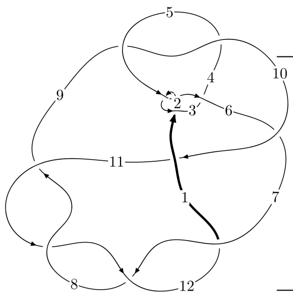
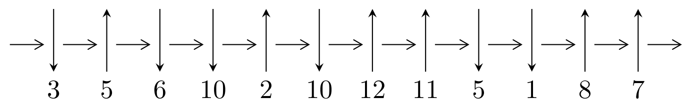
$12n_{0047}$ ($K12n_{0047}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -8u^{36} + 17u^{35} + \cdots + 8b + 21,\ -7u^{36} + 31u^{35} + \cdots + 4a + 11,\ u^{37} - 5u^{36} + \cdots + u - 1\rangle$$
$$I_2^u = \langle b^4 - b^3u - b^3 + b^2u - u - 1,\ a,\ u^2 + u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 45 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. $\boldsymbol{I_1^u = \langle -8u^{36} + 17u^{35} + \cdots + 8b + 21,\ -7u^{36} + 31u^{35} + \cdots + 4a + 11,\ u^{37} - 5u^{36} + \cdots + u - 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{7}{4}u^{36} - \frac{31}{4}u^{35} + \cdots + \frac{7}{4}u - \frac{11}{4} \\ u^{36} - \frac{17}{8}u^{35} + \cdots + \frac{7}{2}u - \frac{21}{8} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2 - 1 \\ -\frac{1}{8}u^{36} + \frac{5}{8}u^{35} + \cdots + \frac{17}{8}u - \frac{1}{8} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{15}{8}u^{36} - \frac{67}{8}u^{35} + \cdots + \frac{3}{8}u - \frac{13}{8} \\ \frac{1}{8}u^{36} + \frac{5}{4}u^{35} + \cdots + \frac{33}{8}u - \frac{7}{2} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{7}{4}u^{36} - \frac{31}{4}u^{35} + \cdots + \frac{7}{4}u - \frac{11}{4} \\ \frac{11}{4}u^{36} - \frac{69}{8}u^{35} + \cdots + \frac{11}{4}u - \frac{29}{8} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{5}{4}u^{36} - \frac{11}{2}u^{35} + \cdots + \frac{1}{2}u - \frac{3}{4} \\ -\frac{3}{4}u^{36} + \frac{61}{8}u^{35} + \cdots + \frac{19}{4}u - \frac{45}{8} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{8}u^{36} + \frac{1}{2}u^{35} + \cdots - \frac{15}{8}u + 1 \\ u^{36} - \frac{47}{8}u^{35} + \cdots - \frac{5}{4}u + \frac{15}{8} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{13}{8}u^{36} + 10u^{35} + \cdots + \frac{243}{8}u - \frac{13}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{37}+23u^{36}+\cdots-25u-1$
c_2, c_5	$u^{37}+5u^{36}+\cdots+u+1$
c_3	$u^{37}-5u^{36}+\cdots-7u+1$
c_4, c_9	$u^{37}-u^{36}+\cdots+384u+256$
c_6	$u^{37}+3u^{36}+\cdots-u+1$
c_7, c_8, c_{11} c_{12}	$u^{37}+3u^{36}+\cdots+3u+1$
c_{10}	$u^{37}-13u^{36}+\cdots-2707u-563$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{37} - 13y^{36} + \cdots - 101y - 1$
c_2, c_5	$y^{37} + 23y^{36} + \cdots - 25y - 1$
c_3	$y^{37} - 49y^{36} + \cdots - 25y - 1$
c_4, c_9	$y^{37} - 45y^{36} + \cdots + 507904y - 65536$
c_6	$y^{37} - 47y^{36} + \cdots - 21y - 1$
c_7, c_8, c_{11} c_{12}	$y^{37} + 45y^{36} + \cdots - 21y - 1$
c_{10}	$y^{37} - 27y^{36} + \cdots + 708095y - 316969$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.974418 + 0.080590I$ $a = 1.70420 + 0.06611I$ $b = -0.049744 + 0.136325I$	$-6.68859 - 3.78454I$	$-3.30270 + 3.82626I$
$u = 0.974418 - 0.080590I$ $a = 1.70420 - 0.06611I$ $b = -0.049744 - 0.136325I$	$-6.68859 + 3.78454I$	$-3.30270 - 3.82626I$
$u = 0.231315 + 1.006220I$ $a = -0.542701 + 0.732426I$ $b = 0.34827 + 2.04966I$	$-8.03711 + 4.79124I$	$-8.56176 - 2.65048I$
