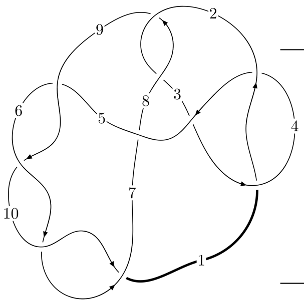
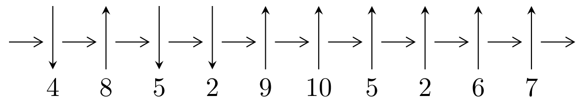
10_{126} $(K10n_{17})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$5,9 \xrightarrow[c_5]{} 6 \xrightarrow[c_9]{} 2,10 \xrightarrow[c_4]{} 4 \xrightarrow[c_1]{} 1 \xrightarrow[c_3]{} 3 \xrightarrow[c_8]{} 8 \xrightarrow[c_7]{} 7 \twoheadrightarrow c_2, c_6, c_{10}$$

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

$$\begin{aligned} I_1^u = \langle & -u^{10} - u^9 + 5u^8 + 3u^7 - 9u^6 + u^5 + 8u^4 - 6u^3 - 3u^2 + b + u, \\ & u^{10} + u^9 - 4u^8 - 3u^7 + 4u^6 - u^5 - u^4 + 4u^3 + u^2 + a + 3u + 1, \\ & u^{11} + 2u^{10} - 4u^9 - 8u^8 + 6u^7 + 7u^6 - 10u^5 + u^4 + 11u^3 + 1 \rangle \\ I_2^u = \langle & b + 1,\ a,\ u^2 - u - 1 \rangle \end{aligned}$$

* 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.

$$\boldsymbol{I_1^u = \langle -u^{10} - u^9 + \cdots + b + u,\ u^{10} + u^9 + \cdots + a + 1,\ u^{11} + 2u^{10} + \cdots + 11u^3 + 1\rangle}$$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -u^{10} - u^9 + 4u^8 + 3u^7 - 4u^6 + u^5 + u^4 - 4u^3 - u^2 - 3u - 1 \\ u^{10} + u^9 - 5u^8 - 3u^7 + 9u^6 - u^5 - 8u^4 + 6u^3 + 3u^2 - u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^3 - 2u \\ u^{10} + u^9 - 4u^8 - 3u^7 + 5u^6 - u^5 - 4u^4 + 5u^3 + 3u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 - 2u \\ -u^5 + 3u^3 - u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{10} + u^9 - 4u^8 - 3u^7 + 5u^6 - u^5 - 4u^4 + 6u^3 + 3u^2 - 2u \\ u^{10} + u^9 - 4u^8 - 3u^7 + 5u^6 - u^5 - 4u^4 + 5u^3 + 3u^2 \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^9 - u^8 - 6u^7 + 7u^6 + 11u^5 - 17u^4 + 2u^3 + 16u^2 - 15u + 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{11} - 3u^{10} + \cdots - 7u + 1$
c_2, c_8	$u^{11} - u^{10} + \cdots - 4u + 4$
c_3	$u^{11} + 15u^{10} + \cdots + 51u + 1$
c_5, c_6, c_9 c_{10}	$u^{11} - 2u^{10} - 4u^9 + 8u^8 + 6u^7 - 7u^6 - 10u^5 - u^4 + 11u^3 - 1$
c_7	$u^{11} + 12u^9 + 2u^8 + 32u^7 + 17u^6 - 28u^5 + 27u^4 - 15u^3 + 2u^2 - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{11} - 15y^{10} + \cdots + 51y - 1$
c_2, c_8	$y^{11} + 15y^{10} + \cdots + 88y - 16$
c_3	$y^{11} - 35y^{10} + \cdots + 1959y - 1$
c_5, c_6, c_9 c_{10}	$y^{11} - 12y^{10} + \cdots - 2y^2 - 1$
c_7	$y^{11} + 24y^{10} + \cdots + 2y^2 - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.555784 + 0.826080I$ $a = 1.70442 + 0.91227I$ $b = 1.75765 - 0.08981I$	$-11.41260 + 2.72618I$	$1.17921 - 2.48457I$
$u = 0.555784 - 0.826080I$ $a = 1.70442 - 0.91227I$ $b = 1.75765 + 0.08981I$	$-11.41260 - 2.72618I$	$1.17921 + 2.48457I$
$u = 1.30287$ $a = -0.964097$ $b = -1.44606$	1.42853	5.86840
$u = -1.395180 + 0.126727I$ $a = -0.158907 + 0.922695I$ $b = -0.665578 - 0.815452I$	$3.45898 - 2.75386I$	$6.03924 + 3.05522I$
$u = -1.395180 - 0.126727I$ $a = -0.158907 - 0.922695I$ $b = -0.665578 + 0.815452I$	$3.45898 + 2.75386I$	$6.03924 - 3.05522I$
$u = -0.509387$ $a = 0.753099$ $b = 0.150577$	0.764590	13.1750
$u = 0.205266 + 0.391152I$ $a = -1.19521 - 1.33382I$ $b = -0.887105 + 0.326749I$	$-1.67531 + 0.87131I$	$-1.62556 - 2.85981I$
$u = 0.205266 - 0.391152I$ $a = -1.19521 + 1.33382I$ $b = -0.887105 - 0.326749I$	$-1.67531 - 0.87131I$	$-1.62556 + 2.85981I$
$u = 1.58287$ $a = 0.388562$ $b = 0.514377$	8.06663	13.5530
$u = -1.55405 + 0.30396I$ $a = 0.560911 - 1.017150I$ $b = 1.68559 + 0.26432I$	$-4.54812 - 6.90426I$	$4.10911 + 3.24808I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.55405 - 0.30396I$ $a = 0.560911 + 1.017150I$ $b = 1.68559 - 0.26432I$	$-4.54812 + 6.90426I$	$4.10911 - 3.24808I$

