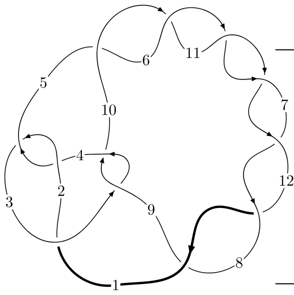
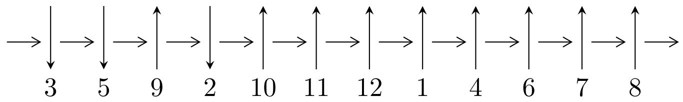
$12a_{0146}$ $(K12a_{0146})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{29} - u^{28} + \cdots + b + 1,\ -u^{29} + u^{28} + \cdots + a + 6u,\ u^{30} - 2u^{29} + \cdots - 36u^3 - 1 \rangle$$
$$I_2^u = \langle b + 1,\ a,\ u^3 + u^2 - 2u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 33 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.

$$\boldsymbol{I_1^u = \langle u^{29} - u^{28} + \cdots + b + 1,\ -u^{29} + u^{28} + \cdots + a + 6u,\ u^{30} - 2u^{29} + \cdots - 36u^3 - 1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{29} - u^{28} + \cdots - 8u^2 - 6u \\ -u^{29} + u^{28} + \cdots - 2u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^3 + 2u \\ u^5 - 3u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{14} + 11u^{12} + \cdots - 8u - 1 \\ -u^{29} + u^{28} + \cdots - 2u - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^5 + 4u^3 - 3u \\ u^7 - 5u^5 + 6u^3 - u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^{29} + u^{28} + \cdots - 6u - 1 \\ -u^{29} + u^{28} + \cdots - u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^6 + 5u^4 - 6u^2 + 1 \\ u^8 - 6u^6 + 10u^4 - 4u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^4 - 3u^2 + 1 \\ -u^6 + 4u^4 - 3u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3u^{29} + 4u^{28} + 62u^{27} - 82u^{26} - 561u^{25} + 739u^{24} + 2918u^{23} - 3849u^{22} - 9630u^{21} + 12801u^{20} + 21006u^{19} - 28320u^{18} - 30675u^{17} + 42061u^{16} + 30044u^{15} - 41342u^{14} - 20264u^{13} + 26026u^{12} + 10788u^{11} - 10222u^{10} - 5598u^9 + 2750u^8 + 2538u^7 - 619u^6 - 778u^5 + 21u^4 + 168u^3 + 52u^2 - 25u + 7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} + 12u^{29} + \cdots + 97u + 1$
c_2, c_4	$u^{30} - 4u^{29} + \cdots + 13u - 1$
c_3, c_9	$u^{30} - u^{29} + \cdots - 28u + 8$
c_5, c_6, c_7 c_8, c_{10}, c_{11} c_{12}	$u^{30} + 2u^{29} + \cdots + 36u^3 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} + 16y^{29} + \cdots - 7313y + 1$
c_2, c_4	$y^{30} - 12y^{29} + \cdots - 97y + 1$
c_3, c_9	$y^{30} - 21y^{29} + \cdots - 1104y + 64$
c_5, c_6, c_7 c_8, c_{10}, c_{11} c_{12}	$y^{30} - 46y^{29} + \cdots + 40y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.900406 + 0.238240I$ $a = -0.659304 - 0.413832I$ $b = 0.605232 + 0.768254I$	$5.67065 + 1.25696I$	$15.5737 - 1.7388I$
$u = 0.900406 - 0.238240I$ $a = -0.659304 + 0.413832I$ $b = 0.605232 - 0.768254I$	$5.67065 - 1.25696I$	$15.5737 + 1.7388I$
$u = 0.814325 + 0.340165I$ $a = 0.69999 + 1.77618I$ $b = 1.030380 - 0.688639I$	$4.42916 + 6.78890I$	$12.9792 - 7.4265I$
$u = 0.814325 - 0.340165I$ $a = 0.69999 - 1.77618I$ $b = 1.030380 + 0.688639I$	$4.42916 - 6.78890I$	$12.9792 + 7.4265I$
$u = 1.18737$ $a = 0.321529$ $b = 0.549343$	5.59474	18.0870
$u = -0.736617 + 0.129687I$ $a = 0.52614 + 2.05833I$ $b = -0.816371 - 0.432342I$	$0.97252 - 1.81198I$	$11.73549 + 4.66948I$
$u = -0.736617 - 0.129687I$ $a = 0.52614 - 2.05833I$ $b = -0.816371 + 0.432342I$	$0.97252 + 1.81198I$	$11.73549 - 4.66948I$
$u = 0.654424$ $a = -0.551259$ $b = -1.18483$	-0.312115	16.4990
$u = -1.37237$ $a = 0.0265788$ $b = -1.33306$	6.56541	13.9410
$u = 1.393080 + 0.049142I$ $a = 0.62086 - 1.75059I$ $b = -0.838747 + 0.622252I$	$8.15659 + 2.43505I$	$13.02410 - 2.90794I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.393080 - 0.049142I$ $a = 0.62086 + 1.75059I$ $b = -0.838747 - 0.622252I$	$8.15659 - 2.43505I$	$13.02410 + 2.90794I$
$u = -1.41889 + 0.15784I$ $a = 0.01368 - 1.73786I$ $b = 1.114240 + 0.728134I$	$11.8944 - 8.6308I$	$14.0718 + 5.7224I$
$u = -1.41889 - 0.15784I$ $a = 0.01368 + 1.73786I$ $b = 1.114240 - 0.728134I$	$11.8944 + 8.6308I$	$14.0718 - 5.7224I$
$u = -0.348859 + 0.441668I$ $a = 0.229073 - 0.720707I$ $b = 0.785869 - 0.632862I$	$1.73384 + 0.97008I$	$10.55280 + 0.95390I$
$u = -0.348859 - 0.441668I$ $a = 0.229073 + 0.720707I$ $b = 0.785869 + 0.632862I$	$1.73384 - 0.97008I$	$10.55280 - 0.95390I$
$u = -1.45263 + 0.10165I$ $a = -0.661962 + 1.037750I$ $b = 0.546899 - 0.940788I$	$13.61630 - 2.52281I$	$16.2553 + 0.I$
$u = -1.45263 - 0.10165I$ $a = -0.661962 - 1.037750I$ $b = 0.546899 + 0.940788I$	$13.61630 + 2.52281I$	$16.2553 + 0.I$
$u = -0.206383 + 0.495565I$ $a = 1.71927 - 0.54217I$ $b = 0.926515 + 0.641729I$	$1.28497 - 4.02644I$	$8.41488 + 6.42284I$
$u = -0.206383 - 0.495565I$ $a = 1.71927 + 0.54217I$ $b = 0.926515 - 0.641729I$	$1.28497 + 4.02644I$	$8.41488 - 6.42284I$
$u = -0.362782$ $a = 0.804898$ $b = 0.108164$	0.561369	17.6530

