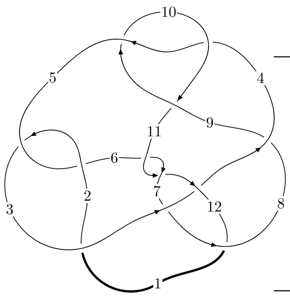
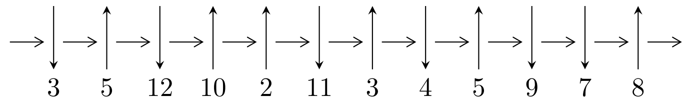
$12n_{0352}$ ($K12n_{0352}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle -3u^{18} - 24u^{17} + \cdots + 2b - 14,\ -11u^{18} - 95u^{17} + \cdots + 8a - 48,\ u^{19} + 9u^{18} + \cdots + 44u + 8\rangle \\
I_2^u &= \langle 2u^{15} - 2u^{14} + 9u^{13} - 7u^{12} + 19u^{11} - 14u^{10} + 23u^9 - 16u^8 + 16u^7 - 12u^6 + 7u^5 - 4u^4 + 4u^3 + b + 2u + 1, \\
&\quad u^{15} + 2u^{14} + \cdots + a + 4, \\
&\quad u^{16} - u^{15} + 5u^{14} - 4u^{13} + 12u^{12} - 9u^{11} + 17u^{10} - 12u^9 + 15u^8 - 11u^7 + 9u^6 - 6u^5 + 5u^4 - 2u^3 + 3u^2 + 1\rangle
\end{aligned}
$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 35 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. $\boldsymbol{I_1^u = \langle -3u^{18} - 24u^{17} + \cdots + 2b - 14,\ -11u^{18} - 95u^{17} + \cdots + 8a - 48,\ u^{19} + 9u^{18} + \cdots + 44u + 8\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{11}{8}u^{18} + \frac{95}{8}u^{17} + \cdots + \frac{67}{2}u + 6 \\ \frac{3}{2}u^{18} + 12u^{17} + \cdots + \frac{67}{2}u + 7 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{3}{8}u^{18} + \frac{21}{8}u^{17} + \cdots - \frac{73}{4}u - \frac{9}{2} \\ \frac{1}{4}u^{18} + \frac{5}{4}u^{17} + \cdots - 9u - 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{8}u^{18} + \frac{3}{8}u^{17} + \cdots - \frac{157}{4}u - \frac{19}{2} \\ \frac{1}{4}u^{18} + \frac{5}{4}u^{17} + \cdots - 11u - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{3}{8}u^{18} + \frac{15}{8}u^{17} + \cdots - \frac{85}{2}u - 10 \\ -u^{18} - \frac{19}{2}u^{17} + \cdots - \frac{131}{2}u - 13 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{8}u^{18} + \frac{11}{8}u^{17} + \cdots + \frac{31}{4}u + 1 \\ -\frac{1}{4}u^{18} - \frac{7}{4}u^{17} + \cdots - \frac{23}{2}u - 3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{7}{8}u^{18} - \frac{61}{8}u^{17} + \cdots - \frac{129}{4}u - 7 \\ \frac{1}{4}u^{18} + \frac{7}{4}u^{17} + \cdots + \frac{57}{2}u + 7 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -8u^{18} - 66u^{17} - 305u^{16} - 975u^{15} - 2367u^{14} - 4600u^{13} - 7383u^{12} - 10049u^{11} - 11804u^{10} - 12134u^9 - 11000u^8 - 8792u^7 - 6229u^6 - 3932u^5 - 2281u^4 - 1230u^3 - 584u^2 - 212u - 42$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} + 50u^{18} + \cdots + 9u - 1$
c_2, c_5, c_7	$u^{19} + 25u^{17} + \cdots - u + 1$
c_3	$u^{19} - 4u^{18} + \cdots + 5u - 1$
c_4, c_9	$u^{19} + 9u^{18} + \cdots + 44u + 8$
c_6, c_{11}	$u^{19} + 3u^{18} + \cdots + 28u^2 + 1$
c_8	$u^{19} - 9u^{18} + \cdots - 4116u + 1960$
c_{10}	$u^{19} + 9u^{18} + \cdots - 112u - 64$
