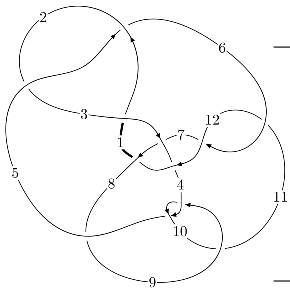
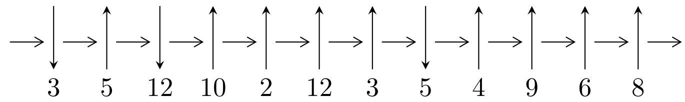
$12n_{0398}$ ($K12n_{0398}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & 2.97014 \times 10^{17} u^{25} - 5.76869 \times 10^{17} u^{24} + \cdots + 3.13067 \times 10^{19} b - 2.63141 \times 10^{17}, \\ & 1.19380 \times 10^{20} u^{25} - 2.53498 \times 10^{19} u^{24} + \cdots + 5.94827 \times 10^{20} a - 2.01222 \times 10^{21},\ u^{26} + u^{25} + \cdots - 28u - 1 \\ I_2^u = \langle & -u^{15} + 4u^{13} - u^{12} - 10u^{11} + 3u^{10} + 16u^9 - 7u^8 - 19u^7 + 10u^6 + 13u^5 - 10u^4 - 5u^3 + 5u^2 + b - 1, \\ & -2u^{15} + u^{14} + 6u^{13} - 4u^{12} - 13u^{11} + 9u^{10} + 16u^9 - 15u^8 - 14u^7 + 17u^6 + 2u^5 - 11u^4 + 3u^3 + 3u^2 + a - 2 \\ & u^{16} - 4u^{14} + 10u^{12} - 16u^{10} + u^9 + 19u^8 - 3u^7 - 15u^6 + 4u^5 + 8u^4 - 3u^3 - 3u^2 + u + 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 42 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. $I_1^u = \langle 2.97\times10^{17}u^{25}-5.77\times10^{17}u^{24}+\cdots+3.13\times10^{19}b-2.63\times10^{17},\ 1.19\times10^{20}u^{25}-2.53\times10^{19}u^{24}+\cdots+5.95\times10^{20}a-2.01\times10^{21},\ u^{26}+u^{25}+\cdots-28u-19\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.200697u^{25}+0.0426171u^{24}+\cdots+2.66846u+3.38286 \\ -0.00948723u^{25}+0.0184264u^{24}+\cdots+0.751262u+0.00840526 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.384928u^{25}+0.0732483u^{24}+\cdots+4.20798u+6.50815 \\ -0.102054u^{25}+0.0407047u^{24}+\cdots+1.29638u+1.21236 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.282874u^{25}+0.0325436u^{24}+\cdots+2.91160u+5.29579 \\ -0.102054u^{25}+0.0407047u^{24}+\cdots+1.29638u+1.21236 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.00386158u^{25}-0.0616679u^{24}+\cdots+0.342331u+1.96390 \\ 0.0590853u^{25}-0.0329754u^{24}+\cdots-1.46399u-0.594028 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.326961u^{25}+0.111690u^{24}+\cdots+4.32043u+4.70360 \\ -0.120257u^{25}+0.0334802u^{24}+\cdots+1.90402u+1.63890 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^3 \\ -u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.0487672u^{25}+0.135155u^{24}+\cdots+0.267367u-3.78355 \\ -0.000670823u^{25}+0.0342194u^{24}+\cdots+0.985487u-1.00612 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3 \\ u^5-u^3+u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{4197118660559683443 2}{3130670901758265656 3}u^{25} - \frac{5084666455514062662}{3130670901758265656 3}u^{24}+\cdots+\frac{7253370534654716620 59}{3130670901758265656 3}u+\frac{1192252859670655966978}{3130670901758265656 3}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{26} + 4u^{25} + \cdots - 5008u + 841$
