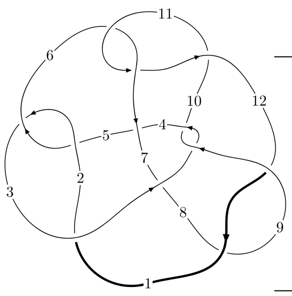
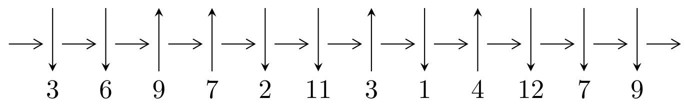
$12n_{0370}$ ($K12n_{0370}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 1.28847 \times 10^{15} u^{11} - 4.74420 \times 10^{14} u^{10} + \cdots + 8.72123 \times 10^{16} b + 2.22344 \times 10^{17}, \\
& 1.00938 \times 10^{15} u^{11} - 1.97502 \times 10^{14} u^{10} + \cdots + 8.72123 \times 10^{16} a + 3.30952 \times 10^{17}, \\
& u^{12} - 34u^{10} - 10u^9 + 374u^8 + 256u^7 - 1158u^6 - 838u^5 + 1243u^4 + 1159u^3 + 685u^2 + 342u + 61 \rangle \\
I_2^u = \langle & -491u^9 - 169u^8 + 138u^7 + 2797u^6 - 952u^5 - 2978u^4 - 1762u^3 + 4940u^2 + 1423b + 1946u - 997, \\
& 120u^9 + 363u^8 - 709u^7 - 501u^6 - 1399u^5 + 5504u^4 - 1259u^3 - 2839u^2 + 1423a - 3481u + 4617, \\
& u^{10} - u^9 - 5u^7 + 9u^6 - 3u^4 - 9u^3 + 9u^2 - u - 1 \rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 22 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. $I_1^u =$

$\langle 1.29\times10^{15}u^{11}-4.74\times10^{14}u^{10}+\cdots+8.72\times10^{16}b+2.22\times10^{17},\ 1.01\times10^{15}u^{11}-1.98\times10^{14}u^{10}+\cdots+8.72\times10^{16}a+3.31\times10^{17},\ u^{12}-34u^{10}+\cdots+342u+61\rangle$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix}-0.0115739u^{11}+0.00226461u^{10}+\cdots-3.98267u-3.79478\\-0.0147739u^{11}+0.00543983u^{10}+\cdots-6.01362u-2.54946\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}0.00320005u^{11}-0.00317522u^{10}+\cdots+2.03095u-1.24533\\-0.0147739u^{11}+0.00543983u^{10}+\cdots-6.01362u-2.54946\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-0.0414649u^{11}+0.0165212u^{10}+\cdots-17.1890u-6.03303\\-0.00596827u^{11}+0.00228246u^{10}+\cdots-2.07003u-1.25196\end{pmatrix}$$

$$a_2 = \begin{pmatrix}0.0163711u^{11}-0.00810347u^{10}+\cdots+7.17353u+1.18110\\-0.00876668u^{11}+0.00418598u^{10}+\cdots-3.18088u-1.53147\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.0163711u^{11}-0.00810347u^{10}+\cdots+7.17353u+1.18110\\-0.0125049u^{11}+0.00522621u^{10}+\cdots-4.95363u-2.02578\end{pmatrix}$$

$$a_9 = \begin{pmatrix}0.00757115u^{11}-0.00279404u^{10}+\cdots+2.94107u+2.37499\\0.00556736u^{11}-0.00252772u^{10}+\cdots+2.05708u+0.942635\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-0.00964076u^{11}+0.00285039u^{10}+\cdots-2.23827u-1.62408\\-0.00279404u^{11}+0.000870939u^{10}+\cdots-0.214346u-0.461840\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-0.00684672u^{11}+0.00197945u^{10}+\cdots-2.02393u-1.16224\\-0.00279404u^{11}+0.000870939u^{10}+\cdots-0.214346u-0.461840\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}0.00416895u^{11}-0.00269474u^{10}+\cdots+0.812978u+1.59345\\0.00358791u^{11}-0.00224683u^{10}+\cdots+0.877740u+0.524985\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -\frac{8580809856421526}{87212327051456087}u^{11}+\frac{34210203974748 12}{87212327051456087}u^{10}+\cdots-\frac{4710390701175382035}{87212327051456087}u-\frac{261576258633713 74}{1429710279532067}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12} + 10u^{10} + \cdots + 3u + 1$