c_{12}	$u^{19} - u^{18} + \cdots - 104u + 193$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} - 202y^{18} + \cdots + 101y - 1$
c_2, c_5, c_7	$y^{19} + 50y^{18} + \cdots + 9y - 1$
c_3	$y^{19} - 2y^{18} + \cdots + y - 1$
c_4, c_9	$y^{19} + 9y^{18} + \cdots - 112y - 64$
c_6, c_{11}	$y^{19} - 49y^{18} + \cdots - 56y - 1$
c_8	$y^{19} - 91y^{18} + \cdots + 10638096y - 3841600$
c_{10}	$y^{19} + y^{18} + \cdots - 35584y - 4096$
c_{12}	$y^{19} + 57y^{18} + \cdots + 85314y - 37249$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.346161 + 0.956386I$ $a = 1.46736 + 0.28036I$ $b = 0.418807 - 0.392483I$	$-0.63169 + 2.23536I$	$1.18472 - 3.58566I$
$u = 0.346161 - 0.956386I$ $a = 1.46736 - 0.28036I$ $b = 0.418807 + 0.392483I$	$-0.63169 - 2.23536I$	$1.18472 + 3.58566I$
$u = -0.302273 + 1.061440I$ $a = -1.21082 + 0.86313I$ $b = -1.020080 + 0.439454I$	$-3.68086 - 0.50062I$	$-7.63466 + 1.65999I$
$u = -0.302273 - 1.061440I$ $a = -1.21082 - 0.86313I$ $b = -1.020080 - 0.439454I$	$-3.68086 + 0.50062I$	$-7.63466 - 1.65999I$
$u = -0.800161$ $a = 1.21345$ $b = 0.717995$	-3.42695	-3.98880
$u = -0.536472 + 1.088430I$ $a = -1.78211 + 0.61588I$ $b = -0.874784 - 0.944864I$	$-2.09426 - 6.57381I$	$-0.65064 + 5.14701I$
$u = -0.536472 - 1.088430I$ $a = -1.78211 - 0.61588I$ $b = -0.874784 + 0.944864I$	$-2.09426 + 6.57381I$	$-0.65064 - 5.14701I$
$u = -0.628002 + 0.338042I$ $a = 0.039501 - 0.508734I$ $b = -0.649313 + 0.779497I$	$0.03067 + 1.98876I$	$2.15859 - 2.97799I$
$u = -0.628002 - 0.338042I$ $a = 0.039501 + 0.508734I$ $b = -0.649313 - 0.779497I$	$0.03067 - 1.98876I$	$2.15859 + 2.97799I$
$u = -0.455443 + 1.212920I$ $a = 1.89609 - 0.58745I$ $b = 0.758353 + 0.039269I$	$-6.99596 - 4.49122I$	$-9.18387 - 0.01438I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.455443-1.212920I$ $a=\ 1.89609+0.58745I$ $b=\ 0.758353-0.039269I$	$-6.99596+4.49122I$	$-9.18387+0.01438I$
$u=\ 0.413988+0.520782I$ $a=\ 0.288663-0.426959I$ $b=-0.084685+0.588329I$	$0.657337+1.088170I$	$4.45180-5.21852I$
$u=\ 0.413988-0.520782I$ $a=\ 0.288663+0.426959I$ $b=-0.084685-0.588329I$	$0.657337-1.088170I$	$4.45180+5.21852I$
$u=-1.41615+0.03594I$ $a=\ 0.802995-0.190440I$ $b=\ 1.04189+1.04688I$	$18.3876-3.8412I$	$-1.79058+1.95309I$
$u=-1.41615-0.03594I$ $a=\ 0.802995+0.190440I$ $b=\ 1.04189-1.04688I$	$18.3876+3.8412I$	$-1.79058-1.95309I$
$u=-0.78204+1.42833I$ $a=\ 0.573067-0.779029I$ $b=\ 0.97983-1.07686I$	$14.2330-3.7497I$	$-3.12835+0.88970I$
$u=-0.78204-1.42833I$ $a=\ 0.573067+0.779029I$ $b=\ 0.97983+1.07686I$	$14.2330+3.7497I$	$-3.12835-0.88970I$
$u=-0.73969+1.46029I$ $a=\ 1.81853-0.33078I$ $b=\ 1.07098+0.99229I$	$13.8839-11.3207I$	$-3.41262+4.66030I$
$u=-0.73969-1.46029I$ $a=\ 1.81853+0.33078I$ $b=\ 1.07098-0.99229I$	$13.8839+11.3207I$	$-3.41262-4.66030I$

II.

