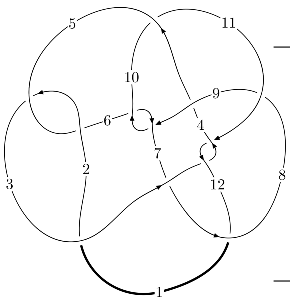
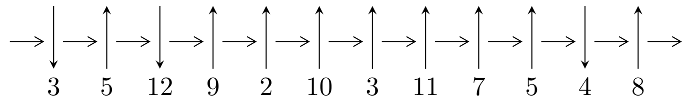
$12n_{0433}$ ($K12n_{0433}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -4u^{18} - 56u^{17} + \cdots + 4b + 144,\ 9u^{18} + 116u^{17} + \cdots + 8a - 144,\ u^{19} + 14u^{18} + \cdots - 176u - 32 \rangle$$
$$I_2^u = \langle u^{12} - 2u^{11} - 2u^{10} + 8u^9 - u^8 - 14u^7 + 10u^6 + 13u^5 - 15u^4 - 5u^3 + 11u^2 + b - 3,$$
$$4u^{13} - 8u^{12} - 7u^{11} + 30u^{10} - 6u^9 - 48u^8 + 39u^7 + 38u^6 - 50u^5 - 11u^4 + 32u^3 - u^2 + a - 8u,$$
$$u^{14} - 2u^{13} - 2u^{12} + 8u^{11} - u^{10} - 14u^9 + 10u^8 + 13u^7 - 15u^6 - 6u^5 + 12u^4 + u^3 - 5u^2 + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 33 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. $I_1^u = \langle -4u^{18} - 56u^{17} + \cdots + 4b + 144,\ 9u^{18} + 116u^{17} + \cdots + 8a - 144,\ u^{19} + 14u^{18} + \cdots - 176u - 32\rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -\frac{9}{8}u^{18} - \frac{29}{2}u^{17} + \cdots + \frac{397}{4}u + 18 \\ u^{18} + 14u^{17} + \cdots - 175u - 36 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -\frac{3}{2}u^{18} - \frac{353}{16}u^{17} + \cdots + 400u + 89 \\ -\frac{43}{16}u^{18} - 35u^{17} + \cdots + 284u + 52 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{47}{16}u^{18} - \frac{617}{16}u^{17} + \cdots + 351u + 71 \\ \frac{33}{16}u^{18} + \frac{55}{2}u^{17} + \cdots - 308u - 64 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -3u^{18} - \frac{75}{2}u^{17} + \cdots + 179u + \frac{59}{2} \\ \frac{7}{2}u^{18} + 47u^{17} + \cdots - \frac{931}{2}u - 92 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{1}{8}u^{18} - \frac{1}{2}u^{17} + \cdots - \frac{303}{4}u - 18 \\ u^{18} + 14u^{17} + \cdots - 175u - 36 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{37}{8}u^{18} - \frac{879}{16}u^{17} + \cdots - 18u - 28 \\ \frac{25}{16}u^{18} + \frac{99}{4}u^{17} + \cdots - 596u - 134 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{1}{8}u^{18} - \frac{3}{2}u^{17} + \cdots + \frac{3}{2}u - \frac{1}{2} \\ \frac{1}{4}u^{18} + \frac{13}{4}u^{17} + \cdots - \frac{43}{2}u - 4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{9}{8}u^{18} + \frac{59}{4}u^{17} + \cdots - \frac{467}{4}u - 22 \\ -\frac{5}{4}u^{18} - 17u^{17} + \cdots + 181u + 36 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.812500u^{18} - 13.1250u^{17} + \cdots + 309.500u + 67.5000 \\ -\frac{1}{4}u^{18} - \frac{7}{8}u^{17} + \cdots - \frac{413}{2}u - 50 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{11}{2}u^{18} + \frac{139}{2}u^{17} + 415u^{16} + 1500u^{15} + \frac{7043}{2}u^{14} + \frac{10513}{2}u^{13} + 4038u^{12} - \frac{2097}{2}u^{11} - 5824u^{10} - \frac{8859}{2}u^9 + 2557u^8 + \frac{15599}{2}u^7 + 6701u^6 + \frac{4531}{2}u^5 - \frac{1461}{2}u^4 - \frac{2433}{2}u^3 - 610u^2 - 104u + 26$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} + 52u^{18} + \cdots + 153907u - 11881$
c_2, c_5	$u^{19} + 2u^{18} + \cdots + 251u - 109$
c_3, c_{11}	$u^{19} - 3u^{18} + \cdots + 6u - 1$
