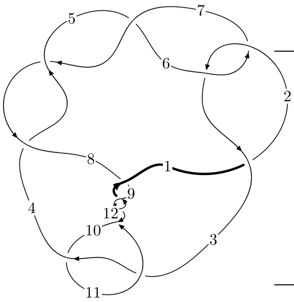
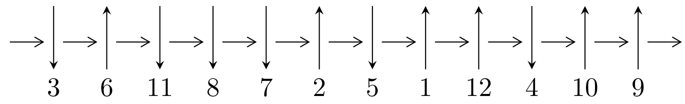
$12a_{0471}$ ($K12a_{0471}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{40} + 2u^{39} + \cdots + 4u + 1 \rangle$$
$$I_2^u = \langle u^2 - u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 42 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. $I_1^u = \langle u^{40} + 2u^{39} + \cdots + 4u + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{12} - u^{10} - 3u^8 - 2u^6 + u^2 + 1 \\ -u^{14} - 2u^{12} - 5u^{10} - 6u^8 - 6u^6 - 2u^4 - u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^6 + u^4 + 2u^2 + 1 \\ u^6 + u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^{21} + 2u^{19} + 7u^{17} + 10u^{15} + 14u^{13} + 12u^{11} + 5u^9 - 2u^7 - 5u^5 - 2u^3 - u \\ u^{23} + 3u^{21} + \cdots + 2u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{30} - 3u^{28} + \cdots + 2u^2 + 1 \\ -u^{32} - 4u^{30} + \cdots - 6u^4 - 2u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{39} + 4u^{37} + \cdots - 6u^3 - 2u \\ 3u^{39} + 4u^{38} + \cdots + 8u + 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 8u^{39} + 12u^{38} + \cdots + 48u + 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_7	$u^{40} + 8u^{39} + \cdots + 4u + 1$
c_2, c_6	$u^{40} - 2u^{39} + \cdots - 4u + 1$
c_3, c_{10}	$u^{40} + 2u^{39} + \cdots + 4u + 1$
c_8, c_9, c_{11} c_{12}	$u^{40} - 8u^{39} + \cdots - 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_7, c_8, c_9 c_{11}, c_{12}	$y^{40} + 48y^{39} + \cdots + 52y + 1$
c_2, c_3, c_6 c_{10}	$y^{40} + 8y^{39} + \cdots + 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.007642+0.966456I$	$-11.28980-3.26800I$	$-8.22072+2.51230I$
$u=-0.007642-0.966456I$	$-11.28980+3.26800I$	$-8.22072-2.51230I$
$u=-0.455339+0.953830I$	$-8.76382-2.08770I$	$-4.31619+3.32105I$
$u=-0.455339-0.953830I$	$-8.76382+2.08770I$	$-4.31619-3.32105I$
$u=-0.424765+0.837410I$	$-1.06965-2.01513I$	$-4.12618+3.84559I$
$u=-0.424765-0.837410I$	$-1.06965+2.01513I$	$-4.12618-3.84559I$
$u=\ \ 0.468864+0.955282I$	$-8.59119+8.60337I$	$-3.84612-8.10725I$
$u=\ \ 0.468864-0.955282I$	$-8.59119-8.60337I$	$-3.84612+8.10725I$
$u=\ \ 0.547826+0.720762I$	$2.87673+2.07761I$	$8.03109-4.87367I$
$u=\ \ 0.547826-0.720762I$	$2.87673-2.07761I$	$8.03109+4.87367I$
$u=-0.054899+0.842893I$	$-2.87673-2.07761I$	$-8.03109+4.87367I$
$u=-0.054899-0.842893I$	$-2.87673+2.07761I$	$-8.03109-4.87367I$
$u=\ \ 0.675982+0.376953I$	$-6.76036-4.39632I$	$0.35650+2.56566I$
