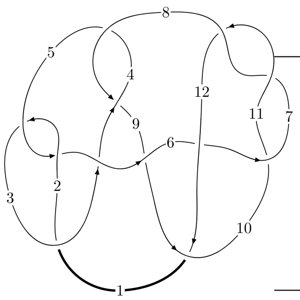
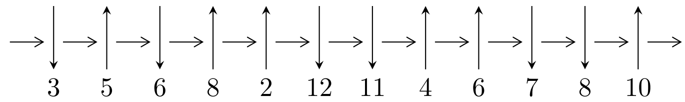
$12n_{0044}$ ($K12n_{0044}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2u^{34} + 4u^{33} + \cdots + 2b - 3u,\ -6u^{34} - 12u^{33} + \cdots + 2a - 5,\ u^{35} + 3u^{34} + \cdots - u + 1\rangle$$
$$I_2^u = \langle u^3a - au + b - a,\ -u^3a - u^4 + u^3 + a^2 + 2au + 2u^2 - 2u - 1,\ u^5 - u^4 - 2u^3 + u^2 + u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 45 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. $I_1^u = \langle 2u^{34}+4u^{33}+\cdots+2b-3u,\ -6u^{34}-12u^{33}+\cdots+2a-5,\ u^{35}+3u^{34}+\cdots-u+1\rangle$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} 3u^{34}+6u^{33}+\cdots-\frac{3}{2}u+\frac{5}{2} \\ -u^{34}-2u^{33}+\cdots-\frac{7}{2}u^2+\frac{3}{2}u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^3+2u \\ -u^3+u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{34}+2u^{33}+\cdots-u+1 \\ -2u^{34}-\frac{7}{2}u^{33}+\cdots+u-\frac{1}{2} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{34}+2u^{33}+\cdots-u+1 \\ -4u^{34}-\frac{13}{2}u^{33}+\cdots+3u-\frac{3}{2} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{34}+2u^{33}+\cdots-\frac{5}{2}u+\frac{1}{2} \\ \frac{1}{2}u^{32}+\frac{1}{2}u^{31}+\cdots+\frac{7}{2}u^2+\frac{3}{2}u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2+1 \\ u^4-2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^6-3u^4+2u^2+1 \\ -u^8+4u^6-4u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{10}+5u^8-8u^6+3u^4+u^2+1 \\ -u^{10}+4u^8-5u^6+2u^4-u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{13}{2}u^{34}+\frac{21}{2}u^{33}+\cdots-15u+\frac{21}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{35} + 24u^{34} + \cdots - 4u - 1$
c_2, c_5	$u^{35} + 6u^{34} + \cdots - 8u - 1$
c_3	$u^{35} - 6u^{34} + \cdots + u - 2$
c_4, c_8	$u^{35} - u^{34} + \cdots + 2048u + 1024$
c_6	$u^{35} - 9u^{34} + \cdots + 959u - 176$
c_7, c_{10}, c_{11}	$u^{35} + 3u^{34} + \cdots - u + 1$
c_9	$u^{35} - 3u^{34} + \cdots + 109535u + 149381$
c_{12}	$u^{35} + 3u^{34} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{35} - 20y^{34} + \cdots - 256y - 1$
c_2, c_5	$y^{35} + 24y^{34} + \cdots - 4y - 1$
c_3	$y^{35} - 64y^{34} + \cdots - 115y - 4$
c_4, c_8	$y^{35} + 55y^{34} + \cdots - 7340032y - 1048576$
c_6	$y^{35} - 23y^{34} + \cdots + 86145y - 30976$
c_7, c_{10}, c_{11}	$y^{35} - 35y^{34} + \cdots - 13y - 1$
c_9	$y^{35} + 109y^{34} + \cdots - 963686176609y - 22314683161$
