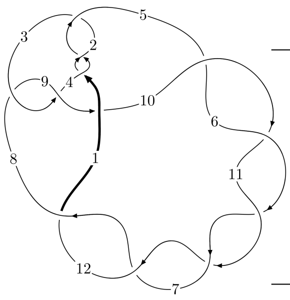
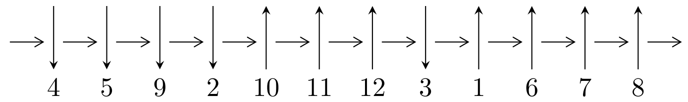
$12a_{0835}$ $(K12a_{0835})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -3u^{37} + 76u^{35} + \cdots + b + 1,\ 2u^{37} + u^{36} + \cdots + a - 3,\ u^{38} + 2u^{37} + \cdots - 4u - 1\rangle$$
$$I_2^u = \langle u^2 + b - 1,\ a - 1,\ u^3 - u^2 - 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 41 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.

$$I_1^u = \langle -3u^{37}+76u^{35}+\cdots+b+1,\ 2u^{37}+u^{36}+\cdots+a-3,\ u^{38}+2u^{37}+\cdots-4u-1\rangle$$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -2u^{37} - u^{36} + \cdots - 15u^2 + 3 \\ 3u^{37} - 76u^{35} + \cdots - 6u - 1 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} u^8 - 5u^6 + 7u^4 - 4u^2 + 1 \\ -u^{10} + 6u^8 - 11u^6 + 6u^4 + u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^{36} + 25u^{34} + \cdots - u + 2 \\ -u^{37} + 26u^{35} + \cdots + u + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{37} - u^{36} + \cdots - u + 3 \\ u^{37} - 25u^{35} + \cdots + u^2 - 2u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{37} + 4u^{36} + \cdots + 31u - 7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{38} - 4u^{37} + \cdots - u - 1$
c_3, c_8	$u^{38} + u^{37} + \cdots + 12u + 8$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$u^{38} + 2u^{37} + \cdots - 4u - 1$
c_9	$u^{38} - 6u^{37} + \cdots - 476u + 55$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{38} - 36y^{37} + \cdots + 35y + 1$
c_3, c_8	$y^{38} - 21y^{37} + \cdots - 848y + 64$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^{38} - 54y^{37} + \cdots - 28y + 1$
c_9	$y^{38} + 6y^{37} + \cdots - 132856y + 3025$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.879915 + 0.280083I$ $a = -0.422412 + 0.001593I$ $b = 1.259570 + 0.041859I$	$-4.46594 - 0.62155I$	$1.23906 - 1.00554I$
$u = 0.879915 - 0.280083I$ $a = -0.422412 - 0.001593I$ $b = 1.259570 - 0.041859I$	$-4.46594 + 0.62155I$	$1.23906 + 1.00554I$
$u = 1.107830 + 0.111217I$ $a = 1.127560 + 0.838416I$ $b = -0.893007 - 0.188118I$	$2.67127 + 0.72425I$	$3.65418 - 0.86134I$
$u = 1.107830 - 0.111217I$ $a = 1.127560 - 0.838416I$ $b = -0.893007 + 0.188118I$	$2.67127 - 0.72425I$	$3.65418 + 0.86134I$
$u = -1.132560 + 0.171155I$ $a = 0.264697 - 1.114460I$ $b = 0.795265 - 0.506019I$	$1.45072 - 3.23668I$	$4.64812 + 3.17787I$
$u = -1.132560 - 0.171155I$ $a = 0.264697 + 1.114460I$ $b = 0.795265 + 0.506019I$	$1.45072 + 3.23668I$	$4.64812 - 3.17787I$
$u = 1.174750 + 0.191050I$ $a = -0.51302 - 1.48671I$ $b = 0.349369 + 0.196389I$	$4.18688 + 5.41975I$	$6.64086 - 6.14271I$
$u = 1.174750 - 0.191050I$ $a = -0.51302 + 1.48671I$ $b = 0.349369 - 0.196389I$	$4.18688 - 5.41975I$	$6.64086 + 6.14271I$
$u = -1.211660 + 0.074429I$ $a = -0.357902 + 0.705905I$ $b = -0.289689 + 0.133201I$	$6.39460 - 0.99370I$	$11.55440 + 0.I$
$u = -1.211660 - 0.074429I$ $a = -0.357902 - 0.705905I$ $b = -0.289689 - 0.133201I$	$6.39460 + 0.99370I$	$11.55440 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.201030 + 0.253869I$ $a = -0.05721 + 1.56031I$ $b = 0.060414 + 0.164516I$	$-1.60053 + 9.43906I$	$3.22111 - 6.40713I$
$u = 1.201030 - 0.253869I$ $a = -0.05721 - 1.56031I$ $b = 0.060414 - 0.164516I$	$-1.60053 - 9.43906I$	$3.22111 + 6.40713I$
$u = -0.477067 + 0.497622I$ $a = 0.243665 + 0.668012I$ $b = -0.819079 - 1.087840I$	$-6.95978 - 6.84371I$	$-0.65587 + 7.18457I$
$u = -0.477067 - 0.497622I$ $a = 0.243665 - 0.668012I$ $b = -0.819079 + 1.087840I$	$-6.95978 + 6.84371I$	$-0.65587 - 7.18457I$
$u = -1.36368$ $a = 1.08623$ $b = -0.216111$	3.27250	0
$u = -0.423369 + 0.400375I$ $a = -0.726383 - 0.423149I$ $b = 0.291431 + 0.956910I$	$-0.93228 - 3.40297I$	$2.14199 + 8.41753I$
$u = -0.423369 - 0.400375I$ $a = -0.726383 + 0.423149I$ $b = 0.291431 - 0.956910I$	$-0.93228 + 3.40297I$	$2.14199 - 8.41753I$
$u = -0.195413 + 0.544437I$ $a = -1.31438 - 1.37135I$ $b = 0.069081 - 0.125786I$	$-7.79779 + 3.42232I$	$-3.36452 - 0.77365I$
$u = -0.195413 - 0.544437I$ $a = -1.31438 + 1.37135I$ $b = 0.069081 + 0.125786I$	$-7.79779 - 3.42232I$	$-3.36452 + 0.77365I$
$u = 0.341654 + 0.397148I$ $a = -1.48910 - 0.45750I$ $b = -0.079740 + 0.997605I$	$-3.23774 + 1.34870I$	$-0.24766 - 4.74966I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.341654 - 0.397148I$ $a = -1.48910 + 0.45750I$ $b = -0.079740 - 0.997605I$	$-3.23774 - 1.34870I$	$-0.24766 + 4.74966I$
$u = 0.477554 + 0.133920I$ $a = 0.643576 + 0.290655I$ $b = -0.342626 - 0.376975I$	$0.891274 + 0.223442I$	$10.83666 - 1.68176I$
$u = 0.477554 - 0.133920I$ $a = 0.643576 - 0.290655I$ $b = -0.342626 + 0.376975I$	$0.891274 - 0.223442I$	$10.83666 + 1.68176I$
$u = -0.229708 + 0.385709I$ $a = 1.41072 + 0.84547I$ $b = 0.063553 - 0.396538I$	$-1.49424 + 0.71629I$	$-1.75673 + 0.24825I$
$u = -0.229708 - 0.385709I$ $a = 1.41072 - 0.84547I$ $b = 0.063553 + 0.396538I$	$-1.49424 - 0.71629I$	$-1.75673 - 0.24825I$
$u = -1.70748$ $a = 0.768656$ $b = -0.625166$	4.46722	0
$u = -0.234823$ $a = 2.58144$ $b = 0.732163$	-1.29292	-12.5790
$u = -1.76514 + 0.02788I$ $a = 0.56054 - 1.49467I$ $b = -1.66540 + 3.03614I$	$13.15060 - 1.31489I$	0
$u = -1.76514 - 0.02788I$ $a = 0.56054 + 1.49467I$ $b = -1.66540 - 3.03614I$	$13.15060 + 1.31489I$	0
$u = 1.76796 + 0.04114I$ $a = 0.92517 + 2.50893I$ $b = -1.34181 - 4.80741I$	$12.00080 + 4.13178I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.76796 - 0.04114I$ $a = 0.92517 - 2.50893I$ $b = -1.34181 + 4.80741I$	$12.00080 - 4.13178I$	0
$u = -1.77750 + 0.04775I$ $a = -0.01149 + 2.45709I$ $b = 0.24659 - 4.97450I$	$14.9410 - 6.4586I$	0
$u = -1.77750 - 0.04775I$ $a = -0.01149 - 2.45709I$ $b = 0.24659 + 4.97450I$	$14.9410 + 6.4586I$	0
$u = -1.78301 + 0.06547I$ $a = -0.63670 - 2.77800I$ $b = 1.33294 + 5.47020I$	$9.2442 - 10.8528I$	0
$u = -1.78301 - 0.06547I$ $a = -0.63670 + 2.77800I$ $b = 1.33294 - 5.47020I$	$9.2442 + 10.8528I$	0
$u = 1.78759 + 0.01827I$ $a = -0.73970 - 1.68325I$ $b = 1.31660 + 3.30669I$	$17.4040 + 1.4058I$	0
$u = 1.78759 - 0.01827I$ $a = -0.73970 + 1.68325I$ $b = 1.31660 - 3.30669I$	$17.4040 - 1.4058I$	0
$u = 1.82025$ $a = 1.74840$ $b = -3.59779$	15.0989	0

