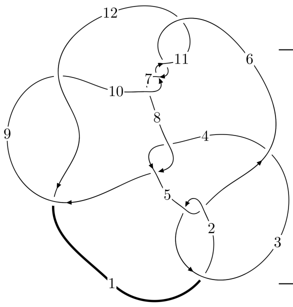
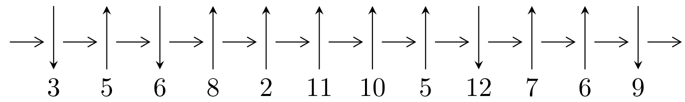
$12n_{0065}$ ($K12n_{0065}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{22} + 2u^{21} + \cdots + 2b - 2u,\ -2u^{22} + 5u^{21} + \cdots + 2a + 4,\ u^{23} - 3u^{22} + \cdots - 4u + 1 \rangle$$
$$I_2^u = \langle -4u^3a - 2u^2a - 4u^3 - 11au - 2u^2 + 11b - 8a - 11u - 8,$$
$$u^3a + u^2a - u^3 + a^2 + 3au - 2u^2 + 2a - 4u - 2,\ u^4 + u^3 + 3u^2 + 2u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 31 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. $I_1^u = \langle -u^{22}+2u^{21}+\cdots+2b-2u,\ -2u^{22}+5u^{21}+\cdots+2a+4,\ u^{23}-3u^{22}+\cdots-4u+1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}u^{22}-\frac{5}{2}u^{21}+\cdots-\frac{11}{2}u^2-2\\ \frac{1}{2}u^{22}-u^{21}+\cdots+2u^2+u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-\frac{1}{2}u^{22}+\frac{3}{2}u^{21}+\cdots-7u+2\\ \frac{1}{2}u^{22}-u^{21}+\cdots+u-1\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-\frac{1}{2}u^{21}-4u^{19}+\cdots-5u+1\\ \frac{3}{2}u^{22}-4u^{21}+\cdots+4u-2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^9-4u^7-3u^5+2u^3-u\\ -u^9-5u^7-7u^5-2u^3-u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^2+1\\-u^4-2u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-\frac{3}{2}u^{22}+\frac{7}{2}u^{21}+\cdots-9u+3\\ \frac{3}{2}u^{22}-4u^{21}+\cdots+4u-2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^5+2u^3-u\\u^5+3u^3+u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{3}{2}u^{22}+3u^{21}-21u^{20}+\frac{73}{2}u^{19}-124u^{18}+186u^{17}-400u^{16}+506u^{15}-\frac{1519}{2}u^{14}+\frac{1537}{2}u^{13}-845u^{12}+605u^{11}-\frac{1015}{2}u^{10}+178u^9-\frac{265}{2}u^8-\frac{33}{2}u^7-\frac{29}{2}u^6-\frac{67}{2}u^5-\frac{5}{2}u^4-49u^3+\frac{19}{2}u^2+\frac{7}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{23} + 3u^{22} + \cdots + 4u - 1$
c_2, c_5	$u^{23} + 5u^{22} + \cdots - 4u - 1$
c_3	$u^{23} - 5u^{22} + \cdots - 2678u - 593$
c_4, c_8	$u^{23} - u^{22} + \cdots + 128u - 256$
c_6, c_7, c_{10} c_{11}	$u^{23} + 3u^{22} + \cdots - 4u - 1$
c_9, c_{12}	$u^{23} - u^{22} + \cdots + 2u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{23} + 39y^{22} + \cdots + 4y - 1$
c_2, c_5	$y^{23} + 3y^{22} + \cdots + 4y - 1$
c_3	$y^{23} + 75y^{22} + \cdots - 15091908y - 351649$
c_4, c_8	$y^{23} - 45y^{22} + \cdots - 212992y - 65536$
c_6, c_7, c_{10} c_{11}	$y^{23} + 25y^{22} + \cdots + 4y - 1$
c_9, c_{12}	$y^{23} + 41y^{22} + \cdots + 4y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.768656 + 0.574390I$ $a = 0.96411 - 1.30127I$ $b = -1.02013 - 1.06010I$	$14.5386 + 6.4049I$	$5.87992 - 4.56999I$
