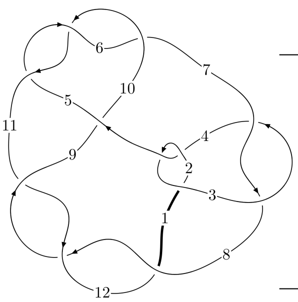
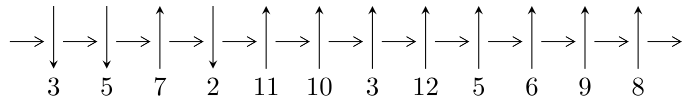
$12n_{0200}$ ($K12n_{0200}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -u^7 - u^6 - 4u^5 - 3u^4 - 4u^3 - 2u^2 + b,\ u^7 + u^6 + 5u^5 + 4u^4 + 7u^3 + 4u^2 + a + 2u, \\
&\quad u^{11} + 2u^{10} + 8u^9 + 12u^8 + 22u^7 + 24u^6 + 24u^5 + 16u^4 + 9u^3 + u^2 + 2u + 1\rangle \\
I_2^u &= \langle b + 1,\ -u^2 + a + u - 2,\ u^3 + 2u + 1\rangle \\
I_3^u &= \langle b + 1,\ u^3 + a + u - 1,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 18 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. $\boldsymbol{I^u_1 = \langle -u^7 - u^6 - 4u^5 - 3u^4 - 4u^3 - 2u^2 + b,\ u^7 + u^6 + 5u^5 + 4u^4 + 7u^3 + 4u^2 + a + 2u,\ u^{11} + 2u^{10} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^7 - u^6 - 5u^5 - 4u^4 - 7u^3 - 4u^2 - 2u \\ u^7 + u^6 + 4u^5 + 3u^4 + 4u^3 + 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^5 - u^4 - 3u^3 - 2u^2 - 2u \\ u^7 + u^6 + 4u^5 + 3u^4 + 4u^3 + 2u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 3u^7 - u^6 + 12u^5 - 3u^4 + 12u^3 - 2u^2 + 2 \\ u^9 + 4u^8 + 5u^7 + 17u^6 + 7u^5 + 18u^4 + 2u^3 + u^2 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^8 + u^7 + 4u^6 + 4u^5 + 3u^4 + 3u^3 - 2u^2 - u + 1 \\ u^8 + 5u^6 + u^5 + 7u^4 + 2u^3 + 2u^2 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^7 + 4u^5 + 4u^3 \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2u^{10} + 2u^9 + 12u^8 + 10u^7 + 24u^6 + 16u^5 + 16u^4 + 8u^3 + u^2 + 1 \\ -2u^{10} - 3u^9 + \cdots - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{10} + 8u^9 + 33u^8 + 46u^7 + 87u^6 + 82u^5 + 79u^4 + 38u^3 + 14u^2 - 8u + 11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{11} + 30u^{10} + \cdots + 93u + 1$
c_2, c_4	$u^{11} - 8u^{10} + \cdots + 13u - 1$
c_3, c_7	$u^{11} - u^{10} + \cdots - 64u - 128$
c_5, c_6, c_{10}	$u^{11} - 2u^{10} + \cdots + 2u - 1$
c_8, c_{11}, c_{12}	$u^{11} + 12u^9 + 38u^7 + 2u^6 + 14u^5 + 12u^4 + 13u^3 + u^2 - 1$
c_9	$u^{11} + 2u^{10} + \cdots - 15u^2 - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{11} - 202y^{10} + \cdots + 8901y - 1$
c_2, c_4	$y^{11} - 30y^{10} + \cdots + 93y - 1$
c_3, c_7	$y^{11} + 81y^{10} + \cdots + 192512y - 16384$
c_5, c_6, c_{10}	$y^{11} + 12y^{10} + \cdots + 2y - 1$
c_8, c_{11}, c_{12}	$y^{11} + 24y^{10} + \cdots + 2y - 1$
c_9	$y^{11} + 12y^{10} + \cdots - 240y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.810323 + 0.554853I$ $a = -2.69043 - 1.72437I$ $b = 2.74686 + 0.14673I$	$15.5955 - 2.6821I$	$1.82264 + 2.33402I$
$u = -0.810323 - 0.554853I$ $a = -2.69043 + 1.72437I$ $b = 2.74686 - 0.14673I$	$15.5955 + 2.6821I$	$1.82264 - 2.33402I$
$u = -0.096709 + 1.327340I$ $a = 0.467034 + 0.177497I$ $b = 0.180346 - 0.216613I$	$-3.51172 - 1.71507I$	$5.41681 + 3.29736I$
$u = -0.096709 - 1.327340I$ $a = 0.467034 - 0.177497I$ $b = 0.180346 + 0.216613I$	$-3.51172 + 1.71507I$	$5.41681 - 3.29736I$
