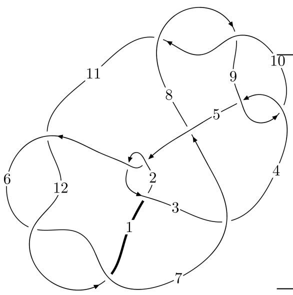
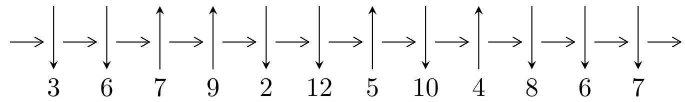
$12n_{0389}$ ($K12n_{0389}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I^u_1 &= \langle -u^{27} - 2u^{26} + \cdots + b - 1,\ u^{27} + u^{26} + \cdots + 2a - 2,\ u^{28} + 3u^{27} + \cdots + 2u + 2\rangle \\
I^u_2 &= \langle -u^{15}a + u^{15} + \cdots - a + 3,\ -2u^{15}a + 2u^{15} + \cdots - 2a + 2, \\
&\quad u^{16} - u^{15} + 3u^{14} - 2u^{13} + 7u^{12} - 4u^{11} + 10u^{10} - 4u^9 + 11u^8 - 2u^7 + 8u^6 + 4u^4 + 2u^3 + 2u - 1\rangle \\
I^u_3 &= \langle -u^2 + b - u + 1,\ -u^3 + 2u^2 + 2a - u + 4,\ u^4 + u^2 + 2\rangle \\
I^u_4 &= \langle b + u + 2,\ a + u + 3,\ u^2 + 1\rangle \\
I^u_5 &= \langle u^3 + u^2 + b + 1,\ a - u - 1,\ u^4 + 1\rangle
\end{aligned}
$$

$$I^v_1 = \langle a,\ b + 1,\ v + 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 71 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.