$u = 0.231315 - 1.006220I$ $a = -0.542701 - 0.732426I$ $b = 0.34827 - 2.04966I$	$-8.03711 - 4.79124I$	$-8.56176 + 2.65048I$
$u = 1.028220 + 0.124183I$ $a = -1.74341 - 0.11482I$ $b = -0.037304 - 0.222366I$	$-15.2275 - 6.0970I$	$-5.01510 + 2.60803I$
$u = 1.028220 - 0.124183I$ $a = -1.74341 + 0.11482I$ $b = -0.037304 + 0.222366I$	$-15.2275 + 6.0970I$	$-5.01510 - 2.60803I$
$u = 0.136558 + 0.938853I$ $a = 0.637084 - 0.690045I$ $b = -0.37494 - 1.62263I$	$-0.94719 + 2.42286I$	$-4.75761 - 3.49030I$
$u = 0.136558 - 0.938853I$ $a = 0.637084 + 0.690045I$ $b = -0.37494 + 1.62263I$	$-0.94719 - 2.42286I$	$-4.75761 + 3.49030I$
$u = 0.934595$ $a = -1.67956$ $b = 0.109351$	-4.18236	0.534920
$u = -0.498462 + 0.758486I$ $a = -0.027415 + 0.606521I$ $b = 0.231876 + 0.424050I$	$0.02228 - 1.46962I$	$-3.17240 + 5.64098I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.498462-0.758486I$ $a=-0.027415-0.606521I$ $b=\ \ 0.231876-0.424050I$	$0.02228+1.46962I$	$-3.17240-5.64098I$
$u=-0.593765+0.922350I$ $a=-0.560730-0.309146I$ $b=-0.562518-0.030265I$	$-0.58389-2.98896I$	$-7.13918+2.57591I$
$u=-0.593765-0.922350I$ $a=-0.560730+0.309146I$ $b=-0.562518+0.030265I$	$-0.58389+2.98896I$	$-7.13918-2.57591I$
$u=-0.225572+1.100310I$ $a=\ \ 0.843421-0.554905I$ $b=\ \ 0.474759-1.067940I$	$-3.28963-2.82464I$	$-7.40073+4.80560I$
$u=-0.225572-1.100310I$ $a=\ \ 0.843421+0.554905I$ $b=\ \ 0.474759+1.067940I$	$-3.28963+2.82464I$	$-7.40073-4.80560I$
$u=-0.671032+0.495259I$ $a=-0.136744-1.209480I$ $b=-0.372384-0.710472I$	$-6.83822-1.47848I$	$-3.18303+2.73607I$
$u=-0.671032-0.495259I$ $a=-0.136744+1.209480I$ $b=-0.372384+0.710472I$	$-6.83822+1.47848I$	$-3.18303-2.73607I$
$u=-0.033671+0.800781I$ $a=-0.683908+0.699343I$ $b=\ \ 0.295173+1.048690I$	$-0.199573-0.983660I$	$-0.88923+4.01219I$
$u=-0.033671-0.800781I$ $a=-0.683908-0.699343I$ $b=\ \ 0.295173-1.048690I$	$-0.199573+0.983660I$	$-0.88923-4.01219I$
$u=-0.662632+1.005330I$ $a=\ \ 0.854489+0.362836I$ $b=\ \ 0.841855+0.003201I$	$-8.20792-3.66352I$	$-6.31169+2.26713I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.662632-1.005330I$ $a=0.854489-0.362836I$ $b=0.841855-0.003201I$	$-8.20792+3.66352I$	$-6.31169-2.26713I$
$u=-0.227230+1.231130I$ $a=-1.009910+0.608801I$ $b=-0.74907+1.20730I$	$-11.76330-3.91769I$	$-8.22395+3.01298I$
$u=-0.227230-1.231130I$ $a=-1.009910-0.608801I$ $b=-0.74907-1.20730I$	$-11.76330+3.91769I$	$-8.22395-3.01298I$
$u=0.486053+1.286770I$ $a=0.240798-1.270660I$ $b=0.45076-2.68214I$	$-8.12027+5.05520I$	0
$u=0.486053-1.286770I$ $a=0.240798+1.270660I$ $b=0.45076+2.68214I$	$-8.12027-5.05520I$	0
$u=0.439816+1.321280I$ $a=-0.347920+1.293380I$ $b=-0.48608+2.61912I$	$-11.09790+1.17699I$	0
$u=0.439816-1.321280I$ $a=-0.347920-1.293380I$ $b=-0.48608-2.61912I$	$-11.09790-1.17699I$	0
$u=0.532306+1.288570I$ $a=-0.159576+1.311500I$ $b=-0.46454+2.72578I$	$-10.40170+9.18736I$	0
$u=0.532306-1.288570I$ $a=-0.159576-1.311500I$ $b=-0.46454-2.72578I$	$-10.40170-9.18736I$	0
