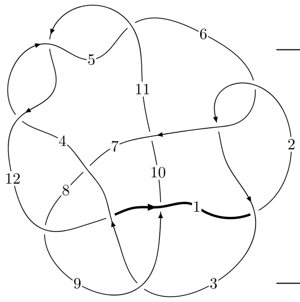
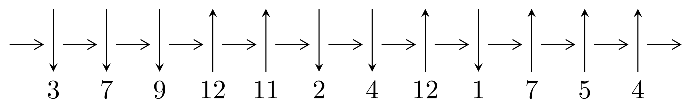
$12n_{0562}$ $(K12n_{0562})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1863653922u^{24} - 2022363077u^{23} + \cdots + 3360966496b + 12865105183,$$
$$1528807327u^{24} + 2234282167u^{23} + \cdots + 3360966496a + 6708798419,\ u^{25} + u^{24} + \cdots - 13u + 1\rangle$$
$$I_2^u = \langle -u^3 + b - 2u,\ u^2a + a^2 + u^2 + 2a + 3,\ u^4 + 3u^2 + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 33 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.
$\boldsymbol{I_1^u = \langle -1.86\times10^9u^{24} - 2.02\times10^9u^{23} + \cdots + 3.36\times10^9b + 1.29\times10^{10},\ 1.53\times10^9u^{24} + 2.23\times10^9u^{23} + \cdots + 3.36\times10^9a + 6.71\times10^9,\ u^{25} + u^{24} + \cdots - 13u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.454871u^{24} - 0.664774u^{23} + \cdots - 25.1625u - 1.99609\\0.554499u^{24} + 0.601721u^{23} + \cdots + 24.9344u - 3.82780\end{pmatrix}$$
$$a_3 = \begin{pmatrix}3.46960u^{24} + 3.91721u^{23} + \cdots + 154.960u - 24.4260\\0.0868909u^{24} + 0.140131u^{23} + \cdots + 2.56515u + 0.501418\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.454871u^{24} - 0.664774u^{23} + \cdots - 25.1625u - 1.99609\\0.508672u^{24} + 0.570274u^{23} + \cdots + 22.6605u - 3.61790\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.0538011u^{24} - 0.0944999u^{23} + \cdots - 2.50201u - 5.61399\\0.508672u^{24} + 0.570274u^{23} + \cdots + 22.6605u - 3.61790\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1.70781u^{24} + 1.96070u^{23} + \cdots + 78.9836u - 7.58147\\-0.391234u^{24} - 0.397877u^{23} + \cdots - 17.0453u + 3.25795\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u^2 - 1\\u^4 + 2u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u\\u^3 + u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.491571u^{24} - 0.694228u^{23} + \cdots - 27.4957u - 1.73897\\0.517800u^{24} + 0.572267u^{23} + \cdots + 22.6011u - 3.57068\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{2040219475}{840241624}u^{24} - \frac{4044991761}{1680483248}u^{23} + \cdots - \frac{48458587153}{420120812}u + \frac{40726820499}{1680483248}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{25} + 17u^{24} + \cdots - 99u + 25$
c_2, c_6	$u^{25} - u^{24} + \cdots - u + 5$
c_3	$u^{25} - u^{24} + \cdots + 4u + 4$
c_4, c_5, c_{11} c_{12}	$u^{25} + u^{24} + \cdots - 13u + 1$
c_7	$u^{25} + 3u^{24} + \cdots - 64u + 16$
c_8	$u^{25} - 3u^{24} + \cdots + u - 5$
c_9	$u^{25} + 3u^{24} + \cdots - 508u - 284$
c_{10}	$u^{25} - 3u^{24} + \cdots - 88u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{25} - 13y^{24} + \cdots + 31101y - 625$
c_2, c_6	$y^{25} - 17y^{24} + \cdots - 99y - 25$
c_3	$y^{25} + 3y^{24} + \cdots - 88y - 16$
c_4, c_5, c_{11} c_{12}	$y^{25} + 39y^{24} + \cdots + 81y - 1$
c_7	$y^{25} - 59y^{24} + \cdots - 128y - 256$