$$\boldsymbol{I_1^u = \langle -u^{27} - 2u^{26} + \cdots + b - 1,\ u^{27} + u^{26} + \cdots + 2a - 2,\ u^{28} + 3u^{27} + \cdots + 2u + 2\rangle}$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{27} - \frac{1}{2}u^{26} + \cdots - u + 1 \\ u^{27} + 2u^{26} + \cdots + u + 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^{27} + \frac{1}{2}u^{26} + \cdots + \frac{7}{2}u^3 - u^2 \\ -u^{26} - u^{25} + \cdots + u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^5 + u \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^{27} - \frac{1}{2}u^{26} + \cdots - \frac{7}{2}u^3 + u^2 \\ u^{27} + 2u^{26} + \cdots + 2u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^5 - u \\ u^7 + u^5 + 2u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{12} - u^{10} - 3u^8 - 2u^6 - 2u^4 - u^2 + 1 \\ u^{14} + 2u^{12} + 5u^{10} + 6u^8 + 6u^6 + 4u^4 + u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{5}{2}u^{27} + \frac{7}{2}u^{26} + \cdots - u^2 + 3u \\ -3u^{27} - 6u^{26} + \cdots - 5u - 3 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 8u^{27} + 18u^{26} + 54u^{25} + 80u^{24} + 176u^{23} + 218u^{22} + 384u^{21} + 390u^{20} + 606u^{19} + 500u^{18} + 704u^{17} + 440u^{16} + 614u^{15} + 222u^{14} + 372u^{13} - 16u^{12} + 148u^{11} - 146u^{10} + 30u^9 - 136u^8 - 10u^7 - 92u^6 - 6u^5 - 34u^4 + 8u^3 + 8u^2 + 22u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{28} + 7u^{27} + \cdots + 8u + 1$
c_2, c_5, c_6 c_{11}, c_{12}	$u^{28} + u^{27} + \cdots + 2u + 1$
c_3	$u^{28} - 3u^{27} + \cdots - 238u + 50$
c_4, c_9	$u^{28} - 3u^{27} + \cdots - 2u + 2$
c_7	$u^{28} + 15u^{27} + \cdots + 1134u + 158$
c_8, c_{10}	$u^{28} + 9u^{27} + \cdots + 20u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{28} + 41y^{27} + \cdots + 36y + 1$
c_2, c_5, c_6 c_{11}, c_{12}	$y^{28} - 7y^{27} + \cdots - 8y + 1$
c_3	$y^{28} - 15y^{27} + \cdots + 253556y + 2500$
c_4, c_9	$y^{28} + 9y^{27} + \cdots + 20y + 4$
c_7	$y^{28} - 3y^{27} + \cdots + 228948y + 24964$
c_8, c_{10}	$y^{28} + 21y^{27} + \cdots + 112y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.357080 + 0.990708I$ $a = 1.17579 + 1.29712I$ $b = 0.966655 - 0.502162I$	$1.10269 - 2.91896I$	$-6.58916 + 1.35621I$
$u = 0.357080 - 0.990708I$ $a = 1.17579 - 1.29712I$ $b = 0.966655 + 0.502162I$	$1.10269 + 2.91896I$	$-6.58916 - 1.35621I$
$u = 0.009749 + 1.057290I$ $a = -2.21816 - 0.73889I$ $b = -1.78141 - 0.42208I$	$-5.12130 - 1.42409I$	$-9.75378 + 4.84787I$
$u = 0.009749 - 1.057290I$ $a = -2.21816 + 0.73889I$ $b = -1.78141 + 0.42208I$	$-5.12130 + 1.42409I$	$-9.75378 - 4.84787I$
$u = -0.675265 + 0.641850I$ $a = 0.942832 + 0.025360I$ $b = -0.656487 + 0.567996I$	$0.029347 - 0.742942I$	$-2.66483 + 4.11260I$
$u = -0.675265 - 0.641850I$ $a = 0.942832 - 0.025360I$ $b = -0.656487 - 0.567996I$	$0.029347 + 0.742942I$	$-2.66483 - 4.11260I$
$u = 0.201680 + 1.066800I$ $a = 2.93136 + 0.13549I$ $b = 2.18433 - 0.34282I$	$0.10693 + 9.35469I$	$-8.40093 - 7.64801I$
$u = 0.201680 - 1.066800I$ $a = 2.93136 - 0.13549I$ $b = 2.18433 + 0.34282I$	$0.10693 - 9.35469I$	$-8.40093 + 7.64801I$
$u = -0.851089 + 0.709851I$ $a = -0.654367 - 0.630430I$ $b = 2.05001 - 1.47929I$	$7.15859 + 9.12533I$	$-2.05138 - 4.56575I$
$u = -0.851089 - 0.709851I$ $a = -0.654367 + 0.630430I$ $b = 2.05001 + 1.47929I$	$7.15859 - 9.12533I$	$-2.05138 + 4.56575I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.672429 + 0.567673I$ $a = 0.911611 + 0.160034I$ $b = -0.71715 - 1.22852I$	$-0.04567 - 2.37011I$	$-3.07191 + 4.49176I$
$u = 0.672429 - 0.567673I$ $a = 0.911611 - 0.160034I$ $b = -0.71715 + 1.22852I$	$-0.04567 + 2.37011I$	$-3.07191 - 4.49176I$
$u = -0.840063 + 0.786573I$ $a = -0.492673 + 0.823459I$ $b = -0.087379 + 0.226571I$	$8.56887 - 4.65353I$	$-0.39876 + 4.46500I$
$u = -0.840063 - 0.786573I$ $a = -0.492673 - 0.823459I$ $b = -0.087379 - 0.226571I$	$8.56887 + 4.65353I$	$-0.39876 - 4.46500I$
$u = 0.758184 + 0.875112I$ $a = 0.635547 + 0.434170I$ $b = 0.649386 + 0.105970I$	$4.62333 + 2.86656I$	$2.11844 - 3.14500I$
$u = 0.758184 - 0.875112I$ $a = 0.635547 - 0.434170I$ $b = 0.649386 - 0.105970I$	$4.62333 - 2.86656I$	$2.11844 + 3.14500I$
$u = 0.638350 + 1.005070I$ $a = -2.04567 - 0.58767I$ $b = -1.19550 + 1.80863I$	$-1.27376 + 7.45615I$	$-5.74748 - 10.04223I$
$u = 0.638350 - 1.005070I$ $a = -2.04567 + 0.58767I$ $b = -1.19550 - 1.80863I$	$-1.27376 - 7.45615I$	$-5.74748 + 10.04223I$
$u = -0.660931 + 0.998814I$ $a = -1.00547 + 1.02454I$ $b = -1.24984 - 0.99805I$	$-1.01565 - 4.47891I$	$-4.23563 + 0.76999I$
$u = -0.660931 - 0.998814I$ $a = -1.00547 - 1.02454I$ $b = -1.24984 + 0.99805I$	$-1.01565 + 4.47891I$	$-4.23563 - 0.76999I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.776659 + 0.972247I$ $a = -0.490506 - 0.576756I$ $b = -0.217973 + 0.023439I$	$7.99447 - 1.37799I$	$-1.229837 + 0.612967I$
$u = -0.776659 - 0.972247I$ $a = -0.490506 + 0.576756I$ $b = -0.217973 - 0.023439I$	$7.99447 + 1.37799I$	$-1.229837 - 0.612967I$
$u = -0.747656 + 1.019100I$ $a = 2.07210 - 1.69147I$ $b = 2.41123 + 1.53544I$	$6.2073 - 15.0893I$	$-3.71765 + 9.34150I$
$u = -0.747656 - 1.019100I$ $a = 2.07210 + 1.69147I$ $b = 2.41123 - 1.53544I$	$6.2073 + 15.0893I$	$-3.71765 - 9.34150I$
$u = 0.697614 + 0.095875I$ $a = -0.669180 - 0.749710I$ $b = 1.260170 - 0.377922I$	$3.91681 + 6.47583I$	$-1.45394 - 5.09717I$
$u = 0.697614 - 0.095875I$ $a = -0.669180 + 0.749710I$ $b = 1.260170 + 0.377922I$	$3.91681 - 6.47583I$	$-1.45394 + 5.09717I$
$u = -0.283422 + 0.542166I$ $a = 0.906792 - 0.049620I$ $b = -0.116042 - 0.108742I$	$-0.175714 - 1.037120I$	$-2.80315 + 6.64420I$
$u = -0.283422 - 0.542166I$ $a = 0.906792 + 0.049620I$ $b = -0.116042 + 0.108742I$	$-0.175714 + 1.037120I$	$-2.80315 - 6.64420I$

