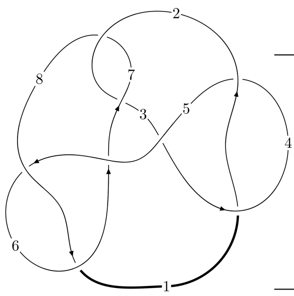
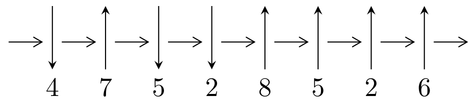
8_{20} $(K8n_1)$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^4 - u^3 - 2u^2 + b + 1,\ -u^4 + u^3 + 2u^2 + a - 2,\ u^5 - 2u^4 - 2u^3 + 3u^2 + 3u - 1\rangle$$
$$I_2^u = \langle b + 1,\ a,\ u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 6 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.

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$\boldsymbol{I_1^u = \langle u^4-u^3-2u^2+b+1,\ -u^4+u^3+2u^2+a-2,\ u^5-2u^4-2u^3+3u^2+3u-1\rangle}$

(i) Arc colorings

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

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

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

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

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

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

$$a_7 = \begin{pmatrix} u^4-u^3-2u^2+2 \\ u^4-2u^2-2u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^3+2u+2 \\ u^4-2u^2-2u \end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^5 - 2u^4 - 2u^3 + 3u^2 + 3u - 1$
c_2, c_7	$u^5 + u^4 + 5u^3 + u^2 + 2u - 2$
c_3	$u^5 + 8u^4 + 22u^3 + 25u^2 + 15u + 1$
c_5, c_8	$u^5 + 2u^4 + 2u^3 - u^2 - u - 1$
c_6	$u^5 + 6u^3 - u^2 - u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^5 - 8y^4 + 22y^3 - 25y^2 + 15y - 1$
c_2, c_7	$y^5 + 9y^4 + 27y^3 + 23y^2 + 8y - 4$
c_3	$y^5 - 20y^4 + 114y^3 + 19y^2 + 175y - 1$
c_5, c_8	$y^5 + 6y^3 - y^2 - y - 1$
c_6	$y^5 + 12y^4 + 34y^3 - 13y^2 - y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.949895+0.441667I$ $a=\ \ 0.682871-0.618084I$ $b=\ \ 0.317129+0.618084I$	$-1.85138+1.10891I$	$-2.36548-2.04112I$
$u=-0.949895-0.441667I$ $a=\ \ 0.682871+0.618084I$ $b=\ \ 0.317129-0.618084I$	$-1.85138-1.10891I$	$-2.36548+2.04112I$
$u=\ \ 0.274898$ $a=\ \ 1.83380$ $b=-0.833800$	1.20365	8.94300
$u=\ \ 1.81245+0.17314I$ $a=-0.099771+1.129450I$ $b=\ \ 1.09977-1.12945I$	$-11.90990-4.12490I$	$-1.10604+2.15443I$
$u=\ \ 1.81245-0.17314I$ $a=-0.099771-1.129450I$ $b=\ \ 1.09977+1.12945I$	$-11.90990+4.12490I$	$-1.10604-2.15443I$

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

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_6 c_8	$u - 1$
c_2, c_7	u
c_4, c_5	$u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_5, c_6, c_8	$y - 1$
c_2, c_7	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = 0$ $b = -1.00000$	0	0

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)(u^5-2u^4-2u^3+3u^2+3u-1)$
c_2, c_7	$u(u^5+u^4+5u^3+u^2+2u-2)$
c_3	$(u-1)(u^5+8u^4+22u^3+25u^2+15u+1)$
c_4	$(u+1)(u^5-2u^4-2u^3+3u^2+3u-1)$
c_5	$(u+1)(u^5+2u^4+2u^3-u^2-u-1)$
c_6	$(u-1)(u^5+6u^3-u^2-u-1)$
c_8	$(u-1)(u^5+2u^4+2u^3-u^2-u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y-1)(y^5-8y^4+22y^3-25y^2+15y-1)$
c_2, c_7	$y(y^5+9y^4+27y^3+23y^2+8y-4)$
c_3	$(y-1)(y^5-20y^4+114y^3+19y^2+175y-1)$
c_5, c_8	$(y-1)(y^5+6y^3-y^2-y-1)$
c_6	$(y-1)(y^5+12y^4+34y^3-13y^2-y-1)$