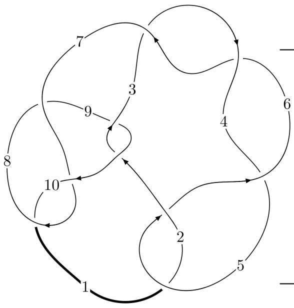
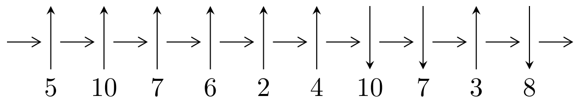
10_{132} ($K10n_{13}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -2u^4 - 5u^3 - 11u^2 + 9b - 14u - 1,\ -4u^4 - u^3 - 22u^2 + 9a - u + 7,\ u^5 + 6u^3 + u + 1\rangle$$
$$I_2^u = \langle b,\ -u^2 + a - u - 2,\ u^3 + u^2 + 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 8 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. $I_1^u = \langle -2u^4-5u^3-11u^2+9b-14u-1,\ -4u^4-u^3-22u^2+9a-u+7,\ u^5+6u^3+u+1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{4}{9}u^4 + \frac{1}{9}u^3 + \cdots + \frac{1}{9}u - \frac{7}{9} \\ \frac{2}{9}u^4 + \frac{5}{9}u^3 + \cdots + \frac{14}{9}u + \frac{1}{9} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{2}{9}u^4 - \frac{4}{9}u^3 + \cdots - \frac{13}{9}u - \frac{8}{9} \\ \frac{1}{3}u^4 - \frac{2}{3}u^3 + \cdots + \frac{4}{3}u - \frac{1}{3} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{3}u^4 - \frac{1}{3}u^3 + \cdots - \frac{7}{3}u + \frac{1}{3} \\ -\frac{1}{9}u^4 + \frac{2}{9}u^3 + \cdots - \frac{7}{9}u - \frac{5}{9} \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{5}{9}u^4 + \frac{1}{9}u^3 + \cdots - \frac{17}{9}u + \frac{2}{9} \\ \frac{5}{9}u^4 + \frac{17}{9}u^3 + \cdots - \frac{10}{9}u - \frac{2}{9} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{2}{9}u^4 - \frac{4}{9}u^3 + \cdots - \frac{13}{9}u - \frac{8}{9} \\ \frac{2}{9}u^4 + \frac{5}{9}u^3 + \cdots + \frac{14}{9}u + \frac{1}{9} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{10}{3}u^4 - \frac{2}{3}u^3 + \frac{61}{3}u^2 - \frac{11}{3}u + \frac{17}{3}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^5 - 2u^4 + 2u^3 + u - 1$
c_2, c_9	$u^5 + u^4 + 17u^3 - 4u^2 + 20u - 8$
c_3, c_4, c_6	$u^5 + 6u^3 + u - 1$
c_7, c_{10}	$u^5 - 4u^4 + u^3 + 5u^2 + 6u - 1$
c_8	$u^5 + 14u^4 + 53u^3 + 21u^2 + 46u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^5 + 6y^3 + y - 1$
c_2, c_9	$y^5 + 33y^4 + 337y^3 + 680y^2 + 336y - 64$
c_3, c_4, c_6	$y^5 + 12y^4 + 38y^3 + 12y^2 + y - 1$
c_7, c_{10}	$y^5 - 14y^4 + 53y^3 - 21y^2 + 46y - 1$
c_8	$y^5 - 90y^4 + 2313y^3 + 4407y^2 + 2074y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.238576 + 0.571771I$ $a = -1.43645 + 0.65503I$ $b = 0.029437 + 1.140530I$	$-1.70245 - 1.37362I$	$-0.55634 + 3.01933I$
$u = 0.238576 - 0.571771I$ $a = -1.43645 - 0.65503I$ $b = 0.029437 - 1.140530I$	$-1.70245 + 1.37362I$	$-0.55634 - 3.01933I$
$u = -0.446847$ $a = -0.331534$ $b = -0.380649$	0.907840	11.5570
$u = -0.01515 + 2.41455I$ $a = 0.102214 - 1.095320I$ $b = 0.66089 - 3.96349I$	$16.0529 - 4.0569I$	$0.27760 + 1.88627I$
$u = -0.01515 - 2.41455I$ $a = 0.102214 + 1.095320I$ $b = 0.66089 + 3.96349I$	$16.0529 + 4.0569I$	$0.27760 - 1.88627I$

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

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^2 + u + 2 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^2 - u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^2 + 1 \\ -u^2 - u - 1 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} u^2 + u + 2 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = 0.122561 + 0.744862I$ $b = 0$	$-4.66906 - 2.82812I$	$0.69240 + 3.35914I$
$u = -0.215080 - 1.307140I$ $a = 0.122561 - 0.744862I$ $b = 0$	$-4.66906 + 2.82812I$	$0.69240 - 3.35914I$
$u = -0.569840$ $a = 1.75488$ $b = 0$	-0.531480	1.61520

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3 - u^2 + 1)(u^5 - 2u^4 + 2u^3 + u - 1)$
c_2, c_9	$u^3(u^5 + u^4 + 17u^3 - 4u^2 + 20u - 8)$
c_3, c_4	$(u^3 + u^2 + 2u + 1)(u^5 + 6u^3 + u - 1)$
c_5	$(u^3 + u^2 - 1)(u^5 - 2u^4 + 2u^3 + u - 1)$
c_6	$(u^3 - u^2 + 2u - 1)(u^5 + 6u^3 + u - 1)$
c_7	$(u - 1)^3(u^5 - 4u^4 + u^3 + 5u^2 + 6u - 1)$
c_8	$(u + 1)^3(u^5 + 14u^4 + 53u^3 + 21u^2 + 46u + 1)$
c_{10}	$(u + 1)^3(u^5 - 4u^4 + u^3 + 5u^2 + 6u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^3 - y^2 + 2y - 1)(y^5 + 6y^3 + y - 1)$
c_2, c_9	$y^3(y^5 + 33y^4 + 337y^3 + 680y^2 + 336y - 64)$
c_3, c_4, c_6	$(y^3 + 3y^2 + 2y - 1)(y^5 + 12y^4 + 38y^3 + 12y^2 + y - 1)$
c_7, c_{10}	$(y-1)^3(y^5 - 14y^4 + 53y^3 - 21y^2 + 46y - 1)$
c_8	$(y-1)^3(y^5 - 90y^4 + 2313y^3 + 4407y^2 + 2074y - 1)$