II. $I_2^u =$
$\langle -u^{15}a+u^{15}+\cdots-a+3,\ -2u^{15}a+2u^{15}+\cdots-2a+2,\ u^{16}-u^{15}+\cdots+2u-1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ \frac{1}{2}u^{15}a - \frac{1}{2}u^{15} + \cdots + \frac{1}{2}a - \frac{3}{2} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^{15}a - \frac{1}{2}u^{15} + \cdots + \frac{3}{2}a - \frac{3}{2} \\ u^{12} + 2u^{10} + \cdots + 2u + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^5 + u \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^{15}a + \frac{1}{2}u^{15} + \cdots - \frac{3}{2}a + \frac{3}{2} \\ -\frac{1}{2}u^{15}a + \frac{1}{2}u^{15} + \cdots - \frac{1}{2}a + \frac{3}{2} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^5 - u \\ u^7 + u^5 + 2u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{12} - u^{10} - 3u^8 - 2u^6 - 2u^4 - u^2 + 1 \\ u^{14} + 2u^{12} + 5u^{10} + 6u^8 + 6u^6 + 4u^4 + u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{1}{2}u^{15}a - \frac{1}{2}u^{15} + \cdots + \frac{3}{2}a - \frac{1}{2} \\ u^{15}a - u^{15} + \cdots + a - 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{15}+8u^{13}+4u^{12}+20u^{11}+8u^{10}+24u^9+16u^8+28u^7+20u^6+20u^5+16u^4+12u^3+12u^2-2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{32}+13u^{31}+\cdots+2505u+256$
c_2, c_5, c_6 c_{11}, c_{12}	$u^{32}+u^{31}+\cdots-13u-16$
c_3	$(u^{16}+u^{15}+\cdots+2u^2-1)^2$
c_4, c_9	$(u^{16}+u^{15}+\cdots-2u-1)^2$
c_7	$(u^{16}-5u^{15}+\cdots+8u-7)^2$
c_8, c_{10}	$(u^{16}+5u^{15}+\cdots-4u+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{32} + 11y^{31} + \cdots + 1013295y + 65536$
c_2, c_5, c_6 c_{11}, c_{12}	$y^{32} - 13y^{31} + \cdots - 2505y + 256$
c_3	$(y^{16} - 19y^{15} + \cdots - 4y + 1)^2$
c_4, c_9	$(y^{16} + 5y^{15} + \cdots - 4y + 1)^2$
c_7	$(y^{16} - 7y^{15} + \cdots - 344y + 49)^2$
c_8, c_{10}	$(y^{16} + 13y^{15} + \cdots - 48y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.254861 + 1.023380I$ $a = 0.50162 - 1.49362I$ $b = 0.607139 - 0.301866I$	$1.40970 - 3.12434I$	$-6.05940 + 3.66013I$
$u = -0.254861 + 1.023380I$ $a = 2.28656 + 0.08597I$ $b = 1.340560 + 0.447711I$	$1.40970 - 3.12434I$	$-6.05940 + 3.66013I$
$u = -0.254861 - 1.023380I$ $a = 0.50162 + 1.49362I$ $b = 0.607139 + 0.301866I$	$1.40970 + 3.12434I$	$-6.05940 - 3.66013I$
$u = -0.254861 - 1.023380I$ $a = 2.28656 - 0.08597I$ $b = 1.340560 - 0.447711I$	$1.40970 + 3.12434I$	$-6.05940 - 3.66013I$
$u = -0.750689 + 0.759364I$ $a = 0.956948 - 0.036904I$ $b = -1.17813 + 1.16703I$	$0.311107 + 0.489680I$	$-1.64393 - 1.43137I$
$u = -0.750689 + 0.759364I$ $a = 0.919406 - 0.682819I$ $b = 1.233040 + 0.594121I$	$0.311107 + 0.489680I$	$-1.64393 - 1.43137I$
$u = -0.750689 - 0.759364I$ $a = 0.956948 + 0.036904I$ $b = -1.17813 - 1.16703I$	$0.311107 - 0.489680I$	$-1.64393 + 1.43137I$
