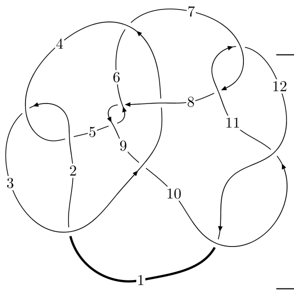
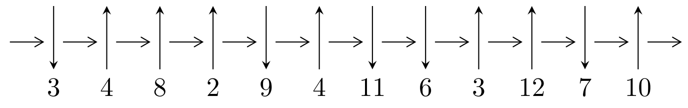
$12n_{0275}$ ($K12n_{0275}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-28980693473u^{29} - 23872677880u^{28} + \cdots + 214600733306b - 182162526839,\\
&- 563591323347u^{29} + 759883303462u^{28} + \cdots + 214600733306a - 449269653153,\\
&u^{30} - u^{29} + \cdots + 3u + 1\rangle\\
I_2^u = \langle &-u^5a - 2u^5 - u^3a - u^2a - u^3 - au - u^2 + 2b - 2u - 1,\\
&u^5a + u^4a + 3u^5 + u^4 + u^2a + u^3 + a^2 + u^2 + 2a + 6u + 1,\ u^6 + u^4 + 2u^2 + 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 42 representations.

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[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.

$\boldsymbol{I_1^u = \langle -2.90\times10^{10}u^{29} - 2.39\times10^{10}u^{28} + \cdots + 2.15\times10^{11}b - 1.82\times10^{11},\ -5.64\times10^{11}u^{29} + 7.60\times10^{11}u^{28} + \cdots + 2.15\times10^{11}a - 4.49\times10^{11},\ u^{30} - u^{29} + \cdots + 3u + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 2.62623u^{29} - 3.54092u^{28} + \cdots + 12.0914u + 2.09351 \\ 0.135045u^{29} + 0.111242u^{28} + \cdots + 0.745217u + 0.848844 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 2.84774u^{29} - 3.81213u^{28} + \cdots + 12.7188u + 2.02767 \\ -0.0194466u^{29} + 0.399642u^{28} + \cdots + 0.672837u + 0.898553 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.18157u^{29} - 2.05139u^{28} + \cdots + 1.94907u + 0.834389 \\ -0.135455u^{29} - 0.0144421u^{28} + \cdots - 1.18940u - 1.25661 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.09680u^{29} - 0.576198u^{28} + \cdots + 6.48933u + 4.12117 \\ -0.313730u^{29} + 0.598271u^{28} + \cdots - 1.65860u - 0.520599 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.947509u^{29} + 0.761849u^{28} + \cdots - 8.67784u - 0.427524 \\ -0.0270939u^{29} - 0.328296u^{28} + \cdots + 0.399856u - 1.39992 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -u^5 - u \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.54614u^{29} - 2.33858u^{28} + \cdots + 6.58387u + 1.61709 \\ -0.255461u^{29} + 0.288919u^{28} + \cdots - 1.75987u - 0.674753 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{116649735226}{107300366653}u^{29} + \frac{1485888842691}{107300366653}u^{28} + \cdots - \frac{7885484177729}{107300366653}u + \frac{2263126667156}{107300366653}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} + 47u^{29} + \cdots + 191u + 1$
