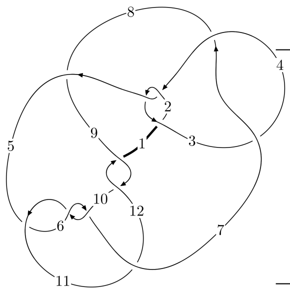
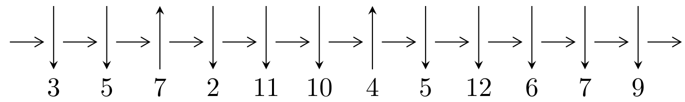
$12n_{0171}$ ($K12n_{0171}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{23} + u^{22} + \cdots + 6u^2 + b,\ -u^{21} + u^{20} + \cdots + a + 2,\ u^{26} - 2u^{25} + \cdots + 2u - 1 \rangle$$
$$I_2^u = \langle b + 1,\ u^2 + a + u + 3,\ u^3 + 2u - 1 \rangle$$
$$I_3^u = \langle b + 1,\ u^3 + a + u + 2,\ u^4 + u^3 + 2u^2 + 2u + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 33 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.

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$$I_1^u = \langle -u^{23}+u^{22}+\cdots+6u^2+b,\ -u^{21}+u^{20}+\cdots+a+2,\ u^{26}-2u^{25}+\cdots+2u-1\rangle$$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} u^{21} - u^{20} + \cdots + 6u - 2 \\ u^{23} - u^{22} + \cdots + 12u^3 - 6u^2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^{22} + u^{21} + \cdots + 6u - 1 \\ -u^{22} + u^{21} + \cdots - 6u^2 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{11} + 6u^9 + 12u^7 + 8u^5 + u^3 + 2u \\ u^{11} + 5u^9 + 8u^7 + 3u^5 - u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{23} + u^{22} + \cdots + 6u - 2 \\ u^{23} - u^{22} + \cdots + 12u^3 - 6u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^{13} + 6u^{11} + 13u^9 + 12u^7 + 6u^5 + 4u^3 + u \\ u^{15} + 7u^{13} + 18u^{11} + 19u^9 + 6u^7 + 2u^5 + 4u^3 - u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^9 + 4u^7 + 5u^5 + 2u^3 + u \\ u^{11} + 5u^9 + 8u^7 + 3u^5 - u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{25} + 8u^{24} - 59u^{23} + 102u^{22} - 370u^{21} + 552u^{20} - 1282u^{19} + 1632u^{18} - 2664u^{17} + 2824u^{16} - 3388u^{15} + 2869u^{14} - 2682u^{13} + 1765u^{12} - 1574u^{11} + 986u^{10} - 1012u^9 + 713u^8 - 547u^7 + 276u^6 - 182u^5 + 78u^4 - 102u^3 + 80u^2 - 8u - 13$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{26} + 30u^{24} + \cdots + 25u + 1$
c_2, c_4	$u^{26} - 8u^{25} + \cdots + 9u - 1$
c_3, c_7	$u^{26} - u^{25} + \cdots - 64u + 128$
c_5, c_6, c_{10}	$u^{26} + 2u^{25} + \cdots - 2u - 1$
c_8	$u^{26} + 2u^{25} + \cdots + 3088u - 11981$
c_9, c_{12}	$u^{26} - 2u^{25} + \cdots - 7u^2 + 1$
c_{11}	$u^{26} - 2u^{25} + \cdots + 48u - 72$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{26} + 60y^{25} + \cdots - 337y + 1$
c_2, c_4	$y^{26} + 30y^{24} + \cdots - 25y + 1$
c_3, c_7	$y^{26} - 45y^{25} + \cdots - 258048y + 16384$
c_5, c_6, c_{10}	$y^{26} + 26y^{25} + \cdots - 14y + 1$
c_8	$y^{26} + 122y^{25} + \cdots - 4243693030y + 143544361$
c_9, c_{12}	$y^{26} + 38y^{25} + \cdots - 14y + 1$
c_{11}	$y^{26} + 18y^{25} + \cdots - 16272y + 5184$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.703140 + 0.538371I$ $a = 0.595244 - 1.218420I$ $b = 1.13151 - 1.20043I$	$14.5729 + 1.9359I$	$-4.36941 + 0.69311I$