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.118463 + 0.232287I$ $a = -1.31174 - 2.44567I$ $b = -0.912796 + 0.166074I$	$-1.60535 + 0.58110I$	$-1.83750 - 2.62782I$
$u = 0.118463 - 0.232287I$ $a = -1.31174 + 2.44567I$ $b = -0.912796 - 0.166074I$	$-1.60535 - 0.58110I$	$-1.83750 + 2.62782I$
$u = -1.79109$ $a = 0.214755$ $b = 0.718711$	16.5830	0
$u = 1.83755$ $a = 0.242340$ $b = -1.40717$	18.6422	0
$u = -1.84184 + 0.01166I$ $a = 0.64542 + 1.69046I$ $b = -0.867094 - 0.716132I$	$-19.1326 - 2.7360I$	0
$u = -1.84184 - 0.01166I$ $a = 0.64542 - 1.69046I$ $b = -0.867094 + 0.716132I$	$-19.1326 + 2.7360I$	0
$u = 1.84728 + 0.04017I$ $a = -0.22651 + 1.65159I$ $b = 1.166510 - 0.750722I$	$-15.2987 + 9.6434I$	0
$u = 1.84728 - 0.04017I$ $a = -0.22651 - 1.65159I$ $b = 1.166510 + 0.750722I$	$-15.2987 - 9.6434I$	0
$u = 1.85511 + 0.02516I$ $a = -0.624328 - 1.260080I$ $b = 0.533783 + 1.034720I$	$-13.33250 + 3.18487I$	0
$u = 1.85511 - 0.02516I$ $a = -0.624328 + 1.260080I$ $b = 0.533783 - 1.034720I$	$-13.33250 - 3.18487I$	0

II. $I_2^u = \langle b+1,\ a,\ u^3+u^2-2u-1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u^2-u-1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2+1 \\ u^2-u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^2-1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^2+u+5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^3$
c_3, c_9	u^3
c_4	$(u+1)^3$
c_5, c_6, c_7 c_8	u^3+u^2-2u-1
c_{10}, c_{11}, c_{12}	u^3-u^2-2u+1

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_9	y^3
c_5, c_6, c_7 c_8, c_{10}, c_{11} c_{12}	$y^3 - 5y^2 + 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.24698$ $a = 0$ $b = -1.00000$	4.69981	7.80190
$u = -0.445042$ $a = 0$ $b = -1.00000$	−0.939962	4.75300
$u = -1.80194$ $a = 0$ $b = -1.00000$	15.9794	6.44500

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{30}+12u^{29}+\cdots+97u+1)$
c_2	$((u-1)^3)(u^{30}-4u^{29}+\cdots+13u-1)$
c_3, c_9	$u^3(u^{30}-u^{29}+\cdots-28u+8)$
c_4	$((u+1)^3)(u^{30}-4u^{29}+\cdots+13u-1)$
c_5, c_6, c_7 c_8	$(u^3+u^2-2u-1)(u^{30}+2u^{29}+\cdots+36u^3-1)$
c_{10}, c_{11}, c_{12}	$(u^3-u^2-2u+1)(u^{30}+2u^{29}+\cdots+36u^3-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^3)(y^{30}+16y^{29}+\cdots-7313y+1)$
c_2, c_4	$((y-1)^3)(y^{30}-12y^{29}+\cdots-97y+1)$
c_3, c_9	$y^3(y^{30}-21y^{29}+\cdots-1104y+64)$
c_5, c_6, c_7 c_8, c_{10}, c_{11} c_{12}	$(y^3-5y^2+6y-1)(y^{30}-46y^{29}+\cdots+40y^2+1)$