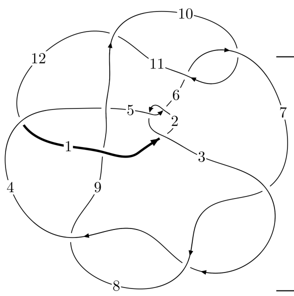
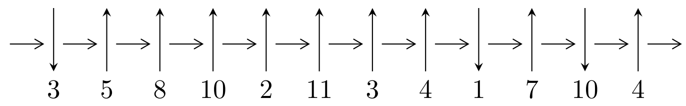
$12n_{0349}$ ($K12n_{0349}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 5.03279 \times 10^{28} u^{21} + 1.41088 \times 10^{28} u^{20} + \cdots + 3.11126 \times 10^{30} b - 1.47947 \times 10^{30}, \\
& 2.83952 \times 10^{29} u^{21} + 2.39177 \times 10^{30} u^{20} + \cdots + 5.38247 \times 10^{32} a - 1.28920 \times 10^{33}, \\
& u^{22} - u^{21} + \cdots + 570u - 173 \rangle \\
I_2^u = \langle & 4u^{15} + u^{14} + \cdots + b - 5,\ 5u^{15} + 2u^{14} + \cdots + a - 5, \\
& u^{16} - 7u^{14} - u^{13} + 22u^{12} + 6u^{11} - 43u^{10} - 15u^9 + 58u^8 + 19u^7 - 52u^6 - 13u^5 + 29u^4 + 5u^3 - 8u^2 - u + 1 \rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 38 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. $\boldsymbol{I_1^u = \langle 5.03\times10^{28}u^{21}+1.41\times10^{28}u^{20}+\cdots+3.11\times10^{30}b-1.48\times10^{30},\ 2.84\times10^{29}u^{21}+2.39\times10^{30}u^{20}+\cdots+5.38\times10^{32}a-1.29\times10^{33},\ u^{22}-u^{21}+\cdots+570u-173\rangle}$

(i) Arc colorings

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

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.000527549u^{21} - 0.00444362u^{20} + \cdots - 2.94596u + 2.39519 \\ -0.0161761u^{21} - 0.00453474u^{20} + \cdots + 4.84486u + 0.475523 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.000527549u^{21} - 0.00444362u^{20} + \cdots - 2.94596u + 2.39519 \\ -0.0112823u^{21} - 0.00307489u^{20} + \cdots + 2.10256u + 1.33554 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.00747297u^{21} - 0.00222999u^{20} + \cdots + 1.32872u + 0.919896 \\ -0.0287409u^{21} + 0.00951872u^{20} + \cdots + 15.0584u - 4.13187 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0176760u^{21} + 0.00338113u^{20} + \cdots + 7.60759u - 1.52246 \\ -0.00312229u^{21} + 0.0168476u^{20} + \cdots + 9.58458u - 3.73734 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 0.0117801u^{21} - 0.0136133u^{20} + \cdots - 11.9200u + 5.73898 \\ -0.0235899u^{21} + 0.00609484u^{20} + \cdots + 11.0766u - 2.00826 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0114740u^{21} - 0.00633450u^{20} + \cdots - 6.51280u + 1.90552 \\ -0.0333527u^{21} + 0.0105246u^{20} + \cdots + 16.7996u - 4.51821 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0267510u^{21} - 0.00298230u^{20} + \cdots + 5.83060u + 2.41175 \\ -0.0193326u^{21} + 0.0165589u^{20} + \cdots + 15.3927u - 4.75155 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0344880u^{21} - 0.0647662u^{20} + \cdots - 54.7216u + 34.1950$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{22}+3u^{21}+\cdots+129u+121$
c_2, c_5	$u^{22}+3u^{21}+\cdots+61u-11$
c_3, c_7, c_8	$u^{22}+u^{21}+\cdots-570u-173$
c_4	$u^{22}+12u^{21}+\cdots-5056u-1856$
c_6, c_{10}	$u^{22}-u^{21}+\cdots+387u-119$
c_9	$u^{22}-3u^{21}+\cdots-17u+1$
c_{11}	$u^{22}+u^{21}+\cdots-50523u+14161$
c_{12}	$u^{22}+u^{21}+\cdots+8u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{22} + 47y^{21} + \cdots + 1408497y + 14641$