c_2, c_4	$u^{30} - 5u^{29} + \cdots + 11u + 1$
c_3	$u^{30} - u^{29} + \cdots + 3u + 1$
c_5, c_8	$u^{30} - u^{29} + \cdots - 95u + 25$
c_6	$u^{30} + 3u^{29} + \cdots + 861u + 649$
c_7, c_{11}	$u^{30} + u^{29} + \cdots - 3u + 1$
c_9	$u^{30} + 3u^{29} + \cdots - 401099u + 75377$
c_{10}, c_{12}	$u^{30} - 5u^{29} + \cdots - 9u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} - 121y^{29} + \cdots + 51727y + 1$
c_2, c_4	$y^{30} + 47y^{29} + \cdots + 191y + 1$
c_3	$y^{30} - 5y^{29} + \cdots + 11y + 1$
c_5, c_8	$y^{30} + y^{29} + \cdots - 3175y + 625$
c_6	$y^{30} + 33y^{29} + \cdots + 2246675y + 421201$
c_7, c_{11}	$y^{30} + 5y^{29} + \cdots + 9y + 1$
c_9	$y^{30} + 89y^{29} + \cdots + 64272198739y + 5681692129$
c_{10}, c_{12}	$y^{30} + 45y^{29} + \cdots + 81y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.194178 + 0.861301I$ $a = -1.021630 - 0.362095I$ $b = 0.263501 + 0.422304I$	$0.69640 - 1.72034I$	$1.49037 + 4.91074I$
$u = 0.194178 - 0.861301I$ $a = -1.021630 + 0.362095I$ $b = 0.263501 - 0.422304I$	$0.69640 + 1.72034I$	$1.49037 - 4.91074I$
$u = -0.938260 + 0.627104I$ $a = -0.499497 + 0.926953I$ $b = 1.52482 + 0.04891I$	$-6.16879 - 1.21008I$	$-2.96584 + 0.88236I$
$u = -0.938260 - 0.627104I$ $a = -0.499497 - 0.926953I$ $b = 1.52482 - 0.04891I$	$-6.16879 + 1.21008I$	$-2.96584 - 0.88236I$
$u = -0.423018 + 0.756823I$ $a = 1.89502 - 0.68357I$ $b = -0.189341 - 0.657186I$	$2.22190 + 4.31885I$	$5.85919 - 8.87008I$
$u = -0.423018 - 0.756823I$ $a = 1.89502 + 0.68357I$ $b = -0.189341 + 0.657186I$	$2.22190 - 4.31885I$	$5.85919 + 8.87008I$
$u = -0.149957 + 0.853854I$ $a = 0.90254 - 1.96897I$ $b = -0.496999 + 0.995959I$	$3.54151 - 0.51606I$	$10.41425 - 1.32912I$
$u = -0.149957 - 0.853854I$ $a = 0.90254 + 1.96897I$ $b = -0.496999 - 0.995959I$	$3.54151 + 0.51606I$	$10.41425 + 1.32912I$
$u = 0.765379 + 0.893759I$ $a = 0.159784 + 1.137040I$ $b = -1.46119 - 0.25226I$	$-1.42212 - 2.89990I$	$2.16966 + 2.50499I$
$u = 0.765379 - 0.893759I$ $a = 0.159784 - 1.137040I$ $b = -1.46119 + 0.25226I$	$-1.42212 + 2.89990I$	$2.16966 - 2.50499I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.882441 + 0.785868I$ $a = 0.28444 + 1.44916I$ $b = -0.835514 + 0.010950I$	$-4.43991 - 4.87528I$	$-1.40537 + 4.69553I$
