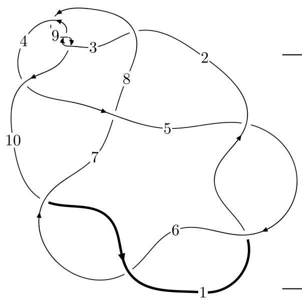
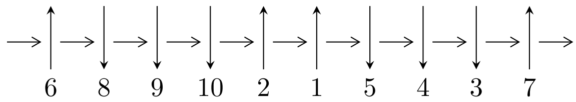
10_{16} ($K10a_{115}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{23} - u^{22} + \cdots - 2u + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 23 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. $I_1^u = \langle u^{23} - u^{22} + \cdots - 2u + 1 \rangle$

(i) Arc colorings

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

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

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

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

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

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

$$a_3 = \begin{pmatrix} -u^{10} - 5u^8 - 6u^6 + u^4 + u^2 + 1 \\ u^{10} + 6u^8 + 11u^6 + 6u^4 + u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -u^{21} - 12u^{19} + \cdots - 2u^3 + u \\ -u^{22} + u^{21} + \cdots - u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -4u^{22} + 4u^{21} - 56u^{20} + 52u^{19} - 324u^{18} + 276u^{17} - 996u^{16} + 764u^{15} - 1744u^{14} + 1172u^{13} - 1748u^{12} + 1000u^{11} - 988u^{10} + 504u^9 - 304u^8 + 188u^7 - 8u^6 + 32u^5 + 12u^4 + 12u^3 + 4u^2 - 16u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_{10}	$u^{23} - u^{22} + \cdots - 2u + 1$
c_2, c_4	$u^{23} - u^{22} + \cdots + 4u + 5$
c_3, c_8, c_9	$u^{23} + u^{22} + \cdots + 2u + 1$
c_7	$u^{23} - 7u^{22} + \cdots + 40u - 17$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_{10}	$y^{23} + 27y^{22} + \cdots - 4y - 1$
c_2, c_4	$y^{23} - 17y^{22} + \cdots - 144y - 25$
c_3, c_8, c_9	$y^{23} + 19y^{22} + \cdots - 4y - 1$
c_7	$y^{23} - 9y^{22} + \cdots + 1260y - 289$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.473302 + 0.738923I$	$0.16340 + 7.25342I$	$-3.09734 - 7.25802I$
$u = \quad 0.473302 - 0.738923I$	$0.16340 - 7.25342I$	$-3.09734 + 7.25802I$
$u = -0.413689 + 0.761868I$	$-4.21185 - 3.22031I$	$-8.22079 + 4.90443I$
$u = -0.413689 - 0.761868I$	$-4.21185 + 3.22031I$	$-8.22079 - 4.90443I$
$u = \quad 0.324148 + 0.802707I$	$-0.817157 - 0.745308I$	$-5.08009 - 0.73522I$
$u = \quad 0.324148 - 0.802707I$	$-0.817157 + 0.745308I$	$-5.08009 + 0.73522I$
$u = -0.477903 + 0.451361I$	$4.96840 - 1.68040I$	$2.82272 + 4.29991I$
$u = -0.477903 - 0.451361I$	$4.96840 + 1.68040I$	$2.82272 - 4.29991I$
$u = \quad 0.581337 + 0.108709I$	$2.00599 - 3.66457I$	$0.82434 + 2.67133I$
$u = \quad 0.581337 - 0.108709I$	$2.00599 + 3.66457I$	$0.82434 - 2.67133I$
$u = -0.546774$	-2.00773	-4.01170
$u = \quad 0.228067 + 0.467269I$	$-0.140168 + 0.925919I$	$-2.94249 - 7.44214I$
$u = \quad 0.228067 - 0.467269I$	$-0.140168 - 0.925919I$	$-2.94249 + 7.44214I$
$u = -0.08584 + 1.50808I$	$-1.46467 - 3.53591I$	$-1.36507 + 3.24061I$
$u = -0.08584 - 1.50808I$	$-1.46467 + 3.53591I$	$-1.36507 - 3.24061I$
$u = \quad 0.03322 + 1.55779I$	$-7.11725 + 1.68405I$	$-6.35516 - 3.83025I$
$u = \quad 0.03322 - 1.55779I$	$-7.11725 - 1.68405I$	$-6.35516 + 3.83025I$
$u = \quad 0.13674 + 1.61894I$	$-7.87123 + 9.54664I$	$-5.28748 - 5.57899I$
$u = \quad 0.13674 - 1.61894I$	$-7.87123 - 9.54664I$	$-5.28748 + 5.57899I$
$u = -0.11785 + 1.62483I$	$-12.38020 - 5.22748I$	$-9.66631 + 3.33432I$
$u = -0.11785 - 1.62483I$	$-12.38020 + 5.22748I$	$-9.66631 - 3.33432I$
$u = \quad 0.09185 + 1.62814I$	$-9.14246 + 0.83337I$	$-6.62647 + 0.43888I$
$u = \quad 0.09185 - 1.62814I$	$-9.14246 - 0.83337I$	$-6.62647 - 0.43888I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_{10}	$u^{23} - u^{22} + \cdots - 2u + 1$
c_2, c_4	$u^{23} - u^{22} + \cdots + 4u + 5$
c_3, c_8, c_9	$u^{23} + u^{22} + \cdots + 2u + 1$
c_7	$u^{23} - 7u^{22} + \cdots + 40u - 17$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_{10}	$y^{23} + 27y^{22} + \cdots - 4y - 1$
c_2, c_4	$y^{23} - 17y^{22} + \cdots - 144y - 25$
c_3, c_8, c_9	$y^{23} + 19y^{22} + \cdots - 4y - 1$
c_7	$y^{23} - 9y^{22} + \cdots + 1260y - 289$