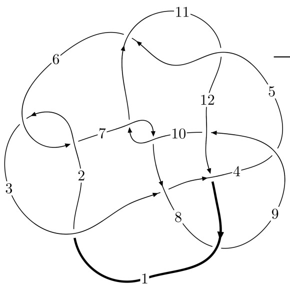
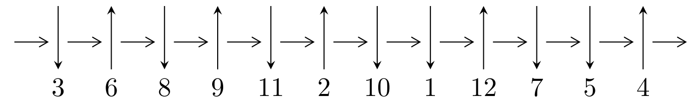
$12a_{0286}$ ($K12a_{0286}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.08457 \times 10^{28} u^{31} - 9.68465 \times 10^{27} u^{30} + \cdots + 3.30621 \times 10^{28} b + 6.26853 \times 10^{28},$$
$$1.00919 \times 10^{29} u^{31} - 4.41562 \times 10^{28} u^{30} + \cdots + 3.30621 \times 10^{28} a + 4.42115 \times 10^{28},\ u^{32} - 2u^{30} + \cdots + 2u + 1$$
$$I_2^u = \langle -u^3 + u^2 + 4b - 5u + 2,\ a,\ u^4 - u^3 + 5u^2 - 2u + 4 \rangle$$

* 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.

$\boldsymbol{I_1^u = \langle -1.08\times 10^{28}u^{31} - 9.68\times 10^{27}u^{30} + \cdots + 3.31\times 10^{28}b + 6.27\times 10^{28},\ 1.01\times 10^{29}u^{31} - 4.42\times 10^{28}u^{30} + \cdots + 3.31\times 10^{28}a + 4.42\times 10^{28},\ u^{32} - 2u^{30} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-3.05243u^{31} + 1.33556u^{30} + \cdots - 5.33264u - 1.33723\\0.328041u^{31} + 0.292923u^{30} + \cdots + 0.733300u - 1.89599\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}6.38763u^{31} - 3.08529u^{30} + \cdots + 7.92825u + 8.64307\\-0.227028u^{31} + 0.570345u^{30} + \cdots - 1.64514u + 1.43963\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-2.72438u^{31} + 1.62848u^{30} + \cdots - 4.59934u - 3.23322\\0.328041u^{31} + 0.292923u^{30} + \cdots + 0.733300u - 1.89599\end{pmatrix}$$
$$a_8 = \begin{pmatrix}5.67422u^{31} - 2.13572u^{30} + \cdots + 1.41383u + 9.56776\\-0.486384u^{31} + 0.379216u^{30} + \cdots - 2.86928u - 0.514941\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-3.24515u^{31} + 1.67422u^{30} + \cdots - 3.02690u - 4.97838\\0.304612u^{31} - 0.193228u^{30} + \cdots + 3.65994u - 0.679133\end{pmatrix}$$
$$a_7 = \begin{pmatrix}7.00844u^{31} - 0.808937u^{30} + \cdots - 7.09680u + 17.1331\\-2.34735u^{31} - 0.0978616u^{30} + \cdots - 1.67702u - 2.05955\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-3.95240u^{31} + 1.64688u^{30} + \cdots - 4.21803u - 4.56877\\0.349246u^{31} + 0.484634u^{30} + \cdots + 0.455964u - 1.58467\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-2.33177u^{31} + 0.938856u^{30} + \cdots + 3.06552u - 9.72970\\2.18533u^{31} - 0.590773u^{30} + \cdots + 3.26730u + 2.12120\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-8.37149u^{31} + 5.01296u^{30} + \cdots - 12.6435u - 10.7929\\-1.24677u^{31} - 0.611740u^{30} + \cdots + 8.72740u - 2.92118\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4.80290u^{31} - 0.110659u^{30} + \cdots - 8.67744u + 4.28329$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{32} - 16u^{31} + \cdots - 10u + 1$
c_2	$u^{32} - 4u^{31} + \cdots - 6u + 1$
c_3	$u^{32} + 8u^{30} + \cdots + 6u + 1$
c_4	$u^{32} - 2u^{30} + \cdots + 2u + 1$
c_5	$u^{32} - 4u^{31} + \cdots + 8u + 1$