$u=\ \ 0.675982-0.376953I$	$-6.76036+4.39632I$	$0.35650-2.56566I$
$u=\ \ 0.570879+0.520043I$	$1.06965-2.01513I$	$4.12618+3.84559I$
$u=\ \ 0.570879-0.520043I$	$1.06965+2.01513I$	$4.12618-3.84559I$
$u=\ \ 0.897344+0.861664I$	$0.784836I$	$0.-2.11264I$
$u=\ \ 0.897344-0.861664I$	$-0.784836I$	$0.+2.11264I$
$u=-0.666629+0.352689I$	$-6.87304-2.02249I$	$0.14883+2.38441I$
$u=-0.666629-0.352689I$	$-6.87304+2.02249I$	$0.14883-2.38441I$
$u=-0.903766+0.864696I$	$0.34673+5.67431I$	$0.59636-2.67543I$
$u=-0.903766-0.864696I$	$0.34673-5.67431I$	$0.59636+2.67543I$
$u=\ \ 0.873303+0.899277I$	$6.87304+2.02249I$	$0.-2.38441I$
$u=\ \ 0.873303-0.899277I$	$6.87304-2.02249I$	$0.+2.38441I$
$u=-0.893753+0.895948I$	$8.76382+2.08770I$	$4.31619-3.32105I$
$u=-0.893753-0.895948I$	$8.76382-2.08770I$	$4.31619+3.32105I$
$u=\ \ 0.858890+0.934946I$	$6.76036+4.39632I$	$0.-2.56566I$
$u=\ \ 0.858890-0.934946I$	$6.76036-4.39632I$	$0.+2.56566I$
$u=-0.350675+0.633429I$	$-0.162533-1.134740I$	$-3.04903+5.46701I$
$u=-0.350675-0.633429I$	$-0.162533+1.134740I$	$-3.04903-5.46701I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.884538 + 0.925182I$	$11.28980 - 3.26800I$	$8.22072 + 2.51230I$
$u = -0.884538 - 0.925182I$	$11.28980 + 3.26800I$	$8.22072 - 2.51230I$
$u = -0.869391 + 0.950001I$	$8.59119 - 8.60337I$	$3.84612 + 8.10725I$
$u = -0.869391 - 0.950001I$	$8.59119 + 8.60337I$	$3.84612 - 8.10725I$
$u = 0.849710 + 0.970863I$	$-0.34673 + 5.67431I$	$0. - 2.67543I$
$u = 0.849710 - 0.970863I$	$-0.34673 - 5.67431I$	$0. + 2.67543I$
$u = -0.854577 + 0.973346I$	$- 12.1697I$	$0. + 7.37185I$
$u = -0.854577 - 0.973346I$	$12.1697I$	$0. - 7.37185I$
$u = -0.376823 + 0.254532I$	$0.162533 - 1.134740I$	$3.04903 + 5.46701I$
$u = -0.376823 - 0.254532I$	$0.162533 + 1.134740I$	$3.04903 - 5.46701I$

II. $I_2^u = \langle u^2 - u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -12u + 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.500000 + 0.866025I$	$6.08965I$	$0. - 10.39230I$
$u =$	$0.500000 - 0.866025I$	$-6.08965I$	$0. + 10.39230I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_7	$(u^2+u+1)(u^{40}+8u^{39}+\cdots+4u+1)$
c_2, c_6	$(u^2+u+1)(u^{40}-2u^{39}+\cdots-4u+1)$
c_3, c_{10}	$(u^2-u+1)(u^{40}+2u^{39}+\cdots+4u+1)$
c_8, c_9, c_{11} c_{12}	$(u^2-u+1)(u^{40}-8u^{39}+\cdots-4u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_7, c_8, c_9 c_{11}, c_{12}	$(y^2+y+1)(y^{40}+48y^{39}+\cdots+52y+1)$
c_2, c_3, c_6 c_{10}	$(y^2+y+1)(y^{40}+8y^{39}+\cdots+4y+1)$