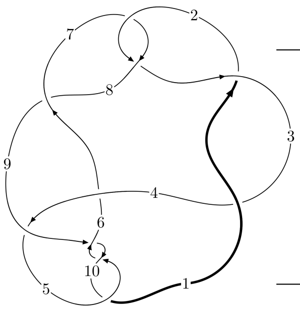
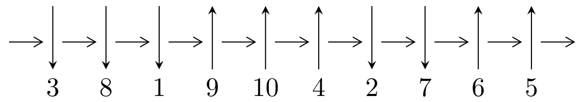
10_{31} ($K10a_{69}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{28} - u^{27} + \cdots - u^2 + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 28 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. $\boldsymbol{I_1^u = \langle u^{28} - u^{27} + \cdots - u^2 + 1 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^4 - u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^{12} - u^{10} + 3u^8 - 2u^6 + 2u^4 - u^2 + 1 \\ -u^{14} + 2u^{12} - 5u^{10} + 6u^8 - 6u^6 + 4u^4 - u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{11} - 2u^9 + 4u^7 - 4u^5 + 3u^3 \\ u^{11} - u^9 + 2u^7 - u^5 - u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{27} - 4u^{25} + \cdots + 12u^7 - u^3 \\ u^{27} - 3u^{25} + \cdots - u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{26} - 4u^{25} - 12u^{24} + 16u^{23} + 44u^{22} - 52u^{21} - 88u^{20} + 116u^{19} + 168u^{18} - 204u^{17} - 236u^{16} + 284u^{15} + 288u^{14} - 312u^{13} - 280u^{12} + 256u^{11} + 224u^{10} - 152u^9 - 136u^8 + 40u^7 + 64u^6 + 16u^5 - 16u^4 - 16u^3 + 4u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_8	$u^{28} + 7u^{27} + \cdots + 2u + 1$
c_2, c_7	$u^{28} - u^{27} + \cdots - u^2 + 1$
c_4	$u^{28} - u^{27} + \cdots + 5u + 2$
c_5, c_9, c_{10}	$u^{28} + u^{27} + \cdots + 2u + 1$
c_6	$u^{28} + 7u^{27} + \cdots + 8u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_8	$y^{28} + 29y^{27} + \cdots + 14y + 1$
c_2, c_7	$y^{28} - 7y^{27} + \cdots - 2y + 1$
c_4	$y^{28} - 3y^{27} + \cdots + 19y + 4$
c_5, c_9, c_{10}	$y^{28} + 25y^{27} + \cdots - 2y + 1$
c_6	$y^{28} + y^{27} + \cdots + 62y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.899770 + 0.359295I$	$-0.52966 - 3.76187I$	$-0.54869 + 7.99757I$
$u = 0.899770 - 0.359295I$	$-0.52966 + 3.76187I$	$-0.54869 - 7.99757I$
$u = 0.954301 + 0.165131I$	$-6.93655 + 1.29573I$	$-8.16340 + 0.19021I$
$u = 0.954301 - 0.165131I$	$-6.93655 - 1.29573I$	$-8.16340 - 0.19021I$
$u = -0.971170 + 0.356128I$	$-5.84563 + 6.87695I$	$-5.38448 - 7.29150I$
$u = -0.971170 - 0.356128I$	$-5.84563 - 6.87695I$	$-5.38448 + 7.29150I$
$u = -0.816311 + 0.219669I$	$-1.41378 + 0.68499I$	$-4.66956 - 0.56233I$
$u = -0.816311 - 0.219669I$	$-1.41378 - 0.68499I$	$-4.66956 + 0.56233I$
$u = -0.894569 + 0.739690I$	$-1.93517 + 2.81005I$	$-2.61718 - 2.93426I$
$u = -0.894569 - 0.739690I$	$-1.93517 - 2.81005I$	$-2.61718 + 2.93426I$
$u = -0.594944 + 0.540484I$	$-1.95488 + 1.97473I$	$0.55963 - 3.90307I$
$u = -0.594944 - 0.540484I$	$-1.95488 - 1.97473I$	$0.55963 + 3.90307I$
$u = 0.824272 + 0.873080I$	$2.07406 + 4.77850I$	$0.63399 - 2.38985I$
$u = 0.824272 - 0.873080I$	$2.07406 - 4.77850I$	$0.63399 + 2.38985I$
$u = -0.848977 + 0.862822I$	$7.13238 - 0.98573I$	$5.20004 + 1.21736I$
$u = -0.848977 - 0.862822I$	$7.13238 + 0.98573I$	$5.20004 - 1.21736I$
$u = 0.883885 + 0.841772I$	$4.95278 - 2.93440I$	$2.09657 + 3.53352I$
$u = 0.883885 - 0.841772I$	$4.95278 + 2.93440I$	$2.09657 - 3.53352I$
$u = 0.921489 + 0.824235I$	$4.83159 - 3.27187I$	$1.73251 + 1.59380I$
$u = 0.921489 - 0.824235I$	$4.83159 + 3.27187I$	$1.73251 - 1.59380I$
$u = -0.956709 + 0.821698I$	$6.79399 + 7.24627I$	$4.35343 - 6.30493I$
$u = -0.956709 - 0.821698I$	$6.79399 - 7.24627I$	$4.35343 + 6.30493I$
$u = 0.975960 + 0.814541I$	$1.59839 - 11.04430I$	$-0.28365 + 7.20583I$
$u = 0.975960 - 0.814541I$	$1.59839 + 11.04430I$	$-0.28365 - 7.20583I$
$u = -0.190095 + 0.611771I$	$-3.43315 - 3.38176I$	$0.34958 + 2.75424I$
$u = -0.190095 - 0.611771I$	$-3.43315 + 3.38176I$	$0.34958 - 2.75424I$
$u = 0.313097 + 0.488114I$	$1.245360 + 0.507461I$	$6.74123 - 1.23953I$
$u = 0.313097 - 0.488114I$	$1.245360 - 0.507461I$	$6.74123 + 1.23953I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3, c_8	$u^{28} + 7u^{27} + \cdots + 2u + 1$
c_2, c_7	$u^{28} - u^{27} + \cdots - u^2 + 1$
c_4	$u^{28} - u^{27} + \cdots + 5u + 2$
c_5, c_9, c_{10}	$u^{28} + u^{27} + \cdots + 2u + 1$
c_6	$u^{28} + 7u^{27} + \cdots + 8u + 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_8	$y^{28} + 29y^{27} + \cdots + 14y + 1$
c_2, c_7	$y^{28} - 7y^{27} + \cdots - 2y + 1$
c_4	$y^{28} - 3y^{27} + \cdots + 19y + 4$
c_5, c_9, c_{10}	$y^{28} + 25y^{27} + \cdots - 2y + 1$
c_6	$y^{28} + y^{27} + \cdots + 62y + 1$