c_{12}	$y^{35} + 49y^{34} + \cdots - 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.567543 + 0.702485I$ $a = -1.79734 - 1.55953I$ $b = -2.27694 - 0.16811I$	$-13.52750 + 3.29825I$	$-4.52460 - 0.12830I$
$u = 0.567543 - 0.702485I$ $a = -1.79734 + 1.55953I$ $b = -2.27694 + 0.16811I$	$-13.52750 - 3.29825I$	$-4.52460 + 0.12830I$
$u = 0.480329 + 0.751506I$ $a = -2.12175 - 1.61713I$ $b = -2.31879 - 0.06298I$	$-13.2384 - 8.1531I$	$-3.91050 + 5.47003I$
$u = 0.480329 - 0.751506I$ $a = -2.12175 + 1.61713I$ $b = -2.31879 + 0.06298I$	$-13.2384 + 8.1531I$	$-3.91050 - 5.47003I$
$u = 0.509854 + 0.709144I$ $a = 1.95618 + 1.69499I$ $b = 2.34001 + 0.13274I$	$-9.08492 - 2.36143I$	$-1.70250 + 2.73634I$
$u = 0.509854 - 0.709144I$ $a = 1.95618 - 1.69499I$ $b = 2.34001 - 0.13274I$	$-9.08492 + 2.36143I$	$-1.70250 - 2.73634I$
$u = -1.217400 + 0.104228I$ $a = 0.556325 - 0.615249I$ $b = -0.001571 + 0.321064I$	$-3.05619 + 0.58484I$	$-4.25548 + 0.I$
$u = -1.217400 - 0.104228I$ $a = 0.556325 + 0.615249I$ $b = -0.001571 - 0.321064I$	$-3.05619 - 0.58484I$	$-4.25548 + 0.I$
$u = -0.293244 + 0.696609I$ $a = -0.846989 - 0.642400I$ $b = -0.423424 - 0.190758I$	$-2.39789 + 3.01714I$	$-3.73777 - 3.74303I$
$u = -0.293244 - 0.696609I$ $a = -0.846989 + 0.642400I$ $b = -0.423424 + 0.190758I$	$-2.39789 - 3.01714I$	$-3.73777 + 3.74303I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.588530+0.465780I$ $a=\ \ 0.008324+1.173240I$ $b=-0.042665+0.372046I$	$-3.52618+0.88882I$	$-5.91074-2.69844I$
$u=-0.588530-0.465780I$ $a=\ \ 0.008324-1.173240I$ $b=-0.042665-0.372046I$	$-3.52618-0.88882I$	$-5.91074+2.69844I$
$u=-1.31854$ $a=\ \ 0.766887$ $b=-0.555364$	-3.00411	-1.27090
$u=\ \ 1.351890+0.040890I$ $a=\ \ 0.157041+0.958259I$ $b=\ \ 0.25925+1.39116I$	$-3.48501-2.60863I$	$-5.97774+4.12008I$
$u=\ \ 1.351890-0.040890I$ $a=\ \ 0.157041-0.958259I$ $b=\ \ 0.25925-1.39116I$	$-3.48501+2.60863I$	$-5.97774-4.12008I$
$u=\ \ 1.389190+0.197736I$ $a=\ \ 0.262507+0.317399I$ $b=\ \ 0.407675+0.409042I$	$-5.20091-3.82410I$	$-4.45749+4.83241I$
$u=\ \ 1.389190-0.197736I$ $a=\ \ 0.262507-0.317399I$ $b=\ \ 0.407675-0.409042I$	$-5.20091+3.82410I$	$-4.45749-4.83241I$
$u=-1.41548+0.08723I$ $a=-1.030240-0.153922I$ $b=\ \ 1.236690-0.650078I$	$-5.56076+3.95289I$	$-6.09734+0.I$
$u=-1.41548-0.08723I$ $a=-1.030240+0.153922I$ $b=\ \ 1.236690+0.650078I$	$-5.56076-3.95289I$	$-6.09734+0.I$
$u=\ \ 1.40268+0.27759I$ $a=-0.526430+0.056708I$ $b=-0.706415+0.164348I$	$-7.78555-6.56645I$	$-7.86488+0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.40268 - 0.27759I$ $a = -0.526430 - 0.056708I$ $b = -0.706415 - 0.164348I$	$-7.78555 + 6.56645I$	$-7.86488 + 0.I$
