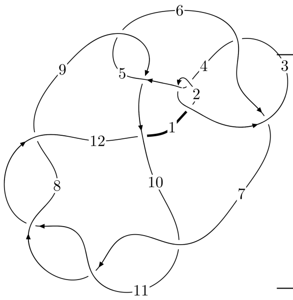
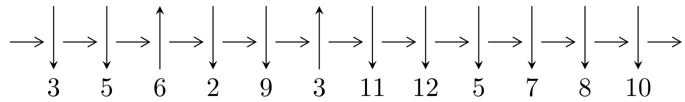
$12n_{0103}$ ($K12n_{0103}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u = \langle & 2.50755 \times 10^{20} u^{28} - 4.57339 \times 10^{20} u^{27} + \cdots + 6.70474 \times 10^{20} b + 2.31276 \times 10^{20}, \\
& 4.30865 \times 10^{20} u^{28} - 1.13718 \times 10^{21} u^{27} + \cdots + 6.70474 \times 10^{20} a + 6.48791 \times 10^{20},\ u^{29} - 2u^{28} + \cdots - u + 1 \rangle \\
I_2^u = \langle & b + 1,\ u^5 + 2u^4 + 4u^3 + 5u^2 + a + 4u + 3,\ u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1 \rangle
\end{aligned}
$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 35 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.

$$I_1^u = \langle 2.51\times10^{20}u^{28}-4.57\times10^{20}u^{27}+\cdots+6.70\times10^{20}b+2.31\times10^{20},\ 4.31\times10^{20}u^{28}-1.14\times10^{21}u^{27}+\cdots+6.70\times10^{20}a+6.49\times10^{20},\ u^{29}-2u^{28}+\cdots-u+1\rangle$$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix}-0.642627u^{28}+1.69608u^{27}+\cdots+4.76582u-0.967660\\-0.373996u^{28}+0.682112u^{27}+\cdots+1.36157u-0.344944\end{pmatrix}$$

$$a_6 = \begin{pmatrix}1\\u^2\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.525413u^{28}+0.870263u^{27}+\cdots+1.86350u+0.104816\\-0.165523u^{28}+0.372194u^{27}+\cdots+0.644339u+0.119793\end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix}0.00550978u^{28}-0.113964u^{27}+\cdots-2.05097u-0.744280\\-0.0294122u^{28}+0.103634u^{27}+\cdots+0.884693u+0.0789002\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-1.01662u^{28}+2.37819u^{27}+\cdots+6.12739u-1.31260\\-0.373996u^{28}+0.682112u^{27}+\cdots+1.36157u-0.344944\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-0.582562u^{28}+1.02418u^{27}+\cdots+2.16299u+0.0440466\\0.0571491u^{28}-0.153913u^{27}+\cdots-0.299489u+0.0607697\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-0.715822u^{28}+1.86209u^{27}+\cdots+5.07394u-0.901780\\-0.390136u^{28}+0.726358u^{27}+\cdots+1.45438u-0.364566\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-0.690936u^{28}+1.24246u^{27}+\cdots+2.50784u+0.224610\\0.165523u^{28}-0.372194u^{27}+\cdots-0.644339u-0.119793\end{pmatrix}$$

