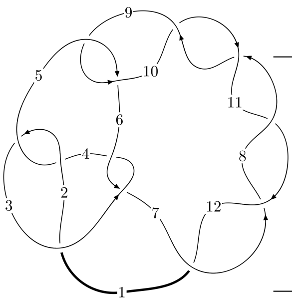
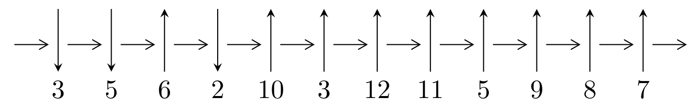
$12n_{0121}$ ($K12n_{0121}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^4 - 3u^3 - 2u^2 + b + 1,\ -u^4 - 3u^3 - 2u^2 + a + u + 1,\ u^5 + 3u^4 + 4u^3 + u^2 - u - 1\rangle$$
$$I_2^u = \langle -u^4 + u^3 + b - 1,\ -u^4 + u^3 + a - u - 1,\ u^5 - u^4 + u^2 + u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 10 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. $I_1^u =$
$\langle -u^4-3u^3-2u^2+b+1,\ -u^4-3u^3-2u^2+a+u+1,\ u^5+3u^4+4u^3+u^2-u-1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ -u^3+u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^4+3u^3+2u^2-u-1 \\ u^4+3u^3+2u^2-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^4+3u^3+2u^2-u-1 \\ 3u^4+5u^3+2u^2-u-1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -20u^4-44u^3-16u^2+8u+12 \\ -26u^4-46u^3-16u^2+11u+12 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -3u^4-9u^3-4u^2+u+3 \\ -13u^4-15u^3-4u^2+6u+3 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^4-u^2+1 \\ u^4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -4u^4-11u^3-6u^2+2u+4 \\ -5u^4-11u^3-5u^2+2u+3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -6u^4-2u^3+3u \\ -2u^4+9u^3+6u^2+u-4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2u^4-3u^3+u^2+11u+8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^5 + 37u^4 + 682u^3 - 278u^2 + 101u + 1$
c_2, c_4	$u^5 - 9u^4 + 22u^3 + 10u^2 + 9u - 1$
c_3, c_6	$u^5 + 12u^4 + 120u^3 - 120u^2 + 128u - 32$
c_5, c_9	$u^5 + 3u^4 + 4u^3 + u^2 - u - 1$
c_7, c_8, c_{10} c_{11}, c_{12}	$u^5 - u^4 + 8u^3 - 3u^2 + 3u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^5 - 5y^4 + 485898y^3 + 60406y^2 + 10757y - 1$
c_2, c_4	$y^5 - 37y^4 + 682y^3 + 278y^2 + 101y - 1$
c_3, c_6	$y^5 + 96y^4 + 17536y^3 + 17088y^2 + 8704y - 1024$
c_5, c_9	$y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1$
c_7, c_8, c_{10} c_{11}, c_{12}	$y^5 + 15y^4 + 64y^3 + 37y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.561306 + 0.557752I$ $a = 0.218218 - 0.753989I$ $b = -0.343087 - 0.196237I$	$-1.31583 - 1.53058I$	$1.57269 + 4.45807I$
$u = -0.561306 - 0.557752I$ $a = 0.218218 + 0.753989I$ $b = -0.343087 + 0.196237I$	$-1.31583 + 1.53058I$	$1.57269 - 4.45807I$
$u = 0.588022$ $a = -0.166966$ $b = 0.421056$	0.756147	13.9650
$u = -1.23271 + 1.09381I$ $a = 1.36526 + 2.80304I$ $b = 0.13256 + 3.89685I$	$4.22763 - 4.40083I$	$1.44484 + 1.78781I$
$u = -1.23271 - 1.09381I$ $a = 1.36526 - 2.80304I$ $b = 0.13256 - 3.89685I$	$4.22763 + 4.40083I$	$1.44484 - 1.78781I$

II. $\boldsymbol{I_2^u = \langle -u^4 + u^3 + b - 1,\ -u^4 + u^3 + a - u - 1,\ u^5 - u^4 + u^2 + u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^4 - u^3 + u + 1 \\ u^4 - u^3 + 1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} u^4 - u^3 + u + 1 \\ u^4 - u^3 - u + 1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^4 - u^3 + u + 1 \\ u^4 - u^3 + 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^4 - u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^3 \\ -u^4 + u^3 + u^2 - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^5$
c_3, c_6	y^5
c_5, c_9	$y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1$
c_7, c_8, c_{10} c_{11}, c_{12}	$y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.758138 + 0.584034I$ $a = -0.827780 - 0.637683I$ $b = -0.069642 - 1.221720I$	$-3.46474 - 2.21397I$	$0.88087 + 4.04855I$
$u = -0.758138 - 0.584034I$ $a = -0.827780 + 0.637683I$ $b = -0.069642 + 1.221720I$	$-3.46474 + 2.21397I$	$0.88087 - 4.04855I$
$u = 0.935538 + 0.903908I$ $a = 0.552827 - 0.534136I$ $b = -0.38271 - 1.43804I$	$-12.60320 + 3.33174I$	$1.28666 - 2.53508I$
$u = 0.935538 - 0.903908I$ $a = 0.552827 + 0.534136I$ $b = -0.38271 + 1.43804I$	$-12.60320 - 3.33174I$	$1.28666 + 2.53508I$
$u = 0.645200$ $a = 1.54991$ $b = 0.904706$	-0.762751	1.66490

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^5(u^5+37u^4+682u^3-278u^2+101u+1)$
c_2	$(u-1)^5(u^5-9u^4+22u^3+10u^2+9u-1)$
c_3, c_6	$u^5(u^5+12u^4+120u^3-120u^2+128u-32)$
c_4	$(u+1)^5(u^5-9u^4+22u^3+10u^2+9u-1)$
c_5	$(u^5+u^4-u^2+u+1)(u^5+3u^4+4u^3+u^2-u-1)$
c_7, c_8	$(u^5-u^4+8u^3-3u^2+3u-1)(u^5+u^4+4u^3+3u^2+3u+1)$
c_9	$(u^5-u^4+u^2+u-1)(u^5+3u^4+4u^3+u^2-u-1)$
c_{10}, c_{11}, c_{12}	$(u^5-u^4+4u^3-3u^2+3u-1)(u^5-u^4+8u^3-3u^2+3u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^5(y^5-5y^4+485898y^3+60406y^2+10757y-1)$
c_2, c_4	$(y-1)^5(y^5-37y^4+682y^3+278y^2+101y-1)$
c_3, c_6	$y^5(y^5+96y^4+17536y^3+17088y^2+8704y-1024)$
c_5, c_9	$(y^5-y^4+4y^3-3y^2+3y-1)(y^5-y^4+8y^3-3y^2+3y-1)$
c_7, c_8, c_{10} c_{11}, c_{12}	$(y^5+7y^4+16y^3+13y^2+3y-1)(y^5+15y^4+64y^3+37y^2+3y-1)$