c_2, c_5	$u^{26} + 2u^{25} + \cdots - 152u + 29$
c_3	$u^{26} - 3u^{25} + \cdots - 4u + 1$
c_4, c_9	$u^{26} + u^{25} + \cdots - 28u - 19$
c_6, c_{11}	$u^{26} + 3u^{25} + \cdots + 240u - 56$
c_7	$u^{26} + u^{25} + \cdots - 9u + 1$
c_8	$u^{26} + 3u^{25} + \cdots + 1729u + 2888$
c_{10}	$u^{26} - 19u^{25} + \cdots - 2570u + 361$
c_{12}	$u^{26} - u^{25} + \cdots + 305u - 278$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{26} + 52y^{25} + \cdots - 89120532y + 707281$
c_2, c_5	$y^{26} + 4y^{25} + \cdots - 5008y + 841$
c_3	$y^{26} + 21y^{25} + \cdots + 86y + 1$
c_4, c_9	$y^{26} - 19y^{25} + \cdots - 2570y + 361$
c_6, c_{11}	$y^{26} - 33y^{25} + \cdots + 3552y + 3136$
c_7	$y^{26} + 59y^{25} + \cdots - 63y + 1$
c_8	$y^{26} + 49y^{25} + \cdots - 13634609y + 8340544$
c_{10}	$y^{26} - 15y^{25} + \cdots - 18094y + 130321$
c_{12}	$y^{26} - 35y^{25} + \cdots - 343225y + 77284$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.046430 + 0.230334I$ $a = 0.904468 + 0.995486I$ $b = -0.297194 + 0.524133I$	$-2.11030 - 0.82786I$	$9.83528 - 0.62006I$
$u = -1.046430 - 0.230334I$ $a = 0.904468 - 0.995486I$ $b = -0.297194 - 0.524133I$	$-2.11030 + 0.82786I$	$9.83528 + 0.62006I$
$u = -0.979713 + 0.526985I$ $a = 0.47135 - 1.47204I$ $b = 0.26056 - 1.46043I$	$-6.29591 - 2.05047I$	$2.31530 + 2.39529I$
$u = -0.979713 - 0.526985I$ $a = 0.47135 + 1.47204I$ $b = 0.26056 + 1.46043I$	$-6.29591 + 2.05047I$	$2.31530 - 2.39529I$
$u = 1.068060 + 0.381172I$ $a = 0.25798 + 1.48795I$ $b = -1.25101 + 1.49141I$	$3.21406 + 4.68481I$	$6.78577 - 4.01254I$
$u = 1.068060 - 0.381172I$ $a = 0.25798 - 1.48795I$ $b = -1.25101 - 1.49141I$	$3.21406 - 4.68481I$	$6.78577 + 4.01254I$
$u = -0.720226 + 0.420524I$ $a = 0.109243 + 0.577294I$ $b = -0.211859 - 0.068837I$	$-1.01337 - 1.74582I$	$2.64941 + 5.86100I$
$u = -0.720226 - 0.420524I$ $a = 0.109243 - 0.577294I$ $b = -0.211859 + 0.068837I$	$-1.01337 + 1.74582I$	$2.64941 - 5.86100I$
$u = -1.125590 + 0.414878I$ $a = -0.60347 + 2.11030I$ $b = 0.78890 + 1.53070I$	$3.15440 - 5.95143I$	$5.27054 + 8.12697I$
$u = -1.125590 - 0.414878I$ $a = -0.60347 - 2.11030I$ $b = 0.78890 - 1.53070I$	$3.15440 + 5.95143I$	$5.27054 - 8.12697I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.576799 + 0.539363I$ $a = 1.73236 - 0.76798I$ $b = 0.917879 + 0.763236I$	$1.72229 - 1.05497I$	$5.11673 - 2.05662I$
$u = 0.576799 - 0.539363I$ $a = 1.73236 + 0.76798I$ $b = 0.917879 - 0.763236I$	$1.72229 + 1.05497I$	$5.11673 + 2.05662I$
