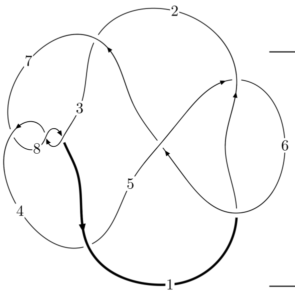
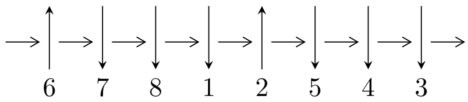
8_{11} $(K8a_9)$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{10} - u^9 + 3u^8 - 3u^7 + 5u^6 - 5u^5 + 4u^4 - 4u^3 + 3u^2 - 2u + 1 \rangle$$
$$I_2^u = \langle u^3 + u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 13 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. $\boldsymbol{I_1^u = \langle u^{10} - u^9 + 3u^8 - 3u^7 + 5u^6 - 5u^5 + 4u^4 - 4u^3 + 3u^2 - 2u + 1\rangle}$

(i) Arc colorings

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

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^5 - 2u^3 + u^2 - u + 1 \\ -u^9 - 3u^7 - 4u^5 + u^4 - u^3 + 2u^2 + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{10} - u^9 + 3u^8 - 3u^7 + 5u^6 - 5u^5 + 4u^4 - 4u^3 + 3u^2 - 2u + 1$
c_2, c_4	$u^{10} - 2u^9 - u^8 + 5u^7 - 3u^6 - 4u^5 + 12u^4 - 13u^3 + 5u^2 - u + 2$
c_3, c_7, c_8	$u^{10} - u^9 + 5u^8 - 5u^7 + 9u^6 - 9u^5 + 6u^4 - 6u^3 + u^2 + 1$
c_6	$u^{10} + 5u^9 + 13u^8 + 19u^7 + 17u^6 + 7u^5 - 2u^3 + u^2 + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{10} + 5y^9 + 13y^8 + 19y^7 + 17y^6 + 7y^5 - 2y^3 + y^2 + 2y + 1$
c_2, c_4	$y^{10} - 6y^9 + \cdots + 19y + 4$
c_3, c_7, c_8	$y^{10} + 9y^9 + 33y^8 + 59y^7 + 41y^6 - 21y^5 - 44y^4 - 6y^3 + 13y^2 + 2y + 1$
c_6	$y^{10} + y^9 + 13y^8 + 11y^7 + 45y^6 + 35y^5 + 12y^4 + 2y^3 + 9y^2 - 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.584958 + 0.771492I$	$4.93719 - 2.31006I$	$0.86369 + 3.52133I$
$u = -0.584958 - 0.771492I$	$4.93719 + 2.31006I$	$0.86369 - 3.52133I$
$u = \quad 0.248527 + 0.782547I$	$-0.448055 + 1.231690I$	$-4.90177 - 5.44908I$
$u = \quad 0.248527 - 0.782547I$	$-0.448055 - 1.231690I$	$-4.90177 + 5.44908I$
$u = \quad 0.761643 + 0.208049I$	$2.41360 - 3.47839I$	$-0.80497 + 2.79515I$
$u = \quad 0.761643 - 0.208049I$	$2.41360 + 3.47839I$	$-0.80497 - 2.79515I$
$u = -0.449566 + 1.164790I$	$-4.87665 - 4.14585I$	$-8.98134 + 3.97600I$
$u = -0.449566 - 1.164790I$	$-4.87665 + 4.14585I$	$-8.98134 - 3.97600I$
$u = \quad 0.524355 + 1.163410I$	$-0.38115 + 8.28632I$	$-4.17560 - 6.14881I$
$u = \quad 0.524355 - 1.163410I$	$-0.38115 - 8.28632I$	$-4.17560 + 6.14881I$

II. $I_2^u = \langle u^3 + u + 1 \rangle$

(i) Arc colorings

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

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} -u \\ 1 \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_5 c_7, c_8	$y^3 + 2y^2 + y - 1$
c_2, c_4	$(y-1)^3$
c_6	$y^3 - 2y^2 + 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.341164 + 1.161540I$	-1.64493	-6.00000
$u = \quad 0.341164 - 1.161540I$	-1.64493	-6.00000
$u = -0.682328$	-1.64493	-6.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^3+u+1)(u^{10}-u^9+\cdots-2u+1)$
c_2, c_4	$((u+1)^3)(u^{10}-2u^9+\cdots-u+2)$
c_3, c_7, c_8	$(u^3+u+1)(u^{10}-u^9+5u^8-5u^7+9u^6-9u^5+6u^4-6u^3+u^2+1)$
c_6	(u^3+2u^2+u-1) $\cdot(u^{10}+5u^9+13u^8+19u^7+17u^6+7u^5-2u^3+u^2+2u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	(y^3+2y^2+y-1) $\cdot(y^{10}+5y^9+13y^8+19y^7+17y^6+7y^5-2y^3+y^2+2y+1)$
c_2, c_4	$((y-1)^3)(y^{10}-6y^9+\cdots+19y+4)$
c_3, c_7, c_8	(y^3+2y^2+y-1) $\cdot(y^{10}+9y^9+33y^8+59y^7+41y^6-21y^5-44y^4-6y^3+13y^2+2y+1)$
c_6	(y^3-2y^2+5y-1) $\cdot(y^{10}+y^9+13y^8+11y^7+45y^6+35y^5+12y^4+2y^3+9y^2-2y+1)$