$u = 0.703140 - 0.538371I$ $a = 0.595244 + 1.218420I$ $b = 1.13151 + 1.20043I$	$14.5729 - 1.9359I$	$-4.36941 - 0.69311I$
$u = 0.729197 + 0.493462I$ $a = 2.28117 - 0.26467I$ $b = 1.17041 + 1.16109I$	$14.4224 - 6.7123I$	$-4.71846 + 4.71456I$
$u = 0.729197 - 0.493462I$ $a = 2.28117 + 0.26467I$ $b = 1.17041 - 1.16109I$	$14.4224 + 6.7123I$	$-4.71846 - 4.71456I$
$u = -0.657044 + 0.360115I$ $a = 1.94829 - 0.09632I$ $b = 0.522022 - 0.742639I$	$3.09785 + 3.69296I$	$-4.58596 - 5.59657I$
$u = -0.657044 - 0.360115I$ $a = 1.94829 + 0.09632I$ $b = 0.522022 + 0.742639I$	$3.09785 - 3.69296I$	$-4.58596 + 5.59657I$
$u = -0.532790 + 0.522258I$ $a = 0.281675 + 0.540170I$ $b = 0.345233 + 0.836005I$	$3.71321 + 0.25250I$	$-2.90666 - 1.69873I$
$u = -0.532790 - 0.522258I$ $a = 0.281675 - 0.540170I$ $b = 0.345233 - 0.836005I$	$3.71321 - 0.25250I$	$-2.90666 + 1.69873I$
$u = 0.146766 + 1.279190I$ $a = 1.289160 - 0.159208I$ $b = 0.339771 + 0.227061I$	$2.95015 - 2.37770I$	$-2.22960 + 4.04579I$
$u = 0.146766 - 1.279190I$ $a = 1.289160 + 0.159208I$ $b = 0.339771 - 0.227061I$	$2.95015 + 2.37770I$	$-2.22960 - 4.04579I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.041859+1.351780I$ $a=-1.30338-1.15705I$ $b=-1.156640+0.215585I$	$2.15651+1.07901I$	$-3.64779+0.86156I$
$u=-0.041859-1.351780I$ $a=-1.30338+1.15705I$ $b=-1.156640-0.215585I$	$2.15651-1.07901I$	$-3.64779-0.86156I$
$u=\ \ 0.108685+1.405560I$ $a=\ \ 0.007384+1.006780I$ $b=-0.587676-0.621059I$	$4.56460-2.76012I$	$-2.16196+3.94765I$
$u=\ \ 0.108685-1.405560I$ $a=\ \ 0.007384-1.006780I$ $b=-0.587676+0.621059I$	$4.56460+2.76012I$	$-2.16196-3.94765I$
$u=-0.24567+1.43288I$ $a=\ \ 1.45979+0.68729I$ $b=\ \ 0.662222-0.763929I$	$8.83594+6.98292I$	$-1.16198-5.80218I$
$u=-0.24567-1.43288I$ $a=\ \ 1.45979-0.68729I$ $b=\ \ 0.662222+0.763929I$	$8.83594-6.98292I$	$-1.16198+5.80218I$
$u=\ \ 0.512846$ $a=\ \ 1.47619$ $b=\ \ 0.224405$	-1.00355	-9.54280
$u=-0.17183+1.48536I$ $a=-0.125401-0.252038I$ $b=\ \ 0.312586+1.039960I$	$10.21460+2.79653I$	$0.-1.62269I$
$u=-0.17183-1.48536I$ $a=-0.125401+0.252038I$ $b=\ \ 0.312586-1.039960I$	$10.21460-2.79653I$	$0.+1.62269I$
$u=\ \ 0.25787+1.50930I$ $a=\ \ 1.32769-1.23506I$ $b=\ \ 1.21947+1.15279I$	$-18.5465-10.3199I$	$-1.57367+4.71876I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.25787 - 1.50930I$ $a = 1.32769 + 1.23506I$ $b = 1.21947 - 1.15279I$	$-18.5465 + 10.3199I$	$-1.57367 - 4.71876I$
$u = 0.23540 + 1.52332I$ $a = -0.334114 - 0.224598I$ $b = 1.12696 - 1.25945I$	$-18.1670 - 1.4877I$	$-1.145266 + 0.723281I$
$u = 0.23540 - 1.52332I$ $a = -0.334114 + 0.224598I$ $b = 1.12696 + 1.25945I$	$-18.1670 + 1.4877I$	$-1.145266 - 0.723281I$