c_2, c_5	$u^{12} + 4u^{11} + \cdots - u - 1$
c_3, c_4, c_9	$u^{12} + u^{11} + \cdots + 4u + 1$
c_6, c_{11}	$u^{12} - 8u^{11} + \cdots + 10u - 4$
c_7	$u^{12} - 34u^{10} + \cdots + 342u + 61$
c_8, c_{12}	$u^{12} - u^{11} + \cdots + 13u - 1$
c_{10}	$u^{12} + 4u^{11} + \cdots + 44u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} + 20y^{11} + \cdots - 3y + 1$
c_2, c_5	$y^{12} + 10y^{10} + \cdots - 3y + 1$
c_3, c_4, c_9	$y^{12} - 29y^{11} + \cdots - 12y + 1$
c_6, c_{11}	$y^{12} - 4y^{11} + \cdots - 44y + 16$
c_7	$y^{12} - 68y^{11} + \cdots - 33394y + 3721$
c_8, c_{12}	$y^{12} + 33y^{11} + \cdots - 269y + 1$
c_{10}	$y^{12} + 48y^{11} + \cdots + 3216y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.015982+0.502004I$ $a=-1.33976+0.88379I$ $b=-0.373800+0.452174I$	$-0.313401+1.169960I$	$-3.81973-5.53143I$
$u=-0.015982-0.502004I$ $a=-1.33976-0.88379I$ $b=-0.373800-0.452174I$	$-0.313401-1.169960I$	$-3.81973+5.53143I$
$u=-0.487209$ $a=-1.96376$ $b=\ \ 0.690624$	-2.57792	8.93780
$u=\ \ 1.53808+0.50690I$ $a=\ \ 0.700750+0.138104I$ $b=\ \ 0.742800-0.761818I$	$3.43038+0.92181I$	$0.166703-0.576827I$
$u=\ \ 1.53808-0.50690I$ $a=\ \ 0.700750-0.138104I$ $b=\ \ 0.742800+0.761818I$	$3.43038-0.92181I$	$0.166703+0.576827I$
$u=-1.64293+0.28456I$ $a=\ \ 1.107820-0.267147I$ $b=\ \ 0.969113+0.706030I$	$2.73449-4.65154I$	$-0.40649+6.35112I$
$u=-1.64293-0.28456I$ $a=\ \ 1.107820+0.267147I$ $b=\ \ 0.969113-0.706030I$	$2.73449+4.65154I$	$-0.40649-6.35112I$
$u=-0.299850$ $a=-2.90979$ $b=-0.917503$	-1.69975	-3.47970
$u=-3.60163+0.13896I$ $a=\ \ 0.400586+0.118619I$ $b=\ \ 1.42147-1.15303I$	$-12.68910+1.00394I$	$-1.189954+0.108309I$
$u=-3.60163-0.13896I$ $a=\ \ 0.400586-0.118619I$ $b=\ \ 1.42147+1.15303I$	$-12.68910-1.00394I$	$-1.189954-0.108309I$

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$4.11599 + 0.72988I$		
$a =$	$0.591968 + 0.319795I$	$-12.4077 + 8.7999I$	$-0.97957 - 3.65752I$
$b =$	$1.35386 - 1.23724I$		
$u =$	$4.11599 - 0.72988I$		
$a =$	$0.591968 - 0.319795I$	$-12.4077 - 8.7999I$	$-0.97957 + 3.65752I$
$b =$	$1.35386 + 1.23724I$		