$$\boldsymbol{I_2^u = \langle 2u^{15}-2u^{14}+\cdots+b+1,\ u^{15}+2u^{14}+\cdots+a+4,\ u^{16}-u^{15}+\cdots+3u^2+1\rangle}$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^{15}-2u^{14}+\cdots+u-4 \\ -2u^{15}+2u^{14}+\cdots-2u-1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{15}-2u^{13}+\cdots+u-3 \\ -2u^{15}+3u^{14}+\cdots-2u-1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{15}-u^{13}+\cdots+2u-3 \\ -3u^{15}+4u^{14}+\cdots-2u-1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{15}-u^{14}+\cdots+2u-3 \\ -3u^{15}+3u^{14}+\cdots-2u-1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^3 \\ u^3+u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^{14}-2u^{13}+\cdots-3u+1 \\ u^{15}-u^{14}+\cdots+u+1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^3 \\ u^5+u^3+u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2u^{14}-3u^{13}+\cdots-3u+2 \\ u^{15}+3u^{13}+\cdots+2u^2+2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u^{15}-8u^{14}+36u^{13}-27u^{12}+74u^{11}-55u^{10}+90u^9-67u^8+63u^7-54u^6+32u^5-18u^4+16u^3+3u^2+10u-3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 11u^{15} + \cdots - 9u + 1$
c_2, c_7	$u^{16} - u^{15} + \cdots - u + 1$
c_3	$u^{16} + 7u^{15} + \cdots + 5u + 1$
c_4	$u^{16} - u^{15} + \cdots + 3u^2 + 1$
c_5	$u^{16} + u^{15} + \cdots + u + 1$
c_6	$u^{16} + 2u^{15} + \cdots + 2u + 1$
c_8	$u^{16} - u^{15} + \cdots + 4u^2 + 1$
c_9	$u^{16} + u^{15} + \cdots + 3u^2 + 1$
c_{10}	$u^{16} + 9u^{15} + \cdots + 6u + 1$
c_{11}	$u^{16} - 2u^{15} + \cdots - 2u + 1$
c_{12}	$u^{16} + 7u^{14} + \cdots + 4u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} - 5y^{15} + \cdots + 5y + 1$
c_2, c_5, c_7	$y^{16} + 11y^{15} + \cdots + 9y + 1$
c_3	$y^{16} - y^{15} + \cdots + y + 1$
c_4, c_9	$y^{16} + 9y^{15} + \cdots + 6y + 1$
c_6, c_{11}	$y^{16} - 12y^{15} + \cdots - 6y + 1$
c_8	$y^{16} - 7y^{15} + \cdots + 8y + 1$
c_{10}	$y^{16} + y^{15} + \cdots + 2y + 1$
c_{12}	$y^{16} + 14y^{15} + \cdots + 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.335104 + 0.911069I$ $a = 2.45662 - 0.85727I$ $b = 0.921522 + 0.158810I$	$-7.02394 + 1.39379I$	$-9.47279 + 0.73629I$
$u = 0.335104 - 0.911069I$ $a = 2.45662 + 0.85727I$ $b = 0.921522 - 0.158810I$	$-7.02394 - 1.39379I$	$-9.47279 - 0.73629I$
$u = -0.379248 + 1.028620I$ $a = -0.646901 + 1.136830I$ $b = -1.14774 + 0.83032I$	$-3.77746 + 0.63307I$	$-8.74418 - 3.43739I$
$u = -0.379248 - 1.028620I$ $a = -0.646901 - 1.136830I$ $b = -1.14774 - 0.83032I$	$-3.77746 - 0.63307I$	$-8.74418 + 3.43739I$
$u = 0.814712 + 0.313052I$ $a = -0.637439 + 0.085695I$ $b = -0.219047 + 0.658555I$	$-2.04483 + 1.12270I$	$0.01080 - 2.10787I$
$u = 0.814712 - 0.313052I$ $a = -0.637439 - 0.085695I$ $b = -0.219047 - 0.658555I$	$-2.04483 - 1.12270I$	$0.01080 + 2.10787I$
$u = -0.532348 + 1.055360I$ $a = -1.92201 + 0.51905I$ $b = -0.99317 - 1.17536I$	$-2.65168 - 7.12816I$	$-8.0544 + 12.2171I$