$$a_8 = \begin{pmatrix}0.0239024u^{28}+0.0103299u^{27}+\cdots+1.16628u+0.665380\\-0.0294122u^{28}+0.103634u^{27}+\cdots+0.884693u+0.0789002\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{478078822365653903278}{134094852819026608583}u^{28} - \frac{556140021475576081553}{67047426409513304291 5}u^{27} + \cdots - \frac{227546098973839701831 4}{134094852819026608583}u - \frac{583131164110189618109 7}{670474264095133042915}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{29}+39u^{28}+\cdots+2258u+1$
c_2, c_4	$u^{29}-7u^{28}+\cdots-54u+1$
c_3, c_6	$u^{29}+5u^{28}+\cdots+384u+64$
c_5, c_9	$u^{29}+2u^{28}+\cdots-u-1$
c_7, c_8, c_{10} c_{11}	$u^{29}+2u^{28}+\cdots+5u+1$
c_{12}	$u^{29}-12u^{28}+\cdots+3529u+937$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{29} - 91y^{28} + \cdots + 4903026y - 1$
c_2, c_4	$y^{29} - 39y^{28} + \cdots + 2258y - 1$
c_3, c_6	$y^{29} + 39y^{28} + \cdots + 212992y - 4096$
c_5, c_9	$y^{29} + 30y^{27} + \cdots + 13y - 1$
c_7, c_8, c_{10} c_{11}	$y^{29} - 36y^{28} + \cdots + 13y - 1$
c_{12}	$y^{29} - 36y^{28} + \cdots + 62137329y - 877969$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.867238 + 0.470147I$ $a = 0.237339 + 1.389930I$ $b = -0.92240 - 1.35617I$	$-12.12860 - 4.62991I$	$-15.7252 + 5.0837I$
$u = 0.867238 - 0.470147I$ $a = 0.237339 - 1.389930I$ $b = -0.92240 + 1.35617I$	$-12.12860 + 4.62991I$	$-15.7252 - 5.0837I$
$u = -0.915025$ $a = 0.602737$ $b = -2.04399$	-14.6155	-18.8040
$u = 0.160840 + 1.087590I$ $a = 0.0855322 + 0.1114450I$ $b = 0.493211 - 0.128104I$	$2.18324 - 1.77578I$	$-1.23792 + 3.54893I$
$u = 0.160840 - 1.087590I$ $a = 0.0855322 - 0.1114450I$ $b = 0.493211 + 0.128104I$	$2.18324 + 1.77578I$	$-1.23792 - 3.54893I$
$u = -0.766809 + 0.460777I$ $a = 0.217501 - 1.292190I$ $b = -0.793934 + 1.006770I$	$-3.36571 + 3.55459I$	$-14.7590 - 7.4317I$
$u = -0.766809 - 0.460777I$ $a = 0.217501 + 1.292190I$ $b = -0.793934 - 1.006770I$	$-3.36571 - 3.55459I$	$-14.7590 + 7.4317I$
$u = 0.807312$ $a = 0.103435$ $b = -1.67794$	-5.54567	-19.0490
$u = -0.452011 + 1.154640I$ $a = -0.089699 - 0.245433I$ $b = 0.631471 + 0.354822I$	$-4.66125 + 4.01059I$	$-6.69076 - 1.05481I$
$u = -0.452011 - 1.154640I$ $a = -0.089699 + 0.245433I$ $b = 0.631471 - 0.354822I$	$-4.66125 - 4.01059I$	$-6.69076 + 1.05481I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.580536 + 0.452475I$ $a = 0.450270 + 1.338160I$ $b = -0.597116 - 0.490346I$	$-0.77928 - 1.44092I$	$-6.71227 + 4.83159I$
$u = 0.580536 - 0.452475I$ $a = 0.450270 - 1.338160I$ $b = -0.597116 + 0.490346I$	$-0.77928 + 1.44092I$	$-6.71227 - 4.83159I$
$u = -0.734655$ $a = 1.16704$ $b = 0.195873$	-7.96223	-11.3580
$u = 0.317549 + 0.579846I$ $a = 3.74066 + 0.93387I$ $b = -0.910186 + 0.367717I$	$-10.62150 + 0.95783I$	$-12.17772 + 5.24325I$
$u = 0.317549 - 0.579846I$ $a = 3.74066 - 0.93387I$ $b = -0.910186 - 0.367717I$	$-10.62150 - 0.95783I$	$-12.17772 - 5.24325I$
$u = -0.355366 + 0.430210I$ $a = 2.58524 - 2.38862I$ $b = -0.804622 - 0.092789I$	$-2.40653 - 0.39885I$	$-18.5948 - 3.1258I$
$u = -0.355366 - 0.430210I$ $a = 2.58524 + 2.38862I$ $b = -0.804622 + 0.092789I$	$-2.40653 + 0.39885I$	$-18.5948 + 3.1258I$
$u = -0.465770$ $a = -2.93524$ $b = -1.09023$	-2.20812	4.71460
$u = 1.12576 + 1.06472I$ $a = -0.564004 - 1.170310I$ $b = 1.78727 + 0.43721I$	$18.7699 - 11.3822I$	$-14.5597 + 4.9176I$
$u = 1.12576 - 1.06472I$ $a = -0.564004 + 1.170310I$ $b = 1.78727 - 0.43721I$	$18.7699 + 11.3822I$	$-14.5597 - 4.9176I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.14151 + 1.07839I$ $a = -0.559145 + 1.007550I$ $b = 1.72676 - 0.31572I$	$-11.7546 + 8.6101I$	$-13.1323 - 5.7611I$
$u = -1.14151 - 1.07839I$ $a = -0.559145 - 1.007550I$ $b = 1.72676 + 0.31572I$	$-11.7546 - 8.6101I$	$-13.1323 + 5.7611I$
$u = 1.10890 + 1.13111I$ $a = -0.839564 - 0.595930I$ $b = 1.78058 - 0.11270I$	$18.9482 + 3.1990I$	$-14.9528 - 0.8134I$
$u = 1.10890 - 1.13111I$ $a = -0.839564 + 0.595930I$ $b = 1.78058 + 0.11270I$	$18.9482 - 3.1990I$	$-14.9528 + 0.8134I$
$u = 1.14879 + 1.10311I$ $a = -0.592413 - 0.839025I$ $b = 1.68896 + 0.17655I$	$-8.95243 - 4.17612I$	$-10.28879 + 2.37984I$
$u = 1.14879 - 1.10311I$ $a = -0.592413 + 0.839025I$ $b = 1.68896 - 0.17655I$	$-8.95243 + 4.17612I$	$-10.28879 - 2.37984I$
$u = -1.13279 + 1.12536I$ $a = -0.701441 + 0.703233I$ $b = 1.71752 - 0.02970I$	$-11.62970 - 0.31954I$	$-13.41116 + 1.33191I$
$u = -1.13279 - 1.12536I$ $a = -0.701441 - 0.703233I$ $b = 1.71752 + 0.02970I$	$-11.62970 + 0.31954I$	$-13.41116 - 1.33191I$
$u = 0.385892$ $a = 1.12146$ $b = 0.0212520$	-0.763627	-13.0190