$u = 0.937850 + 0.875162I$ $a = -0.383439 - 0.046876I$ $b = 0.058830 - 0.513138I$	$-9.63476 + 3.24540I$	$11.28144 - 4.93616I$
$u = 0.937850 - 0.875162I$ $a = -0.383439 + 0.046876I$ $b = 0.058830 + 0.513138I$	$-9.63476 - 3.24540I$	$11.28144 + 4.93616I$
$u = -0.126374 + 1.299430I$ $a = 0.240279 - 0.296936I$ $b = 0.23603 - 1.59331I$	$9.18772 + 5.01541I$	$6.86924 - 2.09286I$
$u = -0.126374 - 1.299430I$ $a = 0.240279 + 0.296936I$ $b = 0.23603 + 1.59331I$	$9.18772 - 5.01541I$	$6.86924 + 2.09286I$
$u = -0.260661 + 0.600635I$ $a = -0.008179 - 0.294986I$ $b = -0.523677 + 1.128050I$	$0.64435 + 2.04528I$	$2.89894 - 3.38693I$
$u = -0.260661 - 0.600635I$ $a = -0.008179 + 0.294986I$ $b = -0.523677 - 1.128050I$	$0.64435 - 2.04528I$	$2.89894 + 3.38693I$
$u = 0.619771$ $a = 0.580980$ $b = 0.438499$	0.786533	13.5010
$u = 1.44898 + 0.19387I$ $a = 0.44142 + 1.70204I$ $b = -0.04602 + 1.63288I$	$6.07568 + 0.67636I$	$9.59349 - 0.33542I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.44898 - 0.19387I$ $a = 0.44142 - 1.70204I$ $b = -0.04602 - 1.63288I$	$6.07568 - 0.67636I$	$9.59349 + 0.33542I$
$u = -1.51509$ $a = -0.841913$ $b = 0.310960$	9.26344	9.84080
$u = -1.41163 + 0.67471I$ $a = 0.68636 - 1.52049I$ $b = -0.44218 - 1.83701I$	$13.2089 - 11.9429I$	$8.01117 + 5.02358I$
$u = -1.41163 - 0.67471I$ $a = 0.68636 + 1.52049I$ $b = -0.44218 + 1.83701I$	$13.2089 + 11.9429I$	$8.01117 - 5.02358I$
$u = 1.58660 + 0.55037I$ $a = -0.82317 - 1.20478I$ $b = 0.13502 - 1.49909I$	$14.6555 + 1.7140I$	$9.20177 - 0.71366I$
$u = 1.58660 - 0.55037I$ $a = -0.82317 + 1.20478I$ $b = 0.13502 + 1.49909I$	$14.6555 - 1.7140I$	$9.20177 + 0.71366I$

II.

$$I_2^u = \langle -u^{15}+4u^{13}+\cdots+b-1,\ -2u^{15}+u^{14}+\cdots+a-2u,\ u^{16}-4u^{14}+\cdots+u+1 \rangle$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2u^{15} - u^{14} + \cdots - 3u^2 + 2u \\ u^{15} - 4u^{13} + \cdots - 5u^2 + 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 2u^{15} - 3u^{14} + \cdots + 2u + 4 \\ -u^{13} + 3u^{11} - 7u^9 + 9u^7 - u^6 - 9u^5 + 2u^4 + 4u^3 - 2u^2 - u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2u^{15} - 3u^{14} + \cdots + 3u + 3 \\ -u^{13} + 3u^{11} - 7u^9 + 9u^7 - u^6 - 9u^5 + 2u^4 + 4u^3 - 2u^2 - u + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^{15} + 4u^{13} - 9u^{11} + 13u^9 - u^8 - 12u^7 + 3u^6 + 6u^5 - 3u^4 + u^3 + u^2 + 1 \\ -u^{15} + 4u^{13} + \cdots + 3u^2 + 2u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 3u^{15} - u^{14} + \cdots - 4u^2 + u \\ u^{15} - 4u^{13} + \cdots - u + 1 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} -u^{15} - u^{14} + \cdots + 2u^2 + 4u \\ -u^{14} + 4u^{12} + \cdots + 3u + 2 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^{15} + 5u^{14} + 32u^{13} - 19u^{12} - 77u^{11} + 45u^{10} + 119u^9 - 78u^8 - 125u^7 + 100u^6 + 79u^5 - 84u^4 - 20u^3 + 38u^2 + 2u - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 15u^{15} + \cdots - 19u + 1$
