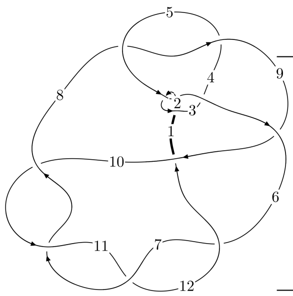
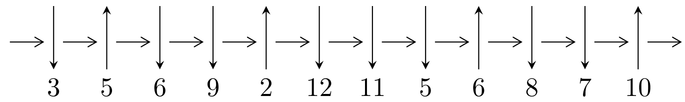
$12n_{0046}$ ($K12n_{0046}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{27} - 2u^{26} + \cdots + 2b - 6u,\ u^{26} + 2u^{25} + \cdots + 2a + 4,\ u^{28} + 3u^{27} + \cdots + 6u + 1\rangle$$
$$I_2^u = \langle -au + b - u,\ u^3a - u^2a - u^3 + a^2 + 3au - 2u,\ u^4 - u^3 + 3u^2 - 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 36 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. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle -u^{27}-2u^{26}+\cdots+2b-6u,\ u^{26}+2u^{25}+\cdots+2a+4,\ u^{28}+3u^{27}+\cdots+6u+1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{26} - u^{25} + \cdots - \frac{33}{2}u^2 - 2 \\ \frac{1}{2}u^{27} + u^{26} + \cdots + u^2 + 3u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{2}u^{27} - \frac{3}{2}u^{26} + \cdots - 15u - 2 \\ -\frac{1}{2}u^{27} - u^{26} + \cdots - 3u - 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{27} + \frac{7}{2}u^{26} + \cdots + 20u + 3 \\ -\frac{1}{2}u^{27} - 2u^{26} + \cdots - 14u^2 - 2u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^7 + 4u^5 + 4u^3 \\ u^9 + 5u^7 + 7u^5 + 2u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^5 - 2u^3 + u \\ u^5 + 3u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{3}{2}u^{27} - \frac{11}{2}u^{26} + \cdots - 22u - 3 \\ \frac{1}{2}u^{27} + 2u^{26} + \cdots + 14u^2 + 2u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3 + 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{5}{2}u^{27} + 5u^{26} + \cdots + 21u + \frac{1}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{28} + 5u^{27} + \cdots + 14u + 1$
c_2, c_5	$u^{28} + 5u^{27} + \cdots + 4u + 1$
c_3	$u^{28} - 5u^{27} + \cdots + 5562u + 1321$
c_4, c_8	$u^{28} + u^{27} + \cdots + 384u + 256$
c_6, c_7, c_{10} c_{11}	$u^{28} - 3u^{27} + \cdots - 6u + 1$
c_9	$u^{28} - 3u^{27} + \cdots - 2u + 1$
c_{12}	$u^{28} + 11u^{27} + \cdots + 184u + 209$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{28} + 41y^{27} + \cdots + 14y + 1$
c_2, c_5	$y^{28} + 5y^{27} + \cdots + 14y + 1$
c_3	$y^{28} + 77y^{27} + \cdots + 102223598y + 1745041$
c_4, c_8	$y^{28} + 45y^{27} + \cdots + 344064y + 65536$
c_6, c_7, c_{10} c_{11}	$y^{28} + 35y^{27} + \cdots + 6y + 1$
c_9	$y^{28} - 49y^{27} + \cdots + 6y + 1$
c_{12}	$y^{28} - 29y^{27} + \cdots + 2808126y + 43681$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.546864+0.864620I$ $a=-1.78266+0.81365I$ $b=\ \ 0.938673+1.030660I$	$12.0428+7.8502I$	$0.54802-5.73315I$
$u=-0.546864-0.864620I$ $a=-1.78266-0.81365I$ $b=\ \ 0.938673-1.030660I$	$12.0428-7.8502I$	$0.54802+5.73315I$
$u=-0.512075+0.914815I$ $a=-0.310810+0.834490I$ $b=\ \ 1.006070-0.921537I$	$12.40950+0.72573I$	$1.20101-1.26627I$
$u=-0.512075-0.914815I$ $a=-0.310810-0.834490I$ $b=\ \ 1.006070+0.921537I$	$12.40950-0.72573I$	$1.20101+1.26627I$
