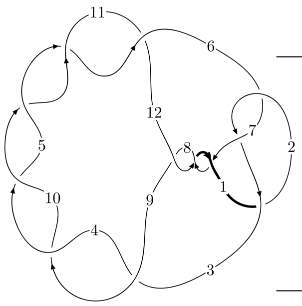
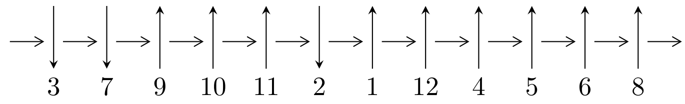
$12a_{0580}$ $(K12a_{0580})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$5,10 \xrightarrow[c_{10}]{} 11 \xrightarrow[c_5]{} 6 \xrightarrow[c_{11}]{} 12 \xrightarrow[c_4]{} 4 \xrightarrow[c_9]{} 9 \xrightarrow[c_3]{} 3 \xrightarrow[c_8]{} 8 \xrightarrow[c_{12}]{} 1 \xrightarrow[c_1]{} 2 \xrightarrow[c_7]{} 7 \gg c_2, c_6$$

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

$$I_1^u = \langle u^{33} - 23u^{31} + \cdots - 3u^2 + 1\rangle$$
$$I_2^u = \langle u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 34 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. $I_1^u = \langle u^{33} - 23u^{31} + \cdots - 3u^2 + 1 \rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^8 - 5u^6 + 7u^4 - 4u^2 + 1 \\ -u^{10} + 6u^8 - 11u^6 + 6u^4 + u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^{14} + 9u^{12} - 30u^{10} + 47u^8 - 38u^6 + 16u^4 - 4u^2 + 1 \\ u^{16} - 10u^{14} + 38u^{12} - 68u^{10} + 56u^8 - 14u^6 - 2u^4 - 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{22} + 15u^{20} + \cdots - 6u^2 + 1 \\ u^{22} - 14u^{20} + \cdots - 12u^4 - u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{20} - 13u^{18} + \cdots - 7u^2 + 1 \\ -u^{22} + 14u^{20} + \cdots + 12u^4 + u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $=$
$-4u^{31} + 88u^{29} - 856u^{27} + 4848u^{25} - 4u^{24} - 17720u^{23} + 68u^{22} + 43792u^{21} - 492u^{20} - 74544u^{19} + 1976u^{18} + 87444u^{17} - 4820u^{16} - 69912u^{15} + 7344u^{14} + 37972u^{13} - 6924u^{12} - 15152u^{11} + 3884u^{10} + 5628u^9 - 1284u^8 - 1920u^7 + 364u^6 + 380u^5 - 124u^4 - 64u^3 + 12u^2 + 16u + 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{33}+18u^{32}+\cdots+6u+1$
c_2, c_6	$u^{33}-9u^{31}+\cdots-2u+1$
c_3, c_4, c_5 c_9, c_{10}, c_{11}	$u^{33}-23u^{31}+\cdots-3u^2+1$
c_7, c_8, c_{12}	$u^{33}-3u^{32}+\cdots+66u-9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{33} - 6y^{32} + \cdots - 10y - 1$
c_2, c_6	$y^{33} - 18y^{32} + \cdots + 6y - 1$
c_3, c_4, c_5 c_9, c_{10}, c_{11}	$y^{33} - 46y^{32} + \cdots + 6y - 1$
c_7, c_8, c_{12}	$y^{33} + 33y^{32} + \cdots + 1818y - 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.078530 + 0.260345I$	$-3.08176 + 0.16732I$	$6.09584 + 0.50750I$
$u = -1.078530 - 0.260345I$	$-3.08176 - 0.16732I$	$6.09584 - 0.50750I$
$u = \quad 1.110390 + 0.241958I$	$0.82041 + 4.14448I$	$10.07295 - 3.71315I$
$u = \quad 1.110390 - 0.241958I$	$0.82041 - 4.14448I$	$10.07295 + 3.71315I$
$u = -1.128410 + 0.263489I$	$-2.55219 - 8.92303I$	$6.95631 + 6.78209I$
$u = -1.128410 - 0.263489I$	$-2.55219 + 8.92303I$	$6.95631 - 6.78209I$