c_6	$u^{32} + 4u^{31} + \cdots + 6u + 1$
c_7	$u^{32} - 10u^{31} + \cdots - 2u + 1$
c_8	$u^{32} + 6u^{31} + \cdots + 4u + 1$
c_9	$u^{32} + 10u^{31} + \cdots + 538u + 73$
c_{10}	$u^{32} + 10u^{31} + \cdots + 2u + 1$
c_{11}	$u^{32} + 4u^{31} + \cdots - 8u + 1$
c_{12}	$u^{32} + 4u^{31} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{32} + 4y^{31} + \cdots + 10y + 1$
c_2, c_6	$y^{32} + 16y^{31} + \cdots + 10y + 1$
c_3	$y^{32} + 16y^{31} + \cdots - 12y + 1$
c_4	$y^{32} - 4y^{31} + \cdots - 16y + 1$
c_5, c_{11}	$y^{32} + 20y^{31} + \cdots + 16y + 1$
c_7, c_{10}	$y^{32} + 18y^{31} + \cdots + 22y + 1$
c_8	$y^{32} - 12y^{31} + \cdots + 14y + 1$
c_9	$y^{32} - 14y^{31} + \cdots + 77162y + 5329$
c_{12}	$y^{32} - 4y^{31} + \cdots + 20y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.011430 + 0.076540I$ $a = -0.299553 - 1.057440I$ $b = 0.066450 + 1.277390I$	$1.95636 + 4.51992I$	$-2.62248 - 7.58475I$
$u = -1.011430 - 0.076540I$ $a = -0.299553 + 1.057440I$ $b = 0.066450 - 1.277390I$	$1.95636 - 4.51992I$	$-2.62248 + 7.58475I$
$u = -0.195501 + 0.960625I$ $a = -0.54851 - 1.43505I$ $b = -0.037707 - 0.482351I$	$-1.46529 - 0.97885I$	$-11.84592 - 4.46110I$
$u = -0.195501 - 0.960625I$ $a = -0.54851 + 1.43505I$ $b = -0.037707 + 0.482351I$	$-1.46529 + 0.97885I$	$-11.84592 + 4.46110I$
$u = 0.963349 + 0.082588I$ $a = 0.874463 + 0.489100I$ $b = -1.056860 - 0.880917I$	$0.52518 - 1.70904I$	$1.303152 + 0.227505I$
$u = 0.963349 - 0.082588I$ $a = 0.874463 - 0.489100I$ $b = -1.056860 + 0.880917I$	$0.52518 + 1.70904I$	$1.303152 - 0.227505I$
$u = 0.897933 + 0.134537I$ $a = -0.079600 - 1.057370I$ $b = -0.417549 + 0.423958I$	$-1.93841 - 3.89093I$	$-2.89352 + 9.56275I$
$u = 0.897933 - 0.134537I$ $a = -0.079600 + 1.057370I$ $b = -0.417549 - 0.423958I$	$-1.93841 + 3.89093I$	$-2.89352 - 9.56275I$
$u = -0.790801 + 0.178174I$ $a = -1.07264 + 1.31010I$ $b = 0.144360 - 0.486258I$	$-1.66071 - 1.88565I$	$0.611617 + 0.405112I$
$u = -0.790801 - 0.178174I$ $a = -1.07264 - 1.31010I$ $b = 0.144360 + 0.486258I$	$-1.66071 + 1.88565I$	$0.611617 - 0.405112I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.725473 + 0.306578I$ $a = 2.59490 + 0.04955I$ $b = -1.370940 - 0.282852I$	$-0.233393 + 0.291097I$	$-5.20473 + 2.81677I$
$u = 0.725473 - 0.306578I$ $a = 2.59490 - 0.04955I$ $b = -1.370940 + 0.282852I$	$-0.233393 - 0.291097I$	$-5.20473 - 2.81677I$
$u = -0.358787 + 1.159020I$ $a = 0.506557 + 0.930883I$ $b = -0.576105 + 0.212433I$	$7.03446 - 10.43960I$	$3.24799 + 7.92017I$
$u = -0.358787 - 1.159020I$ $a = 0.506557 - 0.930883I$ $b = -0.576105 - 0.212433I$	$7.03446 + 10.43960I$	$3.24799 - 7.92017I$
$u = -1.236250 + 0.423599I$ $a = -1.23017 + 0.89428I$ $b = 1.08185 - 1.47183I$	$4.04750 - 6.51115I$	$7.4827 + 17.7604I$
$u = -1.236250 - 0.423599I$ $a = -1.23017 - 0.89428I$ $b = 1.08185 + 1.47183I$	$4.04750 + 6.51115I$	$7.4827 - 17.7604I$