II. $I^u_2 = \langle -491u^9 - 169u^8 + \cdots + 1423b - 997,\ 120u^9 + 363u^8 + \cdots + 1423a + 4617,\ u^{10} - u^9 - 5u^7 + 9u^6 - 3u^4 - 9u^3 + 9u^2 - u - 1\rangle$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} -0.0843289u^9 - 0.255095u^8 + \cdots + 2.44624u - 3.24455 \\ 0.345046u^9 + 0.118763u^8 + \cdots - 1.36753u + 0.700632 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.429375u^9 - 0.373858u^8 + \cdots + 3.81377u - 3.94519 \\ 0.345046u^9 + 0.118763u^8 + \cdots - 1.36753u + 0.700632 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.454673u^9 + 0.849613u^8 + \cdots - 7.55235u + 1.78145 \\ 1.04287u^9 - 0.545327u^8 + \cdots + 3.31483u + 0.824315 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.613493u^9 - 0.919185u^8 + \cdots + 7.12860u - 2.12087 \\ -0.781448u^9 + 0.236121u^8 + \cdots - 2.19817u - 0.666198 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.613493u^9 - 0.919185u^8 + \cdots + 7.12860u - 2.12087 \\ -0.676037u^9 + 0.304989u^8 + \cdots - 2.50597u - 0.360506 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.345046u^9 - 0.118763u^8 + \cdots + 1.36753u - 0.700632 \\ -0.436402u^9 + 0.354884u^8 + \cdots - 3.56571u - 0.965566 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0337316u^9 + 0.297962u^8 + \cdots - 0.821504u - 0.697822 \\ 0.463809u^9 - 0.0969782u^8 + \cdots + 1.04568u + 0.345046 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.497540u^9 + 0.394940u^8 + \cdots - 1.86718u - 1.04287 \\ 0.463809u^9 - 0.0969782u^8 + \cdots + 1.04568u + 0.345046 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.376669u^9 - 0.339424u^8 + \cdots + 2.65987u - 0.292340 \\ -0.539002u^9 + 0.594519u^8 + \cdots - 5.10611u - 1.46311 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$$= \frac{2033}{1423}u^9 - \frac{3491}{1423}u^8 + \frac{1495}{1423}u^7 - \frac{10729}{1423}u^6 + \frac{25736}{1423}u^5 - \frac{14237}{1423}u^4 - \frac{2961}{1423}u^3 - \frac{18582}{1423}u^2 + \frac{34363}{1423}u - \frac{16730}{1423}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{10} - u^9 + 6u^8 - 6u^7 + 9u^6 - 12u^5 - 3u^4 + 2u^3 + 6u^2 - 4u + 1$
c_2	$u^{10} + 3u^9 + 4u^8 - 5u^6 - 6u^5 - u^4 + 2u^3 + 2u^2 - 1$
c_3	$u^{10} - 5u^8 + 9u^6 + 2u^5 - 6u^4 - 6u^3 + 5u + 1$
c_4, c_9	$u^{10} - 5u^8 + 9u^6 - 2u^5 - 6u^4 + 6u^3 - 5u + 1$
c_5	$u^{10} - 3u^9 + 4u^8 - 5u^6 + 6u^5 - u^4 - 2u^3 + 2u^2 - 1$
c_6	$u^{10} - 2u^8 + 4u^6 - 4u^4 + u^3 + 2u^2 - 1$
c_7	$u^{10} - u^9 - 5u^7 + 9u^6 - 3u^4 - 9u^3 + 9u^2 - u - 1$
c_8	$u^{10} + 6u^8 - u^7 + 15u^6 - 5u^5 + 18u^4 - 9u^3 + 9u^2 - 6u + 1$
c_{10}	$u^{10} - 4u^9 + \cdots - 4u + 1$
c_{11}	$u^{10} - 2u^8 + 4u^6 - 4u^4 - u^3 + 2u^2 - 1$
c_{12}	$u^{10} + 6u^8 + u^7 + 15u^6 + 5u^5 + 18u^4 + 9u^3 + 9u^2 + 6u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{10}+11y^9+\cdots-4y+1$
c_2, c_5	$y^{10}-y^9+6y^8-6y^7+9y^6-12y^5-3y^4+2y^3+6y^2-4y+1$
c_3, c_4, c_9	$y^{10}-10y^9+\cdots-25y+1$
c_6, c_{11}	$y^{10}-4y^9+\cdots-4y+1$
c_7	$y^{10}-y^9+\cdots-19y+1$
c_8, c_{12}	$y^{10}+12y^9+\cdots-18y+1$
c_{10}	$y^{10}+8y^9+\cdots+8y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.811923 + 0.722020I$ $a = 1.45325 + 0.35022I$ $b = 0.975490 + 0.644063I$	$5.24934 - 6.06210I$	$-0.58831 + 6.06500I$
