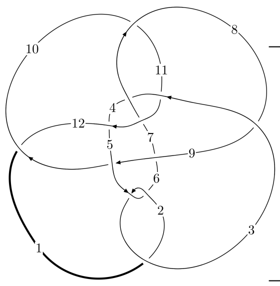
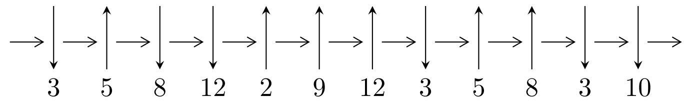
$12n_{0462}$ ($K12n_{0462}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle &-149788246u^{19} + 735301154u^{18} + \cdots + 16882806339b - 24202510048,\\
&- 38489542585u^{19} + 46865050127u^{18} + \cdots + 16882806339a - 207132124495,\\
&u^{20} - u^{19} + \cdots + 11u + 1\rangle\\
I^u_2 = \langle &u^2 + b + 1,\ u^5 - 2u^4 + 5u^3 - 6u^2 + 3a + 6u - 1,\ u^6 - u^5 + 5u^4 - 4u^3 + 7u^2 - 2u + 3\rangle\\
I^u_3 = \langle &b - u,\ a - u,\ u^2 + u + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 28 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.

$$\boldsymbol{I_1^u = \langle -1.50\times 10^8 u^{19} + 7.35\times 10^8 u^{18} + \cdots + 1.69\times 10^{10} b - 2.42\times 10^{10},\ -3.85\times 10^{10} u^{19} + 4.69\times 10^{10} u^{18} + \cdots + 1.69\times 10^{10} a - 2.07\times 10^{11},\ u^{20} - u^{19} + \cdots + 11u + 1\rangle}$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 2.27981u^{19} - 2.77590u^{18} + \cdots + 74.2433u + 12.2688 \\ 0.00887224u^{19} - 0.0435533u^{18} + \cdots + 9.24808u + 1.43356 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2.27981u^{19} - 2.77590u^{18} + \cdots + 74.2433u + 12.2688 \\ 0.0852452u^{19} - 0.0369754u^{18} + \cdots + 12.4253u + 1.92966 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2.36505u^{19} - 2.81288u^{18} + \cdots + 86.6686u + 14.1985 \\ 0.0852452u^{19} - 0.0369754u^{18} + \cdots + 12.4253u + 1.92966 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.00359098u^{19} + 0.391699u^{18} + \cdots + 9.11164u + 4.91265 \\ 0.327637u^{19} - 0.499312u^{18} + \cdots + 0.549227u + 0.495867 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.627286u^{19} - 0.803555u^{18} + \cdots + 31.8391u + 2.03483 \\ 0.253178u^{19} - 0.0827151u^{18} + \cdots + 12.4507u + 0.748328 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.92966u^{19} - 2.01490u^{18} + \cdots + 73.2986u + 8.80089 \\ 0.509356u^{19} - 0.765818u^{18} + \cdots + 2.50917u + 0.308552 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^3 - u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.324046u^{19} - 0.107613u^{18} + \cdots + 9.66087u + 5.40852 \\ 0.327637u^{19} - 0.499312u^{18} + \cdots + 0.549227u + 0.495867 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{12674828861}{16882806339}u^{19} + \frac{1750449202}{2411829477}u^{18} + \cdots - \frac{510127682849}{16882806339}u + \frac{10680247402}{16882806339}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} + 27u^{19} + \cdots - 27u + 1$
c_2, c_5	$u^{20} + u^{19} + \cdots - 11u + 1$
c_3, c_8	$u^{20} - u^{19} + \cdots + 11u + 1$