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^2 + u + 11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^3$
c_3, c_8	u^3
c_4	$(u+1)^3$
c_5, c_6, c_7 c_9	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_8	y^3
c_5, c_6, c_7 c_9, 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
$u = -1.24698$ $a = \ \ 1.00000$ $b = -0.554958$	4.69981	8.19810
$u = \ \ 0.445042$ $a = \ \ 1.00000$ $b = \ \ 0.801938$	−0.939962	11.2470
$u = \ \ 1.80194$ $a = \ \ 1.00000$ $b = -2.24698$	15.9794	9.55500

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^3)(u^{38} - 4u^{37} + \cdots - u - 1)$
c_3, c_8	$u^3(u^{38} + u^{37} + \cdots + 12u + 8)$
c_4	$((u+1)^3)(u^{38} - 4u^{37} + \cdots - u - 1)$
c_5, c_6, c_7	$(u^3 + u^2 - 2u - 1)(u^{38} + 2u^{37} + \cdots - 4u - 1)$
c_9	$(u^3 + u^2 - 2u - 1)(u^{38} - 6u^{37} + \cdots - 476u + 55)$
c_{10}, c_{11}, c_{12}	$(u^3 - u^2 - 2u + 1)(u^{38} + 2u^{37} + \cdots - 4u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^3)(y^{38} - 36y^{37} + \cdots + 35y + 1)$
c_3, c_8	$y^3(y^{38} - 21y^{37} + \cdots - 848y + 64)$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$(y^3 - 5y^2 + 6y - 1)(y^{38} - 54y^{37} + \cdots - 28y + 1)$
c_9	$(y^3 - 5y^2 + 6y - 1)(y^{38} + 6y^{37} + \cdots - 132856y + 3025)$