c_4	$u^{19} + 14u^{18} + \cdots - 176u - 32$
c_6, c_9	$u^{19} + 3u^{18} + \cdots + 5u - 1$
c_7	$u^{19} + 6u^{18} + \cdots - 10302u - 2521$
c_8	$u^{19} + 7u^{18} + \cdots + 162u - 297$
c_{10}	$u^{19} - u^{18} + \cdots + 34163u - 22951$
c_{12}	$u^{19} - u^{18} + \cdots + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} - 304y^{18} + \cdots + 28531319635y - 141158161$
c_2, c_5	$y^{19} + 52y^{18} + \cdots + 153907y - 11881$
c_3, c_{11}	$y^{19} + 13y^{18} + \cdots + 18y - 1$
c_4	$y^{19} - 8y^{18} + \cdots + 2816y - 1024$
c_6, c_9	$y^{19} + 45y^{18} + \cdots - 13y - 1$
c_7	$y^{19} + 78y^{18} + \cdots - 54658176y - 6355441$
c_8	$y^{19} + 3y^{18} + \cdots + 334530y - 88209$
c_{10}	$y^{19} + 111y^{18} + \cdots + 3474236893y - 526748401$
c_{12}	$y^{19} + 47y^{18} + \cdots + 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.952043 + 0.382374I$ $a = 1.17972 + 1.64280I$ $b = 0.089418 - 1.147290I$	$3.73582 + 1.17440I$	$11.92191 - 0.82107I$
$u = 0.952043 - 0.382374I$ $a = 1.17972 - 1.64280I$ $b = 0.089418 + 1.147290I$	$3.73582 - 1.17440I$	$11.92191 + 0.82107I$
$u = -0.768934 + 0.440549I$ $a = 0.024948 + 0.607572I$ $b = -0.703023 - 0.273400I$	$-1.08916 - 1.88825I$	$4.12654 + 6.95874I$
$u = -0.768934 - 0.440549I$ $a = 0.024948 - 0.607572I$ $b = -0.703023 + 0.273400I$	$-1.08916 + 1.88825I$	$4.12654 - 6.95874I$
$u = -0.843250 + 0.773517I$ $a = 0.454480 - 0.127733I$ $b = 0.322216 - 0.786249I$	$-2.76916 - 1.41416I$	$5.64379 - 1.17536I$
$u = -0.843250 - 0.773517I$ $a = 0.454480 + 0.127733I$ $b = 0.322216 + 0.786249I$	$-2.76916 + 1.41416I$	$5.64379 + 1.17536I$
$u = -0.909852 + 0.767638I$ $a = 1.56617 - 0.42091I$ $b = 0.328613 + 0.853253I$	$-2.57134 - 4.39733I$	$2.20465 + 4.40914I$
$u = -0.909852 - 0.767638I$ $a = 1.56617 + 0.42091I$ $b = 0.328613 - 0.853253I$	$-2.57134 + 4.39733I$	$2.20465 - 4.40914I$
$u = -1.144960 + 0.452451I$ $a = -0.86753 + 1.89248I$ $b = -0.425367 - 1.315850I$	$3.58710 - 6.01331I$	$10.19213 + 3.01505I$
$u = -1.144960 - 0.452451I$ $a = -0.86753 - 1.89248I$ $b = -0.425367 + 1.315850I$	$3.58710 + 6.01331I$	$10.19213 - 3.01505I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.139548+0.627235I$ $a=-0.010591-0.198980I$ $b=-0.307852+1.015400I$	$0.72950+1.86007I$	$4.96965-3.09776I$
$u=-0.139548-0.627235I$ $a=-0.010591+0.198980I$ $b=-0.307852-1.015400I$	$0.72950-1.86007I$	$4.96965+3.09776I$
$u=\ 0.583970$ $a=\ 0.561976$ $b=\ 0.210478$	0.754048	13.8110
$u=-1.46571+1.27783I$ $a=\ 0.081435-0.340297I$ $b=\ 1.048890-0.034516I$	$17.0824-5.1917I$	$2.96217+1.77524I$
$u=-1.46571-1.27783I$ $a=\ 0.081435+0.340297I$ $b=\ 1.048890+0.034516I$	$17.0824+5.1917I$	$2.96217-1.77524I$
$u=-1.42781+1.33926I$ $a=\ 0.98158-1.30284I$ $b=\ 0.54039+1.33382I$	$-18.3616-10.8389I$	$6.00000+4.45622I$
$u=-1.42781-1.33926I$ $a=\ 0.98158+1.30284I$ $b=\ 0.54039-1.33382I$	$-18.3616+10.8389I$	$6.00000-4.45622I$
$u=-1.54397+1.24729I$ $a=\ 0.058807+1.056090I$ $b=\ 0.50147-1.36952I$	$-17.9924+0.3271I$	$6.00000+0.I$
$u=-1.54397-1.24729I$ $a=\ 0.058807-1.056090I$ $b=\ 0.50147+1.36952I$	$-17.9924-0.3271I$	$6.00000+0.I$

II.