II.

$$\boldsymbol{I_2^u = \langle b+1,\ u^5+2u^4+4u^3+5u^2+a+4u+3,\ u^6+u^5+3u^4+2u^3+2u^2+u-1\rangle}$$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} -u^5-2u^4-4u^3-5u^2-4u-3 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -u^3-2u \\ -u^5-u^3+u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^5-2u^4-4u^3-5u^2-4u-4 \\ -1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^5-2u^4-4u^3-5u^2-4u-3 \\ -1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} u^5+2u^3+u \\ -u^5-u^3+u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7u^5-15u^4-29u^3-33u^2-28u-32$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^6$
c_3, c_6	u^6
c_4	$(u+1)^6$
c_5	$u^6+u^5+3u^4+2u^3+2u^2+u-1$
c_7, c_8	$u^6-u^5-3u^4+2u^3+2u^2+u-1$
c_9, c_{12}	$u^6-u^5+3u^4-2u^3+2u^2-u-1$
c_{10}, c_{11}	$u^6+u^5-3u^4-2u^3+2u^2-u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^6$
c_3, c_6	y^6
c_5, c_9, c_{12}	$y^6+5y^5+9y^4+4y^3-6y^2-5y+1$
c_7, c_8, c_{10} c_{11}	$y^6-7y^5+17y^4-16y^3+6y^2-5y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.873214$ $a = -1.31147$ $b = -1.00000$	-9.30502	-18.5710
$u = \ \ 0.138835 + 1.234450I$ $a = \ \ 0.631845 + 0.143944I$ $b = -1.00000$	$1.31531 - 1.97241I$	$-11.10050 + 4.53432I$
$u = \ \ 0.138835 - 1.234450I$ $a = \ \ 0.631845 - 0.143944I$ $b = -1.00000$	$1.31531 + 1.97241I$	$-11.10050 - 4.53432I$
$u = -0.408802 + 1.276380I$ $a = \ \ 0.453123 - 0.323434I$ $b = -1.00000$	$-5.34051 + 4.59213I$	$-13.7303 - 5.9632I$
$u = -0.408802 - 1.276380I$ $a = \ \ 0.453123 + 0.323434I$ $b = -1.00000$	$-5.34051 - 4.59213I$	$-13.7303 + 5.9632I$
$u = \ \ 0.413150$ $a = -5.85846$ $b = -1.00000$	-2.38379	-51.7680

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^{29}+39u^{28}+\cdots+2258u+1)$
c_2	$((u-1)^6)(u^{29}-7u^{28}+\cdots-54u+1)$
c_3, c_6	$u^6(u^{29}+5u^{28}+\cdots+384u+64)$
c_4	$((u+1)^6)(u^{29}-7u^{28}+\cdots-54u+1)$
c_5	$(u^6+u^5+3u^4+2u^3+2u^2+u-1)(u^{29}+2u^{28}+\cdots-u-1)$
c_7, c_8	$(u^6-u^5-3u^4+2u^3+2u^2+u-1)(u^{29}+2u^{28}+\cdots+5u+1)$
c_9	$(u^6-u^5+3u^4-2u^3+2u^2-u-1)(u^{29}+2u^{28}+\cdots-u-1)$
c_{10}, c_{11}	$(u^6+u^5-3u^4-2u^3+2u^2-u-1)(u^{29}+2u^{28}+\cdots+5u+1)$
c_{12}	$(u^6-u^5+3u^4-2u^3+2u^2-u-1)(u^{29}-12u^{28}+\cdots+3529u+937)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^{29} - 91y^{28} + \cdots + 4903026y - 1)$
c_2, c_4	$((y-1)^6)(y^{29} - 39y^{28} + \cdots + 2258y - 1)$
c_3, c_6	$y^6(y^{29} + 39y^{28} + \cdots + 212992y - 4096)$
c_5, c_9	$(y^6 + 5y^5 + \cdots - 5y + 1)(y^{29} + 30y^{27} + \cdots + 13y - 1)$
c_7, c_8, c_{10} c_{11}	$(y^6 - 7y^5 + \cdots - 5y + 1)(y^{29} - 36y^{28} + \cdots + 13y - 1)$
c_{12}	$(y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1)$ $\cdot (y^{29} - 36y^{28} + \cdots + 62137329y - 877969)$