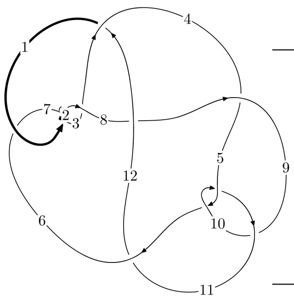
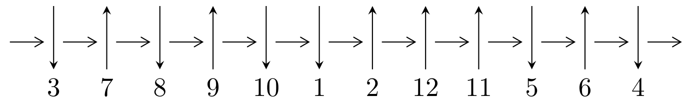
$12a_{0506}$ $(K12a_{0506})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{90} + 24u^{88} + \cdots + u + 1 \rangle$$
$$I_2^u = \langle u^2 - u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 92 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. $I_1^u = \langle u^{90} + 24u^{88} + \cdots + u + 1 \rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^{17} - 4u^{15} - 7u^{13} - 4u^{11} + 3u^9 + 6u^7 + 2u^5 - u \\ u^{17} + 5u^{15} + 11u^{13} + 12u^{11} + 5u^9 - 2u^7 - 2u^5 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{36} - 9u^{34} + \cdots - u^2 + 1 \\ u^{36} + 10u^{34} + \cdots + u^4 + 2u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^{11} - 2u^9 - 2u^7 - u^3 \\ -u^{13} - 3u^{11} - 5u^9 - 4u^7 - 2u^5 + u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{30} + 7u^{28} + \cdots - 2u^{12} + 1 \\ u^{32} + 8u^{30} + \cdots + 12u^8 + 4u^6 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{79} - 20u^{77} + \cdots + 4u^5 - 2u \\ -u^{81} - 21u^{79} + \cdots - 2u^5 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{89} - 96u^{87} + \cdots - 8u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{90} + 48u^{89} + \cdots + u + 1$
c_2, c_7	$u^{90} + 24u^{88} + \cdots - u + 1$
c_3, c_6	$u^{90} - 36u^{88} + \cdots + 35u + 1$
c_4, c_{11}	$u^{90} - 36u^{88} + \cdots - 35u + 1$
c_5, c_{10}	$u^{90} + 24u^{88} + \cdots + u + 1$
c_8	$u^{90} + 12u^{89} + \cdots + 355u + 29$
c_9	$u^{90} - 48u^{89} + \cdots - u + 1$
c_{12}	$u^{90} - 12u^{89} + \cdots - 355u + 29$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9	$y^{90} - 12y^{89} + \cdots + 5y + 1$
c_2, c_5, c_7 c_{10}	$y^{90} + 48y^{89} + \cdots + y + 1$
c_3, c_4, c_6 c_{11}	$y^{90} - 72y^{89} + \cdots - 767y + 1$
c_8, c_{12}	$y^{90} + 8y^{89} + \cdots + 16481y + 841$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.556433 + 0.835324I$	$-7.18763 + 2.08490I$	0
$u = -0.556433 - 0.835324I$	$-7.18763 - 2.08490I$	0
$u = -0.024996 + 0.994939I$	$3.43520 + 2.09623I$	$8.58300 + 0.I$
$u = -0.024996 - 0.994939I$	$3.43520 - 2.09623I$	$8.58300 + 0.I$
$u = -0.123552 + 0.999729I$	$1.18678 + 2.46011I$	0
$u = -0.123552 - 0.999729I$	$1.18678 - 2.46011I$	0
$u = 0.548923 + 0.847737I$	$-3.24727 - 6.11532I$	0
$u = 0.548923 - 0.847737I$	$-3.24727 + 6.11532I$	0
$u = -0.557501 + 0.853846I$	$-6.39706 + 10.87620I$	0
$u = -0.557501 - 0.853846I$	$-6.39706 - 10.87620I$	0
$u = 0.183246 + 1.004240I$	$-2.41430 + 1.30442I$	0
$u = 0.183246 - 1.004240I$	$-2.41430 - 1.30442I$	0
$u = -0.451800 + 0.860540I$	$0.69661 + 2.01708I$	0
$u = -0.451800 - 0.860540I$	$0.69661 - 2.01708I$	0
$u = 0.128657 + 1.032900I$	$-1.77995 - 7.01061I$	0
$u = 0.128657 - 1.032900I$	$-1.77995 + 7.01061I$	0
$u = 0.510603 + 0.767949I$	$-3.43520 - 2.09623I$	$-8.58300 + 4.19142I$
$u = 0.510603 - 0.767949I$	$-3.43520 + 2.09623I$	$-8.58300 - 4.19142I$
$u = -0.565146 + 0.686956I$	$-7.60942 + 2.39548I$	$-8.03590 - 3.45801I$
$u = -0.565146 - 0.686956I$	$-7.60942 - 2.39548I$	$-8.03590 + 3.45801I$
$u = -0.570856 + 0.661159I$	$-6.94292 - 6.37762I$	$-6.79931 + 3.36470I$
$u = -0.570856 - 0.661159I$	$-6.94292 + 6.37762I$	$-6.79931 - 3.36470I$
$u = 0.556299 + 0.668324I$	$-3.75583 + 1.68060I$	$-3.85601 - 0.15656I$
$u = 0.556299 - 0.668324I$	$-3.75583 - 1.68060I$	$-3.85601 + 0.15656I$
$u = -0.362656 + 0.775470I$	$0.22941 + 1.46786I$	$2.13380 - 4.56718I$
$u = -0.362656 - 0.775470I$	$0.22941 - 1.46786I$	$2.13380 + 4.56718I$
$u = 0.804947 + 0.154678I$	$-3.05581 + 11.52890I$	$-3.10731 - 7.64918I$
$u = 0.804947 - 0.154678I$	$-3.05581 - 11.52890I$	$-3.10731 + 7.64918I$
$u = -0.798246 + 0.151160I$	$-6.69000I$	$0. + 4.60895I$
$u = -0.798246 - 0.151160I$	$6.69000I$	$0. - 4.60895I$

