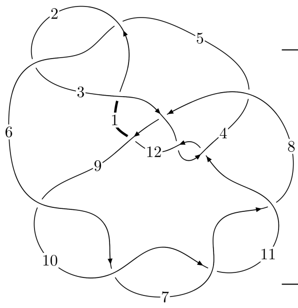
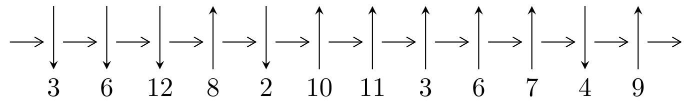
$12n_{0500}$ ($K12n_{0500}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle 5u^{30} - 14u^{29} + \cdots + 2b + 5,\ -u^{30} + 2u^{29} + \cdots + 4a + 5,\ u^{31} - 4u^{30} + \cdots - 2u - 1\rangle$
$I_2^u = \langle b,\ a^3 + a^2u + a^2 - 2u - 3,\ u^2 + u - 1\rangle$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 37 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. $I^u_1 =$
$\langle 5u^{30} - 14u^{29} + \cdots + 2b + 5,\ -u^{30} + 2u^{29} + \cdots + 4a + 5,\ u^{31} - 4u^{30} + \cdots - 2u - 1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{1}{4}u^{30} - \frac{1}{2}u^{29} + \cdots - \frac{5}{2}u - \frac{5}{4} \\ -\frac{5}{2}u^{30} + 7u^{29} + \cdots - 6u - \frac{5}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{4}u^{30} - \frac{1}{2}u^{29} + \cdots - \frac{5}{2}u - \frac{5}{4} \\ -\frac{13}{4}u^{30} + \frac{33}{4}u^{29} + \cdots - \frac{29}{4}u - 3 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{9}{4}u^{30} - \frac{15}{4}u^{29} + \cdots + \frac{21}{4}u + \frac{5}{2} \\ -\frac{5}{4}u^{30} + \frac{13}{4}u^{29} + \cdots - \frac{9}{4}u - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{4}u^{29} + \frac{3}{4}u^{28} + \cdots - \frac{17}{4}u + \frac{3}{4} \\ \frac{1}{4}u^{30} - \frac{1}{2}u^{29} + \cdots + \frac{1}{2}u + \frac{1}{4} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^3 + 2u \\ u^5 - 3u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{1}{4}u^{30} + \frac{1}{4}u^{29} + \cdots - \frac{19}{4}u + \frac{1}{2} \\ \frac{1}{4}u^{30} - \frac{1}{2}u^{29} + \cdots + \frac{1}{2}u + \frac{1}{4} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{7}{2}u^{30} - 7u^{29} + \cdots + \frac{15}{2}u + \frac{7}{2} \\ -\frac{5}{4}u^{30} + \frac{13}{4}u^{29} + \cdots - \frac{9}{4}u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -11u^{30} + 29u^{29} + \cdots - 16u^2 - \frac{15}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{31} + 35u^{30} + \cdots + 177u + 4$
c_2, c_5	$u^{31} + 3u^{30} + \cdots - 15u + 2$
c_3, c_{11}	$u^{31} - 3u^{30} + \cdots - 9u + 1$
c_4	$u^{31} - 3u^{30} + \cdots - 2916u + 243$
c_6, c_7, c_9 c_{10}	$u^{31} - 4u^{30} + \cdots - 2u - 1$
c_8	$u^{31} + u^{30} + \cdots - 32u + 64$
c_{12}	$u^{31} + 22u^{29} + \cdots - 2095u + 2071$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{31} - 75y^{30} + \cdots + 52609y - 16$
c_2, c_5	$y^{31} - 35y^{30} + \cdots + 177y - 4$
c_3, c_{11}	$y^{31} + 25y^{30} + \cdots + 65y - 1$
c_4	$y^{31} + 5y^{30} + \cdots + 3359232y - 59049$
c_6, c_7, c_9 c_{10}	$y^{31} - 34y^{30} + \cdots - 2y - 1$
c_8	$y^{31} + 35y^{30} + \cdots + 1024y - 4096$
c_{12}	$y^{31} + 44y^{30} + \cdots - 9225729y - 4289041$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.602350 + 0.764489I$ $a = -0.96517 - 1.53953I$ $b = 0.35606 - 1.75288I$	$-5.83199 - 7.50635I$	$2.66894 + 5.59456I$
$u = -0.602350 - 0.764489I$ $a = -0.96517 + 1.53953I$ $b = 0.35606 + 1.75288I$	$-5.83199 + 7.50635I$	$2.66894 - 5.59456I$