c_2	$u^{16} + u^{15} + \cdots + u + 1$
c_3	$u^{16} + 4u^{15} + \cdots + u + 1$
c_4	$u^{16} - 4u^{14} + \cdots + u + 1$
c_5	$u^{16} - u^{15} + \cdots - u + 1$
c_6	$u^{16} + 2u^{15} + \cdots + 2u^2 + 1$
c_7	$u^{16} + 15u^{14} + \cdots - 8u + 1$
c_8	$u^{16} - 4u^{14} + \cdots - u + 1$
c_9	$u^{16} - 4u^{14} + \cdots - u + 1$
c_{10}	$u^{16} - 8u^{15} + \cdots - 7u + 1$
c_{11}	$u^{16} - 2u^{15} + \cdots + 2u^2 + 1$
c_{12}	$u^{16} + 2u^{14} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} - 13y^{15} + \cdots - 49y + 1$
c_2, c_5	$y^{16} + 15y^{15} + \cdots + 19y + 1$
c_3	$y^{16} - 8y^{15} + \cdots + y + 1$
c_4, c_9	$y^{16} - 8y^{15} + \cdots - 7y + 1$
c_6, c_{11}	$y^{16} + 2y^{15} + \cdots + 4y + 1$
c_7	$y^{16} + 30y^{15} + \cdots + 24y + 1$
c_8	$y^{16} - 8y^{15} + \cdots - 3y + 1$
c_{10}	$y^{16} + 8y^{15} + \cdots + 13y + 1$
c_{12}	$y^{16} + 4y^{15} + \cdots + 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.928459 + 0.210985I$ $a = -0.08578 + 1.94449I$ $b = 0.44492 + 1.40305I$	$-5.69032 + 0.91508I$	$6.42574 + 1.46044I$
$u = 0.928459 - 0.210985I$ $a = -0.08578 - 1.94449I$ $b = 0.44492 - 1.40305I$	$-5.69032 - 0.91508I$	$6.42574 - 1.46044I$
$u = -0.891284 + 0.284250I$ $a = 1.049080 + 0.856325I$ $b = -0.424111 - 0.038339I$	$-2.75842 - 1.23687I$	$-0.93586 + 5.66129I$
$u = -0.891284 - 0.284250I$ $a = 1.049080 - 0.856325I$ $b = -0.424111 + 0.038339I$	$-2.75842 + 1.23687I$	$-0.93586 - 5.66129I$
$u = 0.879726 + 0.695218I$ $a = -0.783339 - 1.034040I$ $b = -0.251596 - 1.308430I$	$-5.37416 + 2.67548I$	$8.13212 - 4.78244I$
$u = 0.879726 - 0.695218I$ $a = -0.783339 + 1.034040I$ $b = -0.251596 + 1.308430I$	$-5.37416 - 2.67548I$	$8.13212 + 4.78244I$
$u = 0.502884 + 0.656202I$ $a = 0.921548 + 0.037821I$ $b = -0.330221 + 1.286020I$	$1.24395 + 2.85601I$	$7.24981 - 2.90050I$
$u = 0.502884 - 0.656202I$ $a = 0.921548 - 0.037821I$ $b = -0.330221 - 1.286020I$	$1.24395 - 2.85601I$	$7.24981 + 2.90050I$
$u = -1.117360 + 0.442159I$ $a = -0.68765 + 2.18024I$ $b = 0.95379 + 1.98741I$	$4.14272 - 5.66059I$	$13.1246 + 7.2150I$
$u = -1.117360 - 0.442159I$ $a = -0.68765 - 2.18024I$ $b = 0.95379 - 1.98741I$	$4.14272 + 5.66059I$	$13.1246 - 7.2150I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.928870 + 0.835313I$ $a = -0.130318 - 0.323140I$ $b = 0.141022 + 0.055042I$	$-10.05780 - 3.13031I$	$-6.80246 + 0.44703I$