$u=\ \ 0.041750+0.816332I$ $a=\ \ 0.984967-0.816170I$ $b=-0.730216+0.546904I$	$2.67787-1.51352I$	$3.15826+2.96332I$
$u=\ \ 0.041750-0.816332I$ $a=\ \ 0.984967+0.816170I$ $b=-0.730216-0.546904I$	$2.67787+1.51352I$	$3.15826-2.96332I$
$u=-0.755205+0.031373I$ $a=-0.154324-0.783184I$ $b=\ \ 0.955403-0.970517I$	$9.53090-3.51075I$	$-2.36490+2.10810I$
$u=-0.755205-0.031373I$ $a=-0.154324+0.783184I$ $b=\ \ 0.955403+0.970517I$	$9.53090+3.51075I$	$-2.36490-2.10810I$
$u=\ \ 0.429610+0.590805I$ $a=-1.30185-0.60397I$ $b=\ \ 0.291696-0.394438I$	$-0.15101-2.02920I$	$-3.29658+3.20774I$
$u=\ \ 0.429610-0.590805I$ $a=-1.30185+0.60397I$ $b=\ \ 0.291696+0.394438I$	$-0.15101+2.02920I$	$-3.29658-3.20774I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.179883 + 0.692364I$ $a = 2.11541 - 0.80616I$ $b = -0.514946 - 1.029420I$	$1.04465 + 3.25872I$	$1.94579 - 3.88394I$
$u = -0.179883 - 0.692364I$ $a = 2.11541 + 0.80616I$ $b = -0.514946 + 1.029420I$	$1.04465 - 3.25872I$	$1.94579 + 3.88394I$
$u = 0.398241 + 0.347741I$ $a = -0.595350 + 0.678601I$ $b = -0.007486 + 0.515758I$	$-0.844911 - 0.963937I$	$-7.23227 + 5.09608I$
$u = 0.398241 - 0.347741I$ $a = -0.595350 - 0.678601I$ $b = -0.007486 - 0.515758I$	$-0.844911 + 0.963937I$	$-7.23227 - 5.09608I$
$u = 0.05307 + 1.53702I$ $a = -0.565559 + 0.333640I$ $b = 0.007766 + 0.841204I$	$5.52882 - 2.13387I$	$-4.00000 + 3.29212I$
$u = 0.05307 - 1.53702I$ $a = -0.565559 - 0.333640I$ $b = 0.007766 - 0.841204I$	$5.52882 + 2.13387I$	$-4.00000 - 3.29212I$
$u = 0.12702 + 1.57248I$ $a = -1.339830 - 0.272553I$ $b = 0.478138 - 0.445759I$	$7.19200 - 4.05999I$	0
$u = 0.12702 - 1.57248I$ $a = -1.339830 + 0.272553I$ $b = 0.478138 + 0.445759I$	$7.19200 + 4.05999I$	0
$u = -0.04195 + 1.63425I$ $a = 1.62168 + 0.08443I$ $b = -0.578450 - 1.150140I$	$9.22292 + 4.03870I$	$0. - 2.65080I$
$u = -0.04195 - 1.63425I$ $a = 1.62168 - 0.08443I$ $b = -0.578450 + 1.150140I$	$9.22292 - 4.03870I$	$0. + 2.65080I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.01177 + 1.65893I$ $a = 1.41681 - 0.67494I$ $b = -0.955702 + 0.548085I$	$11.38100 - 1.72426I$	$3.45594 + 0.I$
$u = 0.01177 - 1.65893I$ $a = 1.41681 + 0.67494I$ $b = -0.955702 - 0.548085I$	$11.38100 + 1.72426I$	$3.45594 + 0.I$
$u = -0.16140 + 1.66866I$ $a = -1.98113 + 0.05979I$ $b = 0.93469 + 1.08649I$	$-18.7492 + 10.6138I$	$0. - 4.77955I$
$u = -0.16140 - 1.66866I$ $a = -1.98113 - 0.05979I$ $b = 0.93469 - 1.08649I$	$-18.7492 - 10.6138I$	$0. + 4.77955I$
$u = -0.14287 + 1.68669I$ $a = -1.04698 + 1.01839I$ $b = 1.072160 - 0.890015I$	$-18.0712 + 3.2992I$	0
$u = -0.14287 - 1.68669I$ $a = -1.04698 - 1.01839I$ $b = 1.072160 + 0.890015I$	$-18.0712 - 3.2992I$	0
$u = -0.221218 + 0.191391I$ $a = -2.06037 + 1.41739I$ $b = -0.397798 + 0.843645I$	$-0.31537 - 1.65529I$	$-2.65586 + 5.38450I$
$u = -0.221218 - 0.191391I$ $a = -2.06037 - 1.41739I$ $b = -0.397798 - 0.843645I$	$-0.31537 + 1.65529I$	$-2.65586 - 5.38450I$

II.