$u = -0.543360 + 0.792514I$ $a = 0.91165 + 1.54215I$ $b = -0.17449 + 1.80984I$	$-10.03040 - 2.62343I$	$-1.03684 + 2.68072I$
$u = -0.543360 - 0.792514I$ $a = 0.91165 - 1.54215I$ $b = -0.17449 - 1.80984I$	$-10.03040 + 2.62343I$	$-1.03684 - 2.68072I$
$u = -0.473452 + 0.802011I$ $a = -0.85502 - 1.55001I$ $b = -0.03027 - 1.79370I$	$-6.21873 + 2.31735I$	$1.87364 - 0.58111I$
$u = -0.473452 - 0.802011I$ $a = -0.85502 + 1.55001I$ $b = -0.03027 + 1.79370I$	$-6.21873 - 2.31735I$	$1.87364 + 0.58111I$
$u = 0.751448 + 0.311977I$ $a = -0.131566 - 0.324454I$ $b = -0.652866 + 0.653689I$	$3.50508 + 0.49905I$	$6.93091 - 1.38994I$
$u = 0.751448 - 0.311977I$ $a = -0.131566 + 0.324454I$ $b = -0.652866 - 0.653689I$	$3.50508 - 0.49905I$	$6.93091 + 1.38994I$
$u = -1.34946$ $a = -0.997928$ $b = 1.24408$	2.46733	3.43490
$u = 1.366810 + 0.074394I$ $a = 0.234215 - 0.622051I$ $b = -0.045603 - 1.264260I$	$3.50947 + 1.97376I$	$4.13605 - 3.59471I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.366810 - 0.074394I$ $a = 0.234215 + 0.622051I$ $b = -0.045603 + 1.264260I$	$3.50947 - 1.97376I$	$4.13605 + 3.59471I$
$u = -1.375110 + 0.092603I$ $a = 0.939498 + 0.219836I$ $b = -1.276320 - 0.062520I$	$6.34649 - 4.23203I$	$7.34906 + 3.43500I$
$u = -1.375110 - 0.092603I$ $a = 0.939498 - 0.219836I$ $b = -1.276320 + 0.062520I$	$6.34649 + 4.23203I$	$7.34906 - 3.43500I$
$u = 0.527133$ $a = -0.257315$ $b = 0.358345$	0.784642	13.1720
$u = 1.47433 + 0.08812I$ $a = -0.497026 + 0.970443I$ $b = 0.186128 + 1.163550I$	$9.65588 + 4.45983I$	$7.97346 - 3.71466I$
$u = 1.47433 - 0.08812I$ $a = -0.497026 - 0.970443I$ $b = 0.186128 - 1.163550I$	$9.65588 - 4.45983I$	$7.97346 + 3.71466I$
$u = 0.146677 + 0.492597I$ $a = -0.018556 + 1.292810I$ $b = 0.836447 + 0.454443I$	$1.62298 + 2.35384I$	$1.82470 - 4.53214I$
$u = 0.146677 - 0.492597I$ $a = -0.018556 - 1.292810I$ $b = 0.836447 - 0.454443I$	$1.62298 - 2.35384I$	$1.82470 + 4.53214I$
$u = 1.49116 + 0.29858I$ $a = 0.877997 - 0.367679I$ $b = -0.35046 - 1.70481I$	$0.10746 + 1.69492I$	0
$u = 1.49116 - 0.29858I$ $a = 0.877997 + 0.367679I$ $b = -0.35046 + 1.70481I$	$0.10746 - 1.69492I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.54074 + 0.28653I$ $a = -0.983728 + 0.406676I$ $b = 0.52058 + 1.68308I$	$-3.24464 + 6.59865I$	0
$u = 1.54074 - 0.28653I$ $a = -0.983728 - 0.406676I$ $b = 0.52058 - 1.68308I$	$-3.24464 - 6.59865I$	0
$u = -0.369500 + 0.215346I$ $a = 0.63729 + 2.88917I$ $b = -0.010339 + 0.599954I$	$3.53058 - 3.26263I$	$-0.32878 + 7.06957I$
$u = -0.369500 - 0.215346I$ $a = 0.63729 - 2.88917I$ $b = -0.010339 - 0.599954I$	$3.53058 + 3.26263I$	$-0.32878 - 7.06957I$
$u = 1.57119 + 0.26571I$ $a = 1.058660 - 0.452456I$ $b = -0.63708 - 1.61140I$	$1.31297 + 11.33500I$	0
$u = 1.57119 - 0.26571I$ $a = 1.058660 + 0.452456I$ $b = -0.63708 + 1.61140I$	$1.31297 - 11.33500I$	0
$u = -1.59573$ $a = 0.257600$ $b = -0.497580$	8.24985	15.5880
$u = -1.63289 + 0.05265I$ $a = -0.234203 - 0.321554I$ $b = 0.531375 + 0.618506I$	$11.78470 - 1.72102I$	0
