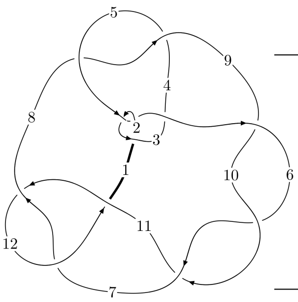
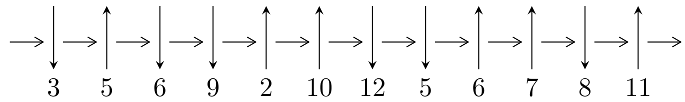
$12n_{0041}$ ($K12n_{0041}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 801994252u^{18} - 3257723213u^{17} + \cdots + 1752268067b + 1712546026, \\
&\quad - 6711899247u^{18} + 18127971990u^{17} + \cdots + 3504536134a + 13273949042, \\
&\quad u^{19} - 3u^{18} + \cdots + u - 1\rangle \\
I_2^u &= \langle b,\ -u^4a - u^3a + u^4 + 2u^2a + 2u^3 + a^2 + au - u^2 - a - 3u,\ u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 29 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.
$\boldsymbol{I_1^u = \langle 8.02\times 10^{8}u^{18} - 3.26\times 10^{9}u^{17} + \cdots + 1.75\times 10^{9}b + 1.71\times 10^{9},\ -6.71\times 10^{9}u^{18} + 1.81\times 10^{10}u^{17} + \cdots + 3.50\times 10^{9}a + 1.33\times 10^{10},\ u^{19} - 3u^{18} + \cdots + u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.91520u^{18} - 5.17272u^{17} + \cdots - 4.28509u - 3.78765 \\ -0.457689u^{18} + 1.85915u^{17} + \cdots - 0.626511u - 0.977331 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1.45751u^{18} - 3.31357u^{17} + \cdots - 4.91160u - 4.76498 \\ -0.457689u^{18} + 1.85915u^{17} + \cdots - 0.626511u - 0.977331 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1.45751u^{18} - 3.31357u^{17} + \cdots - 4.91160u - 4.76498 \\ -0.744876u^{18} + 2.99066u^{17} + \cdots - 1.02505u - 2.03630 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.688639u^{18} - 1.66148u^{17} + \cdots + 1.68347u - 4.87205 \\ -0.257833u^{18} + 0.974337u^{17} + \cdots + 0.715799u - 0.404438 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1.18863u^{18} + 4.77080u^{17} + \cdots - 1.55380u - 4.47346 \\ -0.835657u^{18} + 2.70331u^{17} + \cdots + 4.20709u - 3.06916 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1.86427u^{18} + 5.34890u^{17} + \cdots + 2.46844u - 0.0507078 \\ -1.20490u^{18} + 3.02293u^{17} + \cdots + 3.28483u + 1.18863 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1.06187u^{18} - 4.23698u^{17} + \cdots + 1.50625u + 3.49695 \\ 0.526384u^{18} - 1.72956u^{17} + \cdots - 3.80190u + 2.76211 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{3543125147}{3504536134}u^{18} - \frac{342620995}{3504536134}u^{17} + \cdots - \frac{5030153644}{159297097}u - \frac{4276661878}{1752268067}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} + 22u^{17} + \cdots - 12u - 1$
c_2, c_5	$u^{19} + 6u^{18} + \cdots + 4u + 1$
c_3	$u^{19} - 6u^{18} + \cdots + 21156u + 4073$
c_4, c_8	$u^{19} + u^{18} + \cdots - 1024u - 1024$
c_6, c_9, c_{10}	$u^{19} - 3u^{18} + \cdots + u - 1$
c_7, c_{11}	$u^{19} + 3u^{18} + \cdots - u - 1$