$u = 0.768656 - 0.574390I$ $a = 0.96411 + 1.30127I$ $b = -1.02013 + 1.06010I$	$14.5386 - 6.4049I$	$5.87992 + 4.56999I$
$u = 0.792664 + 0.509239I$ $a = -0.193691 - 0.034587I$ $b = -1.06482 + 1.00488I$	$14.7384 - 1.2262I$	$6.30437 - 0.37163I$
$u = 0.792664 - 0.509239I$ $a = -0.193691 + 0.034587I$ $b = -1.06482 - 1.00488I$	$14.7384 + 1.2262I$	$6.30437 + 0.37163I$
$u = -0.502322 + 0.520642I$ $a = 0.811150 + 0.610068I$ $b = -0.461371 + 0.176461I$	$0.70832 - 1.75933I$	$4.65925 + 3.45911I$
$u = -0.502322 - 0.520642I$ $a = 0.811150 - 0.610068I$ $b = -0.461371 - 0.176461I$	$0.70832 + 1.75933I$	$4.65925 - 3.45911I$
$u = -0.038925 + 1.309910I$ $a = 0.467966 - 0.365892I$ $b = 0.881690 - 0.526981I$	$-2.62006 - 1.64777I$	$3.52749 + 2.17174I$
$u = -0.038925 - 1.309910I$ $a = 0.467966 + 0.365892I$ $b = 0.881690 + 0.526981I$	$-2.62006 + 1.64777I$	$3.52749 - 2.17174I$
$u = 0.091640 + 1.402330I$ $a = -0.60254 + 2.18385I$ $b = 0.586427 + 1.117770I$	$-4.58949 + 3.87928I$	$1.77141 - 2.75540I$
$u = 0.091640 - 1.402330I$ $a = -0.60254 - 2.18385I$ $b = 0.586427 - 1.117770I$	$-4.58949 - 3.87928I$	$1.77141 + 2.75540I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.091228+0.543350I$ $a=\ \ 1.15824-1.74645I$ $b=\ \ 0.243917-0.711016I$	$-1.17938-1.49722I$	$-2.53958+5.27560I$
$u=-0.091228-0.543350I$ $a=\ \ 1.15824+1.74645I$ $b=\ \ 0.243917+0.711016I$	$-1.17938+1.49722I$	$-2.53958-5.27560I$
$u=-0.464696$ $a=\ \ 0.105740$ $b=\ \ 0.580286$	1.11404	10.0250
$u=-0.05085+1.53575I$ $a=\ \ 0.55421-2.04140I$ $b=\ \ 0.003120-0.853741I$	$-8.14932-2.13339I$	$-3.53476+3.27759I$
$u=-0.05085-1.53575I$ $a=\ \ 0.55421+2.04140I$ $b=\ \ 0.003120+0.853741I$	$-8.14932+2.13339I$	$-3.53476-3.27759I$
$u=\ \ 0.29102+1.52358I$ $a=-1.009020+0.577805I$ $b=-1.08811+0.92523I$	$8.14473+2.74909I$	$3.44638-0.72919I$
$u=\ \ 0.29102-1.52358I$ $a=-1.009020-0.577805I$ $b=-1.08811-0.92523I$	$8.14473-2.74909I$	$3.44638+0.72919I$
$u=-0.13755+1.55696I$ $a=\ \ 0.363925+1.080750I$ $b=-0.509748+0.419465I$	$-6.30985-4.03193I$	$1.37603+1.02672I$
$u=-0.13755-1.55696I$ $a=\ \ 0.363925-1.080750I$ $b=-0.509748-0.419465I$	$-6.30985+4.03193I$	$1.37603-1.02672I$
$u=\ \ 0.26608+1.55802I$ $a=\ \ 0.27719-2.09273I$ $b=-0.96060-1.09404I$	$7.54756+10.22760I$	$2.79101-4.77678I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.26608 - 1.55802I$ $a = 0.27719 + 2.09273I$ $b = -0.96060 + 1.09404I$	$7.54756 - 10.22760I$	$2.79101 + 4.77678I$
$u = 0.343175 + 0.152187I$ $a = -2.34441 + 0.12809I$ $b = 0.599485 + 0.898495I$	$0.46499 + 2.40467I$	$3.80616 - 1.75250I$
$u = 0.343175 - 0.152187I$ $a = -2.34441 - 0.12809I$ $b = 0.599485 - 0.898495I$	$0.46499 - 2.40467I$	$3.80616 + 1.75250I$

II.