$\boldsymbol{I^u_2 = \langle -au + b - u,\ u^3a - u^2a - u^3 + a^2 + 3au - 2u,\ u^4 - u^3 + 3u^2 - 2u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^2a + 4u^3 - 4au - 5u^2 + a + 9u - 5$

(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, c_{12}	$(u^4 + u^3 + u^2 + 1)^2$
c_{10}, c_{11}	$(u^4 + u^3 + 3u^2 + 2u + 1)^2$

(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
$u = 0.395123 + 0.506844I$ $a = 0.541116 + 0.214920I$ $b = 0.500000 + 0.866025I$	$-0.211005 + 0.614778I$	$-1.64912 + 1.57080I$
$u = 0.395123 + 0.506844I$ $a = -1.58443 - 1.44211I$ $b = 0.500000 - 0.866025I$	$-0.21101 - 3.44499I$	$-4.65255 + 7.52635I$
$u = 0.395123 - 0.506844I$ $a = 0.541116 - 0.214920I$ $b = 0.500000 - 0.866025I$	$-0.211005 - 0.614778I$	$-1.64912 - 1.57080I$
$u = 0.395123 - 0.506844I$ $a = -1.58443 + 1.44211I$ $b = 0.500000 + 0.866025I$	$-0.21101 + 3.44499I$	$-4.65255 - 7.52635I$
$u = 0.10488 + 1.55249I$ $a = -0.423047 - 0.283088I$ $b = 0.500000 + 0.866025I$	$6.79074 - 1.13408I$	$1.80063 - 0.49697I$
$u = 0.10488 + 1.55249I$ $a = -1.53364 - 0.35811I$ $b = 0.500000 - 0.866025I$	$6.79074 - 5.19385I$	$-1.99896 + 6.53786I$
$u = 0.10488 - 1.55249I$ $a = -0.423047 + 0.283088I$ $b = 0.500000 - 0.866025I$	$6.79074 + 1.13408I$	$1.80063 + 0.49697I$
$u = 0.10488 - 1.55249I$ $a = -1.53364 + 0.35811I$ $b = 0.500000 + 0.866025I$	$6.79074 + 5.19385I$	$-1.99896 - 6.53786I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^4)(u^{28}+5u^{27}+\cdots+14u+1)$
c_2	$((u^2+u+1)^4)(u^{28}+5u^{27}+\cdots+4u+1)$
c_3	$((u^2-u+1)^4)(u^{28}-5u^{27}+\cdots+5562u+1321)$
c_4, c_8	$u^8(u^{28}+u^{27}+\cdots+384u+256)$
c_5	$((u^2-u+1)^4)(u^{28}+5u^{27}+\cdots+4u+1)$
c_6, c_7	$((u^4-u^3+3u^2-2u+1)^2)(u^{28}-3u^{27}+\cdots-6u+1)$
c_9	$((u^4+u^3+u^2+1)^2)(u^{28}-3u^{27}+\cdots-2u+1)$
c_{10}, c_{11}	$((u^4+u^3+3u^2+2u+1)^2)(u^{28}-3u^{27}+\cdots-6u+1)$
c_{12}	$((u^4+u^3+u^2+1)^2)(u^{28}+11u^{27}+\cdots+184u+209)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^4)(y^{28}+41y^{27}+\cdots+14y+1)$
c_2, c_5	$((y^2+y+1)^4)(y^{28}+5y^{27}+\cdots+14y+1)$
c_3	$((y^2+y+1)^4)(y^{28}+77y^{27}+\cdots+1.02224\times 10^8 y+1745041)$
c_4, c_8	$y^8(y^{28}+45y^{27}+\cdots+344064y+65536)$
c_6, c_7, c_{10} c_{11}	$((y^4+5y^3+7y^2+2y+1)^2)(y^{28}+35y^{27}+\cdots+6y+1)$
c_9	$((y^4+y^3+3y^2+2y+1)^2)(y^{28}-49y^{27}+\cdots+6y+1)$
c_{12}	$((y^4+y^3+3y^2+2y+1)^2)(y^{28}-29y^{27}+\cdots+2808126y+43681)$