$$\boldsymbol{I_2^u = \langle u^{12}-2u^{11}+\cdots+b-3,\ 4u^{13}-8u^{12}+\cdots+a-8u,\ u^{14}-2u^{13}+\cdots-5u^2+1\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12u^{13}+29u^{12}+8u^{11}-92u^{10}+58u^9+113u^8-161u^7-41u^6+159u^5-34u^4-82u^3+30u^2+15u-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} - 9u^{13} + \cdots - 4u + 1$
c_2	$u^{14} + u^{13} + \cdots + 2u^2 + 1$
c_3	$u^{14} + 4u^{13} + \cdots + 5u + 1$
c_4	$u^{14} - 2u^{13} + \cdots - 5u^2 + 1$
c_5	$u^{14} - u^{13} + \cdots + 2u^2 + 1$
c_6	$u^{14} + 2u^{13} + \cdots + 4u^2 + 1$
c_7	$u^{14} + 5u^{13} + \cdots + 25u + 31$
c_8	$u^{14} + 2u^{13} + \cdots + 5u + 1$
c_9	$u^{14} - 2u^{13} + \cdots + 4u^2 + 1$
c_{10}	$u^{14} - 4u^{13} + \cdots - 136u + 31$
c_{11}	$u^{14} - 4u^{13} + \cdots - 5u + 1$
c_{12}	$u^{14} + 4u^{12} + \cdots - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 7y^{13} + \cdots + 8y + 1$
c_2, c_5	$y^{14} + 9y^{13} + \cdots + 4y + 1$
c_3, c_{11}	$y^{14} + 10y^{13} + \cdots + 5y + 1$
c_4	$y^{14} - 8y^{13} + \cdots - 10y + 1$
c_6, c_9	$y^{14} + 10y^{13} + \cdots + 8y + 1$
c_7	$y^{14} + 7y^{13} + \cdots - 1121y + 961$
c_8	$y^{14} - 4y^{13} + \cdots + 17y + 1$
c_{10}	$y^{14} + 12y^{12} + \cdots + 4506y + 961$
c_{12}	$y^{14} + 8y^{13} + \cdots + 9y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.798159 + 0.600990I$ $a = -0.790082 - 0.362242I$ $b = -0.292748 - 0.333907I$	$-3.42318 + 2.23744I$	$0.58128 - 4.57069I$
$u = 0.798159 - 0.600990I$ $a = -0.790082 + 0.362242I$ $b = -0.292748 + 0.333907I$	$-3.42318 - 2.23744I$	$0.58128 + 4.57069I$
$u = -0.869190 + 0.330016I$ $a = 0.409278 + 0.565077I$ $b = -0.984587 - 0.187907I$	$-1.77974 - 1.42720I$	$-4.12456 + 2.68600I$
$u = -0.869190 - 0.330016I$ $a = 0.409278 - 0.565077I$ $b = -0.984587 + 0.187907I$	$-1.77974 + 1.42720I$	$-4.12456 - 2.68600I$
$u = -1.127530 + 0.373386I$ $a = -0.63714 + 1.99005I$ $b = -0.46500 - 1.41759I$	$3.27521 - 6.65870I$	$5.6824 + 13.1355I$
$u = -1.127530 - 0.373386I$ $a = -0.63714 - 1.99005I$ $b = -0.46500 + 1.41759I$	$3.27521 + 6.65870I$	$5.6824 - 13.1355I$
$u = 0.723669 + 0.967507I$ $a = -1.268080 - 0.320652I$ $b = -0.228992 + 1.096290I$	$-1.31334 + 4.66687I$	$7.87120 - 4.64100I$
$u = 0.723669 - 0.967507I$ $a = -1.268080 + 0.320652I$ $b = -0.228992 - 1.096290I$	$-1.31334 - 4.66687I$	$7.87120 + 4.64100I$
