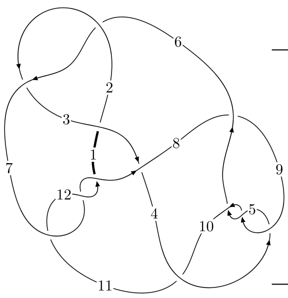
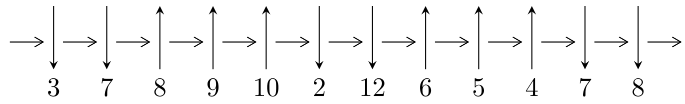
$12n_{0578}$ $(K12n_{0578})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 &= \langle b-u,\ u^{23}-u^{22}+\cdots+16a+1,\ u^{25}-u^{24}+\cdots+3u^2-1\rangle\\
I^u_2 &= \langle -36334607050217u^{29}+39477995355924u^{28}+\cdots+22009500091156001b-1119770521665287,\\
&\quad -u^{29}+u^{28}+\cdots+7a-6,\ u^{30}-u^{29}+\cdots+6u+7\rangle\\
I^u_3 &= \langle b+1,\ a^4+4a^3+9a^2+10a+7,\ u-1\rangle\\
I^u_4 &= \langle b-1,\ a^4-4a^3+7a^2-6a+1,\ u+1\rangle\\
I^u_5 &= \langle b+1,\ a+1,\ u-1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 64 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. $\boldsymbol{I_1^u = \langle b - u,\ u^{23} - u^{22} + \cdots + 16a + 1,\ u^{25} - u^{24} + \cdots + 3u^2 - 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{1}{16}u^{23} + \frac{1}{16}u^{22} + \cdots - 2u - \frac{1}{16} \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ \frac{1}{16}u^{23} - \frac{1}{16}u^{22} + \cdots + u + \frac{1}{16} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{16}u^{23} + \frac{1}{16}u^{22} + \cdots - u - \frac{1}{16} \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{16}u^{24} - \frac{1}{16}u^{23} + \cdots + \frac{1}{16}u + 1 \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{9}{16}u^{24} - \frac{5}{8}u^{23} + \cdots + \frac{11}{16}u + \frac{15}{16} \\ -\frac{1}{16}u^{24} + \frac{1}{16}u^{23} + \cdots + u^2 - \frac{1}{16}u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{16}u^{23} + \frac{1}{16}u^{22} + \cdots + u - \frac{1}{16} \\ -0.0625000u^{24} + 0.500000u^{23} + \cdots + 0.937500u + 0.562500 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.18750u^{24} - 1.81250u^{23} + \cdots + 0.812500u + 0.625000 \\ -0.625000u^{24} + 1.43750u^{23} + \cdots + 0.625000u + 1.18750 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{9}{4}u^{24} - \frac{15}{8}u^{23} + \cdots + u - \frac{19}{8}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{25} + 7u^{24} + \cdots + 6u + 1$
c_2, c_6, c_7 c_{11}, c_{12}	$u^{25} - u^{24} + \cdots + 3u^2 - 1$
c_3	$u^{25} + 3u^{24} + \cdots - 688u - 178$
c_4, c_5, c_9	$u^{25} - 3u^{24} + \cdots - 5u^2 - 2$
c_8, c_{10}	$u^{25} + 9u^{24} + \cdots + 92u + 14$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{25} + 33y^{24} + \cdots + 2y - 1$
c_2, c_6, c_7 c_{11}, c_{12}	$y^{25} - 7y^{24} + \cdots + 6y - 1$
c_3	$y^{25} - 9y^{24} + \cdots - 428404y - 31684$
c_4, c_5, c_9	$y^{25} - 21y^{24} + \cdots - 20y - 4$
c_8, c_{10}	$y^{25} + 15y^{24} + \cdots - 244y - 196$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.785518 + 0.372640I$ $a = 0.62353 - 2.12777I$ $b = -0.785518 + 0.372640I$	$-2.17521 + 5.68827I$	$-0.75349 - 8.49425I$
$u = -0.785518 - 0.372640I$ $a = 0.62353 + 2.12777I$ $b = -0.785518 - 0.372640I$	$-2.17521 - 5.68827I$	$-0.75349 + 8.49425I$
$u = 0.755648 + 0.329653I$ $a = -0.90101 - 2.06111I$ $b = 0.755648 + 0.329653I$	$-6.02340 - 1.36429I$	$-4.30078 + 5.12755I$
$u = 0.755648 - 0.329653I$ $a = -0.90101 + 2.06111I$ $b = 0.755648 - 0.329653I$	$-6.02340 + 1.36429I$	$-4.30078 - 5.12755I$
$u = -0.845914 + 0.820525I$ $a = -0.231288 - 1.378290I$ $b = -0.845914 + 0.820525I$	$1.53021 + 1.97230I$	$-1.25071 - 1.01903I$
$u = -0.845914 - 0.820525I$ $a = -0.231288 + 1.378290I$ $b = -0.845914 - 0.820525I$	$1.53021 - 1.97230I$	$-1.25071 + 1.01903I$
$u = 0.265507 + 0.770529I$ $a = -0.071679 - 1.030960I$ $b = 0.265507 + 0.770529I$	$4.72198 - 3.16963I$	$6.44572 + 4.63465I$
$u = 0.265507 - 0.770529I$ $a = -0.071679 + 1.030960I$ $b = 0.265507 - 0.770529I$	$4.72198 + 3.16963I$	$6.44572 - 4.63465I$
$u = -0.730832 + 0.286998I$ $a = 1.17630 - 1.94700I$ $b = -0.730832 + 0.286998I$	$-2.02761 - 2.93831I$	$0.12922 - 1.80135I$
$u = -0.730832 - 0.286998I$ $a = 1.17630 + 1.94700I$ $b = -0.730832 - 0.286998I$	$-2.02761 + 2.93831I$	$0.12922 + 1.80135I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.964582+0.777415I$ $a = 0.38162-1.45780I$ $b = 0.964582+0.777415I$	$3.01562-5.74190I$	$0.65811+6.60844I$
$u = 0.964582-0.777415I$ $a = 0.38162+1.45780I$ $b = 0.964582-0.777415I$	$3.01562+5.74190I$	$0.65811-6.60844I$
$u = 0.834411+0.917128I$ $a = 0.245471-1.273980I$ $b = 0.834411+0.917128I$	$6.70653+1.49728I$	$3.61002-0.12989I$
$u = 0.834411-0.917128I$ $a = 0.245471+1.273980I$ $b = 0.834411-0.917128I$	$6.70653-1.49728I$	$3.61002+0.12989I$
$u = 1.075630+0.727569I$ $a = 0.57040-1.51015I$ $b = 1.075630+0.727569I$	$2.19442-6.05278I$	$-0.77143+3.74618I$
$u = 1.075630-0.727569I$ $a = 0.57040+1.51015I$ $b = 1.075630-0.727569I$	$2.19442+6.05278I$	$-0.77143-3.74618I$
$u = -1.129150+0.745345I$ $a = -0.64410-1.44902I$ $b = -1.129150+0.745345I$	$-0.44383+10.34840I$	$-3.77176-7.45516I$
$u = -1.129150-0.745345I$ $a = -0.64410+1.44902I$ $b = -1.129150-0.745345I$	$-0.44383-10.34840I$	$-3.77176+7.45516I$
$u = -1.040970+0.866286I$ $a = -0.469635-1.328000I$ $b = -1.040970+0.866286I$	$9.76977+6.71873I$	$4.67666-4.93521I$
$u = -1.040970-0.866286I$ $a = -0.469635+1.328000I$ $b = -1.040970-0.866286I$	$9.76977-6.71873I$	$4.67666+4.93521I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.156880 + 0.765655I$ $a = 0.66857 - 1.39962I$ $b = 1.156880 + 0.765655I$	$4.4401 - 14.5092I$	$0.55817 + 8.79115I$
$u = 1.156880 - 0.765655I$ $a = 0.66857 + 1.39962I$ $b = 1.156880 - 0.765655I$	$4.4401 + 14.5092I$	$0.55817 - 8.79115I$
$u = -0.260838 + 0.456783I$ $a = 0.277904 - 0.859001I$ $b = -0.260838 + 0.456783I$	$0.037229 + 0.975136I$	$0.76804 - 7.07893I$
$u = -0.260838 - 0.456783I$ $a = 0.277904 + 0.859001I$ $b = -0.260838 - 0.456783I$	$0.037229 - 0.975136I$	$0.76804 + 7.07893I$
$u = 0.481143$ $a = -1.25216$ $b = 0.481143$	2.56662	2.00450