$u = -0.928870 - 0.835313I$ $a = -0.130318 + 0.323140I$ $b = 0.141022 - 0.055042I$	$-10.05780 + 3.13031I$	$-6.80246 - 0.44703I$
$u = 1.144080 + 0.550514I$ $a = 1.18903 + 1.05584I$ $b = -0.11513 + 1.65347I$	$3.33898 + 2.00138I$	$10.41585 - 0.74839I$
$u = 1.144080 - 0.550514I$ $a = 1.18903 - 1.05584I$ $b = -0.11513 - 1.65347I$	$3.33898 - 2.00138I$	$10.41585 + 0.74839I$
$u = -0.517636 + 0.368558I$ $a = -1.97258 - 0.55483I$ $b = -0.91868 + 1.34697I$	$1.99556 + 2.04137I$	$8.89023 - 4.80901I$
$u = -0.517636 - 0.368558I$ $a = -1.97258 + 0.55483I$ $b = -0.91868 - 1.34697I$	$1.99556 - 2.04137I$	$8.89023 + 4.80901I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{16} - 15u^{15} + \cdots - 19u + 1)(u^{26} + 4u^{25} + \cdots - 5008u + 841)$
c_2	$(u^{16} + u^{15} + \cdots + u + 1)(u^{26} + 2u^{25} + \cdots - 152u + 29)$
c_3	$(u^{16} + 4u^{15} + \cdots + u + 1)(u^{26} - 3u^{25} + \cdots - 4u + 1)$
c_4	$(u^{16} - 4u^{14} + \cdots + u + 1)(u^{26} + u^{25} + \cdots - 28u - 19)$
c_5	$(u^{16} - u^{15} + \cdots - u + 1)(u^{26} + 2u^{25} + \cdots - 152u + 29)$
c_6	$(u^{16} + 2u^{15} + \cdots + 2u^2 + 1)(u^{26} + 3u^{25} + \cdots + 240u - 56)$
c_7	$(u^{16} + 15u^{14} + \cdots - 8u + 1)(u^{26} + u^{25} + \cdots - 9u + 1)$
c_8	$(u^{16} - 4u^{14} + \cdots - u + 1)(u^{26} + 3u^{25} + \cdots + 1729u + 2888)$
c_9	$(u^{16} - 4u^{14} + \cdots - u + 1)(u^{26} + u^{25} + \cdots - 28u - 19)$
c_{10}	$(u^{16} - 8u^{15} + \cdots - 7u + 1)(u^{26} - 19u^{25} + \cdots - 2570u + 361)$
c_{11}	$(u^{16} - 2u^{15} + \cdots + 2u^2 + 1)(u^{26} + 3u^{25} + \cdots + 240u - 56)$
c_{12}	$(u^{16} + 2u^{14} + \cdots - 2u + 1)(u^{26} - u^{25} + \cdots + 305u - 278)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{16} - 13y^{15} + \cdots - 49y + 1)$ $\cdot (y^{26} + 52y^{25} + \cdots - 89120532y + 707281)$
c_2, c_5	$(y^{16} + 15y^{15} + \cdots + 19y + 1)(y^{26} + 4y^{25} + \cdots - 5008y + 841)$
c_3	$(y^{16} - 8y^{15} + \cdots + y + 1)(y^{26} + 21y^{25} + \cdots + 86y + 1)$
c_4, c_9	$(y^{16} - 8y^{15} + \cdots - 7y + 1)(y^{26} - 19y^{25} + \cdots - 2570y + 361)$
c_6, c_{11}	$(y^{16} + 2y^{15} + \cdots + 4y + 1)(y^{26} - 33y^{25} + \cdots + 3552y + 3136)$
c_7	$(y^{16} + 30y^{15} + \cdots + 24y + 1)(y^{26} + 59y^{25} + \cdots - 63y + 1)$
c_8	$(y^{16} - 8y^{15} + \cdots - 3y + 1)$ $\cdot (y^{26} + 49y^{25} + \cdots - 13634609y + 8340544)$
c_{10}	$(y^{16} + 8y^{15} + \cdots + 13y + 1)(y^{26} - 15y^{25} + \cdots - 18094y + 130321)$
c_{12}	$(y^{16} + 4y^{15} + \cdots + 2y + 1)(y^{26} - 35y^{25} + \cdots - 343225y + 77284)$