$u = -0.532348 - 1.055360I$ $a = -1.92201 - 0.51905I$ $b = -0.99317 + 1.17536I$	$-2.65168 + 7.12816I$	$-8.0544 - 12.2171I$
$u = -0.569437 + 0.482937I$ $a = 0.475047 + 0.043194I$ $b = -0.782251 + 1.053490I$	$-0.93348 + 2.66812I$	$-2.81990 - 6.15304I$
$u = -0.569437 - 0.482937I$ $a = 0.475047 - 0.043194I$ $b = -0.782251 - 1.053490I$	$-0.93348 - 2.66812I$	$-2.81990 + 6.15304I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.182107 + 0.721236I$ $a = -2.18930 + 1.30740I$ $b = -0.958246 - 0.624440I$	$-2.38549 - 3.31503I$	$-6.02251 + 3.66103I$
$u = -0.182107 - 0.721236I$ $a = -2.18930 - 1.30740I$ $b = -0.958246 + 0.624440I$	$-2.38549 + 3.31503I$	$-6.02251 - 3.66103I$
$u = 0.614974 + 1.102350I$ $a = 0.301915 + 0.157095I$ $b = 0.241401 - 0.693802I$	$-4.28291 + 4.20394I$	$-2.40515 - 3.76480I$
$u = 0.614974 - 1.102350I$ $a = 0.301915 - 0.157095I$ $b = 0.241401 + 0.693802I$	$-4.28291 - 4.20394I$	$-2.40515 + 3.76480I$
$u = 0.398350 + 1.236570I$ $a = -1.83794 + 0.04383I$ $b = -0.562464 + 0.307777I$	$-6.50903 + 5.01414I$	$-1.49188 - 7.53690I$
$u = 0.398350 - 1.236570I$ $a = -1.83794 - 0.04383I$ $b = -0.562464 - 0.307777I$	$-6.50903 - 5.01414I$	$-1.49188 + 7.53690I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{16} - 11u^{15} + \cdots - 9u + 1)(u^{19} + 50u^{18} + \cdots + 9u - 1)$
c_2, c_7	$(u^{16} - u^{15} + \cdots - u + 1)(u^{19} + 25u^{17} + \cdots - u + 1)$
c_3	$(u^{16} + 7u^{15} + \cdots + 5u + 1)(u^{19} - 4u^{18} + \cdots + 5u - 1)$
c_4	$(u^{16} - u^{15} + \cdots + 3u^2 + 1)(u^{19} + 9u^{18} + \cdots + 44u + 8)$
c_5	$(u^{16} + u^{15} + \cdots + u + 1)(u^{19} + 25u^{17} + \cdots - u + 1)$
c_6	$(u^{16} + 2u^{15} + \cdots + 2u + 1)(u^{19} + 3u^{18} + \cdots + 28u^2 + 1)$
c_8	$(u^{16} - u^{15} + \cdots + 4u^2 + 1)(u^{19} - 9u^{18} + \cdots - 4116u + 1960)$
c_9	$(u^{16} + u^{15} + \cdots + 3u^2 + 1)(u^{19} + 9u^{18} + \cdots + 44u + 8)$
c_{10}	$(u^{16} + 9u^{15} + \cdots + 6u + 1)(u^{19} + 9u^{18} + \cdots - 112u - 64)$
c_{11}	$(u^{16} - 2u^{15} + \cdots - 2u + 1)(u^{19} + 3u^{18} + \cdots + 28u^2 + 1)$
c_{12}	$(u^{16} + 7u^{14} + \cdots + 4u^2 + 1)(u^{19} - u^{18} + \cdots - 104u + 193)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{16} - 5y^{15} + \cdots + 5y + 1)(y^{19} - 202y^{18} + \cdots + 101y - 1)$
c_2, c_5, c_7	$(y^{16} + 11y^{15} + \cdots + 9y + 1)(y^{19} + 50y^{18} + \cdots + 9y - 1)$
c_3	$(y^{16} - y^{15} + \cdots + y + 1)(y^{19} - 2y^{18} + \cdots + y - 1)$
c_4, c_9	$(y^{16} + 9y^{15} + \cdots + 6y + 1)(y^{19} + 9y^{18} + \cdots - 112y - 64)$
c_6, c_{11}	$(y^{16} - 12y^{15} + \cdots - 6y + 1)(y^{19} - 49y^{18} + \cdots - 56y - 1)$
c_8	$(y^{16} - 7y^{15} + \cdots + 8y + 1)$ $\cdot (y^{19} - 91y^{18} + \cdots + 10638096y - 3841600)$
c_{10}	$(y^{16} + y^{15} + \cdots + 2y + 1)(y^{19} + y^{18} + \cdots - 35584y - 4096)$
c_{12}	$(y^{16} + 14y^{15} + \cdots + 8y + 1)(y^{19} + 57y^{18} + \cdots + 85314y - 37249)$