$u = -0.750689 - 0.759364I$ $a = 0.919406 + 0.682819I$ $b = 1.233040 - 0.594121I$	$0.311107 - 0.489680I$	$-1.64393 + 1.43137I$
$u = 0.099165 + 0.920214I$ $a = 0.97209 + 1.30975I$ $b = 0.277510 + 1.275700I$	$-5.17692 + 1.52971I$	$-10.72737 - 5.08772I$
$u = 0.099165 + 0.920214I$ $a = -3.76471 - 0.60851I$ $b = -2.03422 + 0.24629I$	$-5.17692 + 1.52971I$	$-10.72737 - 5.08772I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.099165 - 0.920214I$ $a = 0.97209 - 1.30975I$ $b = 0.277510 - 1.275700I$	$-5.17692 - 1.52971I$	$-10.72737 + 5.08772I$
$u = 0.099165 - 0.920214I$ $a = -3.76471 + 0.60851I$ $b = -2.03422 - 0.24629I$	$-5.17692 - 1.52971I$	$-10.72737 + 5.08772I$
$u = 0.665350 + 0.873267I$ $a = 1.003110 - 0.569330I$ $b = -1.41970 - 1.66184I$	$-2.27257 + 2.57669I$	$-7.30756 - 2.71681I$
$u = 0.665350 + 0.873267I$ $a = -1.91799 - 2.15716I$ $b = -1.96956 + 1.27998I$	$-2.27257 + 2.57669I$	$-7.30756 - 2.71681I$
$u = 0.665350 - 0.873267I$ $a = 1.003110 + 0.569330I$ $b = -1.41970 + 1.66184I$	$-2.27257 - 2.57669I$	$-7.30756 + 2.71681I$
$u = 0.665350 - 0.873267I$ $a = -1.91799 + 2.15716I$ $b = -1.96956 - 1.27998I$	$-2.27257 - 2.57669I$	$-7.30756 + 2.71681I$
$u = 0.847960 + 0.745397I$ $a = -0.230594 + 0.489998I$ $b = 1.59945 + 1.15994I$	$8.61070 - 2.28357I$	$-0.075280 + 0.308256I$
$u = 0.847960 + 0.745397I$ $a = -0.198841 - 0.492541I$ $b = 0.097691 - 0.720809I$	$8.61070 - 2.28357I$	$-0.075280 + 0.308256I$
$u = 0.847960 - 0.745397I$ $a = -0.230594 - 0.489998I$ $b = 1.59945 - 1.15994I$	$8.61070 + 2.28357I$	$-0.075280 - 0.308256I$
$u = 0.847960 - 0.745397I$ $a = -0.198841 + 0.492541I$ $b = 0.097691 + 0.720809I$	$8.61070 + 2.28357I$	$-0.075280 - 0.308256I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.716556+0.957138I$ $a=\ \ 0.113653-1.335050I$ $b=\ \ 1.35141-0.89567I$	$-0.28749-6.07197I$	$-3.38425+7.02814I$
$u=-0.716556+0.957138I$ $a=-1.51453+1.63636I$ $b=-1.57634-1.36115I$	$-0.28749-6.07197I$	$-3.38425+7.02814I$
$u=-0.716556-0.957138I$ $a=\ \ 0.113653+1.335050I$ $b=\ \ 1.35141+0.89567I$	$-0.28749+6.07197I$	$-3.38425-7.02814I$
$u=-0.716556-0.957138I$ $a=-1.51453-1.63636I$ $b=-1.57634+1.36115I$	$-0.28749+6.07197I$	$-3.38425-7.02814I$
$u=\ \ 0.761782+1.000110I$ $a=-0.879278+0.655399I$ $b=-0.021538+0.554655I$	$7.82454+8.28859I$	$-1.42292-5.27135I$
$u=\ \ 0.761782+1.000110I$ $a=\ \ 1.69603+1.36600I$ $b=\ \ 1.82121-1.08166I$	$7.82454+8.28859I$	$-1.42292-5.27135I$
$u=\ \ 0.761782-1.000110I$ $a=-0.879278-0.655399I$ $b=-0.021538-0.554655I$	$7.82454-8.28859I$	$-1.42292+5.27135I$
$u=\ \ 0.761782-1.000110I$ $a=\ \ 1.69603-1.36600I$ $b=\ \ 1.82121+1.08166I$	$7.82454-8.28859I$	$-1.42292+5.27135I$
$u=-0.689113$ $a=-0.213554+0.496575I$ $b=\ \ 0.887810+0.688994I$	4.71670	0.147800
$u=-0.689113$ $a=-0.213554-0.496575I$ $b=\ \ 0.887810-0.688994I$	4.71670	0.147800