II. $\boldsymbol{I_2^u = \langle b+1,\ a,\ u^2 - u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u-1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ -u-1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$(u-1)^2$
c_2, c_8	u^2
c_4	$(u+1)^2$
c_5, c_6	u^2-u-1
c_7, c_9, c_{10}	u^2+u-1

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4	$(y-1)^2$
c_2, c_8	y^2
c_5, c_6, c_7 c_9, c_{10}	$y^2 - 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = 0$ $b = -1.00000$	-0.657974	3.00000
$u = 1.61803$ $a = 0$ $b = -1.00000$	7.23771	3.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u^{11}-3u^{10}+\cdots-7u+1)$
c_2, c_8	$u^2(u^{11}-u^{10}+\cdots-4u+4)$
c_3	$((u-1)^2)(u^{11}+15u^{10}+\cdots+51u+1)$
c_4	$((u+1)^2)(u^{11}-3u^{10}+\cdots-7u+1)$
c_5, c_6	$(u^2-u-1)(u^{11}-2u^{10}+\cdots+11u^3-1)$
c_7	(u^2+u-1) $\cdot\,(u^{11}+12u^9+2u^8+32u^7+17u^6-28u^5+27u^4-15u^3+2u^2-2u+1)$
c_9, c_{10}	$(u^2+u-1)(u^{11}-2u^{10}+\cdots+11u^3-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^2)(y^{11} - 15y^{10} + \cdots + 51y - 1)$
c_2, c_8	$y^2(y^{11} + 15y^{10} + \cdots + 88y - 16)$
c_3	$((y-1)^2)(y^{11} - 35y^{10} + \cdots + 1959y - 1)$
c_5, c_6, c_9 c_{10}	$(y^2 - 3y + 1)(y^{11} - 12y^{10} + \cdots - 2y^2 - 1)$
c_7	$(y^2 - 3y + 1)(y^{11} + 24y^{10} + \cdots + 2y^2 - 1)$