c_4	$u^{20} + 2u^{19} + \cdots - 27u + 51$
c_6	$u^{20} + 16u^{18} + \cdots - 16u + 52$
c_7	$u^{20} - 3u^{19} + \cdots + 109u^2 + 21$
c_9	$u^{20} - 2u^{19} + \cdots + 27u + 51$
c_{10}	$u^{20} + 5u^{19} + \cdots + 57u + 7$
c_{11}	$u^{20} + 16u^{18} + \cdots + 16u + 52$
c_{12}	$u^{20} - 5u^{19} + \cdots - 57u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{20} - 61y^{19} + \cdots + 169y + 1$
c_2, c_3, c_5 c_8	$y^{20} + 27y^{19} + \cdots - 27y + 1$
c_4, c_9	$y^{20} + 18y^{19} + \cdots + 17835y + 2601$
c_6, c_{11}	$y^{20} + 32y^{19} + \cdots + 7024y + 2704$
c_7	$y^{20} - 33y^{19} + \cdots + 4578y + 441$
c_{10}, c_{12}	$y^{20} - 15y^{19} + \cdots - 1835y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.160143 + 0.768509I$ $a = -0.394995 - 1.004840I$ $b = -0.636041 - 0.396936I$	$-1.10947 - 1.48655I$	$-5.12329 + 2.41841I$
$u = 0.160143 - 0.768509I$ $a = -0.394995 + 1.004840I$ $b = -0.636041 + 0.396936I$	$-1.10947 + 1.48655I$	$-5.12329 - 2.41841I$
$u = -0.484926 + 0.607075I$ $a = 0.577525 - 0.647733I$ $b = -0.026523 - 0.353444I$	$-1.43025I$	$0. + 5.92138I$
$u = -0.484926 - 0.607075I$ $a = 0.577525 + 0.647733I$ $b = -0.026523 + 0.353444I$	$1.43025I$	$0. - 5.92138I$
$u = -0.08307 + 1.42113I$ $a = -0.271547 + 1.012220I$ $b = -1.110600 + 0.490957I$	$3.72589 - 1.03786I$	$1.73919 + 0.58908I$
$u = -0.08307 - 1.42113I$ $a = -0.271547 - 1.012220I$ $b = -1.110600 - 0.490957I$	$3.72589 + 1.03786I$	$1.73919 - 0.58908I$
$u = 1.18575 + 0.83320I$ $a = 0.626136 + 0.573895I$ $b = 0.569199 + 0.092819I$	$8.81653 + 3.95168I$	$0.25331 - 3.24699I$
$u = 1.18575 - 0.83320I$ $a = 0.626136 - 0.573895I$ $b = 0.569199 - 0.092819I$	$8.81653 - 3.95168I$	$0.25331 + 3.24699I$
$u = -0.104414 + 0.507262I$ $a = 1.44705 - 1.63599I$ $b = 0.64554 + 1.51309I$	$10.23410 - 0.33723I$	$1.46943 - 0.53181I$
$u = -0.104414 - 0.507262I$ $a = 1.44705 + 1.63599I$ $b = 0.64554 - 1.51309I$	$10.23410 + 0.33723I$	$1.46943 + 0.53181I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.32507+1.48224I$ $a=\ \ 0.843038-0.018166I$ $b=\ \ 1.69755-0.64672I$	$-3.72589-1.03786I$	$-1.73919+0.58908I$
$u=-0.32507-1.48224I$ $a=\ \ 0.843038+0.018166I$ $b=\ \ 1.69755+0.64672I$	$-3.72589+1.03786I$	$-1.73919-0.58908I$
$u=-0.11912+1.73852I$ $a=-1.211980-0.171698I$ $b=-2.38905-0.18528I$	$-8.81653-3.95168I$	$-0.25331+3.24699I$
$u=-0.11912-1.73852I$ $a=-1.211980+0.171698I$ $b=-2.38905+0.18528I$	$-8.81653+3.95168I$	$-0.25331-3.24699I$
$u=\ \ 0.11567+1.76293I$ $a=\ \ 0.697284+0.000472I$ $b=\ \ 2.05356+0.22436I$	$-10.23410+0.33723I$	$-1.46943+0.53181I$
$u=\ \ 0.11567-1.76293I$ $a=\ \ 0.697284-0.000472I$ $b=\ \ 2.05356-0.22436I$	$-10.23410-0.33723I$	$-1.46943-0.53181I$
