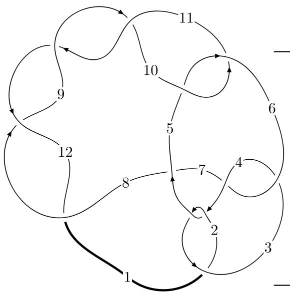
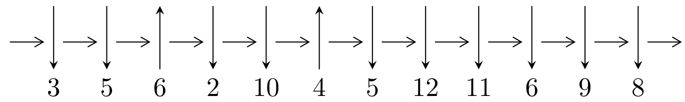
$12n_{0079}$ ($K12n_{0079}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & u^{15} - u^{14} + 2u^{12} + 4u^{11} - 5u^{10} + u^9 + 8u^8 + 3u^7 - 7u^6 + 3u^5 + 9u^4 - 2u^3 - u^2 + b + 2u + 1,\ a - u, \\
& u^{16} - 2u^{15} + u^{14} + 2u^{13} + 3u^{12} - 10u^{11} + 6u^{10} + 8u^9 - u^8 - 14u^7 + 10u^6 + 9u^5 - 8u^4 - 2u^3 + 4u^2 + u - 1\rangle \\
I_2^u = \langle & -u^4 - 2u^3 + b + 2u - 1,\ a + u,\ u^5 + u^4 - u^2 + u + 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 21 representations.

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[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. $\boldsymbol{I_1^u = \langle u^{15} - u^{14} + \cdots + b + 1,\ a - u,\ u^{16} - 2u^{15} + \cdots + u - 1 \rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u \\ -u^{15} + u^{14} + \cdots - 2u - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{15} - u^{14} + \cdots + u + 1 \\ 2u^{14} - u^{13} + \cdots - 2u - 2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{10} + u^8 - 4u^6 + 3u^4 - 3u^2 + 1 \\ u^{12} - 2u^{10} + 4u^8 - 6u^6 + 3u^4 - 2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{15} - u^{14} + \cdots + u + 1 \\ u^{14} - u^{13} + \cdots - 2u - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^8 + u^6 - 3u^4 + 2u^2 - 1 \\ -u^8 - 2u^4 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^4 - u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^6 + u^4 - 2u^2 + 1 \\ -u^6 - u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^{15} - 5u^{14} + 4u^{13} + 4u^{12} + 4u^{11} - 23u^{10} + 23u^9 + 14u^8 - 9u^7 - 26u^6 + 37u^5 + 12u^4 - 22u^3 + 7u^2 + 13u - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 2u^{15} + \cdots + 27u + 1$
c_2, c_4	$u^{16} - 6u^{15} + \cdots + 7u - 1$
c_3, c_6	$u^{16} + u^{15} + \cdots + 192u + 32$
c_5, c_{10}	$u^{16} - 2u^{15} + \cdots + u - 1$
c_7	$u^{16} - 2u^{15} + \cdots - 4251u - 809$
c_8, c_9, c_{11} c_{12}	$u^{16} + 2u^{15} + \cdots + 9u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} + 46y^{15} + \cdots - 955y + 1$
c_2, c_4	$y^{16} + 2y^{15} + \cdots - 27y + 1$
c_3, c_6	$y^{16} - 33y^{15} + \cdots - 10752y + 1024$
c_5, c_{10}	$y^{16} - 2y^{15} + \cdots - 9y + 1$
c_7	$y^{16} + 110y^{15} + \cdots - 17236113y + 654481$
c_8, c_9, c_{11} c_{12}	$y^{16} + 26y^{15} + \cdots - 9y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.858338 + 0.530060I$ $a = 0.858338 + 0.530060I$ $b = 1.51033 - 0.15720I$	$1.84411 - 3.14735I$	$-3.35371 + 5.50197I$
$u = 0.858338 - 0.530060I$ $a = 0.858338 - 0.530060I$ $b = 1.51033 + 0.15720I$	$1.84411 + 3.14735I$	$-3.35371 - 5.50197I$
$u = 0.617248 + 0.695994I$ $a = 0.617248 + 0.695994I$ $b = 0.650070 - 0.294152I$	$2.74741 - 1.38572I$	$-1.45957 + 2.65740I$
$u = 0.617248 - 0.695994I$ $a = 0.617248 - 0.695994I$ $b = 0.650070 + 0.294152I$	$2.74741 + 1.38572I$	$-1.45957 - 2.65740I$
$u = -0.817802 + 0.908616I$ $a = -0.817802 + 0.908616I$ $b = -1.96334 - 1.19161I$	$10.71530 + 0.17194I$	$-2.05934 - 0.49098I$
$u = -0.817802 - 0.908616I$ $a = -0.817802 - 0.908616I$ $b = -1.96334 + 1.19161I$	$10.71530 - 0.17194I$	$-2.05934 + 0.49098I$
$u = -0.964243 + 0.807862I$ $a = -0.964243 + 0.807862I$ $b = -2.94387 - 0.69457I$	$10.19210 + 6.12692I$	$-2.87109 - 4.85275I$
$u = -0.964243 - 0.807862I$ $a = -0.964243 - 0.807862I$ $b = -2.94387 + 0.69457I$	$10.19210 - 6.12692I$	$-2.87109 + 4.85275I$
$u = -0.713406$ $a = -0.713406$ $b = -0.602633$	-1.05859	-9.11520
$u = -0.521527 + 0.359954I$ $a = -0.521527 + 0.359954I$ $b = 0.685034 + 0.457929I$	$-1.01816 + 1.20835I$	$-7.94696 - 4.63242I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.521527 - 0.359954I$ $a = -0.521527 - 0.359954I$ $b = 0.685034 - 0.457929I$	$-1.01816 - 1.20835I$	$-7.94696 + 4.63242I$
$u = 0.955354 + 0.984451I$ $a = 0.955354 + 0.984451I$ $b = 2.82102 - 2.06263I$	$-15.8844 + 1.1391I$	$-2.89439 + 0.24176I$
$u = 0.955354 - 0.984451I$ $a = 0.955354 - 0.984451I$ $b = 2.82102 + 2.06263I$	$-15.8844 - 1.1391I$	$-2.89439 - 0.24176I$
$u = 0.995518 + 0.955803I$ $a = 0.995518 + 0.955803I$ $b = 4.02659 - 1.00397I$	$-16.0250 - 8.2475I$	$-3.10340 + 4.00403I$
$u = 0.995518 - 0.955803I$ $a = 0.995518 - 0.955803I$ $b = 4.02659 + 1.00397I$	$-16.0250 + 8.2475I$	$-3.10340 - 4.00403I$
$u = 0.467631$ $a = 0.467631$ $b = -1.96901$	-2.17859	2.49220