c_2, c_5	$y^{22} + 3y^{21} + \cdots + 129y + 121$
c_3, c_7, c_8	$y^{22} - 33y^{21} + \cdots - 222830y + 29929$
c_4	$y^{22} - 48y^{21} + \cdots - 17842176y + 3444736$
c_6, c_{10}	$y^{22} + y^{21} + \cdots - 50523y + 14161$
c_9	$y^{22} + 17y^{21} + \cdots - 89y + 1$
c_{11}	$y^{22} + 57y^{21} + \cdots - 20509146359y + 200533921$
c_{12}	$y^{22} + 49y^{21} + \cdots - 52y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.888889 + 0.621508I$ $a = -0.785790 - 0.787936I$ $b = 1.41234 - 0.32273I$	$-2.09331 + 2.22663I$	$10.35334 - 5.55870I$
$u = 0.888889 - 0.621508I$ $a = -0.785790 + 0.787936I$ $b = 1.41234 + 0.32273I$	$-2.09331 - 2.22663I$	$10.35334 + 5.55870I$
$u = 1.125980 + 0.181359I$ $a = 0.194049 + 0.934438I$ $b = 0.533838 + 1.294670I$	$2.80761 - 4.32610I$	$7.93255 + 4.44451I$
$u = 1.125980 - 0.181359I$ $a = 0.194049 - 0.934438I$ $b = 0.533838 - 1.294670I$	$2.80761 + 4.32610I$	$7.93255 - 4.44451I$
$u = 0.468073 + 0.568730I$ $a = 0.033725 - 0.194825I$ $b = 0.67213 + 1.29726I$	$0.96204 - 3.13844I$	$5.33676 + 0.34451I$
$u = 0.468073 - 0.568730I$ $a = 0.033725 + 0.194825I$ $b = 0.67213 - 1.29726I$	$0.96204 + 3.13844I$	$5.33676 - 0.34451I$
$u = -1.219380 + 0.529046I$ $a = -1.29654 + 1.66639I$ $b = 0.021894 + 0.717525I$	$-9.56729 - 1.76902I$	$9.41797 + 0.67359I$
$u = -1.219380 - 0.529046I$ $a = -1.29654 - 1.66639I$ $b = 0.021894 - 0.717525I$	$-9.56729 + 1.76902I$	$9.41797 - 0.67359I$
$u = 1.138980 + 0.705814I$ $a = 0.762830 + 0.903956I$ $b = -1.373520 + 0.140422I$	$-5.89358 + 2.47710I$	$2.52368 - 2.07081I$
$u = 1.138980 - 0.705814I$ $a = 0.762830 - 0.903956I$ $b = -1.373520 - 0.140422I$	$-5.89358 - 2.47710I$	$2.52368 + 2.07081I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.390919 + 0.487203I$ $a = -0.142272 - 0.861639I$ $b = 0.433308 - 0.046954I$	$-1.67513 + 1.49906I$	$2.16861 - 5.00550I$
$u = 0.390919 - 0.487203I$ $a = -0.142272 + 0.861639I$ $b = 0.433308 + 0.046954I$	$-1.67513 - 1.49906I$	$2.16861 + 5.00550I$
$u = -0.486914$ $a = 0.684920$ $b = -0.232651$	0.667389	15.1430
$u = -1.51784 + 0.10872I$ $a = 0.152442 + 0.390876I$ $b = -0.0746395 + 0.0560374I$	$4.60852 - 3.54663I$	$3.76213 + 0.30741I$
$u = -1.51784 - 0.10872I$ $a = 0.152442 - 0.390876I$ $b = -0.0746395 - 0.0560374I$	$4.60852 + 3.54663I$	$3.76213 - 0.30741I$
$u = -1.16828 + 1.29949I$ $a = 0.771799 - 0.429092I$ $b = -0.50715 - 2.09278I$	$5.62161 - 3.04840I$	$8.24444 + 1.87699I$
$u = -1.16828 - 1.29949I$ $a = 0.771799 + 0.429092I$ $b = -0.50715 + 2.09278I$	$5.62161 + 3.04840I$	$8.24444 - 1.87699I$
$u = 1.88865 + 0.65161I$ $a = 0.557638 + 0.987237I$ $b = -1.32425 + 1.66024I$	$14.5063 + 11.3964I$	$7.17418 - 4.33997I$
$u = 1.88865 - 0.65161I$ $a = 0.557638 - 0.987237I$ $b = -1.32425 - 1.66024I$	$14.5063 - 11.3964I$	$7.17418 + 4.33997I$
$u = 2.18883$ $a = -0.226088$ $b = -2.17979$	10.8028	8.45190

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-2.34694+0.29798I$ $a=\ \ 0.184555-0.987184I$ $b=-0.08772-2.56787I$	$16.2419-0.6601I$	$8.28889+0.I$
$u=-2.34694-0.29798I$ $a=\ \ 0.184555+0.987184I$ $b=-0.08772+2.56787I$	$16.2419+0.6601I$	$8.28889+0.I$

II.