II. $I_2^u = \langle -3.63\times 10^{13}u^{29} + 3.95\times 10^{13}u^{28} + \cdots + 2.20\times 10^{15}b - 1.12\times 10^{15},\ -u^{29} + u^{28} + \cdots + 7a - 6,\ u^{30} - u^{29} + \cdots + 6u + 7\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}\frac{1}{7}u^{29} - \frac{1}{7}u^{28} + \cdots - \frac{76}{7}u + \frac{6}{7}\\0.0165086u^{29} - 0.0179368u^{28} + \cdots - 3.56720u + 0.508767\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.159366u^{29} - 0.160794u^{28} + \cdots - 13.4243u + 1.36591\\0.139320u^{29} - 0.0522821u^{28} + \cdots - 3.67419u + 0.518764\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.159366u^{29} - 0.160794u^{28} + \cdots - 14.4243u + 1.36591\\0.0165086u^{29} - 0.0179368u^{28} + \cdots - 3.56720u + 0.508767\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u\\-u^3 + u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.0741092u^{29} + 0.213429u^{28} + \cdots + 2.77558u - 4.11884\\-0.00142820u^{29} + 0.124240u^{28} + \cdots + 0.409715u - 1.11556\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.156177u^{29} + 0.104902u^{28} + \cdots + 1.37289u - 3.42762\\-0.173390u^{29} + 0.0449879u^{28} + \cdots + 0.143610u - 0.680215\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.0971736u^{29} - 0.270564u^{28} + \cdots - 12.6008u + 0.726652\\-0.0512747u^{29} - 0.0842981u^{28} + \cdots - 2.49055u + 1.09324\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.167585u^{29} - 0.278986u^{28} + \cdots - 14.6020u - 3.43422\\-0.446571u^{29} - 0.0855200u^{28} + \cdots - 2.42870u + 1.17310\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$$= -\frac{2576715548071340}{2200950009156001}u^{29} - \frac{754152713873936}{2200950009156001}u^{28} + \cdots + \frac{5415273681221840}{2200950009156001}u + \frac{25651780906655686}{2200950009156001}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} + 13u^{29} + \cdots + 1100u + 49$
c_2, c_6, c_7 c_{11}, c_{12}	$u^{30} - u^{29} + \cdots + 6u + 7$
c_3	$(u^{15} - u^{14} + \cdots - 2u - 1)^2$
c_4, c_5, c_9	$(u^{15} + u^{14} + \cdots - 2u - 1)^2$
c_8, c_{10}	$(u^{15} - 3u^{14} + \cdots + 4u^2 - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} + 7y^{29} + \cdots - 441680y + 2401$
c_2, c_6, c_7 c_{11}, c_{12}	$y^{30} - 13y^{29} + \cdots - 1100y + 49$
c_3	$(y^{15} - 17y^{14} + \cdots + 8y - 1)^2$
c_4, c_5, c_9	$(y^{15} - 13y^{14} + \cdots + 8y - 1)^2$
c_8, c_{10}	$(y^{15} + 7y^{14} + \cdots + 8y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.933632 + 0.405000I$ $a = -0.901456 + 0.391043I$ $b = -1.243160 + 0.162791I$	$-1.99092 + 1.64925I$	$-2.39367 - 0.16522I$
$u = 0.933632 - 0.405000I$ $a = -0.901456 - 0.391043I$ $b = -1.243160 - 0.162791I$	$-1.99092 - 1.64925I$	$-2.39367 + 0.16522I$
$u = 0.666225 + 0.833796I$ $a = -0.584884 + 0.731996I$ $b = 0.815806 - 0.779519I$	$3.47397 + 0.15908I$	$1.79403 + 0.85194I$
$u = 0.666225 - 0.833796I$ $a = -0.584884 - 0.731996I$ $b = 0.815806 + 0.779519I$	$3.47397 - 0.15908I$	$1.79403 - 0.85194I$
