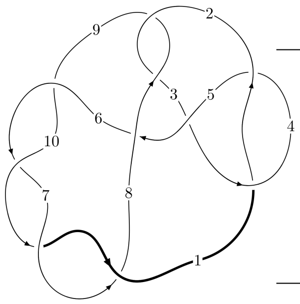
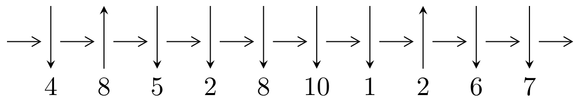
10_{127} $(K10n_{16})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -3u^{15} - 8u^{14} + \cdots + 2b - 5,\ -3u^{15} - 6u^{14} + \cdots + 2a - 7,\ u^{16} + 3u^{15} + \cdots + 3u + 1 \rangle$$
$$I_2^u = \langle b - a,\ a^2 - a - 1,\ u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 18 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. $I^u_1 = \langle -3u^{15}-8u^{14}+\cdots+2b-5,\ -3u^{15}-6u^{14}+\cdots+2a-7,\ u^{16}+3u^{15}+\cdots+3u+1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u^3\\u^5-u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}\frac{3}{2}u^{15}+3u^{14}+\cdots+u+\frac{7}{2}\\\frac{3}{2}u^{15}+4u^{14}+\cdots+3u+\frac{5}{2}\end{pmatrix}$$
$$a_7 = \begin{pmatrix}3u^{15}+7u^{14}+\cdots+4u+6\\\frac{3}{2}u^{15}+4u^{14}+\cdots+3u+\frac{5}{2}\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u^{15}+2u^{14}+\cdots+4u+1\\\frac{1}{2}u^{15}+u^{14}+\cdots+2u+\frac{1}{2}\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-\frac{1}{2}u^{15}-u^{14}+\cdots-3u+\frac{1}{2}\\-\frac{1}{2}u^{15}-u^{14}+\cdots-u-\frac{1}{2}\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-\frac{3}{2}u^{15}-4u^{14}+\cdots-u-\frac{9}{2}\\-\frac{1}{2}u^{15}-u^{14}+\cdots+\frac{11}{2}u^2-\frac{3}{2}\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{15}-3u^{14}+u^{13}+12u^{12}+10u^{11}-19u^{10}-29u^9+10u^8+44u^7+4u^6-40u^5-18u^4+26u^3+19u^2-7u-10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{16} - 3u^{15} + \cdots - 3u + 1$
c_2, c_8	$u^{16} - u^{15} + \cdots + 4u + 4$
c_3	$u^{16} + 5u^{15} + \cdots + 15u + 1$
c_5	$u^{16} - 2u^{15} + \cdots + 2u + 1$
c_6, c_7, c_9 c_{10}	$u^{16} + 2u^{15} + \cdots - 6u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{16} - 5y^{15} + \cdots - 15y + 1$
c_2, c_8	$y^{16} - 15y^{15} + \cdots - 152y + 16$
c_3	$y^{16} + 15y^{15} + \cdots - 75y + 1$
c_5	$y^{16} + 18y^{15} + \cdots - 12y + 1$
c_6, c_7, c_9 c_{10}	$y^{16} - 18y^{15} + \cdots - 12y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.817221 + 0.650517I$ $a = 0.69329 + 1.38874I$ $b = -1.47026 - 0.07876I$	$-6.61455 - 2.48847I$	$-10.73866 + 2.85289I$
$u = 0.817221 - 0.650517I$ $a = 0.69329 - 1.38874I$ $b = -1.47026 + 0.07876I$	$-6.61455 + 2.48847I$	$-10.73866 - 2.85289I$
$u = 1.09835$ $a = -0.682687$ $b = -0.347472$	-2.11624	-0.212820
$u = -0.616496 + 0.976582I$ $a = -0.323356 - 0.180239I$ $b = 1.45750 + 0.22598I$	$-0.88412 - 2.45544I$	$-7.41928 + 0.95551I$
$u = -0.616496 - 0.976582I$ $a = -0.323356 + 0.180239I$ $b = 1.45750 - 0.22598I$	$-0.88412 + 2.45544I$	$-7.41928 - 0.95551I$
$u = -0.839144 + 0.905830I$ $a = 0.354184 + 0.747930I$ $b = -0.427794 - 0.712268I$	$5.17546 + 0.91530I$	$-4.32887 + 0.19716I$
$u = -0.839144 - 0.905830I$ $a = 0.354184 - 0.747930I$ $b = -0.427794 + 0.712268I$	$5.17546 - 0.91530I$	$-4.32887 - 0.19716I$
$u = -0.997540 + 0.847971I$ $a = -0.383254 - 1.181700I$ $b = -0.593993 + 0.677497I$	$4.68170 + 5.57131I$	$-5.69073 - 5.47773I$
$u = -0.997540 - 0.847971I$ $a = -0.383254 + 1.181700I$ $b = -0.593993 - 0.677497I$	$4.68170 - 5.57131I$	$-5.69073 + 5.47773I$
$u = -0.688577$ $a = -2.20439$ $b = -1.64693$	-9.85589	-4.30720