$\boldsymbol{I_2^u = \langle 4u^{15}+u^{14}+\cdots+b-5,\ 5u^{15}+2u^{14}+\cdots+a-5,\ u^{16}-7u^{14}+\cdots-u+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -5u^{15} - 2u^{14} + \cdots + 10u + 5 \\ -4u^{15} - u^{14} + \cdots + 9u + 5 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -5u^{15} - 2u^{14} + \cdots + 10u + 5 \\ -2u^{15} + 14u^{13} + \cdots + 6u + 3 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{14} + 6u^{12} + \cdots - 8u^2 - u \\ -4u^{15} - 2u^{14} + \cdots + 7u + 6 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2u^{15} - 13u^{13} + \cdots + 3u^2 - 2u \\ 2u^{15} + u^{14} + \cdots - 2u - 5 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -3u^{15} - u^{14} + \cdots + 5u + 3 \\ -4u^{15} - u^{14} + \cdots + 11u + 5 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 5u^{15} + u^{14} + \cdots - 12u - 5 \\ 4u^{15} + 2u^{14} + \cdots - 10u - 6 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2u^{15} - 2u^{14} + \cdots + 3u + 2 \\ -5u^{15} - 2u^{14} + \cdots + 9u + 7 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -14u^{15} - 7u^{14} + 93u^{13} + 59u^{12} - 272u^{11} - 213u^{10} + 485u^9 + 439u^8 - 583u^7 - 544u^6 + 451u^5 + 409u^4 - 202u^3 - 183u^2 + 22u + 36$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 14u^{15} + \cdots - 18u + 1$
c_2	$u^{16} + 2u^{15} + \cdots + 2u + 1$
c_3	$u^{16} - 7u^{14} + \cdots + u + 1$
c_4	$u^{16} + 2u^{14} + \cdots - u + 1$
c_5	$u^{16} - 2u^{15} + \cdots - 2u + 1$
c_6	$u^{16} + 8u^{14} + \cdots + 2u + 1$
c_7, c_8	$u^{16} - 7u^{14} + \cdots - u + 1$
c_9	$u^{16} - 4u^{15} + \cdots + 4u^3 + 1$
c_{10}	$u^{16} + 8u^{14} + \cdots - 2u + 1$
c_{11}	$u^{16} + 16u^{15} + \cdots + 18u + 1$
c_{12}	$u^{16} + 14u^{14} + \cdots + 7u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} - 10y^{15} + \cdots - 42y + 1$
c_2, c_5	$y^{16} + 14y^{15} + \cdots + 18y + 1$
c_3, c_7, c_8	$y^{16} - 14y^{15} + \cdots - 17y + 1$
c_4	$y^{16} + 4y^{15} + \cdots + y + 1$
c_6, c_{10}	$y^{16} + 16y^{15} + \cdots + 18y + 1$
c_9	$y^{16} - 4y^{15} + \cdots - 12y^2 + 1$
c_{11}	$y^{16} - 16y^{15} + \cdots - 18y + 1$
c_{12}	$y^{16} + 28y^{15} + \cdots + 1505y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.895121 + 0.512839I$ $a = -0.764453 - 0.786216I$ $b = 1.48200 - 0.38704I$	$-2.57741 + 2.02646I$	$-4.32270 - 0.49641I$
$u = 0.895121 - 0.512839I$ $a = -0.764453 + 0.786216I$ $b = 1.48200 + 0.38704I$	$-2.57741 - 2.02646I$	$-4.32270 + 0.49641I$
$u = -0.991446 + 0.300154I$ $a = 0.72110 - 1.52416I$ $b = -1.200410 - 0.280363I$	$-5.52393 - 1.17654I$	$4.37675 - 1.28594I$
$u = -0.991446 - 0.300154I$ $a = 0.72110 + 1.52416I$ $b = -1.200410 + 0.280363I$	$-5.52393 + 1.17654I$	$4.37675 + 1.28594I$
$u = 1.042540 + 0.498206I$ $a = 1.57083 + 2.03165I$ $b = -0.562512 + 0.129135I$	$-10.21970 + 1.92477I$	$-2.98411 - 3.89934I$
$u = 1.042540 - 0.498206I$ $a = 1.57083 - 2.03165I$ $b = -0.562512 - 0.129135I$	$-10.21970 - 1.92477I$	$-2.98411 + 3.89934I$