c_8	$y^{25} + 43y^{24} + \cdots - 199y - 25$
c_9	$y^{25} - 33y^{24} + \cdots + 788576y - 80656$
c_{10}	$y^{25} + 47y^{24} + \cdots - 11232y - 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.624991 + 0.595786I$ $a = 0.484646 - 1.009420I$ $b = 0.941749 + 0.518744I$	$-3.66314 - 3.94550I$	$-5.29300 + 5.55988I$
$u = -0.624991 - 0.595786I$ $a = 0.484646 + 1.009420I$ $b = 0.941749 - 0.518744I$	$-3.66314 + 3.94550I$	$-5.29300 - 5.55988I$
$u = 0.252585 + 0.824264I$ $a = -0.240808 - 0.235376I$ $b = 0.233701 + 1.203520I$	$-0.748773 - 0.682544I$	$-5.47786 - 0.77855I$
$u = 0.252585 - 0.824264I$ $a = -0.240808 + 0.235376I$ $b = 0.233701 - 1.203520I$	$-0.748773 + 0.682544I$	$-5.47786 + 0.77855I$
$u = -0.056975 + 0.796798I$ $a = 0.57589 - 1.49170I$ $b = 0.245174 - 0.378805I$	$-0.91521 + 2.31525I$	$-6.76575 - 3.60061I$
$u = -0.056975 - 0.796798I$ $a = 0.57589 + 1.49170I$ $b = 0.245174 + 0.378805I$	$-0.91521 - 2.31525I$	$-6.76575 + 3.60061I$
$u = 0.190393 + 1.306700I$ $a = 1.118360 + 0.139326I$ $b = 0.842110 - 0.769571I$	$-5.78601 + 2.83024I$	$-3.27261 - 3.01183I$
$u = 0.190393 - 1.306700I$ $a = 1.118360 - 0.139326I$ $b = 0.842110 + 0.769571I$	$-5.78601 - 2.83024I$	$-3.27261 + 3.01183I$
$u = -0.400919 + 1.321610I$ $a = -1.216630 + 0.430422I$ $b = -1.04154 - 0.95993I$	$-9.75869 - 7.65326I$	$-6.00769 + 5.46151I$
$u = -0.400919 - 1.321610I$ $a = -1.216630 - 0.430422I$ $b = -1.04154 + 0.95993I$	$-9.75869 + 7.65326I$	$-6.00769 - 5.46151I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.609656$ $a = 0.373523$ $b = -0.820762$	-2.05187	-4.04220
$u = 0.309869 + 0.431283I$ $a = -0.661655 - 0.723351I$ $b = -0.316822 + 0.492066I$	$0.029101 + 1.081130I$	$0.32410 - 6.32395I$
$u = 0.309869 - 0.431283I$ $a = -0.661655 + 0.723351I$ $b = -0.316822 - 0.492066I$	$0.029101 - 1.081130I$	$0.32410 + 6.32395I$
$u = -0.08247 + 1.56386I$ $a = -0.673650 + 0.474452I$ $b = -0.655196 - 0.330676I$	$-9.03687 + 1.50948I$	$-7.50220 - 1.53531I$
$u = -0.08247 - 1.56386I$ $a = -0.673650 - 0.474452I$ $b = -0.655196 + 0.330676I$	$-9.03687 - 1.50948I$	$-7.50220 + 1.53531I$
$u = 0.13440 + 1.57758I$ $a = -0.296006 - 0.170433I$ $b = -0.570998 - 1.077920I$	$-9.03805 + 1.00676I$	$-6.89835 + 0.I$
$u = 0.13440 - 1.57758I$ $a = -0.296006 + 0.170433I$ $b = -0.570998 + 1.077920I$	$-9.03805 - 1.00676I$	$-6.89835 + 0.I$
$u = 0.05831 + 1.83206I$ $a = -1.330010 + 0.291426I$ $b = -1.11436 + 1.10386I$	$-17.4985 + 4.0971I$	$-3.59802 + 0.I$
$u = 0.05831 - 1.83206I$ $a = -1.330010 - 0.291426I$ $b = -1.11436 - 1.10386I$	$-17.4985 - 4.0971I$	$-3.59802 + 0.I$
$u = -0.12155 + 1.83051I$ $a = 1.333980 + 0.150763I$ $b = 1.04153 + 1.31415I$	$18.2454 - 10.2132I$	$-5.59802 + 4.65205I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.12155 - 1.83051I$ $a = 1.333980 - 0.150763I$ $b = 1.04153 - 1.31415I$	$18.2454 + 10.2132I$	$-5.59802 - 4.65205I$
$u = 0.138522 + 0.029459I$ $a = -6.47837 - 1.35588I$ $b = -0.074953 + 0.990969I$	$1.72086 + 2.04571I$	$7.83287 - 4.05455I$
