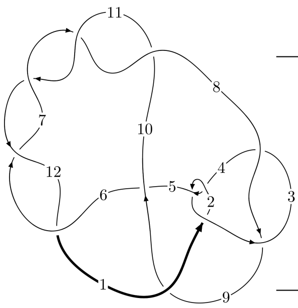
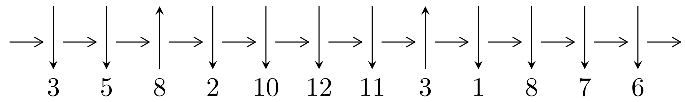
$12n_{0249}$ $(K12n_{0249})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{25} + 2u^{24} + \cdots + b - 1,\ u^{27} + 2u^{26} + \cdots + a - 2,\ u^{28} + 2u^{27} + \cdots - 3u - 1\rangle$$
$$I_2^u = \langle -u^3 + u^2 + b - 2u + 1,\ u^4 + 3u^2 + a + 1,\ u^5 - u^4 + 4u^3 - 3u^2 + 3u - 1\rangle$$

* 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.
$\boldsymbol{I_1^u = \langle u^{25}+2u^{24}+\cdots+b-1,\ u^{27}+2u^{26}+\cdots+a-2,\ u^{28}+2u^{27}+\cdots-3u-1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^{27}-2u^{26}+\cdots-4u+2\\-u^{25}-2u^{24}+\cdots+u+1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-2u^{27}-4u^{26}+\cdots-2u+3\\u^{27}+2u^{26}+\cdots-3u^2+1\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u^2+1\\-u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^3-2u\\u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u^6-3u^4+1\\-u^8-4u^6-4u^4-2u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-u^{27}-u^{26}+\cdots-6u+2\\-u^{26}-2u^{25}+\cdots+2u+1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^9+6u^7+11u^5+6u^3+u\\-u^9-5u^7-7u^5-2u^3+u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -u^{27}-2u^{26}-21u^{25}-38u^{24}-192u^{23}-314u^{22}-1007u^{21}-1483u^{20}-3363u^{19}-4430u^{18}-7513u^{17}-8756u^{16}-11482u^{15}-11630u^{14}-12024u^{13}-10257u^{12}-8392u^{11}-5658u^{10}-3552u^9-1590u^8-624u^7+24u^6+115u^5+133u^4+47u^3+22u^2-3u-2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{28}+6u^{27}+\cdots+17u+1$
c_2, c_4	$u^{28}-6u^{27}+\cdots+5u-1$
c_3, c_8	$u^{28}+u^{27}+\cdots+96u+32$
c_5	$u^{28}-2u^{27}+\cdots+331u-445$
c_6, c_7, c_{10} c_{11}, c_{12}	$u^{28}-2u^{27}+\cdots+3u-1$
c_9	$u^{28}+2u^{27}+\cdots+5u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{28} + 38y^{27} + \cdots - 17y + 1$
c_2, c_4	$y^{28} - 6y^{27} + \cdots - 17y + 1$
c_3, c_8	$y^{28} - 33y^{27} + \cdots - 14848y + 1024$
c_5	$y^{28} + 22y^{27} + \cdots - 315151y + 198025$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^{28} + 38y^{27} + \cdots - 15y + 1$
c_9	$y^{28} + 34y^{27} + \cdots - 15y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.152944 + 1.016320I$ $a = 1.019950 - 0.193834I$ $b = -0.647472 - 0.451263I$	$3.33821 - 2.49897I$	$-1.28357 + 4.65842I$
$u = 0.152944 - 1.016320I$ $a = 1.019950 + 0.193834I$ $b = -0.647472 + 0.451263I$	$3.33821 + 2.49897I$	$-1.28357 - 4.65842I$
$u = -0.068154 + 0.917237I$ $a = -1.70138 - 0.42865I$ $b = 0.734706 + 1.073090I$	$0.674371 + 1.046210I$	$-3.66596 + 0.45443I$
$u = -0.068154 - 0.917237I$ $a = -1.70138 + 0.42865I$ $b = 0.734706 - 1.073090I$	$0.674371 - 1.046210I$	$-3.66596 - 0.45443I$
$u = 0.285643 + 0.852384I$ $a = -0.007992 - 0.695316I$ $b = -0.322158 + 0.381569I$	$1.29412 - 2.63752I$	$-1.01481 + 5.30921I$
$u = 0.285643 - 0.852384I$ $a = -0.007992 + 0.695316I$ $b = -0.322158 - 0.381569I$	$1.29412 + 2.63752I$	$-1.01481 - 5.30921I$
$u = -0.329759 + 1.077170I$ $a = -1.84555 + 1.40687I$ $b = 1.245350 - 0.642218I$	$9.87396 + 8.39825I$	$-2.23865 - 5.97376I$
$u = -0.329759 - 1.077170I$ $a = -1.84555 - 1.40687I$ $b = 1.245350 + 0.642218I$	$9.87396 - 8.39825I$	$-2.23865 + 5.97376I$
$u = -0.274632 + 1.124510I$ $a = 1.67793 - 1.18741I$ $b = -0.957433 + 0.342031I$	$10.62160 + 1.12711I$	$-1.11248 - 1.21587I$
$u = -0.274632 - 1.124510I$ $a = 1.67793 + 1.18741I$ $b = -0.957433 - 0.342031I$	$10.62160 - 1.12711I$	$-1.11248 + 1.21587I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.540472+0.396254I$ $a=\ \ 0.247984+1.063200I$ $b=-1.162050+0.222187I$	$5.82690-1.64297I$	$-5.31123-0.95700I$
$u=-0.540472-0.396254I$ $a=\ \ 0.247984-1.063200I$ $b=-1.162050-0.222187I$	$5.82690+1.64297I$	$-5.31123+0.95700I$
$u=-0.578535+0.310326I$ $a=-0.10564-1.64155I$ $b=\ \ 1.025040-0.012062I$	$5.55026+5.30570I$	$-6.25062-5.57146I$
$u=-0.578535-0.310326I$ $a=-0.10564+1.64155I$ $b=\ \ 1.025040+0.012062I$	$5.55026-5.30570I$	$-6.25062+5.57146I$
$u=\ \ 0.487302$ $a=-0.909458$ $b=\ \ 0.360823$	-1.29054	-7.57330
$u=\ \ 0.303248+0.234862I$ $a=-0.89894-1.21637I$ $b=\ \ 0.057075+0.523211I$	$-0.528965-0.938472I$	$-8.01967+7.23093I$
$u=\ \ 0.303248-0.234862I$ $a=-0.89894+1.21637I$ $b=\ \ 0.057075-0.523211I$	$-0.528965+0.938472I$	$-8.01967-7.23093I$
$u=\ \ 0.06577+1.67605I$ $a=\ \ 0.310611+0.424504I$ $b=-0.225680-1.128100I$	$10.18720-3.94206I$	$0.+4.56823I$
$u=\ \ 0.06577-1.67605I$ $a=\ \ 0.310611-0.424504I$ $b=-0.225680+1.128100I$	$10.18720+3.94206I$	$0.-4.56823I$
$u=-0.01320+1.71171I$ $a=\ \ 1.60962+0.03543I$ $b=-3.88484-0.84278I$	$10.13260+1.33652I$	$-3.41446+0.I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.01320-1.71171I$ $a=\ \ 1.60962-0.03543I$ $b=-3.88484+0.84278I$	$10.13260-1.33652I$	$-3.41446+0.I$
$u=\ \ 0.03667+1.72969I$ $a=-0.912721+0.574767I$ $b=\ \ 2.22990-0.67323I$	$13.19840-3.25610I$	0
$u=\ \ 0.03667-1.72969I$ $a=-0.912721-0.574767I$ $b=\ \ 2.22990+0.67323I$	$13.19840+3.25610I$	0
$u=-0.08755+1.74259I$ $a=\ \ 2.19448-0.74449I$ $b=-5.13344+2.15584I$	$-19.5529+10.1409I$	0
$u=-0.08755-1.74259I$ $a=\ \ 2.19448+0.74449I$ $b=-5.13344-2.15584I$	$-19.5529-10.1409I$	0
$u=-0.253230$ $a=\ \ 3.12683$ $b=\ \ 0.636261$	-2.04618	-0.133650
$u=-0.06900+1.75500I$ $a=-2.19704+0.73339I$ $b=\ \ 5.04246-1.77736I$	$-18.5160+2.5730I$	0
$u=-0.06900-1.75500I$ $a=-2.19704-0.73339I$ $b=\ \ 5.04246+1.77736I$	$-18.5160-2.5730I$	0