$u = -0.947353 + 0.893061I$ $a = -0.995021 + 0.545877I$ $b = 1.157010 + 0.171797I$	$-5.04353 - 3.27906I$	$6.96610 + 5.21245I$
$u = -0.947353 - 0.893061I$ $a = -0.995021 - 0.545877I$ $b = 1.157010 - 0.171797I$	$-5.04353 + 3.27906I$	$6.96610 - 5.21245I$
$u = -0.535533 + 0.224627I$ $a = -0.50673 - 1.96194I$ $b = 0.091098 - 1.093350I$	$0.313495 - 1.189950I$	$7.79460 + 1.38246I$
$u = -0.535533 - 0.224627I$ $a = -0.50673 + 1.96194I$ $b = 0.091098 + 1.093350I$	$0.313495 + 1.189950I$	$7.79460 - 1.38246I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.42936+0.19543I$ $a=0.667578+0.371646I$ $b=-0.005180+0.635975I$	$3.92703-0.68720I$	$9.16301-0.40551I$
$u=-1.42936-0.19543I$ $a=0.667578-0.371646I$ $b=-0.005180-0.635975I$	$3.92703+0.68720I$	$9.16301+0.40551I$
$u=1.46404+0.03561I$ $a=0.004983-0.187762I$ $b=0.403326-0.712059I$	$5.03010+4.12297I$	$11.6031-8.8115I$
$u=1.46404-0.03561I$ $a=0.004983+0.187762I$ $b=0.403326+0.712059I$	$5.03010-4.12297I$	$11.6031+8.8115I$
$u=0.501986+0.071058I$ $a=-0.69829-1.53708I$ $b=0.634668-1.218490I$	$0.93447+4.27246I$	$4.40321-6.78367I$
$u=0.501986-0.071058I$ $a=-0.69829+1.53708I$ $b=0.634668+1.218490I$	$0.93447-4.27246I$	$4.40321+6.78367I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{16} - 14u^{15} + \cdots - 18u + 1)(u^{22} + 3u^{21} + \cdots + 129u + 121)$
c_2	$(u^{16} + 2u^{15} + \cdots + 2u + 1)(u^{22} + 3u^{21} + \cdots + 61u - 11)$
c_3	$(u^{16} - 7u^{14} + \cdots + u + 1)(u^{22} + u^{21} + \cdots - 570u - 173)$
c_4	$(u^{16} + 2u^{14} + \cdots - u + 1)(u^{22} + 12u^{21} + \cdots - 5056u - 1856)$
c_5	$(u^{16} - 2u^{15} + \cdots - 2u + 1)(u^{22} + 3u^{21} + \cdots + 61u - 11)$
c_6	$(u^{16} + 8u^{14} + \cdots + 2u + 1)(u^{22} - u^{21} + \cdots + 387u - 119)$
c_7, c_8	$(u^{16} - 7u^{14} + \cdots - u + 1)(u^{22} + u^{21} + \cdots - 570u - 173)$
c_9	$(u^{16} - 4u^{15} + \cdots + 4u^3 + 1)(u^{22} - 3u^{21} + \cdots - 17u + 1)$
c_{10}	$(u^{16} + 8u^{14} + \cdots - 2u + 1)(u^{22} - u^{21} + \cdots + 387u - 119)$
c_{11}	$(u^{16} + 16u^{15} + \cdots + 18u + 1)(u^{22} + u^{21} + \cdots - 50523u + 14161)$
c_{12}	$(u^{16} + 14u^{14} + \cdots + 7u + 7)(u^{22} + u^{21} + \cdots + 8u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{16} - 10y^{15} + \cdots - 42y + 1)(y^{22} + 47y^{21} + \cdots + 1408497y + 14641)$
c_2, c_5	$(y^{16} + 14y^{15} + \cdots + 18y + 1)(y^{22} + 3y^{21} + \cdots + 129y + 121)$
c_3, c_7, c_8	$(y^{16} - 14y^{15} + \cdots - 17y + 1)(y^{22} - 33y^{21} + \cdots - 222830y + 29929)$
c_4	$(y^{16} + 4y^{15} + \cdots + y + 1)(y^{22} - 48y^{21} + \cdots - 1.78422 \times 10^7 y + 3444736)$
c_6, c_{10}	$(y^{16} + 16y^{15} + \cdots + 18y + 1)(y^{22} + y^{21} + \cdots - 50523y + 14161)$
c_9	$(y^{16} - 4y^{15} + \cdots - 12y^2 + 1)(y^{22} + 17y^{21} + \cdots - 89y + 1)$
c_{11}	$(y^{16} - 16y^{15} + \cdots - 18y + 1)$ $\cdot (y^{22} + 57y^{21} + \cdots - 20509146359y + 200533921)$
c_{12}	$(y^{16} + 28y^{15} + \cdots + 1505y + 49)(y^{22} + 49y^{21} + \cdots - 52y + 1)$