$u = 0.882441 - 0.785868I$ $a = 0.28444 - 1.44916I$ $b = -0.835514 - 0.010950I$	$-4.43991 + 4.87528I$	$-1.40537 - 4.69553I$
$u = 0.633178 + 0.448369I$ $a = -0.204887 - 0.469950I$ $b = 0.234278 + 0.488949I$	$-0.96186 - 1.37588I$	$-2.99068 + 3.21474I$
$u = 0.633178 - 0.448369I$ $a = -0.204887 + 0.469950I$ $b = 0.234278 - 0.488949I$	$-0.96186 + 1.37588I$	$-2.99068 - 3.21474I$
$u = 0.736913 + 0.984710I$ $a = 0.273772 + 0.001505I$ $b = -1.135180 - 0.258754I$	$-3.71029 - 1.15996I$	$-1.23536 + 0.81989I$
$u = 0.736913 - 0.984710I$ $a = 0.273772 - 0.001505I$ $b = -1.135180 + 0.258754I$	$-3.71029 + 1.15996I$	$-1.23536 - 0.81989I$
$u = -0.647311 + 1.068760I$ $a = -0.99194 + 1.30440I$ $b = 1.71967 - 0.46050I$	$-4.58052 + 7.07309I$	$-0.56937 - 6.52418I$
$u = -0.647311 - 1.068760I$ $a = -0.99194 - 1.30440I$ $b = 1.71967 + 0.46050I$	$-4.58052 - 7.07309I$	$-0.56937 + 6.52418I$
$u = 1.022110 + 0.895164I$ $a = -0.555012 - 0.809078I$ $b = 2.44769 - 0.22730I$	$-16.7193 + 4.9302I$	$-0.87414 - 1.79412I$
$u = 1.022110 - 0.895164I$ $a = -0.555012 + 0.809078I$ $b = 2.44769 + 0.22730I$	$-16.7193 - 4.9302I$	$-0.87414 + 1.79412I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.919420 + 1.045210I$ $a = -0.57144 - 1.81078I$ $b = 2.49834 + 0.28520I$	$-16.2013 - 12.0291I$	$-0.14700 + 6.09920I$
$u = 0.919420 - 1.045210I$ $a = -0.57144 + 1.81078I$ $b = 2.49834 - 0.28520I$	$-16.2013 + 12.0291I$	$-0.14700 - 6.09920I$
$u = -1.011130 + 0.959398I$ $a = 0.19777 - 1.52281I$ $b = -1.98241 + 0.56395I$	$-17.2554 + 2.6942I$	$-1.35658 - 2.19435I$
$u = -1.011130 - 0.959398I$ $a = 0.19777 + 1.52281I$ $b = -1.98241 - 0.56395I$	$-17.2554 - 2.6942I$	$-1.35658 + 2.19435I$
$u = -0.968194 + 1.019150I$ $a = 0.859717 - 0.564264I$ $b = -2.08559 - 0.52091I$	$-17.0465 + 4.5510I$	$-1.15103 - 1.97489I$
$u = -0.968194 - 1.019150I$ $a = 0.859717 + 0.564264I$ $b = -2.08559 + 0.52091I$	$-17.0465 - 4.5510I$	$-1.15103 + 1.97489I$
$u = -0.213905 + 0.490541I$ $a = -1.65502 + 0.37124I$ $b = -0.548040 + 0.708878I$	$1.59074 - 1.61799I$	$1.307109 - 0.397413I$
$u = -0.213905 - 0.490541I$ $a = -1.65502 - 0.37124I$ $b = -0.548040 - 0.708878I$	$1.59074 + 1.61799I$	$1.307109 + 0.397413I$
$u = -0.301843 + 0.271696I$ $a = 2.42638 + 1.75700I$ $b = -0.454022 - 0.958650I$	$1.49855 + 2.22404I$	$-0.54522 - 4.55103I$
$u = -0.301843 - 0.271696I$ $a = 2.42638 - 1.75700I$ $b = -0.454022 + 0.958650I$	$1.49855 - 2.22404I$	$-0.54522 + 4.55103I$

II.

