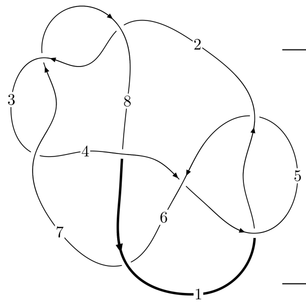
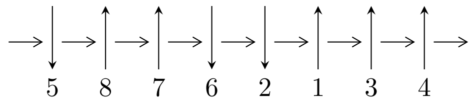
8_{13} ($K8a_7$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{14} + u^{13} - 3u^{12} - 4u^{11} + 4u^{10} + 7u^9 - u^8 - 6u^7 - 2u^6 + 2u^5 + 2u^4 + u + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 14 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.

$$\boldsymbol{I_1^u = \langle u^{14}+u^{13}-3u^{12}-4u^{11}+4u^{10}+7u^9-u^8-6u^7-2u^6+2u^5+2u^4+u+1\rangle}$$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} u^4-u^2+1 \\ u^4 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^2+1 \\ -u^4 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{12}-3u^{10}+5u^8-4u^6+2u^4-u^2+1 \\ u^{12}-2u^{10}+2u^8-u^4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^7-2u^5+2u^3 \\ u^9-u^7+u^5+u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{13}+16u^{11}+4u^{10}-28u^9-12u^8+20u^7+16u^6-8u^4-8u^3-2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{14} + u^{13} + \cdots + u + 1$
c_2, c_3, c_7	$u^{14} + u^{13} + \cdots + u + 1$
c_4	$u^{14} + 7u^{13} + \cdots + u + 1$
c_6	$u^{14} + 3u^{13} + \cdots + 7u + 3$
c_8	$u^{14} - u^{13} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{14} - 7y^{13} + \cdots - y + 1$
c_2, c_3, c_7	$y^{14} + 13y^{13} + \cdots - y + 1$
c_4	$y^{14} + y^{13} + \cdots + 7y + 1$
c_6	$y^{14} + 5y^{13} + \cdots + 23y + 9$
c_8	$y^{14} + y^{13} + \cdots - y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.989783 + 0.381937I$	$-1.69471 + 1.40484I$	$-1.50927 - 0.52948I$
$u = -0.989783 - 0.381937I$	$-1.69471 - 1.40484I$	$-1.50927 + 0.52948I$
$u = -0.728347 + 0.560551I$	$-1.44038 + 2.19128I$	$1.23919 - 3.85718I$
$u = -0.728347 - 0.560551I$	$-1.44038 - 2.19128I$	$1.23919 + 3.85718I$
$u = 1.068410 + 0.522447I$	$-0.56380 - 5.07185I$	$1.67153 + 6.33126I$
$u = 1.068410 - 0.522447I$	$-0.56380 + 5.07185I$	$1.67153 - 6.33126I$
$u = 1.157220 + 0.286866I$	$-7.82627 + 0.47055I$	$-5.32829 + 0.18349I$
$u = 1.157220 - 0.286866I$	$-7.82627 - 0.47055I$	$-5.32829 - 0.18349I$
$u = -0.268039 + 0.757899I$	$-3.51248 - 3.62879I$	$0.33383 + 2.63226I$
$u = -0.268039 - 0.757899I$	$-3.51248 + 3.62879I$	$0.33383 - 2.63226I$
$u = -1.142590 + 0.546762I$	$-6.06421 + 8.53123I$	$-2.72348 - 6.18031I$
$u = -1.142590 - 0.546762I$	$-6.06421 - 8.53123I$	$-2.72348 + 6.18031I$
$u = 0.403136 + 0.584808I$	$1.36265 + 0.62859I$	$6.31651 - 1.42251I$
$u = 0.403136 - 0.584808I$	$1.36265 - 0.62859I$	$6.31651 + 1.42251I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{14} + u^{13} + \cdots + u + 1$
c_2, c_3, c_7	$u^{14} + u^{13} + \cdots + u + 1$
c_4	$u^{14} + 7u^{13} + \cdots + u + 1$
c_6	$u^{14} + 3u^{13} + \cdots + 7u + 3$
c_8	$u^{14} - u^{13} + \cdots + 3u + 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{14} - 7y^{13} + \cdots - y + 1$
c_2, c_3, c_7	$y^{14} + 13y^{13} + \cdots - y + 1$
c_4	$y^{14} + y^{13} + \cdots + 7y + 1$
c_6	$y^{14} + 5y^{13} + \cdots + 23y + 9$
c_8	$y^{14} + y^{13} + \cdots - y + 1$