Solutions to I^u_1	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.791540 + 0.160688I$	$-4.06433 + 2.78100I$	$-4.82687 - 1.51453I$
$u = 0.791540 - 0.160688I$	$-4.06433 - 2.78100I$	$-4.82687 + 1.51453I$
$u = -0.793161 + 0.120606I$	$3.24727 - 6.11532I$	$2.14726 + 6.93728I$
$u = -0.793161 - 0.120606I$	$3.24727 + 6.11532I$	$2.14726 - 6.93728I$
$u = 0.482440 + 1.099170I$	$-3.44119 + 0.81536I$	0
$u = 0.482440 - 1.099170I$	$-3.44119 - 0.81536I$	0
$u = 0.784724 + 0.103510I$	$3.75583 + 1.68060I$	$3.85601 - 0.15656I$
$u = 0.784724 - 0.103510I$	$3.75583 - 1.68060I$	$3.85601 + 0.15656I$
$u = -0.479940 + 1.114160I$	$-0.05773 + 3.67296I$	0
$u = -0.479940 - 1.114160I$	$-0.05773 - 3.67296I$	0
$u = 0.493654 + 1.117110I$	$-3.67430 - 7.96529I$	0
$u = 0.493654 - 1.117110I$	$-3.67430 + 7.96529I$	0
$u = -0.776515 + 0.033180I$	$0.05773 + 3.67296I$	$-0.34241 - 3.66459I$
$u = -0.776515 - 0.033180I$	$0.05773 - 3.67296I$	$-0.34241 + 3.66459I$
$u = 0.469286 + 0.612610I$	$-0.69661 + 2.01708I$	$-2.53308 - 3.61771I$
$u = 0.469286 - 0.612610I$	$-0.69661 - 2.01708I$	$-2.53308 + 3.61771I$
$u = -0.406847 + 1.161990I$	$2.41430 + 1.30442I$	0
$u = -0.406847 - 1.161990I$	$2.41430 - 1.30442I$	0
$u = 0.758452 + 0.064597I$	$2.47004 + 0.60077I$	$3.44076 - 0.47239I$
$u = 0.758452 - 0.064597I$	$2.47004 - 0.60077I$	$3.44076 + 0.47239I$
$u = 0.365897 + 1.197990I$	$- 1.05575I$	0
$u = 0.365897 - 1.197990I$	$1.05575I$	0
$u = -0.371458 + 1.204960I$	$4.06433 - 2.78100I$	0
$u = -0.371458 - 1.204960I$	$4.06433 + 2.78100I$	0
$u = 0.367726 + 1.209060I$	$1.05381 + 7.61321I$	0
$u = 0.367726 - 1.209060I$	$1.05381 - 7.61321I$	0
$u = 0.422336 + 1.195770I$	$6.11748 - 3.54885I$	0
$u = 0.422336 - 1.195770I$	$6.11748 + 3.54885I$	0
$u = -0.391217 + 1.206550I$	$7.18763 - 2.08490I$	0
$u = -0.391217 - 1.206550I$	$7.18763 + 2.08490I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.493698 + 1.168560I$	$1.77995 + 7.01061I$	0
$u = -0.493698 - 1.168560I$	$1.77995 - 7.01061I$	0
$u = \quad 0.401574 + 1.204250I$	$7.60942 - 2.39548I$	0
$u = \quad 0.401574 - 1.204250I$	$7.60942 + 2.39548I$	0
$u = -0.716511 + 0.137526I$	$-1.18678 - 2.46011I$	$-5.77540 + 3.61513I$
$u = -0.716511 - 0.137526I$	$-1.18678 + 2.46011I$	$-5.77540 - 3.61513I$
$u = -0.433989 + 1.202730I$	$3.67430 + 7.96529I$	0
$u = -0.433989 - 1.202730I$	$3.67430 - 7.96529I$	0
$u = \quad 0.478981 + 1.188060I$	$5.71402 - 5.12960I$	0
$u = \quad 0.478981 - 1.188060I$	$5.71402 + 5.12960I$	0
$u = -0.466527 + 1.195460I$	$3.44119 + 0.81536I$	0
$u = -0.466527 - 1.195460I$	$3.44119 - 0.81536I$	0
$u = \quad 0.495551 + 1.192980I$	$6.94292 - 6.37762I$	0
$u = \quad 0.495551 - 1.192980I$	$6.94292 + 6.37762I$	0
$u = \quad 0.516466 + 1.184590I$	$-1.05381 - 7.61321I$	0
$u = \quad 0.516466 - 1.184590I$	$-1.05381 + 7.61321I$	0
$u = -0.502991 + 1.193330I$	$6.39706 + 10.87620I$	0
$u = -0.502991 - 1.193330I$	$6.39706 - 10.87620I$	0
$u = -0.514902 + 1.189080I$	$3.05581 + 11.52890I$	0
$u = -0.514902 - 1.189080I$	$3.05581 - 11.52890I$	0
$u = \quad 0.517655 + 1.190580I$	$- 16.3978I$	0
$u = \quad 0.517655 - 1.190580I$	$16.3978I$	0
$u = \quad 0.645018 + 0.270245I$	$-6.11748 + 3.54885I$	$-7.14499 - 3.21882I$
$u = \quad 0.645018 - 0.270245I$	$-6.11748 - 3.54885I$	$-7.14499 + 3.21882I$
$u = \quad 0.619550 + 0.309895I$	$-5.71402 - 5.12960I$	$-6.45992 + 3.90146I$
$u = \quad 0.619550 - 0.309895I$	$-5.71402 + 5.12960I$	$-6.45992 - 3.90146I$
$u = -0.607875 + 0.278085I$	$-2.47004 + 0.60077I$	$-3.44076 - 0.47239I$
$u = -0.607875 - 0.278085I$	$-2.47004 - 0.60077I$	$-3.44076 + 0.47239I$
$u = -0.376707 + 0.399911I$	$-0.22941 + 1.46786I$	$-2.13380 - 4.56718I$
$u = -0.376707 - 0.399911I$	$-0.22941 - 1.46786I$	$-2.13380 + 4.56718I$