$u = 0.138522 - 0.029459I$ $a = -6.47837 + 1.35588I$ $b = -0.074953 - 0.990969I$	$1.72086 - 2.04571I$	$7.83287 + 4.05455I$
$u = 0.00765 + 1.88332I$ $a = 1.197500 + 0.358483I$ $b = 1.37998 + 0.95343I$	$16.9141 + 1.4662I$	$-6.72237 + 0.I$
$u = 0.00765 - 1.88332I$ $a = 1.197500 - 0.358483I$ $b = 1.37998 - 0.95343I$	$16.9141 - 1.4662I$	$-6.72237 + 0.I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)^4$
c_2, c_6, c_8	$(u^4-u^2+1)^2$
c_3	$(u^2+1)^4$
c_4, c_5, c_{11} c_{12}	$(u^4+3u^2+1)^2$
c_7	$u^8-2u^7+9u^6-8u^5+17u^4-16u^3+4u^2+4$
c_9	$u^8+4u^7-14u^5-7u^4+14u^3+22u^2+12u+4$
c_{10}	$(u-1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+y+1)^4$
c_2, c_6, c_8	$(y^2-y+1)^4$
c_3	$(y+1)^8$
c_4, c_5, c_{11} c_{12}	$(y^2+3y+1)^4$
c_7	$y^8+14y^7+83y^6+186y^5+113y^4-48y^3+152y^2+32y+16$
c_9	$y^8-16y^7+98y^6-264y^5+353y^4-168y^3+92y^2+32y+16$
c_{10}	$(y-1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034I$ $a = -0.80902 + 1.40126I$ $b = 1.000000I$	$0.65797 + 2.02988I$	$-2.00000 - 3.46410I$
$u = 0.618034I$ $a = -0.80902 - 1.40126I$ $b = 1.000000I$	$0.65797 - 2.02988I$	$-2.00000 + 3.46410I$
$u = -0.618034I$ $a = -0.80902 + 1.40126I$ $b = -1.000000I$	$0.65797 + 2.02988I$	$-2.00000 - 3.46410I$
$u = -0.618034I$ $a = -0.80902 - 1.40126I$ $b = -1.000000I$	$0.65797 - 2.02988I$	$-2.00000 + 3.46410I$
$u = 1.61803I$ $a = 0.309017 + 0.535233I$ $b = -1.000000I$	$-7.23771 - 2.02988I$	$-2.00000 + 3.46410I$
$u = 1.61803I$ $a = 0.309017 - 0.535233I$ $b = -1.000000I$	$-7.23771 + 2.02988I$	$-2.00000 - 3.46410I$
$u = -1.61803I$ $a = 0.309017 + 0.535233I$ $b = 1.000000I$	$-7.23771 - 2.02988I$	$-2.00000 + 3.46410I$
$u = -1.61803I$ $a = 0.309017 - 0.535233I$ $b = 1.000000I$	$-7.23771 + 2.02988I$	$-2.00000 - 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^4)(u^{25}+17u^{24}+\cdots-99u+25)$
c_2, c_6	$((u^4-u^2+1)^2)(u^{25}-u^{24}+\cdots-u+5)$
c_3	$((u^2+1)^4)(u^{25}-u^{24}+\cdots+4u+4)$
c_4, c_5, c_{11} c_{12}	$((u^4+3u^2+1)^2)(u^{25}+u^{24}+\cdots-13u+1)$
c_7	$(u^8-2u^7+9u^6-8u^5+17u^4-16u^3+4u^2+4)$ $\cdot(u^{25}+3u^{24}+\cdots-64u+16)$
c_8	$((u^4-u^2+1)^2)(u^{25}-3u^{24}+\cdots+u-5)$
c_9	$(u^8+4u^7-14u^5-7u^4+14u^3+22u^2+12u+4)$ $\cdot(u^{25}+3u^{24}+\cdots-508u-284)$
c_{10}	$((u-1)^8)(u^{25}-3u^{24}+\cdots-88u+16)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^4)(y^{25}-13y^{24}+\cdots+31101y-625)$
c_2, c_6	$((y^2-y+1)^4)(y^{25}-17y^{24}+\cdots-99y-25)$
c_3	$((y+1)^8)(y^{25}+3y^{24}+\cdots-88y-16)$
c_4, c_5, c_{11} c_{12}	$((y^2+3y+1)^4)(y^{25}+39y^{24}+\cdots+81y-1)$
c_7	$(y^8+14y^7+83y^6+186y^5+113y^4-48y^3+152y^2+32y+16)$ $\cdot\,(y^{25}-59y^{24}+\cdots-128y-256)$
c_8	$((y^2-y+1)^4)(y^{25}+43y^{24}+\cdots-199y-25)$
c_9	$(y^8-16y^7+98y^6-264y^5+353y^4-168y^3+92y^2+32y+16)$ $\cdot\,(y^{25}-33y^{24}+\cdots+788576y-80656)$
c_{10}	$((y-1)^8)(y^{25}+47y^{24}+\cdots-11232y-256)$