$u = -0.786352 + 0.445678I$ $a = 0.962512 + 0.545520I$ $b = 1.273190 + 0.075844I$	$-5.46412 + 1.81248I$	$-5.85619 - 4.33913I$
$u = -0.786352 - 0.445678I$ $a = 0.962512 - 0.545520I$ $b = 1.273190 - 0.075844I$	$-5.46412 - 1.81248I$	$-5.85619 + 4.33913I$
$u = 1.10731$ $a = -0.903090$ $b = -0.270107$	2.23561	5.03940
$u = -0.582390 + 0.944453I$ $a = 0.473038 + 0.767119I$ $b = -0.944169 - 0.806161I$	$1.23287 - 4.11725I$	$-1.40312 + 3.71929I$
$u = -0.582390 - 0.944453I$ $a = 0.473038 - 0.767119I$ $b = -0.944169 + 0.806161I$	$1.23287 + 4.11725I$	$-1.40312 - 3.71929I$
$u = 0.815806 + 0.779519I$ $a = -0.640758 + 0.612257I$ $b = 0.666225 - 0.833796I$	$3.47397 - 0.15908I$	$1.79403 - 0.85194I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.815806 - 0.779519I$ $a = -0.640758 - 0.612257I$ $b = 0.666225 + 0.833796I$	$3.47397 + 0.15908I$	$1.79403 + 0.85194I$
$u = 0.689418 + 0.518899I$ $a = -0.925949 + 0.696926I$ $b = -1.305660 + 0.019757I$	$-1.10658 - 5.45324I$	$-0.00468 + 6.35130I$
$u = 0.689418 - 0.518899I$ $a = -0.925949 - 0.696926I$ $b = -1.305660 - 0.019757I$	$-1.10658 + 5.45324I$	$-0.00468 - 6.35130I$
$u = -1.13884$ $a = 0.878083$ $b = 0.734573$	-2.69194	4.62820
$u = 0.583255 + 1.014300I$ $a = -0.426049 + 0.740911I$ $b = 0.987724 - 0.853962I$	$6.22908 + 8.01682I$	$3.04132 - 4.89679I$
$u = 0.583255 - 1.014300I$ $a = -0.426049 - 0.740911I$ $b = 0.987724 + 0.853962I$	$6.22908 - 8.01682I$	$3.04132 + 4.89679I$
$u = -0.944169 + 0.806161I$ $a = 0.612560 + 0.523023I$ $b = -0.582390 - 0.944453I$	$1.23287 + 4.11725I$	$-1.40312 - 3.71929I$
$u = -0.944169 - 0.806161I$ $a = 0.612560 - 0.523023I$ $b = -0.582390 + 0.944453I$	$1.23287 - 4.11725I$	$-1.40312 + 3.71929I$
$u = -1.243160 + 0.162791I$ $a = 0.790842 + 0.103561I$ $b = 0.933632 + 0.405000I$	$-1.99092 + 1.64925I$	$-2.39367 - 0.16522I$
$u = -1.243160 - 0.162791I$ $a = 0.790842 - 0.103561I$ $b = 0.933632 - 0.405000I$	$-1.99092 - 1.64925I$	$-2.39367 + 0.16522I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.803987 + 0.969115I$ $a = 0.507062 + 0.611206I$ $b = -0.803987 - 0.969115I$	10.5121	$5.97706 + 0.I$
$u = -0.803987 - 0.969115I$ $a = 0.507062 - 0.611206I$ $b = -0.803987 + 0.969115I$	10.5121	$5.97706 + 0.I$
$u = 0.734573$ $a = -1.36134$ $b = -1.13884$	−2.69194	4.62820
$u = 1.273190 + 0.075844I$ $a = -0.782653 + 0.046623I$ $b = -0.786352 + 0.445678I$	$-5.46412 + 1.81248I$	$-5.85619 - 4.33913I$
$u = 1.273190 - 0.075844I$ $a = -0.782653 - 0.046623I$ $b = -0.786352 - 0.445678I$	$-5.46412 - 1.81248I$	$-5.85619 + 4.33913I$
$u = 0.987724 + 0.853962I$ $a = -0.579361 + 0.500902I$ $b = 0.583255 - 1.014300I$	$6.22908 - 8.01682I$	$3.04132 + 4.89679I$
$u = 0.987724 - 0.853962I$ $a = -0.579361 - 0.500902I$ $b = 0.583255 + 1.014300I$	$6.22908 + 8.01682I$	$3.04132 - 4.89679I$
$u = -1.305660 + 0.019757I$ $a = 0.765721 + 0.011587I$ $b = 0.689418 + 0.518899I$	$-1.10658 - 5.45324I$	$-0.00468 + 6.35130I$
$u = -1.305660 - 0.019757I$ $a = 0.765721 - 0.011587I$ $b = 0.689418 - 0.518899I$	$-1.10658 + 5.45324I$	$-0.00468 - 6.35130I$
$u = -0.270107$ $a = 3.70223$ $b = 1.10731$	2.23561	5.03940