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

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_9 = \begin{pmatrix} 1 \\ u-1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ -u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u-2 \\ -u+1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -1 \\ -u+1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2 \\ -u+2 \end{pmatrix}$$

(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_7, c_{11}, c_{12}	$u^2 + u + 1$
c_3, c_5, c_6 c_8, c_9, c_{10}	$u^2 - u + 1$

(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	$(u^2+u+1)(u^{90}+48u^{89}+\cdots+u+1)$
c_2, c_7	$(u^2+u+1)(u^{90}+24u^{88}+\cdots-u+1)$
c_3, c_6	$(u^2-u+1)(u^{90}-36u^{88}+\cdots+35u+1)$
c_4, c_{11}	$(u^2+u+1)(u^{90}-36u^{88}+\cdots-35u+1)$
c_5, c_{10}	$(u^2-u+1)(u^{90}+24u^{88}+\cdots+u+1)$
c_8	$(u^2-u+1)(u^{90}+12u^{89}+\cdots+355u+29)$
c_9	$(u^2-u+1)(u^{90}-48u^{89}+\cdots-u+1)$
c_{12}	$(u^2+u+1)(u^{90}-12u^{89}+\cdots-355u+29)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_9	$(y^2+y+1)(y^{90}-12y^{89}+\cdots+5y+1)$
c_2, c_5, c_7 c_{10}	$(y^2+y+1)(y^{90}+48y^{89}+\cdots+y+1)$
c_3, c_4, c_6 c_{11}	$(y^2+y+1)(y^{90}-72y^{89}+\cdots-767y+1)$
c_8, c_{12}	$(y^2+y+1)(y^{90}+8y^{89}+\cdots+16481y+841)$