$u = -0.234492 + 0.501034I$ $a = 0.744299 - 0.409065I$ $b = 0.189998 - 0.226205I$	$-0.008011 + 1.203150I$	$-0.07375 - 5.95308I$
$u = -0.234492 - 0.501034I$ $a = 0.744299 + 0.409065I$ $b = 0.189998 + 0.226205I$	$-0.008011 - 1.203150I$	$-0.07375 + 5.95308I$
$u = 1.49851 + 0.14408I$ $a = 0.114237 - 0.651402I$ $b = 0.105973 - 0.888851I$	$-10.28270 - 3.07368I$	0
$u = 1.49851 - 0.14408I$ $a = 0.114237 + 0.651402I$ $b = 0.105973 + 0.888851I$	$-10.28270 + 3.07368I$	0
$u = -1.50813 + 0.27067I$ $a = -0.11491 + 1.74410I$ $b = -2.45281 + 0.21864I$	$-19.6916 + 11.8912I$	0
$u = -1.50813 - 0.27067I$ $a = -0.11491 - 1.74410I$ $b = -2.45281 - 0.21864I$	$-19.6916 - 11.8912I$	0
$u = -1.51243 + 0.24615I$ $a = -0.07457 - 1.66019I$ $b = 2.49768 - 0.33604I$	$-15.6688 + 5.8511I$	0
$u = -1.51243 - 0.24615I$ $a = -0.07457 + 1.66019I$ $b = 2.49768 + 0.33604I$	$-15.6688 - 5.8511I$	0
$u = -1.53563 + 0.22688I$ $a = 0.106999 + 1.408270I$ $b = -2.40458 + 0.41233I$	$19.0477 + 0.0884I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.53563 - 0.22688I$ $a = 0.106999 - 1.408270I$ $b = -2.40458 - 0.41233I$	$19.0477 - 0.0884I$	0
$u = 0.022155 + 0.410874I$ $a = 1.75998 - 0.97960I$ $b = 0.132570 - 0.734165I$	$0.57528 + 1.38421I$	$4.86232 - 4.69401I$
$u = 0.022155 - 0.410874I$ $a = 1.75998 + 0.97960I$ $b = 0.132570 + 0.734165I$	$0.57528 - 1.38421I$	$4.86232 + 4.69401I$
$u = 0.242449 + 0.281603I$ $a = -1.53711 + 1.37950I$ $b = 0.735025 + 0.827616I$	$-0.19025 - 2.59587I$	$1.54589 + 1.28231I$
$u = 0.242449 - 0.281603I$ $a = -1.53711 - 1.37950I$ $b = 0.735025 - 0.827616I$	$-0.19025 + 2.59587I$	$1.54589 - 1.28231I$

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

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ -u^3a + au + a \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u^4a - u^3a - u^2a \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u^4a - u^3a - u^2a \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ -u^3a + u^3 + au + a - u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 - 2u \\ u^3 - u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^4a - 4u^3a - 2u^2a + 4u^3 + 4au + u^2 + 3a - 9u - 7$

(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	$(u^5 - 3u^4 + 4u^3 - u^2 - u + 1)^2$
c_7	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)^2$
c_9, c_{12}	$(u^5 + u^4 + 2u^3 + u^2 + u + 1)^2$
c_{10}, c_{11}	$(u^5 - u^4 - 2u^3 + u^2 + u + 1)^2$

(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	$(y^5-y^4+8y^3-3y^2+3y-1)^2$
