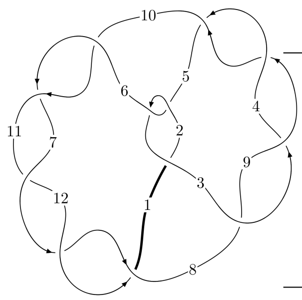
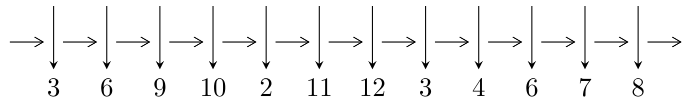
$12n_{0472}$ ($K12n_{0472}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 59u^{11} + 169u^{10} + \cdots + 377b + 257,\ -861u^{11} - 1495u^{10} + \cdots + 754a - 3284,\\
&\quad u^{12} + 2u^{11} - 4u^{10} - 8u^9 + 7u^8 + 9u^7 - 10u^6 + u^5 + 8u^4 - 17u^3 - 15u^2 + 2u + 1\rangle\\
I_2^u &= \langle b - 1,\ a^2 - 2a + 2u - 3,\ u^2 - u - 1\rangle\\
I_3^u &= \langle b + 1,\ a + 1,\ u^2 + u - 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 18 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. $\boldsymbol{I^u_1 = \langle 59u^{11} + 169u^{10} + \cdots + 377b + 257,\ -861u^{11} - 1495u^{10} + \cdots + 754a - 3284,\ u^{12} + 2u^{11} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1.14191u^{11} + 1.98276u^{10} + \cdots - 12.8289u + 4.35544 \\ -0.156499u^{11} - 0.448276u^{10} + \cdots + 2.06366u - 0.681698 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.985411u^{11} + 1.53448u^{10} + \cdots - 10.7653u + 3.67374 \\ -0.156499u^{11} - 0.448276u^{10} + \cdots + 2.06366u - 0.681698 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 - 2u \\ u^5 - 3u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.32493u^{11} + 1.91379u^{10} + \cdots - 7.68302u + 5.08488 \\ 0.196286u^{11} + 0.172414u^{10} + \cdots + 1.75066u - 0.246684 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.982759u^{11} + 1.58621u^{10} + \cdots - 7.58621u + 4.56897 \\ -0.145889u^{11} - 0.155172u^{10} + \cdots + 1.84748u - 0.762599 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1.44430u^{11} - 2.58621u^{10} + \cdots + 15.7401u - 5.79973 \\ 0.301061u^{11} + 0.379310u^{10} + \cdots - 2.07162u + 1.14191 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{805}{377}u^{11} + \frac{83}{29}u^{10} - \frac{3610}{377}u^9 - \frac{296}{29}u^8 + \frac{6558}{377}u^7 + \frac{2345}{377}u^6 - \frac{510}{29}u^5 + \frac{4614}{377}u^4 + \frac{1112}{377}u^3 - \frac{11957}{377}u^2 - \frac{4385}{377}u - \frac{5337}{377}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12} - 3u^{11} + \cdots + 59u + 1$
c_2, c_5	$u^{12} + 3u^{11} + \cdots + 11u + 1$
c_3, c_4, c_8 c_9	$u^{12} + u^{11} + \cdots - 12u - 4$
c_6, c_7, c_{10} c_{11}, c_{12}	$u^{12} - 2u^{11} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} + 11y^{11} + \cdots - 1875y + 1$
c_2, c_5	$y^{12} + 3y^{11} + \cdots - 59y + 1$
c_3, c_4, c_8 c_9	$y^{12} - 7y^{11} + \cdots - 176y + 16$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^{12} - 12y^{11} + \cdots - 34y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.327774 + 1.008010I$ $a = 0.125111 - 1.395870I$ $b = 0.62225 + 1.49572I$	$3.00343 - 3.59147I$	$-14.5630 + 3.1404I$
$u = 0.327774 - 1.008010I$ $a = 0.125111 + 1.395870I$ $b = 0.62225 - 1.49572I$	$3.00343 + 3.59147I$	$-14.5630 - 3.1404I$
$u = -1.049180 + 0.328681I$ $a = 0.227437 + 0.113345I$ $b = 1.043330 + 0.669500I$	$-3.63748 + 0.95206I$	$-18.5953 - 2.4083I$
$u = -1.049180 - 0.328681I$ $a = 0.227437 - 0.113345I$ $b = 1.043330 - 0.669500I$	$-3.63748 - 0.95206I$	$-18.5953 + 2.4083I$
$u = 1.196290 + 0.592671I$ $a = -0.801458 + 0.561608I$ $b = -0.45032 - 1.39377I$	$0.38150 - 2.09841I$	$-15.3966 + 1.5939I$
$u = 1.196290 - 0.592671I$ $a = -0.801458 - 0.561608I$ $b = -0.45032 + 1.39377I$	$0.38150 + 2.09841I$	$-15.3966 - 1.5939I$
$u = -1.50943$ $a = -1.21747$ $b = -1.31818$	-11.5846	-22.3790
$u = -1.56587 + 0.38910I$ $a = 0.939600 + 0.740035I$ $b = 1.19135 - 1.12676I$	$-3.19868 + 8.72155I$	$-18.7407 - 4.5394I$
$u = -1.56587 - 0.38910I$ $a = 0.939600 - 0.740035I$ $b = 1.19135 + 1.12676I$	$-3.19868 - 8.72155I$	$-18.7407 + 4.5394I$
$u = 1.63097$ $a = 0.940425$ $b = 0.160276$	-13.8390	-17.9400