$u = -0.811923 - 0.722020I$ $a = 1.45325 - 0.35022I$ $b = 0.975490 - 0.644063I$	$5.24934 + 6.06210I$	$-0.58831 - 6.06500I$
$u = 1.115350 + 0.663499I$ $a = 0.272302 - 0.257296I$ $b = 0.724375 - 0.642107I$	$6.04451 - 1.01363I$	$0.978414 + 0.079961I$
$u = 1.115350 - 0.663499I$ $a = 0.272302 + 0.257296I$ $b = 0.724375 + 0.642107I$	$6.04451 + 1.01363I$	$0.978414 - 0.079961I$
$u = 1.31175$ $a = -0.322011$ $b = -1.13039$	1.74489	-3.09540
$u = 0.602612 + 0.281923I$ $a = -1.12138 + 1.00067I$ $b = -0.995438 - 0.830468I$	$2.28696 - 3.31057I$	$-1.50855 + 1.46154I$
$u = 0.602612 - 0.281923I$ $a = -1.12138 - 1.00067I$ $b = -0.995438 + 0.830468I$	$2.28696 + 3.31057I$	$-1.50855 - 1.46154I$
$u = -0.257810$ $a = -3.77592$ $b = 0.809153$	-2.87740	-18.8820
$u = -0.93301 + 1.57780I$ $a = -1.055210 + 0.217921I$ $b = -0.543811 - 0.460848I$	$5.07972 - 2.66860I$	$3.60710 + 4.02718I$
$u = -0.93301 - 1.57780I$ $a = -1.055210 - 0.217921I$ $b = -0.543811 + 0.460848I$	$5.07972 + 2.66860I$	$3.60710 - 4.02718I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{10} - u^9 + 6u^8 - 6u^7 + 9u^6 - 12u^5 - 3u^4 + 2u^3 + 6u^2 - 4u + 1)$ $\cdot (u^{12} + 10u^{10} + \cdots + 3u + 1)$
c_2	$(u^{10} + 3u^9 + 4u^8 - 5u^6 - 6u^5 - u^4 + 2u^3 + 2u^2 - 1)$ $\cdot (u^{12} + 4u^{11} + \cdots - u - 1)$
c_3	$(u^{10} - 5u^8 + \cdots + 5u + 1)(u^{12} + u^{11} + \cdots + 4u + 1)$
c_4, c_9	$(u^{10} - 5u^8 + \cdots - 5u + 1)(u^{12} + u^{11} + \cdots + 4u + 1)$
c_5	$(u^{10} - 3u^9 + 4u^8 - 5u^6 + 6u^5 - u^4 - 2u^3 + 2u^2 - 1)$ $\cdot (u^{12} + 4u^{11} + \cdots - u - 1)$
c_6	$(u^{10} - 2u^8 + \cdots + 2u^2 - 1)(u^{12} - 8u^{11} + \cdots + 10u - 4)$
c_7	$(u^{10} - u^9 - 5u^7 + 9u^6 - 3u^4 - 9u^3 + 9u^2 - u - 1)$ $\cdot (u^{12} - 34u^{10} + \cdots + 342u + 61)$
c_8	$(u^{10} + 6u^8 - u^7 + 15u^6 - 5u^5 + 18u^4 - 9u^3 + 9u^2 - 6u + 1)$ $\cdot (u^{12} - u^{11} + \cdots + 13u - 1)$
c_{10}	$(u^{10} - 4u^9 + \cdots - 4u + 1)(u^{12} + 4u^{11} + \cdots + 44u + 16)$
c_{11}	$(u^{10} - 2u^8 + \cdots + 2u^2 - 1)(u^{12} - 8u^{11} + \cdots + 10u - 4)$
c_{12}	$(u^{10} + 6u^8 + u^7 + 15u^6 + 5u^5 + 18u^4 + 9u^3 + 9u^2 + 6u + 1)$ $\cdot (u^{12} - u^{11} + \cdots + 13u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{10}+11y^9+\cdots-4y+1)(y^{12}+20y^{11}+\cdots-3y+1)$
c_2, c_5	$(y^{10}-y^9+6y^8-6y^7+9y^6-12y^5-3y^4+2y^3+6y^2-4y+1)$ $\cdot(y^{12}+10y^{10}+\cdots-3y+1)$
c_3, c_4, c_9	$(y^{10}-10y^9+\cdots-25y+1)(y^{12}-29y^{11}+\cdots-12y+1)$
c_6, c_{11}	$(y^{10}-4y^9+\cdots-4y+1)(y^{12}-4y^{11}+\cdots-44y+16)$
c_7	$(y^{10}-y^9+\cdots-19y+1)(y^{12}-68y^{11}+\cdots-33394y+3721)$
c_8, c_{12}	$(y^{10}+12y^9+\cdots-18y+1)(y^{12}+33y^{11}+\cdots-269y+1)$
c_{10}	$(y^{10}+8y^9+\cdots+8y+1)(y^{12}+48y^{11}+\cdots+3216y+256)$