$u = -1.63289 - 0.05265I$ $a = -0.234203 + 0.321554I$ $b = 0.531375 - 0.618506I$	$11.78470 + 1.72102I$	0
$u = -0.136671 + 0.320613I$ $a = 0.02478 - 2.19557I$ $b = -0.305592 - 0.594543I$	$-1.239080 - 0.576153I$	$-5.00436 + 2.78236I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.136671 - 0.320613I$ $a = 0.02478 + 2.19557I$ $b = -0.305592 + 0.594543I$	$-1.239080 + 0.576153I$	$-5.00436 - 2.78236I$

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

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u - 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u + 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ -u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ au - a \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a^2u + a - u - 1 \\ au - a \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a^2u \\ -2a^2u + a^2 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 3a^2u - a^2 - u \\ -2a^2u + a^2 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a^2u - au + 2a - u - 1 \\ au - a \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -a^2 - 6au + a + u + 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_{11}	$(y^3 + 3y^2 + 2y - 1)^2$
c_2, c_5	$(y^3 - y^2 + 2y - 1)^2$
c_4	$y^6 + 6y^5 + 39y^4 + 12y^3 + 11y^2 - 15y + 1$
c_6, c_7, c_9 c_{10}	$(y^2 - 3y + 1)^3$
c_8	y^6
c_{12}	$y^6 - 3y^5 + 15y^4 - 24y^3 + 11y^2 - 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 1.22142$ $b = 0$	-0.126494	0.818320
$u = 0.618034$ $a = -1.41973 + 1.20521I$ $b = 0$	$4.01109 + 2.82812I$	$8.89985 + 0.15818I$
$u = 0.618034$ $a = -1.41973 - 1.20521I$ $b = 0$	$4.01109 - 2.82812I$	$8.89985 - 0.15818I$
$u = -1.61803$ $a = 0.542287 + 0.460350I$ $b = 0$	$11.90680 - 2.82812I$	$9.10673 + 4.43024I$
$u = -1.61803$ $a = 0.542287 - 0.460350I$ $b = 0$	$11.90680 + 2.82812I$	$9.10673 - 4.43024I$
$u = -1.61803$ $a = -0.466540$ $b = 0$	7.76919	-1.83150

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^3-u^2+2u-1)^2)(u^{31}+35u^{30}+\cdots+177u+4)$
c_2	$((u^3+u^2-1)^2)(u^{31}+3u^{30}+\cdots-15u+2)$
c_3	$((u^3+u^2+2u+1)^2)(u^{31}-3u^{30}+\cdots-9u+1)$
c_4	$(u^6-2u^5+\cdots-3u-1)(u^{31}-3u^{30}+\cdots-2916u+243)$
c_5	$((u^3-u^2+1)^2)(u^{31}+3u^{30}+\cdots-15u+2)$
c_6, c_7	$((u^2-u-1)^3)(u^{31}-4u^{30}+\cdots-2u-1)$
c_8	$u^6(u^{31}+u^{30}+\cdots-32u+64)$
c_9, c_{10}	$((u^2+u-1)^3)(u^{31}-4u^{30}+\cdots-2u-1)$
c_{11}	$((u^3-u^2+2u-1)^2)(u^{31}-3u^{30}+\cdots-9u+1)$
c_{12}	$(u^6-u^5-u^4+4u^3+3u^2-1)(u^{31}+22u^{29}+\cdots-2095u+2071)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^3+3y^2+2y-1)^2)(y^{31}-75y^{30}+\cdots+52609y-16)$
c_2, c_5	$((y^3-y^2+2y-1)^2)(y^{31}-35y^{30}+\cdots+177y-4)$
c_3, c_{11}	$((y^3+3y^2+2y-1)^2)(y^{31}+25y^{30}+\cdots+65y-1)$
c_4	$(y^6+6y^5+39y^4+12y^3+11y^2-15y+1)$ $\cdot\,(y^{31}+5y^{30}+\cdots+3359232y-59049)$
c_6, c_7, c_9 c_{10}	$((y^2-3y+1)^3)(y^{31}-34y^{30}+\cdots-2y-1)$
c_8	$y^6(y^{31}+35y^{30}+\cdots+1024y-4096)$
c_{12}	$(y^6-3y^5+15y^4-24y^3+11y^2-6y+1)$ $\cdot\,(y^{31}+44y^{30}+\cdots-9225729y-4289041)$