II.

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

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

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

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

$$a_1 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

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

$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^4 + 5u^3 - 20u^2 + 14u - 21$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^5$
c_3, c_8	y^5
c_5, c_9	$y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.233677 + 0.885557I$ $a = 0.827780 - 0.637683I$ $b = -0.340036 + 0.807849I$	$0.17487 - 2.21397I$	$-7.62657 + 4.39306I$
$u = 0.233677 - 0.885557I$ $a = 0.827780 + 0.637683I$ $b = -0.340036 - 0.807849I$	$0.17487 + 2.21397I$	$-7.62657 - 4.39306I$
$u = 0.416284$ $a = -1.54991$ $b = -0.268586$	-2.52712	-18.4270
$u = 0.05818 + 1.69128I$ $a = -0.552827 + 0.534136I$ $b = 1.47433 - 1.63485I$	$9.31336 - 3.33174I$	$-6.15976 + 1.26157I$
$u = 0.05818 - 1.69128I$ $a = -0.552827 - 0.534136I$ $b = 1.47433 + 1.63485I$	$9.31336 + 3.33174I$	$-6.15976 - 1.26157I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{28}+6u^{27}+\cdots+17u+1)$
c_2	$((u-1)^5)(u^{28}-6u^{27}+\cdots+5u-1)$
c_3, c_8	$u^5(u^{28}+u^{27}+\cdots+96u+32)$
c_4	$((u+1)^5)(u^{28}-6u^{27}+\cdots+5u-1)$
c_5	$(u^5-u^4+u^2+u-1)(u^{28}-2u^{27}+\cdots+331u-445)$
c_6, c_7	$(u^5-u^4+4u^3-3u^2+3u-1)(u^{28}-2u^{27}+\cdots+3u-1)$
c_9	$(u^5-u^4+u^2+u-1)(u^{28}+2u^{27}+\cdots+5u+1)$
c_{10}, c_{11}, c_{12}	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{28}-2u^{27}+\cdots+3u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^{28}+38y^{27}+\cdots-17y+1)$
c_2, c_4	$((y-1)^5)(y^{28}-6y^{27}+\cdots-17y+1)$
c_3, c_8	$y^5(y^{28}-33y^{27}+\cdots-14848y+1024)$
c_5	$(y^5-y^4+4y^3-3y^2+3y-1)(y^{28}+22y^{27}+\cdots-315151y+198025)$
c_6, c_7, c_{10} c_{11}, c_{12}	$(y^5+7y^4+16y^3+13y^2+3y-1)(y^{28}+38y^{27}+\cdots-15y+1)$
c_9	$(y^5-y^4+4y^3-3y^2+3y-1)(y^{28}+34y^{27}+\cdots-15y+1)$