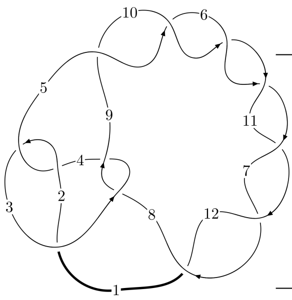
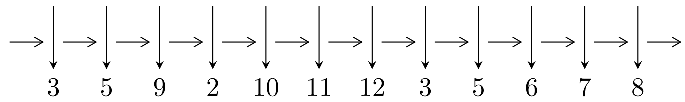
$12n_{0242}$ $(K12n_{0242})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b-u,\ u^2+a-2u,\ u^3-3u^2+2u+1\rangle$$
$$I_2^u = \langle b+u,\ -u^2+a+2,\ u^3+u^2-2u-1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 6 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. $I_1^u = \langle b - u,\ u^2 + a - 2u,\ u^3 - 3u^2 + 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^2 - u - 19$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^3 - 13u^2 + 51u + 1$
c_2, c_4	$u^3 - u^2 + 7u + 1$
c_3, c_8	$u^3 - 4u^2 + 20u + 8$
c_5, c_6, c_7 c_9, c_{10}, c_{11} c_{12}	$u^3 - 3u^2 + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^3 - 67y^2 + 2627y - 1$
c_2, c_4	$y^3 + 13y^2 + 51y - 1$
c_3, c_8	$y^3 + 24y^2 + 464y - 64$
c_5, c_6, c_7 c_9, c_{10}, c_{11} c_{12}	$y^3 - 5y^2 + 10y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.324718$ $a = -0.754878$ $b = -0.324718$	-0.531480	-18.5700
$u = 1.66236 + 0.56228I$ $a = 0.877439 - 0.744862I$ $b = 1.66236 + 0.56228I$	$-4.66906 - 2.82812I$	$-18.2151 + 1.3071I$
$u = 1.66236 - 0.56228I$ $a = 0.877439 + 0.744862I$ $b = 1.66236 - 0.56228I$	$-4.66906 + 2.82812I$	$-18.2151 - 1.3071I$

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

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ u^2 - u - 1 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} u \\ u \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} u^2 - 2 \\ -u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^2 - u - 17$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_8	y^3
c_5, c_6, c_7 c_9, c_{10}, c_{11} c_{12}	$y^3 - 5y^2 + 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.24698$ $a = -0.445042$ $b = -1.24698$	-7.98968	-19.8020
$u = -0.445042$ $a = -1.80194$ $b = 0.445042$	-2.34991	-16.7530
$u = -1.80194$ $a = 1.24698$ $b = 1.80194$	-19.2692	-18.4450

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^3(u^3-13u^2+51u+1)$
c_2	$(u-1)^3(u^3-u^2+7u+1)$
c_3, c_8	$u^3(u^3-4u^2+20u+8)$
c_4	$(u+1)^3(u^3-u^2+7u+1)$
c_5, c_6, c_7	$(u^3-3u^2+2u+1)(u^3-u^2-2u+1)$
c_9, c_{10}, c_{11} c_{12}	$(u^3-3u^2+2u+1)(u^3+u^2-2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^3(y^3-67y^2+2627y-1)$
c_2, c_4	$(y-1)^3(y^3+13y^2+51y-1)$
c_3, c_8	$y^3(y^3+24y^2+464y-64)$
c_5, c_6, c_7 c_9, c_{10}, c_{11} c_{12}	$(y^3-5y^2+6y-1)(y^3-5y^2+10y-1)$