III. $\boldsymbol{I_3^u = \langle b+1,\ a^4+4a^3+9a^2+10a+7,\ u-1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -1 \\ -a-2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a-1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} a \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a^2+a+1 \\ -a \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a+2 \\ a^2+3a+3 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a^3+a^2+a-3 \\ -a^3-5a^2-9a-9 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4a^2-8a-16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$ $a = -0.65937 + 1.27123I$ $b = -1.00000$	$-3.28987 + 4.05977I$	$-6.00000 - 3.46410I$
$u = \quad 1.00000$ $a = -0.65937 - 1.27123I$ $b = -1.00000$	$-3.28987 - 4.05977I$	$-6.00000 + 3.46410I$
$u = \quad 1.00000$ $a = -1.34063 + 1.27123I$ $b = -1.00000$	$-3.28987 - 4.05977I$	$-6.00000 + 3.46410I$
$u = \quad 1.00000$ $a = -1.34063 - 1.27123I$ $b = -1.00000$	$-3.28987 + 4.05977I$	$-6.00000 - 3.46410I$

IV. $I_4^u = \langle b-1,\ a^4-4a^3+7a^2-6a+1,\ u+1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\-1\end{pmatrix}$$
$$a_3 = \begin{pmatrix}a\\1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\-a+2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}a+1\\1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-a\\-1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}a^2-a+1\\a\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-1\\-1\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}a-2\\-a^2+3a-3\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-a^3+3a^2-5a+3\\-a^3+3a^2-5a+3\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a^2 - 8a$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = 1.00000 + 1.27202I$ $b = 1.00000$	-7.23771	$-10.47214 + 0.I$
$u = -1.00000$ $a = 1.00000 - 1.27202I$ $b = 1.00000$	-7.23771	$-10.47214 + 0.I$
$u = -1.00000$ $a = 1.78615$ $b = 1.00000$	0.657974	-1.52790
$u = -1.00000$ $a = 0.213849$ $b = 1.00000$	0.657974	-1.52790