$u = 0.368033 + 0.267400I$ $a = -0.272224 + 1.261050I$ $b = -0.657600 - 0.268641I$	$-0.775564 - 1.043300I$	$-8.38623 + 6.25558I$
$u = 0.368033 - 0.267400I$ $a = -0.272224 - 1.261050I$ $b = -0.657600 + 0.268641I$	$-0.775564 + 1.043300I$	$-8.38623 - 6.25558I$
$u = -0.312651$ $a = -4.78676$ $b = -1.08095$	-2.08164	2.25490

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7u^2 - 5u - 18$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_7	y^3
c_5, c_6, c_8 c_9, c_{10}, c_{12}	y^3+4y^2+4y-1
c_{11}	$y^3+y^2+13y-4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.22670+1.46771I$ $a=-0.670516-0.802255I$ $b=-1.00000$	$7.79580+5.13794I$	$-2.14701-2.68036I$
$u=-0.22670-1.46771I$ $a=-0.670516+0.802255I$ $b=-1.00000$	$7.79580-5.13794I$	$-2.14701+2.68036I$
$u=\quad 0.453398$ $a=-3.65897$ $b=-1.00000$	-2.43213	-21.7060

III. $I_3^u = \langle b+1,\ u^3+a+u+2,\ u^4+u^3+2u^2+2u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^3+2u^2-2u-7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.621744 + 0.440597I$ $a = -1.50000 - 0.86603I$ $b = -1.00000$	$1.64493 + 2.02988I$	$-5.73686 - 3.25323I$
$u = -0.621744 - 0.440597I$ $a = -1.50000 + 0.86603I$ $b = -1.00000$	$1.64493 - 2.02988I$	$-5.73686 + 3.25323I$
$u = 0.121744 + 1.306620I$ $a = -1.50000 + 0.86603I$ $b = -1.00000$	$1.64493 - 2.02988I$	$-8.76314 + 4.54099I$
$u = 0.121744 - 1.306620I$ $a = -1.50000 - 0.86603I$ $b = -1.00000$	$1.64493 + 2.02988I$	$-8.76314 - 4.54099I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^7)(u^{26}+30u^{24}+\cdots+25u+1)$
c_2	$((u-1)^7)(u^{26}-8u^{25}+\cdots+9u-1)$
c_3, c_7	$u^7(u^{26}-u^{25}+\cdots-64u+128)$
c_4	$((u+1)^7)(u^{26}-8u^{25}+\cdots+9u-1)$
c_5, c_6	$(u^3+2u-1)(u^4+u^3+2u^2+2u+1)(u^{26}+2u^{25}+\cdots-2u-1)$
c_8	$(u^3+2u+1)(u^4-u^3+2u^2-2u+1)(u^{26}+2u^{25}+\cdots+3088u-11981)$
c_9	$(u^3+2u-1)(u^4+u^3+2u^2+2u+1)(u^{26}-2u^{25}+\cdots-7u^2+1)$
c_{10}	$(u^3+2u+1)(u^4-u^3+2u^2-2u+1)(u^{26}+2u^{25}+\cdots-2u-1)$
c_{11}	$((u^2-u+1)^2)(u^3+3u^2+5u+2)(u^{26}-2u^{25}+\cdots+48u-72)$
c_{12}	$(u^3+2u+1)(u^4-u^3+2u^2-2u+1)(u^{26}-2u^{25}+\cdots-7u^2+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^7)(y^{26}+60y^{25}+\cdots-337y+1)$
c_2, c_4	$((y-1)^7)(y^{26}+30y^{24}+\cdots-25y+1)$
c_3, c_7	$y^7(y^{26}-45y^{25}+\cdots-258048y+16384)$
c_5, c_6, c_{10}	$(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)(y^{26}+26y^{25}+\cdots-14y+1)$
c_8	$(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)$ $\cdot(y^{26}+122y^{25}+\cdots-4243693030y+143544361)$
c_9, c_{12}	$(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)(y^{26}+38y^{25}+\cdots-14y+1)$
c_{11}	$((y^2+y+1)^2)(y^3+y^2+13y-4)(y^{26}+18y^{25}+\cdots-16272y+5184)$