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.384812$ $a = 1.07569$ $b = -1.31135$	-2.52578	1.09360
$u = 0.384812$ $a = 2.46446$ $b = 0.278658$	-2.52578	1.09360

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2 - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.676097 + 0.978318I$ $a = -1.97807 - 0.63110I$ $b = -0.82390 + 2.30119I$	$-2.46740 + 5.33349I$	$-10.00000 - 5.29150I$
$u = 0.676097 - 0.978318I$ $a = -1.97807 + 0.63110I$ $b = -0.82390 - 2.30119I$	$-2.46740 - 5.33349I$	$-10.00000 + 5.29150I$
$u = -0.676097 + 0.978318I$ $a = -1.02193 + 2.01465I$ $b = -2.17610 - 0.34456I$	$-2.46740 - 5.33349I$	$-10.00000 + 5.29150I$
$u = -0.676097 - 0.978318I$ $a = -1.02193 - 2.01465I$ $b = -2.17610 + 0.34456I$	$-2.46740 + 5.33349I$	$-10.00000 - 5.29150I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -3.00000 - 1.00000I$ $b = -2.00000 - 1.00000I$	-6.57974	-16.0000
$u = -1.000000I$ $a = -3.00000 + 1.00000I$ $b = -2.00000 + 1.00000I$	-6.57974	-16.0000

