198 + 1.67009I$ $b = -3.08839 + 0.46591I$	$0.82247 + 5.33349I$	$2.00000 - 5.29150I$

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

(i) Arc colorings

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

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

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

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

$$a_5 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$

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

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

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

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

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

$$a_3 = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u		$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.000000I$		
$a =$	$1.00000 - 2.00000I$	-3.28987	-4.00000
$b =$	$-1.000000I$		
$u =$	$-1.000000I$		
$a =$	$1.00000 + 2.00000I$	-3.28987	-4.00000
$b =$	$1.000000I$		

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.707107 + 0.707107I$ $a = 1.41421 + 1.00000I$ $b = -0.29289 + 3.12132I$	1.64493	4.00000
$u = 0.707107 - 0.707107I$ $a = 1.41421 - 1.00000I$ $b = -0.29289 - 3.12132I$	1.64493	4.00000
$u = -0.707107 + 0.707107I$ $a = -1.41421 - 1.00000I$ $b = -1.70711 + 1.12132I$	1.64493	4.00000
$u = -0.707107 - 0.707107I$ $a = -1.41421 + 1.00000I$ $b = -1.70711 - 1.12132I$	1.64493	4.00000

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

(i) Arc colorings

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

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

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

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^{11})(u^{27}+18u^{26}+\cdots+u+1)(u^{69}+26u^{68}+\cdots+3481u+256)$
c_2	$((u-1)^{5})(u+1)^{6}(u^{27}-9u^{25}+\cdots+u+1)(u^{69}+2u^{68}+\cdots-5u-16)$
c_3	$u(u^2+1)(u^4+1)(u^4+u^2+2)$ $\cdot(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)^3$ $\cdot(u^{69}-2u^{68}+\cdots-188076u-54322)$
c_4, c_{10}	$u(u^2+1)(u^4+1)(u^4+u^2+2)(u^9+u^8+\cdots+u-1)^3$ $\cdot(u^{69}-2u^{68}+\cdots+2u^2-2)$
c_5	$((u-1)^{6})(u+1)^{5}(u^{27}-9u^{25}+\cdots+u+1)(u^{69}+2u^{68}+\cdots-5u-16)$
c_6, c_7	$((u-1)^{6})(u+1)^{5}(u^{27}-9u^{25}+\cdots+u+1)$ $\cdot(u^{69}-2u^{68}+\cdots-37u-16)$
c_8	$u(u^2+1)(u^4+1)(u^4+u^2+2)$ $\cdot(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)^3$ $\cdot(u^{69}+10u^{68}+\cdots-2116u-86)$
c_9	$u(u-1)^2(u^2+1)^2(u^2-u+2)^2$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^3$ $\cdot(u^{69}+22u^{68}+\cdots+8u-4)$
c_{11}	$u(u+1)^2(u^2+1)^2(u^2+u+2)^2$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^3$ $\cdot(u^{69}+22u^{68}+\cdots+8u-4)$
c_{12}	$((u-1)^{5})(u+1)^{6}(u^{27}-9u^{25}+\cdots+u+1)$ $\cdot(u^{69}-2u^{68}+\cdots-37u-16)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^{11})(y^{27}-18y^{26}+\cdots+y-1)$ $\cdot(y^{69}+46y^{68}+\cdots-2589327y-65536)$
c_2, c_5	$((y-1)^{11})(y^{27}-18y^{26}+\cdots+y-1)(y^{69}-26y^{68}+\cdots+3481y-256)$
c_3	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2$ $\cdot(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)^3$ $\cdot(y^{69}-26y^{68}+\cdots+15690417448y-2950879684)$
c_4, c_{10}	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)^3$ $\cdot(y^{69}+22y^{68}+\cdots+8y-4)$
c_6, c_7, c_{12}	$((y-1)^{11})(y^{27}-18y^{26}+\cdots+y-1)$ $\cdot(y^{69}-74y^{68}+\cdots-10919y-256)$
c_8	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2$ $\cdot(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)^3$ $\cdot(y^{69}-2y^{68}+\cdots-1189944y-7396)$
c_9, c_{11}	$y(y-1)^2(y+1)^4(y^2+3y+4)^2$ $\cdot(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^3$ $\cdot(y^{69}+50y^{68}+\cdots+768y-16)$