c_7, c_{10}, c_{11}	$(y^5-5y^4+8y^3-3y^2-y-1)^2$
c_9, c_{12}	$(y^5+3y^4+4y^3+y^2-y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.21774$ $a = 0.314857 + 0.545349I$ $b = 0.500000 + 0.866025I$	$-2.40108 - 2.02988I$	$-0.33682 + 2.50057I$
$u = -1.21774$ $a = 0.314857 - 0.545349I$ $b = 0.500000 - 0.866025I$	$-2.40108 + 2.02988I$	$-0.33682 - 2.50057I$
$u = -0.309916 + 0.549911I$ $a = 1.394870 + 0.200669I$ $b = 0.500000 + 0.866025I$	$-0.32910 + 3.56046I$	$0.01046 - 8.35149I$
$u = -0.309916 + 0.549911I$ $a = -0.523653 - 1.308330I$ $b = 0.500000 - 0.866025I$	$-0.329100 - 0.499304I$	$-2.49844 - 0.84282I$
$u = -0.309916 - 0.549911I$ $a = 1.394870 - 0.200669I$ $b = 0.500000 - 0.866025I$	$-0.32910 - 3.56046I$	$0.01046 + 8.35149I$
$u = -0.309916 - 0.549911I$ $a = -0.523653 + 1.308330I$ $b = 0.500000 + 0.866025I$	$-0.329100 + 0.499304I$	$-2.49844 + 0.84282I$
$u = 1.41878 + 0.21917I$ $a = -0.850505 + 0.276175I$ $b = 0.500000 + 0.866025I$	$-5.87256 - 2.37095I$	$-6.88365 + 0.36343I$
$u = 1.41878 + 0.21917I$ $a = 0.664427 + 0.598472I$ $b = 0.500000 - 0.866025I$	$-5.87256 - 6.43072I$	$-4.29156 + 5.94266I$
$u = 1.41878 - 0.21917I$ $a = -0.850505 - 0.276175I$ $b = 0.500000 - 0.866025I$	$-5.87256 + 2.37095I$	$-6.88365 - 0.36343I$
$u = 1.41878 - 0.21917I$ $a = 0.664427 - 0.598472I$ $b = 0.500000 + 0.866025I$	$-5.87256 + 6.43072I$	$-4.29156 - 5.94266I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^5)(u^{35}+24u^{34}+\cdots-4u-1)$
c_2	$((u^2+u+1)^5)(u^{35}+6u^{34}+\cdots-8u-1)$
c_3	$((u^2-u+1)^5)(u^{35}-6u^{34}+\cdots+u-2)$
c_4, c_8	$u^{10}(u^{35}-u^{34}+\cdots+2048u+1024)$
c_5	$((u^2-u+1)^5)(u^{35}+6u^{34}+\cdots-8u-1)$
c_6	$((u^5-3u^4+4u^3-u^2-u+1)^2)(u^{35}-9u^{34}+\cdots+959u-176)$
c_7	$((u^5+u^4-2u^3-u^2+u-1)^2)(u^{35}+3u^{34}+\cdots-u+1)$
c_9	$((u^5+u^4+2u^3+u^2+u+1)^2)(u^{35}-3u^{34}+\cdots+109535u+149381)$
c_{10}, c_{11}	$((u^5-u^4-2u^3+u^2+u+1)^2)(u^{35}+3u^{34}+\cdots-u+1)$
c_{12}	$((u^5+u^4+2u^3+u^2+u+1)^2)(u^{35}+3u^{34}+\cdots+3u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^5)(y^{35}-20y^{34}+\cdots-256y-1)$
c_2, c_5	$((y^2+y+1)^5)(y^{35}+24y^{34}+\cdots-4y-1)$
c_3	$((y^2+y+1)^5)(y^{35}-64y^{34}+\cdots-115y-4)$
c_4, c_8	$y^{10}(y^{35}+55y^{34}+\cdots-7340032y-1048576)$
c_6	$((y^5-y^4+8y^3-3y^2+3y-1)^2)(y^{35}-23y^{34}+\cdots+86145y-30976)$
c_7, c_{10}, c_{11}	$((y^5-5y^4+8y^3-3y^2-y-1)^2)(y^{35}-35y^{34}+\cdots-13y-1)$
c_9	$(y^5+3y^4+4y^3+y^2-y-1)^2$ $\cdot(y^{35}+109y^{34}+\cdots-963686176609y-22314683161)$
c_{12}	$((y^5+3y^4+4y^3+y^2-y-1)^2)(y^{35}+49y^{34}+\cdots-13y-1)$