$u = 0.754987 + 1.099260I$ $a = -0.851878 + 0.547278I$ $b = 0.676413 + 0.328413I$	$8.54048 + 4.66147I$	$5.60896 - 3.18468I$
$u = 0.754987 - 1.099260I$ $a = -0.851878 - 0.547278I$ $b = 0.676413 - 0.328413I$	$8.54048 - 4.66147I$	$5.60896 + 3.18468I$
$u = -0.541157 + 0.373122I$ $a = -0.611032 - 0.446290I$ $b = 1.48390 - 0.85410I$	$2.56066 - 1.39415I$	$8.59786 - 1.04596I$
$u = -0.541157 - 0.373122I$ $a = -0.611032 + 0.446290I$ $b = 1.48390 + 0.85410I$	$2.56066 + 1.39415I$	$8.59786 + 1.04596I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.078990 + 0.816307I$ $a = 1.071980 - 0.021161I$ $b = -1.00062 - 1.06785I$	$0.04554 + 9.55039I$	$0.17757 - 7.82747I$
$u = 1.078990 - 0.816307I$ $a = 1.071980 + 0.021161I$ $b = -1.00062 + 1.06785I$	$0.04554 - 9.55039I$	$0.17757 + 7.82747I$
$u = 0.349670 + 0.386213I$ $a = -0.448966 - 0.257825I$ $b = 1.82694 + 1.31311I$	$3.77595 + 1.55640I$	$-10.9090 - 16.7964I$
$u = 0.349670 - 0.386213I$ $a = -0.448966 + 0.257825I$ $b = 1.82694 - 1.31311I$	$3.77595 - 1.55640I$	$-10.9090 + 16.7964I$
$u = 1.21893 + 0.86163I$ $a = -0.997262 - 0.051859I$ $b = 0.766581 + 0.643238I$	$7.91161 + 4.63893I$	$7.21423 - 8.93330I$
$u = 1.21893 - 0.86163I$ $a = -0.997262 + 0.051859I$ $b = 0.766581 - 0.643238I$	$7.91161 - 4.63893I$	$7.21423 + 8.93330I$
$u = -1.27730 + 0.81643I$ $a = -0.841795 + 0.203609I$ $b = 0.93799 - 1.07457I$	$2.06970 - 6.21261I$	$-3.30852 + 0.I$
$u = -1.27730 - 0.81643I$ $a = -0.841795 - 0.203609I$ $b = 0.93799 + 1.07457I$	$2.06970 + 6.21261I$	$-3.30852 + 0.I$
$u = -0.435914 + 0.191346I$ $a = 3.01618 - 0.43588I$ $b = -0.516431 - 0.791322I$	$1.57422 - 2.11475I$	$0.389556 + 1.338497I$
$u = -0.435914 - 0.191346I$ $a = 3.01618 + 0.43588I$ $b = -0.516431 + 0.791322I$	$1.57422 + 2.11475I$	$0.389556 - 1.338497I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.14221+1.69421I$ $a=-0.082679-0.594170I$ $b=-0.008276-0.433413I$	$1.44470+2.66235I$	$7.15055-3.68105I$
$u=-0.14221-1.69421I$ $a=-0.082679+0.594170I$ $b=-0.008276+0.433413I$	$1.44470-2.66235I$	$7.15055+3.68105I$

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

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ \frac{1}{4}u^3 - \frac{1}{4}u^2 + \frac{5}{4}u - \frac{1}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{1}{4}u^3 - \frac{1}{4}u^2 + \frac{5}{4}u - \frac{1}{2} \\ \frac{1}{4}u^3 - \frac{1}{4}u^2 + \frac{5}{4}u - \frac{1}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{4}u^3 + \frac{1}{4}u^2 - \frac{5}{4}u + \frac{1}{2} \\ -\frac{1}{4}u^3 + \frac{1}{4}u^2 - \frac{1}{4}u + \frac{1}{2} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{1}{8}u^3 + \frac{1}{8}u^2 + \frac{3}{8}u + 1 \\ \frac{1}{8}u^3 - \frac{7}{8}u^2 + \frac{3}{8}u - 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{1}{4}u^3 + \frac{1}{4}u^2 - \frac{5}{4}u + \frac{1}{2} \\ -\frac{1}{4}u^3 + \frac{1}{4}u^2 - \frac{5}{4}u + \frac{1}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{4}u^3 - \frac{1}{4}u^2 + \frac{5}{4}u - \frac{1}{2} \\ \frac{1}{4}u^3 - \frac{1}{4}u^2 + \frac{9}{4}u - \frac{1}{2} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{8}u^3 - \frac{1}{8}u^2 - \frac{3}{8}u \\ -\frac{1}{8}u^3 - \frac{9}{8}u^2 - \frac{3}{8}u - 2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{4}u^2 + \frac{1}{4}u + \frac{3}{4} \\ -\frac{3}{4}u^2 + \frac{5}{4}u - \frac{5}{4} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{103}{32}u^3 + \frac{223}{32}u^2 - \frac{279}{32}u + \frac{21}{16}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u^2 - u + 1)^2$
c_2	$(u^2 + u + 1)^2$
c_3	$4(4u^4 - 6u^3 + 11u^2 - 6u + 1)$
c_4	$u^4 - u^3 + 5u^2 - 2u + 4$
c_5	$4(4u^4 + 2u^3 + 5u^2 + u + 1)$
c_7, c_8	$(u - 1)^4$
c_9	u^4
c_{10}	$(u + 1)^4$
c_{11}, c_{12}	$4(4u^4 - 2u^3 + 5u^2 - u + 1)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6	$(y^2+y+1)^2$
c_3	$16(16y^4+52y^3+57y^2-14y+1)$
c_4	$y^4+9y^3+29y^2+36y+16$
c_5, c_{11}, c_{12}	$16(16y^4+36y^3+29y^2+9y+1)$
c_7, c_8, c_{10}	$(y-1)^4$
c_9	y^4

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.175835 + 1.026610I$ $a = 0$ $b = -0.162083 + 0.946318I$	$-1.64493 + 2.02988I$	$-5.57770 - 3.25874I$
$u = 0.175835 - 1.026610I$ $a = 0$ $b = -0.162083 - 0.946318I$	$-1.64493 - 2.02988I$	$-5.57770 + 3.25874I$
$u = 0.32417 + 1.89264I$ $a = 0$ $b = -0.087917 + 0.513305I$	$-1.64493 - 2.02988I$	$-14.6411 + 11.9508I$
$u = 0.32417 - 1.89264I$ $a = 0$ $b = -0.087917 - 0.513305I$	$-1.64493 + 2.02988I$	$-14.6411 - 11.9508I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^2)(u^{32}-16u^{31}+\cdots-10u+1)$
c_2	$((u^2+u+1)^2)(u^{32}-4u^{31}+\cdots-6u+1)$
c_3	$4(4u^4-6u^3+\cdots-6u+1)(u^{32}+8u^{30}+\cdots+6u+1)$
c_4	$(u^4-u^3+5u^2-2u+4)(u^{32}-2u^{30}+\cdots+2u+1)$
c_5	$4(4u^4+2u^3+\cdots+u+1)(u^{32}-4u^{31}+\cdots+8u+1)$
c_6	$((u^2-u+1)^2)(u^{32}+4u^{31}+\cdots+6u+1)$
c_7	$((u-1)^4)(u^{32}-10u^{31}+\cdots-2u+1)$
c_8	$((u-1)^4)(u^{32}+6u^{31}+\cdots+4u+1)$
c_9	$u^4(u^{32}+10u^{31}+\cdots+538u+73)$
c_{10}	$((u+1)^4)(u^{32}+10u^{31}+\cdots+2u+1)$
c_{11}	$4(4u^4-2u^3+\cdots-u+1)(u^{32}+4u^{31}+\cdots-8u+1)$
c_{12}	$4(4u^4-2u^3+\cdots-u+1)(u^{32}+4u^{31}+\cdots-2u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^2)(y^{32}+4y^{31}+\cdots+10y+1)$
c_2, c_6	$((y^2+y+1)^2)(y^{32}+16y^{31}+\cdots+10y+1)$
c_3	$16(16y^4+52y^3+\cdots-14y+1)(y^{32}+16y^{31}+\cdots-12y+1)$
c_4	$(y^4+9y^3+29y^2+36y+16)(y^{32}-4y^{31}+\cdots-16y+1)$
c_5, c_{11}	$16(16y^4+36y^3+\cdots+9y+1)(y^{32}+20y^{31}+\cdots+16y+1)$
c_7, c_{10}	$((y-1)^4)(y^{32}+18y^{31}+\cdots+22y+1)$
c_8	$((y-1)^4)(y^{32}-12y^{31}+\cdots+14y+1)$
c_9	$y^4(y^{32}-14y^{31}+\cdots+77162y+5329)$
c_{12}	$16(16y^4+36y^3+\cdots+9y+1)(y^{32}-4y^{31}+\cdots+20y+1)$