c_{12}	$u^{19} - 13u^{18} + \cdots - 13u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} + 44y^{18} + \cdots - 24y - 1$
c_2, c_5	$y^{19} + 22y^{17} + \cdots - 12y - 1$
c_3	$y^{19} + 88y^{18} + \cdots - 418750764y - 16589329$
c_4, c_8	$y^{19} + 55y^{18} + \cdots - 1048576y - 1048576$
c_6, c_9, c_{10}	$y^{19} - 35y^{18} + \cdots - 13y - 1$
c_7, c_{11}	$y^{19} + 13y^{18} + \cdots - 13y - 1$
c_{12}	$y^{19} - 11y^{18} + \cdots - 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.469936 + 0.580822I$ $a = -0.046125 - 0.179882I$ $b = 0.481085 + 0.331499I$	$0.32482 + 1.95207I$	$0.24383 - 3.23848I$
$u = 0.469936 - 0.580822I$ $a = -0.046125 + 0.179882I$ $b = 0.481085 - 0.331499I$	$0.32482 - 1.95207I$	$0.24383 + 3.23848I$
$u = 0.203301 + 0.528628I$ $a = 1.67634 + 1.79943I$ $b = 1.52335 + 0.99869I$	$3.95992 - 1.78665I$	$6.73687 + 1.96158I$
$u = 0.203301 - 0.528628I$ $a = 1.67634 - 1.79943I$ $b = 1.52335 - 0.99869I$	$3.95992 + 1.78665I$	$6.73687 - 1.96158I$
$u = 0.008315 + 0.564548I$ $a = -0.357902 - 0.497669I$ $b = -0.424228 + 0.518164I$	$-0.40680 + 1.36117I$	$-2.67817 - 4.58018I$
$u = 0.008315 - 0.564548I$ $a = -0.357902 + 0.497669I$ $b = -0.424228 - 0.518164I$	$-0.40680 - 1.36117I$	$-2.67817 + 4.58018I$
$u = -0.501281 + 0.026931I$ $a = -1.86678 - 2.02772I$ $b = -0.171729 + 1.042670I$	$1.56074 - 3.66143I$	$5.39141 + 4.20256I$
$u = -0.501281 - 0.026931I$ $a = -1.86678 + 2.02772I$ $b = -0.171729 - 1.042670I$	$1.56074 + 3.66143I$	$5.39141 - 4.20256I$
$u = 1.56360$ $a = -0.443721$ $b = 1.34603$	3.65542	2.34160
$u = 0.111360 + 0.361359I$ $a = -1.08886 - 1.51643I$ $b = -0.369696 + 0.488600I$	$-0.21591 + 1.44599I$	$-1.60179 - 5.31059I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.111360-0.361359I$ $a = -1.08886+1.51643I$ $b = -0.369696-0.488600I$	$-0.21591-1.44599I$	$-1.60179+5.31059I$
$u = -1.72009+0.19693I$ $a = 0.513343-0.171232I$ $b = -1.51868+0.49853I$	$7.40108-4.89405I$	$5.57785+2.97654I$
$u = -1.72009-0.19693I$ $a = 0.513343+0.171232I$ $b = -1.51868-0.49853I$	$7.40108+4.89405I$	$5.57785-2.97654I$
$u = 2.15399+0.20015I$ $a = -0.240429-1.266600I$ $b = -0.26878+3.56600I$	$-15.5249-1.2175I$	$5.22163+0.77720I$
$u = 2.15399-0.20015I$ $a = -0.240429+1.266600I$ $b = -0.26878-3.56600I$	$-15.5249+1.2175I$	$5.22163-0.77720I$
$u = 2.15940+0.15889I$ $a = 0.037600-1.236710I$ $b = -1.03657+3.06900I$	$-15.9786+9.8700I$	$4.75713-4.56429I$
$u = 2.15940-0.15889I$ $a = 0.037600+1.236710I$ $b = -1.03657-3.06900I$	$-15.9786-9.8700I$	$4.75713+4.56429I$
$u = -2.16674+0.18320I$ $a = 0.094666-1.203630I$ $b = 0.61224+3.16966I$	$19.5194-4.2417I$	$2.18043+1.81116I$
$u = -2.16674-0.18320I$ $a = 0.094666+1.203630I$ $b = 0.61224-3.16966I$	$19.5194+4.2417I$	$2.18043-1.81116I$