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

(i) Arc colorings

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

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

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

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

$$a_6 = \begin{pmatrix} -u \\ u^3 + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u^3 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 0 \\ u^3 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.707107 + 0.707107I$ $a = 1.70711 + 0.70711I$ $b = -0.29289 - 1.70711I$	-1.64493	-8.00000
$u = 0.707107 - 0.707107I$ $a = 1.70711 - 0.70711I$ $b = -0.29289 + 1.70711I$	-1.64493	-8.00000
$u = -0.707107 + 0.707107I$ $a = 0.292893 + 0.707107I$ $b = -1.70711 + 0.29289I$	-1.64493	-8.00000
$u = -0.707107 - 0.707107I$ $a = 0.292893 - 0.707107I$ $b = -1.70711 - 0.29289I$	-1.64493	-8.00000

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

$a_7 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = \quad 0$ $b = -1.00000$	-3.28987	-12.0000

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^{11})(u^{28}+7u^{27}+\cdots+8u+1)(u^{32}+13u^{31}+\cdots+2505u+256)$
c_2, c_6	$((u-1)^5)(u+1)^6(u^{28}+u^{27}+\cdots+2u+1)(u^{32}+u^{31}+\cdots-13u-16)$
c_3	$u(u^2+1)(u^4+1)(u^4+u^2+2)(u^{16}+u^{15}+\cdots+2u^2-1)^2$ $\cdot(u^{28}-3u^{27}+\cdots-238u+50)$
c_4, c_9	$u(u^2+1)(u^4+1)(u^4+u^2+2)(u^{16}+u^{15}+\cdots-2u-1)^2$ $\cdot(u^{28}-3u^{27}+\cdots-2u+2)$
c_5, c_{11}, c_{12}	$((u-1)^6)(u+1)^5(u^{28}+u^{27}+\cdots+2u+1)(u^{32}+u^{31}+\cdots-13u-16)$
c_7	$u(u^2+1)(u^4+1)(u^4+u^2+2)(u^{16}-5u^{15}+\cdots+8u-7)^2$ $\cdot(u^{28}+15u^{27}+\cdots+1134u+158)$
c_8	$u(u-1)^2(u^2+1)^2(u^2-u+2)^2(u^{16}+5u^{15}+\cdots-4u+1)^2$ $\cdot(u^{28}+9u^{27}+\cdots+20u+4)$
c_{10}	$u(u+1)^2(u^2+1)^2(u^2+u+2)^2(u^{16}+5u^{15}+\cdots-4u+1)^2$ $\cdot(u^{28}+9u^{27}+\cdots+20u+4)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^{11})(y^{28}+41y^{27}+\cdots+36y+1)$ $\cdot(y^{32}+11y^{31}+\cdots+1013295y+65536)$
c_2, c_5, c_6 c_{11}, c_{12}	$((y-1)^{11})(y^{28}-7y^{27}+\cdots-8y+1)(y^{32}-13y^{31}+\cdots-2505y+256)$
c_3	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2(y^{16}-19y^{15}+\cdots-4y+1)^2$ $\cdot(y^{28}-15y^{27}+\cdots+253556y+2500)$
c_4, c_9	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2(y^{16}+5y^{15}+\cdots-4y+1)^2$ $\cdot(y^{28}+9y^{27}+\cdots+20y+4)$
c_7	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2(y^{16}-7y^{15}+\cdots-344y+49)^2$ $\cdot(y^{28}-3y^{27}+\cdots+228948y+24964)$
c_8, c_{10}	$y(y-1)^2(y+1)^4(y^2+3y+4)^2(y^{16}+13y^{15}+\cdots-48y+1)^2$ $\cdot(y^{28}+21y^{27}+\cdots+112y+16)$