$u = 0.303421 + 0.399714I$ $a = 0.70061 - 1.79618I$ $b = -0.761956 + 0.436521I$	$-1.58612 + 0.99841I$	$0.02750 - 3.98074I$
$u = 0.303421 - 0.399714I$ $a = 0.70061 + 1.79618I$ $b = -0.761956 - 0.436521I$	$-1.58612 - 0.99841I$	$0.02750 + 3.98074I$
$u = 0.09711 + 1.51180I$ $a = -0.238461 - 0.866072I$ $b = -1.01867 + 1.25733I$	$-8.01829 + 2.43510I$	$-1.52628 - 1.69137I$
$u = 0.09711 - 1.51180I$ $a = -0.238461 + 0.866072I$ $b = -1.01867 - 1.25733I$	$-8.01829 - 2.43510I$	$-1.52628 + 1.69137I$
$u = -0.29124 + 1.55535I$ $a = -0.51989 - 1.85777I$ $b = 2.80237 + 0.46328I$	$8.71098 - 6.75197I$	$-1.02074 + 2.56276I$
$u = -0.29124 - 1.55535I$ $a = -0.51989 + 1.85777I$ $b = 2.80237 - 0.46328I$	$8.71098 + 6.75197I$	$-1.02074 - 2.56276I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.404507$ $a = 0.562272$ $b = 0.102109$	0.648477	15.5600

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_7	y^3
c_5, c_6, c_8 c_{10}, c_{11}, c_{12}	$y^3 + 4y^2 + 4y - 1$
c_9	$y^3 + y^2 + 13y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.22670 + 1.46771I$ $a = -0.329484 - 0.802255I$ $b = -1.00000$	$-11.08570 + 5.13794I$	$-0.78288 - 3.73768I$
$u = 0.22670 - 1.46771I$ $a = -0.329484 + 0.802255I$ $b = -1.00000$	$-11.08570 - 5.13794I$	$-0.78288 + 3.73768I$
$u = -0.453398$ $a = 2.65897$ $b = -1.00000$	-0.857735	3.56580

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = 0.500000 - 0.866025I$ $b = -1.00000$	$-4.93480 + 2.02988I$	$2.26314 - 3.67497I$
$u = 0.621744 - 0.440597I$ $a = 0.500000 + 0.866025I$ $b = -1.00000$	$-4.93480 - 2.02988I$	$2.26314 + 3.67497I$
$u = -0.121744 + 1.306620I$ $a = 0.500000 + 0.866025I$ $b = -1.00000$	$-4.93480 - 2.02988I$	$-0.76314 + 2.38721I$
$u = -0.121744 - 1.306620I$ $a = 0.500000 - 0.866025I$ $b = -1.00000$	$-4.93480 + 2.02988I$	$-0.76314 - 2.38721I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^7)(u^{11}+30u^{10}+\cdots+93u+1)$
c_2	$((u-1)^7)(u^{11}-8u^{10}+\cdots+13u-1)$
c_3, c_7	$u^7(u^{11}-u^{10}+\cdots-64u-128)$
c_4	$((u+1)^7)(u^{11}-8u^{10}+\cdots+13u-1)$
c_5, c_6	$(u^3+2u+1)(u^4-u^3+2u^2-2u+1)(u^{11}-2u^{10}+\cdots+2u-1)$
c_8	$(u^3+2u+1)(u^4-u^3+2u^2-2u+1)$ $\cdot(u^{11}+12u^9+38u^7+2u^6+14u^5+12u^4+13u^3+u^2-1)$
c_9	$((u^2+u+1)^2)(u^3-3u^2+5u-2)(u^{11}+2u^{10}+\cdots-15u^2-8)$
c_{10}	$(u^3+2u-1)(u^4+u^3+2u^2+2u+1)(u^{11}-2u^{10}+\cdots+2u-1)$
c_{11}, c_{12}	$(u^3+2u-1)(u^4+u^3+2u^2+2u+1)$ $\cdot(u^{11}+12u^9+38u^7+2u^6+14u^5+12u^4+13u^3+u^2-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^7)(y^{11}-202y^{10}+\cdots+8901y-1)$
c_2, c_4	$((y-1)^7)(y^{11}-30y^{10}+\cdots+93y-1)$
c_3, c_7	$y^7(y^{11}+81y^{10}+\cdots+192512y-16384)$
c_5, c_6, c_{10}	$(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)(y^{11}+12y^{10}+\cdots+2y-1)$
c_8, c_{11}, c_{12}	$(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)(y^{11}+24y^{10}+\cdots+2y-1)$
c_9	$((y^2+y+1)^2)(y^3+y^2+13y-4)(y^{11}+12y^{10}+\cdots-240y-64)$