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^5a - 2u^3a + 4u^4 - 2u^2a + 2u^3 - 2au + 2u^2 + 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.744862 + 0.877439I$ $a = 0.850078 - 0.184922I$ $b = -0.807141 + 0.650946I$	$-1.37919 - 0.79824I$	$2.49024 - 0.48465I$
$u = 0.744862 + 0.877439I$ $a = -0.227778 + 1.317500I$ $b = -0.807141 - 1.081110I$	$-1.37919 - 4.85801I$	$2.49024 + 6.44355I$
$u = 0.744862 - 0.877439I$ $a = 0.850078 + 0.184922I$ $b = -0.807141 - 0.650946I$	$-1.37919 + 0.79824I$	$2.49024 + 0.48465I$
$u = 0.744862 - 0.877439I$ $a = -0.227778 - 1.317500I$ $b = -0.807141 + 1.081110I$	$-1.37919 + 4.85801I$	$2.49024 - 6.44355I$
$u = -0.744862 + 0.877439I$ $a = 0.317499 + 0.772222I$ $b = 1.80714 - 1.08111I$	$-1.37919 + 0.79824I$	$2.49024 + 0.48465I$
$u = -0.744862 + 0.877439I$ $a = -1.18492 + 1.85008I$ $b = 1.80714 + 0.65095I$	$-1.37919 + 4.85801I$	$2.49024 - 6.44355I$
$u = -0.744862 - 0.877439I$ $a = 0.317499 - 0.772222I$ $b = 1.80714 + 1.08111I$	$-1.37919 - 0.79824I$	$2.49024 - 0.48465I$
$u = -0.744862 - 0.877439I$ $a = -1.18492 - 1.85008I$ $b = 1.80714 - 0.65095I$	$-1.37919 - 4.85801I$	$2.49024 + 6.44355I$
$u = 0.754878I$ $a = 0.64233 - 1.64233I$ $b = 0.50000 + 1.43587I$	$2.75839 + 2.02988I$	$9.01951 - 3.46410I$
$u = 0.754878I$ $a = -2.39721 + 1.39721I$ $b = 0.500000 - 0.296185I$	$2.75839 - 2.02988I$	$9.01951 + 3.46410I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.754878I$		
$a = 0.64233+1.64233I$	$2.75839-2.02988I$	$9.01951+3.46410I$
$b = 0.50000-1.43587I$		
$u = -0.754878I$		
$a = -2.39721-1.39721I$	$2.75839+2.02988I$	$9.01951-3.46410I$
$b = 0.500000+0.296185I$		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^6)(u^{30}+47u^{29}+\cdots+191u+1)$
c_2	$((u^2+u+1)^6)(u^{30}-5u^{29}+\cdots+11u+1)$
c_3	$((u^4-u^2+1)^3)(u^{30}-u^{29}+\cdots+3u+1)$
c_4	$((u^2-u+1)^6)(u^{30}-5u^{29}+\cdots+11u+1)$
c_5, c_8	$((u^2+1)^6)(u^{30}-u^{29}+\cdots-95u+25)$
c_6	$(u^{12}-6u^{11}+\cdots+2u+1)(u^{30}+3u^{29}+\cdots+861u+649)$
c_7, c_{11}	$((u^6+u^4+2u^2+1)^2)(u^{30}+u^{29}+\cdots-3u+1)$
c_9	$(u^{12}+2u^{11}+\cdots+4u+1)(u^{30}+3u^{29}+\cdots-401099u+75377)$
c_{10}	$((u^3+u^2+2u+1)^4)(u^{30}-5u^{29}+\cdots-9u+1)$
c_{12}	$((u^3-u^2+2u-1)^4)(u^{30}-5u^{29}+\cdots-9u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^6)(y^{30}-121y^{29}+\cdots+51727y+1)$
c_2, c_4	$((y^2+y+1)^6)(y^{30}+47y^{29}+\cdots+191y+1)$
c_3	$((y^2-y+1)^6)(y^{30}-5y^{29}+\cdots+11y+1)$
c_5, c_8	$((y+1)^{12})(y^{30}+y^{29}+\cdots-3175y+625)$
c_6	$(y^{12}+12y^{11}+\cdots+6y+1)(y^{30}+33y^{29}+\cdots+2246675y+421201)$
c_7, c_{11}	$((y^3+y^2+2y+1)^4)(y^{30}+5y^{29}+\cdots+9y+1)$
c_9	$(y^{12}-12y^{11}+\cdots-6y+1)$ $\cdot(y^{30}+89y^{29}+\cdots+64272198739y+5681692129)$
c_{10}, c_{12}	$((y^3+3y^2+2y-1)^4)(y^{30}+45y^{29}+\cdots+81y+1)$