$u = -1.166230 + 0.050255I$	$5.91535 - 0.56111I$	$14.6924 + 0.1759I$
$u = -1.166230 - 0.050255I$	$5.91535 + 0.56111I$	$14.6924 - 0.1759I$
$u = \quad 1.171240 + 0.120548I$	$4.72112 + 4.72894I$	$11.48738 - 6.71856I$
$u = \quad 1.171240 - 0.120548I$	$4.72112 - 4.72894I$	$11.48738 + 6.71856I$
$u = \quad 0.375181 + 0.517251I$	$-7.29542 + 6.26206I$	$2.41928 - 6.99571I$
$u = \quad 0.375181 - 0.517251I$	$-7.29542 - 6.26206I$	$2.41928 + 6.99571I$
$u = \quad 0.320762 + 0.524473I$	$-7.45714 - 2.83006I$	$1.68987 - 0.19716I$
$u = \quad 0.320762 - 0.524473I$	$-7.45714 + 2.83006I$	$1.68987 + 0.19716I$
$u = -0.346601 + 0.496167I$	$-3.76561 - 1.64301I$	$5.31561 + 3.87855I$
$u = -0.346601 - 0.496167I$	$-3.76561 + 1.64301I$	$5.31561 - 3.87855I$
$u = -0.450226 + 0.303526I$	$-0.48021 - 3.32430I$	$7.27824 + 9.56553I$
$u = -0.450226 - 0.303526I$	$-0.48021 + 3.32430I$	$7.27824 - 9.56553I$
$u = \quad 0.443763 + 0.077336I$	$0.744274 + 0.060227I$	$13.86304 - 1.24873I$
$u = \quad 0.443763 - 0.077336I$	$0.744274 - 0.060227I$	$13.86304 + 1.24873I$
$u = -0.129735 + 0.357401I$	$-1.43361 + 1.06619I$	$0.406261 - 0.591044I$
$u = -0.129735 - 0.357401I$	$-1.43361 - 1.06619I$	$0.406261 + 0.591044I$
$u = -1.74291$	11.6408	0
$u = \quad 1.74733 + 0.06051I$	$7.06644 + 1.13358I$	0
$u = \quad 1.74733 - 0.06051I$	$7.06644 - 1.13358I$	0
$u = -1.75819 + 0.05873I$	$11.17330 - 5.39711I$	0
$u = -1.75819 - 0.05873I$	$11.17330 + 5.39711I$	0
$u = \quad 1.76174 + 0.06588I$	$7.87109 + 10.31650I$	0
$u = \quad 1.76174 - 0.06588I$	$7.87109 - 10.31650I$	0
$u = \quad 1.77307 + 0.01258I$	$16.6439 + 0.8345I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.77307 - 0.01258I$	$16.6439 - 0.8345I$	0
$u = -1.77410 + 0.02777I$	$15.4601 - 5.3571I$	0
$u = -1.77410 - 0.02777I$	$15.4601 + 5.3571I$	0

II. $I_2^u = \langle u - 1 \rangle$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u+1$
c_2, c_3, c_4 c_5, c_6, c_9 c_{10}, c_{11}	$u-1$
c_7, c_8, c_{12}	u

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_6 c_9, c_{10}, c_{11}	$y - 1$
c_7, c_8, c_{12}	y

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000	1.64493	6.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u+1)(u^{33}+18u^{32}+\cdots+6u+1)$
c_2, c_6	$(u-1)(u^{33}-9u^{31}+\cdots-2u+1)$
c_3, c_4, c_5 c_9, c_{10}, c_{11}	$(u-1)(u^{33}-23u^{31}+\cdots-3u^2+1)$
c_7, c_8, c_{12}	$u(u^{33}-3u^{32}+\cdots+66u-9)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)(y^{33} - 6y^{32} + \cdots - 10y - 1)$
c_2, c_6	$(y-1)(y^{33} - 18y^{32} + \cdots + 6y - 1)$
c_3, c_4, c_5 c_9, c_{10}, c_{11}	$(y-1)(y^{33} - 46y^{32} + \cdots + 6y - 1)$
c_7, c_8, c_{12}	$y(y^{33} + 33y^{32} + \cdots + 1818y - 81)$