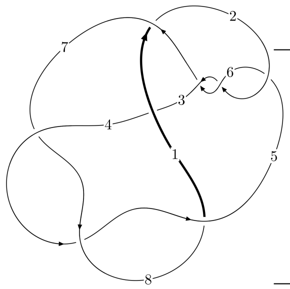
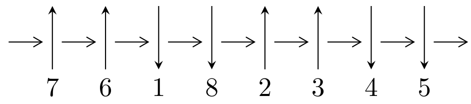
8_9 $(K8a_{16})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

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

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 12 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. $\boldsymbol{I_1^u = \langle u^{12} + u^{11} - 5u^{10} - 4u^9 + 9u^8 + 4u^7 - 6u^6 + 2u^5 - 3u^3 + u^2 + 1\rangle}$

(i) Arc colorings

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

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_1 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^7 + 4u^5 - 4u^3 \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -u^9 + 4u^7 - 5u^5 + 2u^3 - u \\ -u^{11} + 5u^9 - 8u^7 + 3u^5 + u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^9 + 16u^7 - 4u^6 - 20u^5 + 12u^4 + 4u^3 - 8u^2 + 4u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12} + 3u^{11} + \cdots + 4u + 1$
c_2, c_5, c_6	$u^{12} - u^{11} - 5u^{10} + 4u^9 + 9u^8 - 4u^7 - 6u^6 - 2u^5 + 3u^3 + u^2 + 1$
c_3	$u^{12} - 3u^{11} + \cdots - 4u + 1$
c_4, c_7, c_8	$u^{12} + u^{11} - 5u^{10} - 4u^9 + 9u^8 + 4u^7 - 6u^6 + 2u^5 - 3u^3 + u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{12} + y^{11} + \cdots - 2y + 1$
c_2, c_4, c_5 c_6, c_7, c_8	$y^{12} - 11y^{11} + \cdots + 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.851576 + 0.246566I$	$-3.11509 - 0.09361I$	$-1.99088 - 0.76204I$
$u = \quad 0.851576 - 0.246566I$	$-3.11509 + 0.09361I$	$-1.99088 + 0.76204I$
$u = \quad 0.227035 + 0.729376I$	$-5.13898 + 3.88480I$	$-4.80561 - 4.17140I$
$u = \quad 0.227035 - 0.729376I$	$-5.13898 - 3.88480I$	$-4.80561 + 4.17140I$
$u = -1.343200 + 0.063939I$	$3.11509 - 0.09361I$	$1.99088 - 0.76204I$
$u = -1.343200 - 0.063939I$	$3.11509 + 0.09361I$	$1.99088 + 0.76204I$
$u = \quad 1.383160 + 0.208829I$	$5.13898 + 3.88480I$	$4.80561 - 4.17140I$
$u = \quad 1.383160 - 0.208829I$	$5.13898 - 3.88480I$	$4.80561 + 4.17140I$
$u = -1.39026 + 0.29206I$	$-\ 7.58818I$	$0. + 5.13539I$
$u = -1.39026 - 0.29206I$	$7.58818I$	$0. - 5.13539I$
$u = -0.228302 + 0.503204I$	$-\ 1.20211I$	$0. + 5.63740I$
$u = -0.228302 - 0.503204I$	$1.20211I$	$0. - 5.63740I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{12}+3u^{11}+\cdots+4u+1$
c_2, c_5, c_6	$u^{12}-u^{11}-5u^{10}+4u^9+9u^8-4u^7-6u^6-2u^5+3u^3+u^2+1$
c_3	$u^{12}-3u^{11}+\cdots-4u+1$
c_4, c_7, c_8	$u^{12}+u^{11}-5u^{10}-4u^9+9u^8+4u^7-6u^6+2u^5-3u^3+u^2+1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{12} + y^{11} + \cdots - 2y + 1$
c_2, c_4, c_5 c_6, c_7, c_8	$y^{12} - 11y^{11} + \cdots + 2y + 1$