V. $\boldsymbol{I_5^u = \langle b+1,\ a+1,\ u-1\rangle}$

(i) Arc colorings

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

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

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

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

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

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

$$a_1 = \begin{pmatrix}-1\\0\end{pmatrix}$$

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

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

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

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

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

(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_7	$u - 1$
c_3, c_4, c_5 c_8, c_9, c_{10}	u
c_6, c_{11}, c_{12}	$u + 1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.00000$ $b = -1.00000$	-3.28987	-12.0000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^{25}+7u^{24}+\cdots+6u+1)(u^{30}+13u^{29}+\cdots+1100u+49)$
c_2, c_7	$((u-1)^5)(u+1)^4(u^{25}-u^{24}+\cdots+3u^2-1)(u^{30}-u^{29}+\cdots+6u+7)$
c_3	$u(u^4+u^2-1)(u^4+3u^2+3)(u^{15}-u^{14}+\cdots-2u-1)^2$ $\cdot\,(u^{25}+3u^{24}+\cdots-688u-178)$
c_4, c_5, c_9	$u(u^4-3u^2+3)(u^4-u^2-1)(u^{15}+u^{14}+\cdots-2u-1)^2$ $\cdot\,(u^{25}-3u^{24}+\cdots-5u^2-2)$
c_6, c_{11}, c_{12}	$((u-1)^4)(u+1)^5(u^{25}-u^{24}+\cdots+3u^2-1)(u^{30}-u^{29}+\cdots+6u+7)$
c_8, c_{10}	$u(u^4+u^2-1)(u^4+3u^2+3)(u^{15}-3u^{14}+\cdots+4u^2-1)^2$ $\cdot\,(u^{25}+9u^{24}+\cdots+92u+14)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^{25}+33y^{24}+\cdots+2y-1)$ $\cdot(y^{30}+7y^{29}+\cdots-441680y+2401)$
c_2, c_6, c_7 c_{11}, c_{12}	$((y-1)^9)(y^{25}-7y^{24}+\cdots+6y-1)(y^{30}-13y^{29}+\cdots-1100y+49)$
c_3	$y(y^2+y-1)^2(y^2+3y+3)^2(y^{15}-17y^{14}+\cdots+8y-1)^2$ $\cdot(y^{25}-9y^{24}+\cdots-428404y-31684)$
c_4, c_5, c_9	$y(y^2-3y+3)^2(y^2-y-1)^2(y^{15}-13y^{14}+\cdots+8y-1)^2$ $\cdot(y^{25}-21y^{24}+\cdots-20y-4)$
c_8, c_{10}	$y(y^2+y-1)^2(y^2+3y+3)^2(y^{15}+7y^{14}+\cdots+8y-1)^2$ $\cdot(y^{25}+15y^{24}+\cdots-244y-196)$