$$\boldsymbol{I^u_2 = \langle -4u^3a-4u^3+\cdots-8a-8,\ u^3a-u^3+\cdots+2a-2,\ u^4+u^3+3u^2+2u+1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}a\\0.363636au^3+0.363636u^3+\cdots+0.727273a+0.727273\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.363636au^3+0.636364u^3+\cdots+0.272727a+1.27273\\0.363636au^3+0.363636u^3+\cdots+0.727273a-0.272727\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u^3+u^2+a+3u+1\\0.363636au^3+0.363636u^3+\cdots+0.727273a-0.272727\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^2+1\\u^3+u^2+2u+1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.363636au^3+0.636364u^3+\cdots+0.272727a+1.27273\\0.363636au^3+0.363636u^3+\cdots+0.727273a-0.272727\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^2+1\\u^3+u^2+2u+1\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^3a-u^2a+2u^3-6au+3u^2-3a+7u+7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_5	$(u^2 - u + 1)^4$
c_2	$(u^2 + u + 1)^4$
c_4, c_8	u^8
c_6, c_7	$(u^4 + u^3 + 3u^2 + 2u + 1)^2$
c_9	$(u^4 + u^3 + u^2 + 1)^2$
c_{10}, c_{11}	$(u^4 - u^3 + 3u^2 - 2u + 1)^2$
c_{12}	$(u^4 - u^3 + u^2 + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5	$(y^2 + y + 1)^4$
c_4, c_8	y^8
c_6, c_7, c_{10} c_{11}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^2$
c_9, c_{12}	$(y^4 + y^3 + 3y^2 + 2y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.395123 + 0.506844I$ $a = \ \ 0.584432 + 0.289945I$ $b = \ \ 0.500000 + 0.866025I$	$0.211005 + 0.614778I$	$4.65255 + 0.59814I$
$u = -0.395123 + 0.506844I$ $a = -1.54112 - 1.51713I$ $b = \ \ 0.500000 - 0.866025I$	$0.21101 - 3.44499I$	$1.64912 + 8.49900I$
$u = -0.395123 - 0.506844I$ $a = \ \ 0.584432 - 0.289945I$ $b = \ \ 0.500000 - 0.866025I$	$0.211005 - 0.614778I$	$4.65255 - 0.59814I$
$u = -0.395123 - 0.506844I$ $a = -1.54112 + 1.51713I$ $b = \ \ 0.500000 + 0.866025I$	$0.21101 + 3.44499I$	$1.64912 - 8.49900I$
$u = -0.10488 + 1.55249I$ $a = \ \ 0.53364 + 1.37394I$ $b = \ \ 0.500000 + 0.866025I$	$-6.79074 - 1.13408I$	$1.99896 - 0.39034I$
$u = -0.10488 + 1.55249I$ $a = -0.57695 - 2.01514I$ $b = \ \ 0.500000 - 0.866025I$	$-6.79074 - 5.19385I$	$-1.80063 + 6.43123I$
$u = -0.10488 - 1.55249I$ $a = \ \ 0.53364 - 1.37394I$ $b = \ \ 0.500000 - 0.866025I$	$-6.79074 + 1.13408I$	$1.99896 + 0.39034I$
$u = -0.10488 - 1.55249I$ $a = -0.57695 + 2.01514I$ $b = \ \ 0.500000 + 0.866025I$	$-6.79074 + 5.19385I$	$-1.80063 - 6.43123I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^4)(u^{23}+3u^{22}+\cdots+4u-1)$
c_2	$((u^2+u+1)^4)(u^{23}+5u^{22}+\cdots-4u-1)$
c_3	$((u^2-u+1)^4)(u^{23}-5u^{22}+\cdots-2678u-593)$
c_4, c_8	$u^8(u^{23}-u^{22}+\cdots+128u-256)$
c_5	$((u^2-u+1)^4)(u^{23}+5u^{22}+\cdots-4u-1)$
c_6, c_7	$((u^4+u^3+3u^2+2u+1)^2)(u^{23}+3u^{22}+\cdots-4u-1)$
c_9	$((u^4+u^3+u^2+1)^2)(u^{23}-u^{22}+\cdots+2u^2-1)$
c_{10}, c_{11}	$((u^4-u^3+3u^2-2u+1)^2)(u^{23}+3u^{22}+\cdots-4u-1)$
c_{12}	$((u^4-u^3+u^2+1)^2)(u^{23}-u^{22}+\cdots+2u^2-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^4)(y^{23}+39y^{22}+\cdots+4y-1)$
c_2, c_5	$((y^2+y+1)^4)(y^{23}+3y^{22}+\cdots+4y-1)$
c_3	$((y^2+y+1)^4)(y^{23}+75y^{22}+\cdots-1.50919\times10^7y-351649)$
c_4, c_8	$y^8(y^{23}-45y^{22}+\cdots-212992y-65536)$
c_6, c_7, c_{10} c_{11}	$((y^4+5y^3+7y^2+2y+1)^2)(y^{23}+25y^{22}+\cdots+4y-1)$
c_9, c_{12}	$((y^4+y^3+3y^2+2y+1)^2)(y^{23}+41y^{22}+\cdots+4y-1)$