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.35209$ $a = 1.39091$ $b = 1.48463$	-8.27471	-10.1750
$u = 0.549818 + 0.327281I$ $a = -0.426191 - 1.322820I$ $b = 0.349186 + 0.338218I$	$-0.629599 - 1.102380I$	$-6.95123 + 6.20216I$
$u = 0.549818 - 0.327281I$ $a = -0.426191 + 1.322820I$ $b = 0.349186 - 0.338218I$	$-0.629599 + 1.102380I$	$-6.95123 - 6.20216I$
$u = -1.127720 + 0.779615I$ $a = 0.38145 + 1.56857I$ $b = 1.56155 - 0.22278I$	$-2.44912 + 8.89682I$	$-9.23385 - 5.21727I$
$u = -1.127720 - 0.779615I$ $a = 0.38145 - 1.56857I$ $b = 1.56155 + 0.22278I$	$-2.44912 - 8.89682I$	$-9.23385 + 5.21727I$
$u = -0.334148$ $a = 1.90392$ $b = 0.757410$	-1.34177	-6.57950

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

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a \\ a \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 2a \\ a \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2a - 1 \\ -a - 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -a - 2 \\ -a - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ a \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -17$

(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, c_7	u^2+u-1
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
$u = \quad 1.00000$ $a = -0.618034$ $b = -0.618034$	-2.63189	-17.0000
$u = \quad 1.00000$ $a = \quad 1.61803$ $b = \quad 1.61803$	-10.5276	-17.0000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u^{16}-3u^{15}+\cdots-3u+1)$
c_2, c_8	$u^2(u^{16}-u^{15}+\cdots+4u+4)$
c_3	$((u-1)^2)(u^{16}+5u^{15}+\cdots+15u+1)$
c_4	$((u+1)^2)(u^{16}-3u^{15}+\cdots-3u+1)$
c_5	$(u^2+u-1)(u^{16}-2u^{15}+\cdots+2u+1)$
c_6, c_7	$(u^2+u-1)(u^{16}+2u^{15}+\cdots-6u^2+1)$
c_9, c_{10}	$(u^2-u-1)(u^{16}+2u^{15}+\cdots-6u^2+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^2)(y^{16}-5y^{15}+\cdots-15y+1)$
c_2, c_8	$y^2(y^{16}-15y^{15}+\cdots-152y+16)$
c_3	$((y-1)^2)(y^{16}+15y^{15}+\cdots-75y+1)$
c_5	$(y^2-3y+1)(y^{16}+18y^{15}+\cdots-12y+1)$
c_6, c_7, c_9 c_{10}	$(y^2-3y+1)(y^{16}-18y^{15}+\cdots-12y+1)$