$u=\ \ 0.32058+1.78463I$ $a=-0.974674+0.336167I$ $b=-2.29883+0.36675I$	$9.75717I$	$0.-4.10936I$
$u=\ \ 0.32058-1.78463I$ $a=-0.974674-0.336167I$ $b=-2.29883-0.36675I$	$-9.75717I$	$0.+4.10936I$
$u=-0.165551+0.073534I$ $a=\ \ 2.16216+4.82053I$ $b=-0.004791+0.715102I$	$1.10947+1.48655I$	$5.12329-2.41841I$
$u=-0.165551-0.073534I$ $a=\ \ 2.16216-4.82053I$ $b=-0.004791-0.715102I$	$1.10947-1.48655I$	$5.12329+2.41841I$

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle u^2+b+1,\ u^5-2u^4+5u^3-6u^2+3a+6u-1,\ u^6-u^5+5u^4-4u^3+7u^2-2u+3\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -\frac{1}{3}u^5 + \frac{2}{3}u^4 + \cdots - 2u + \frac{1}{3} \\ -u^2 - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{1}{3}u^5 + \frac{2}{3}u^4 + \cdots - 2u + \frac{1}{3} \\ \frac{1}{3}u^5 - u^4 + \cdots + \frac{5}{3}u - 2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{1}{3}u^4 - \frac{5}{3}u^2 - \frac{1}{3}u - \frac{5}{3} \\ \frac{1}{3}u^5 - u^4 + \cdots + \frac{5}{3}u - 2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -\frac{1}{3}u^5 + \frac{2}{3}u^4 + \cdots - 2u + \frac{7}{3} \\ -\frac{2}{3}u^5 + u^4 + \cdots - \frac{4}{3}u + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{2}{3}u^5 + \frac{1}{3}u^4 + \cdots + \frac{2}{3}u + \frac{5}{3} \\ \frac{2}{3}u^5 + \frac{7}{3}u^3 - \frac{1}{3}u^2 + \frac{4}{3}u - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{2}{3}u^5 + \frac{1}{3}u^4 + \cdots - u - \frac{1}{3} \\ u^3 + u^2 + 2u + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^5 + \frac{5}{3}u^4 + \cdots - \frac{10}{3}u + \frac{10}{3} \\ -\frac{2}{3}u^5 + u^4 + \cdots - \frac{4}{3}u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^5 - 3u^4 + 5u^3 - 11u^2 + 8u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^6 - 9u^5 + 31u^4 - 56u^3 + 63u^2 - 38u + 9$
c_2, c_8	$u^6 - u^5 + 5u^4 - 4u^3 + 7u^2 - 2u + 3$
c_3, c_5	$u^6 + u^5 + 5u^4 + 4u^3 + 7u^2 + 2u + 3$
c_4	$u^6 + 2u^4 + 3u^3 + 2u^2 + 1$
c_6	$u^6 - u^5 + 4u^4 - 2u^3 - 8u^2 + 6u + 9$
c_7	$u^6 - 3u^5 + u^4 - 2u^3 + 6u^2 + 5u + 1$
c_9	$u^6 + 2u^4 - 3u^3 + 2u^2 + 1$
c_{10}	$u^6 - 3u^5 + 5u^3 - u^2 - 2u + 3$
c_{11}	$u^6 + u^5 + 4u^4 + 2u^3 - 8u^2 - 6u + 9$
c_{12}	$u^6 + 3u^5 - 5u^3 - u^2 + 2u + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 - 19y^5 + 79y^4 + 104y^3 + 271y^2 - 310y + 81$
c_2, c_3, c_5 c_8	$y^6 + 9y^5 + 31y^4 + 56y^3 + 63y^2 + 38y + 9$
c_4, c_9	$y^6 + 4y^5 + 8y^4 + y^3 + 8y^2 + 4y + 1$
c_6, c_{11}	$y^6 + 7y^5 - 4y^4 - 38y^3 + 160y^2 - 180y + 81$
c_7	$y^6 - 7y^5 + y^4 + 40y^3 + 58y^2 - 13y + 1$