$u=0.56898+1.29908I$ $a=0.101863-1.361970I$ $b=0.47767-2.74977I$	$-18.8582+11.8123I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.56898 - 1.29908I$ $a = 0.101863 + 1.361970I$ $b = 0.47767 + 2.74977I$	$-18.8582 - 11.8123I$	0
$u = 0.275325 + 0.494049I$ $a = 1.091150 - 0.485101I$ $b = -0.900722 - 0.407991I$	$-6.61511 - 2.32856I$	$-4.23901 + 4.39570I$
$u = 0.275325 - 0.494049I$ $a = 1.091150 + 0.485101I$ $b = -0.900722 + 0.407991I$	$-6.61511 + 2.32856I$	$-4.23901 - 4.39570I$
$u = 0.41598 + 1.37365I$ $a = 0.43080 - 1.36032I$ $b = 0.56071 - 2.59083I$	$19.4284 - 1.0070I$	0
$u = 0.41598 - 1.37365I$ $a = 0.43080 + 1.36032I$ $b = 0.56071 + 2.59083I$	$19.4284 + 1.0070I$	0
$u = -0.143905 + 0.264400I$ $a = -0.85171 + 1.55890I$ $b = 0.261547 + 0.481132I$	$-0.001965 - 1.039350I$	$-0.15393 + 6.52218I$
$u = -0.143905 - 0.264400I$ $a = -0.85171 - 1.55890I$ $b = 0.261547 - 0.481132I$	$-0.001965 + 1.039350I$	$-0.15393 - 6.52218I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3b^2u - 5b^2 + 5bu + b + 3u + 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5	$(y^2+y+1)^4$
c_4, c_9	y^8
c_6, c_{10}	$(y^4+y^3+3y^2+2y+1)^2$
c_7, c_8, c_{11} c_{12}	$(y^4+5y^3+7y^2+2y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0$ $b = 0.447930 - 0.664845I$	$0.21101 - 3.44499I$	$2.00436 + 8.24669I$
$u = -0.500000 + 0.866025I$ $a = 0$ $b = -0.799738 + 0.055496I$	$0.211005 - 0.614778I$	$-0.99907 - 2.29114I$
$u = -0.500000 + 0.866025I$ $a = 0$ $b = -0.363298 + 1.193330I$	$-6.79074 - 5.19385I$	$-1.85285 + 5.62657I$
$u = -0.500000 + 0.866025I$ $a = 0$ $b = 1.215110 + 0.282041I$	$-6.79074 + 1.13408I$	$-5.65243 + 1.40826I$
$u = -0.500000 - 0.866025I$ $a = 0$ $b = 0.447930 + 0.664845I$	$0.21101 + 3.44499I$	$2.00436 - 8.24669I$
$u = -0.500000 - 0.866025I$ $a = 0$ $b = -0.799738 - 0.055496I$	$0.211005 + 0.614778I$	$-0.99907 + 2.29114I$
$u = -0.500000 - 0.866025I$ $a = 0$ $b = -0.363298 - 1.193330I$	$-6.79074 + 5.19385I$	$-1.85285 - 5.62657I$
$u = -0.500000 - 0.866025I$ $a = 0$ $b = 1.215110 - 0.282041I$	$-6.79074 - 1.13408I$	$-5.65243 - 1.40826I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^4)(u^{37}+23u^{36}+\cdots-25u-1)$
c_2	$((u^2+u+1)^4)(u^{37}+5u^{36}+\cdots+u+1)$
c_3	$((u^2-u+1)^4)(u^{37}-5u^{36}+\cdots-7u+1)$
c_4, c_9	$u^8(u^{37}-u^{36}+\cdots+384u+256)$
c_5	$((u^2-u+1)^4)(u^{37}+5u^{36}+\cdots+u+1)$
c_6	$((u^4+u^3+u^2+1)^2)(u^{37}+3u^{36}+\cdots-u+1)$
c_7, c_8	$((u^4+u^3+3u^2+2u+1)^2)(u^{37}+3u^{36}+\cdots+3u+1)$
c_{10}	$((u^4+u^3+u^2+1)^2)(u^{37}-13u^{36}+\cdots-2707u-563)$
c_{11}, c_{12}	$((u^4-u^3+3u^2-2u+1)^2)(u^{37}+3u^{36}+\cdots+3u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^4)(y^{37}-13y^{36}+\cdots-101y-1)$
c_2, c_5	$((y^2+y+1)^4)(y^{37}+23y^{36}+\cdots-25y-1)$
c_3	$((y^2+y+1)^4)(y^{37}-49y^{36}+\cdots-25y-1)$
c_4, c_9	$y^8(y^{37}-45y^{36}+\cdots+507904y-65536)$
c_6	$((y^4+y^3+3y^2+2y+1)^2)(y^{37}-47y^{36}+\cdots-21y-1)$
c_7, c_8, c_{11} c_{12}	$((y^4+5y^3+7y^2+2y+1)^2)(y^{37}+45y^{36}+\cdots-21y-1)$
c_{10}	$((y^4+y^3+3y^2+2y+1)^2)(y^{37}-27y^{36}+\cdots+708095y-316969)$