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.285895$ $a = -0.821672$ $b = 0.229843$	-0.495710	-19.9520
$u = -0.225459$ $a = 6.11734$ $b = -0.885138$	-6.65661	-13.1380

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

(i) Arc colorings

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

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

$$a_7 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} a \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ -u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a+1 \\ 1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -a \\ -1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} au-u-1 \\ au+a-u-2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} au-2 \\ au-2u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -24$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u-1)^4$
c_2	$(u+1)^4$
c_3, c_4, c_8 c_9	$(u^2-2)^2$
c_6, c_7	$(u^2-u-1)^2$
c_{10}, c_{11}, c_{12}	$(u^2+u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^4$
c_3, c_4, c_8 c_9	$(y-2)^4$
c_6, c_7, c_{10} c_{11}, c_{12}	$(y^2-3y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = -1.28825$ $b = 1.00000$	-7.56670	-24.0000
$u = -0.618034$ $a = 3.28825$ $b = 1.00000$	-7.56670	-24.0000
$u = 1.61803$ $a = 0.125968$ $b = 1.00000$	-15.4624	-24.0000
$u = 1.61803$ $a = 1.87403$ $b = 1.00000$	-15.4624	-24.0000

III. $I_3^u = \langle b+1,\ a+1,\ u^2+u-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -1.00000$ $b = -1.00000$	-2.63189	-14.0000
$u = -1.61803$ $a = -1.00000$ $b = -1.00000$	-10.5276	-14.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^{12}-3u^{11}+\cdots+59u+1)$
c_2	$((u-1)^2)(u+1)^4(u^{12}+3u^{11}+\cdots+11u+1)$
c_3, c_4, c_8 c_9	$u^2(u^2-2)^2(u^{12}+u^{11}+\cdots-12u-4)$
c_5	$((u-1)^4)(u+1)^2(u^{12}+3u^{11}+\cdots+11u+1)$
c_6, c_7	$((u^2-u-1)^2)(u^2+u-1)(u^{12}-2u^{11}+\cdots-2u+1)$
c_{10}, c_{11}, c_{12}	$(u^2-u-1)(u^2+u-1)^2(u^{12}-2u^{11}+\cdots-2u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^{12}+11y^{11}+\cdots-1875y+1)$
c_2, c_5	$((y-1)^6)(y^{12}+3y^{11}+\cdots-59y+1)$
c_3, c_4, c_8 c_9	$y^2(y-2)^4(y^{12}-7y^{11}+\cdots-176y+16)$
c_6, c_7, c_{10} c_{11}, c_{12}	$((y^2-3y+1)^3)(y^{12}-12y^{11}+\cdots-34y+1)$