c_{10}, c_{12}	$y^6 - 9y^5 + 28y^4 - 31y^3 + 21y^2 - 10y + 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.615293 + 1.007340I$ $a = -0.488052 - 0.086507I$ $b = -0.363854 - 1.239620I$	$10.45590 + 2.33911I$	$2.00744 - 2.34673I$
$u = \ \ 0.615293 - 1.007340I$ $a = -0.488052 + 0.086507I$ $b = -0.363854 + 1.239620I$	$10.45590 - 2.33911I$	$2.00744 + 2.34673I$
$u = -0.061440 + 0.817267I$ $a = -0.744380 - 0.966777I$ $b = -0.335850 + 0.100426I$	$-2.22275I$	$0. + 4.90360I$
$u = -0.061440 - 0.817267I$ $a = -0.744380 + 0.966777I$ $b = -0.335850 - 0.100426I$	$2.22275I$	$0. - 4.90360I$
$u = -0.05385 + 1.78958I$ $a = \ \ 0.899099 + 0.320901I$ $b = \ \ 2.19970 + 0.19275I$	$-10.45590 - 2.33911I$	$-2.00744 + 2.34673I$
$u = -0.05385 - 1.78958I$ $a = \ \ 0.899099 - 0.320901I$ $b = \ \ 2.19970 - 0.19275I$	$-10.45590 + 2.33911I$	$-2.00744 - 2.34673I$

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

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ -u - 1 \end{pmatrix}$$

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -0.500000 + 0.866025I$ $b = -0.500000 + 0.866025I$	0	0
$u = -0.500000 - 0.866025I$ $a = -0.500000 - 0.866025I$ $b = -0.500000 - 0.866025I$	0	0

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)(u^6-9u^5+31u^4-56u^3+63u^2-38u+9)$ $\cdot(u^{20}+27u^{19}+\cdots-27u+1)$
c_2	$(u^2+u+1)(u^6-u^5+5u^4-4u^3+7u^2-2u+3)$ $\cdot(u^{20}+u^{19}+\cdots-11u+1)$
c_3	$(u^2-u+1)(u^6+u^5+5u^4+4u^3+7u^2+2u+3)$ $\cdot(u^{20}-u^{19}+\cdots+11u+1)$
c_4	$(u^2-u+1)(u^6+2u^4+\cdots+2u^2+1)(u^{20}+2u^{19}+\cdots-27u+51)$
c_5	$(u^2-u+1)(u^6+u^5+5u^4+4u^3+7u^2+2u+3)$ $\cdot(u^{20}+u^{19}+\cdots-11u+1)$
c_6	$u^2(u^6-u^5+\cdots+6u+9)(u^{20}+16u^{18}+\cdots-16u+52)$
c_7	$(u^2+u+1)(u^6-3u^5+u^4-2u^3+6u^2+5u+1)$ $\cdot(u^{20}-3u^{19}+\cdots+109u^2+21)$
c_8	$(u^2+u+1)(u^6-u^5+5u^4-4u^3+7u^2-2u+3)$ $\cdot(u^{20}-u^{19}+\cdots+11u+1)$
c_9	$(u^2+u+1)(u^6+2u^4+\cdots+2u^2+1)(u^{20}-2u^{19}+\cdots+27u+51)$
c_{10}	$(u^2-u+1)(u^6-3u^5+\cdots-2u+3)(u^{20}+5u^{19}+\cdots+57u+7)$
c_{11}	$u^2(u^6+u^5+\cdots-6u+9)(u^{20}+16u^{18}+\cdots+16u+52)$
c_{12}	$(u^2+u+1)(u^6+3u^5+\cdots+2u+3)(u^{20}-5u^{19}+\cdots-57u+7)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+y+1)(y^6-19y^5+79y^4+104y^3+271y^2-310y+81)$ $\cdot(y^{20}-61y^{19}+\cdots+169y+1)$
c_2, c_3, c_5 c_8	$(y^2+y+1)(y^6+9y^5+31y^4+56y^3+63y^2+38y+9)$ $\cdot(y^{20}+27y^{19}+\cdots-27y+1)$
c_4, c_9	$(y^2+y+1)(y^6+4y^5+8y^4+y^3+8y^2+4y+1)$ $\cdot(y^{20}+18y^{19}+\cdots+17835y+2601)$
c_6, c_{11}	$y^2(y^6+7y^5-4y^4-38y^3+160y^2-180y+81)$ $\cdot(y^{20}+32y^{19}+\cdots+7024y+2704)$
c_7	$(y^2+y+1)(y^6-7y^5+y^4+40y^3+58y^2-13y+1)$ $\cdot(y^{20}-33y^{19}+\cdots+4578y+441)$
c_{10}, c_{12}	$(y^2+y+1)(y^6-9y^5+28y^4-31y^3+21y^2-10y+9)$ $\cdot(y^{20}-15y^{19}+\cdots-1835y+49)$