II. $\boldsymbol{I_2^u = \langle b,\ -u^4a + u^4 + \cdots + a^2 - a,\ u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle}$

(i) Arc colorings

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

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

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

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

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

$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} a \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} a \\ -u^2a \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^4 - u^3 + 2u^2 + a + u - 1 \\ -u^2a \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} -u^4 + u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^4a - u^4 - 2u^2a + 2u^3 + 3au + u^2 + a - 5u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_5	$(u^2 - u + 1)^5$
c_2	$(u^2 + u + 1)^5$
c_4, c_8	u^{10}
c_6	$(u^5 - u^4 - 2u^3 + u^2 + u + 1)^2$
c_7	$(u^5 + u^4 + 2u^3 + u^2 + u + 1)^2$
c_9, c_{10}	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)^2$
c_{11}	$(u^5 - u^4 + 2u^3 - u^2 + u - 1)^2$
c_{12}	$(u^5 - 3u^4 + 4u^3 - u^2 - u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5	$(y^2 + y + 1)^5$
c_4, c_8	y^{10}
c_6, c_9, c_{10}	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^2$
c_7, c_{11}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^2$
c_{12}	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.21774$ $a = 0.410598 + 0.711177I$ $b = 0$	$2.40108 - 2.02988I$	$0.40252 + 2.76390I$
$u = 1.21774$ $a = 0.410598 - 0.711177I$ $b = 0$	$2.40108 + 2.02988I$	$0.40252 - 2.76390I$
$u = 0.309916 + 0.549911I$ $a = 1.58413 - 0.01647I$ $b = 0$	$0.32910 + 3.56046I$	$-0.88631 - 6.04478I$
$u = 0.309916 + 0.549911I$ $a = -0.80632 - 1.36366I$ $b = 0$	$0.329100 - 0.499304I$	$3.42267 - 1.01043I$
$u = 0.309916 - 0.549911I$ $a = 1.58413 + 0.01647I$ $b = 0$	$0.32910 - 3.56046I$	$-0.88631 + 6.04478I$
$u = 0.309916 - 0.549911I$ $a = -0.80632 + 1.36366I$ $b = 0$	$0.329100 + 0.499304I$	$3.42267 + 1.01043I$
$u = -1.41878 + 0.21917I$ $a = -0.252108 - 0.649344I$ $b = 0$	$5.87256 - 6.43072I$	$2.86519 + 5.89938I$
$u = -1.41878 + 0.21917I$ $a = -0.436295 + 0.543004I$ $b = 0$	$5.87256 - 2.37095I$	$4.19593 + 1.57328I$
$u = -1.41878 - 0.21917I$ $a = -0.252108 + 0.649344I$ $b = 0$	$5.87256 + 6.43072I$	$2.86519 - 5.89938I$
$u = -1.41878 - 0.21917I$ $a = -0.436295 - 0.543004I$ $b = 0$	$5.87256 + 2.37095I$	$4.19593 - 1.57328I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^5)(u^{19}+22u^{17}+\cdots-12u-1)$
c_2	$((u^2+u+1)^5)(u^{19}+6u^{18}+\cdots+4u+1)$
c_3	$((u^2-u+1)^5)(u^{19}-6u^{18}+\cdots+21156u+4073)$
c_4, c_8	$u^{10}(u^{19}+u^{18}+\cdots-1024u-1024)$
c_5	$((u^2-u+1)^5)(u^{19}+6u^{18}+\cdots+4u+1)$
c_6	$((u^5-u^4-2u^3+u^2+u+1)^2)(u^{19}-3u^{18}+\cdots+u-1)$
c_7	$((u^5+u^4+2u^3+u^2+u+1)^2)(u^{19}+3u^{18}+\cdots-u-1)$
c_9, c_{10}	$((u^5+u^4-2u^3-u^2+u-1)^2)(u^{19}-3u^{18}+\cdots+u-1)$
c_{11}	$((u^5-u^4+2u^3-u^2+u-1)^2)(u^{19}+3u^{18}+\cdots-u-1)$
c_{12}	$((u^5-3u^4+4u^3-u^2-u+1)^2)(u^{19}-13u^{18}+\cdots-13u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^5)(y^{19}+44y^{18}+\cdots-24y-1)$
c_2, c_5	$((y^2+y+1)^5)(y^{19}+22y^{17}+\cdots-12y-1)$
c_3	$((y^2+y+1)^5)(y^{19}+88y^{18}+\cdots-4.18751\times 10^8 y-1.65893\times 10^7)$
c_4, c_8	$y^{10}(y^{19}+55y^{18}+\cdots-1048576y-1048576)$
c_6, c_9, c_{10}	$((y^5-5y^4+8y^3-3y^2-y-1)^2)(y^{19}-35y^{18}+\cdots-13y-1)$
c_7, c_{11}	$((y^5+3y^4+4y^3+y^2-y-1)^2)(y^{19}+13y^{18}+\cdots-13y-1)$
c_{12}	$((y^5-y^4+8y^3-3y^2+3y-1)^2)(y^{19}-11y^{18}+\cdots-13y-1)$