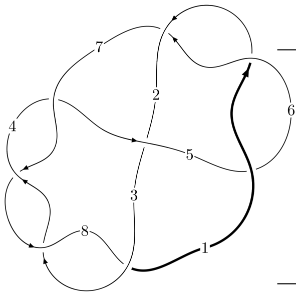
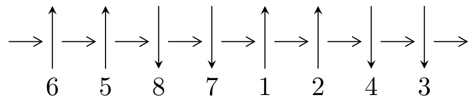
8_4 ($K8a_{17}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^9 + u^8 - 4u^7 - 3u^6 + 5u^5 + u^4 - 2u^3 + 2u^2 + u + 1 \rangle$$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^6 + 12u^4 - 4u^3 - 8u^2 + 8u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6	$u^9 - u^8 - 4u^7 + 3u^6 + 5u^5 - u^4 - 2u^3 - 2u^2 + u - 1$
c_2	$u^9 + 3u^8 + 2u^7 - 5u^6 - u^5 + 13u^4 + 10u^3 - 2u^2 + u + 3$
c_3, c_4, c_7 c_8	$u^9 - u^8 + 6u^7 - 5u^6 + 11u^5 - 7u^4 + 6u^3 - 2u^2 + u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6	$y^9 - 9y^8 + 32y^7 - 55y^6 + 45y^5 - 19y^4 + 16y^3 - 10y^2 - 3y - 1$
c_2	$y^9 - 5y^8 + 32y^7 - 87y^6 + 185y^5 - 223y^4 + 180y^3 - 62y^2 + 13y - 9$
c_3, c_4, c_7 c_8	$y^9 + 11y^8 + 48y^7 + 105y^6 + 121y^5 + 73y^4 + 20y^3 - 6y^2 - 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.482242 + 0.666986I$	$7.06362 + 2.21388I$	$4.24115 - 3.04598I$
$u = \quad 0.482242 - 0.666986I$	$7.06362 - 2.21388I$	$4.24115 + 3.04598I$
$u = -1.28056$	2.83680	1.66670
$u = \quad 1.380230 + 0.162431I$	$5.16280 + 3.41073I$	$5.88238 - 4.39642I$
$u = \quad 1.380230 - 0.162431I$	$5.16280 - 3.41073I$	$5.88238 + 4.39642I$
$u = -0.230908 + 0.456719I$	$0.035384 - 1.109690I$	$0.55374 + 6.23947I$
$u = -0.230908 - 0.456719I$	$0.035384 + 1.109690I$	$0.55374 - 6.23947I$
$u = -1.49128 + 0.23430I$	$13.4612 - 5.5005I$	$7.48937 + 2.97298I$
$u = -1.49128 - 0.23430I$	$13.4612 + 5.5005I$	$7.48937 - 2.97298I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6	$u^9 - u^8 - 4u^7 + 3u^6 + 5u^5 - u^4 - 2u^3 - 2u^2 + u - 1$
c_2	$u^9 + 3u^8 + 2u^7 - 5u^6 - u^5 + 13u^4 + 10u^3 - 2u^2 + u + 3$
c_3, c_4, c_7 c_8	$u^9 - u^8 + 6u^7 - 5u^6 + 11u^5 - 7u^4 + 6u^3 - 2u^2 + u - 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6	$y^9 - 9y^8 + 32y^7 - 55y^6 + 45y^5 - 19y^4 + 16y^3 - 10y^2 - 3y - 1$
c_2	$y^9 - 5y^8 + 32y^7 - 87y^6 + 185y^5 - 223y^4 + 180y^3 - 62y^2 + 13y - 9$
c_3, c_4, c_7 c_8	$y^9 + 11y^8 + 48y^7 + 105y^6 + 121y^5 + 73y^4 + 20y^3 - 6y^2 - 3y - 1$