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

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_4 = \begin{pmatrix} 0 \\ u^4 + u^3 - u + 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 0 \\ u^4 + u^3 - u + 1 \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} u^4 - u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^3 \\ -u^4 - u^3 + u^2 - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^4 - u^3 + 5u^2 + 7u - 18$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^5$
c_3, c_6	y^5
c_5, c_{10}	$y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1$
c_7, c_8, c_9 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	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.758138 + 0.584034I$ $a = -0.758138 - 0.584034I$ $b = -1.92595 + 0.86150I$	$0.17487 - 2.21397I$	$-5.34777 + 4.39723I$
$u = 0.758138 - 0.584034I$ $a = -0.758138 + 0.584034I$ $b = -1.92595 - 0.86150I$	$0.17487 + 2.21397I$	$-5.34777 - 4.39723I$
$u = -0.935538 + 0.903908I$ $a = 0.935538 - 0.903908I$ $b = 2.96269 + 1.26507I$	$9.31336 + 3.33174I$	$-2.87586 - 2.18947I$
$u = -0.935538 - 0.903908I$ $a = 0.935538 + 0.903908I$ $b = 2.96269 - 1.26507I$	$9.31336 - 3.33174I$	$-2.87586 + 2.18947I$
$u = -0.645200$ $a = 0.645200$ $b = 1.92652$	-2.52712	-21.5530

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{16}-2u^{15}+\cdots+27u+1)$
c_2	$((u-1)^5)(u^{16}-6u^{15}+\cdots+7u-1)$
c_3, c_6	$u^5(u^{16}+u^{15}+\cdots+192u+32)$
c_4	$((u+1)^5)(u^{16}-6u^{15}+\cdots+7u-1)$
c_5	$(u^5-u^4+u^2+u-1)(u^{16}-2u^{15}+\cdots+u-1)$
c_7	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{16}-2u^{15}+\cdots-4251u-809)$
c_8, c_9	$(u^5-u^4+4u^3-3u^2+3u-1)(u^{16}+2u^{15}+\cdots+9u+1)$
c_{10}	$(u^5+u^4-u^2+u+1)(u^{16}-2u^{15}+\cdots+u-1)$
c_{11}, c_{12}	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{16}+2u^{15}+\cdots+9u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^{16}+46y^{15}+\cdots-955y+1)$
c_2, c_4	$((y-1)^5)(y^{16}+2y^{15}+\cdots-27y+1)$
c_3, c_6	$y^5(y^{16}-33y^{15}+\cdots-10752y+1024)$
c_5, c_{10}	$(y^5-y^4+4y^3-3y^2+3y-1)(y^{16}-2y^{15}+\cdots-9y+1)$
c_7	$(y^5+7y^4+16y^3+13y^2+3y-1)$ $\cdot(y^{16}+110y^{15}+\cdots-17236113y+654481)$
c_8, c_9, c_{11} c_{12}	$(y^5+7y^4+16y^3+13y^2+3y-1)(y^{16}+26y^{15}+\cdots-9y+1)$