$u = 0.726149 + 0.195111I$ $a = 1.18627 - 1.30389I$ $b = 0.445991 - 0.709258I$	$-4.05990 + 1.94786I$	$-0.25504 - 3.63553I$
$u = 0.726149 - 0.195111I$ $a = 1.18627 + 1.30389I$ $b = 0.445991 + 0.709258I$	$-4.05990 - 1.94786I$	$-0.25504 + 3.63553I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.623048 + 0.243830I$ $a = 0.47491 - 1.88602I$ $b = -0.523041 + 1.186810I$	$1.24309 + 3.87948I$	$3.25202 - 4.11136I$
$u = -0.623048 - 0.243830I$ $a = 0.47491 + 1.88602I$ $b = -0.523041 - 1.186810I$	$1.24309 - 3.87948I$	$3.25202 + 4.11136I$
$u = 1.37179 + 0.58461I$ $a = 0.12484 + 1.47757I$ $b = 0.048376 - 1.236450I$	$1.12307 + 2.18465I$	$7.49268 - 1.60290I$
$u = 1.37179 - 0.58461I$ $a = 0.12484 - 1.47757I$ $b = 0.048376 + 1.236450I$	$1.12307 - 2.18465I$	$7.49268 + 1.60290I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{14}-9u^{13}+\cdots-4u+1)(u^{19}+52u^{18}+\cdots+153907u-11881)$
c_2	$(u^{14}+u^{13}+\cdots+2u^2+1)(u^{19}+2u^{18}+\cdots+251u-109)$
c_3	$(u^{14}+4u^{13}+\cdots+5u+1)(u^{19}-3u^{18}+\cdots+6u-1)$
c_4	$(u^{14}-2u^{13}+\cdots-5u^2+1)(u^{19}+14u^{18}+\cdots-176u-32)$
c_5	$(u^{14}-u^{13}+\cdots+2u^2+1)(u^{19}+2u^{18}+\cdots+251u-109)$
c_6	$(u^{14}+2u^{13}+\cdots+4u^2+1)(u^{19}+3u^{18}+\cdots+5u-1)$
c_7	$(u^{14}+5u^{13}+\cdots+25u+31)(u^{19}+6u^{18}+\cdots-10302u-2521)$
c_8	$(u^{14}+2u^{13}+\cdots+5u+1)(u^{19}+7u^{18}+\cdots+162u-297)$
c_9	$(u^{14}-2u^{13}+\cdots+4u^2+1)(u^{19}+3u^{18}+\cdots+5u-1)$
c_{10}	$(u^{14}-4u^{13}+\cdots-136u+31)(u^{19}-u^{18}+\cdots+34163u-22951)$
c_{11}	$(u^{14}-4u^{13}+\cdots-5u+1)(u^{19}-3u^{18}+\cdots+6u-1)$
c_{12}	$(u^{14}+4u^{12}+\cdots-u+1)(u^{19}-u^{18}+\cdots+2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{14} - 7y^{13} + \cdots + 8y + 1)$ $\cdot (y^{19} - 304y^{18} + \cdots + 28531319635y - 141158161)$
c_2, c_5	$(y^{14} + 9y^{13} + \cdots + 4y + 1)(y^{19} + 52y^{18} + \cdots + 153907y - 11881)$
c_3, c_{11}	$(y^{14} + 10y^{13} + \cdots + 5y + 1)(y^{19} + 13y^{18} + \cdots + 18y - 1)$
c_4	$(y^{14} - 8y^{13} + \cdots - 10y + 1)(y^{19} - 8y^{18} + \cdots + 2816y - 1024)$
c_6, c_9	$(y^{14} + 10y^{13} + \cdots + 8y + 1)(y^{19} + 45y^{18} + \cdots - 13y - 1)$
c_7	$(y^{14} + 7y^{13} + \cdots - 1121y + 961)$ $\cdot (y^{19} + 78y^{18} + \cdots - 54658176y - 6355441)$
c_8	$(y^{14} - 4y^{13} + \cdots + 17y + 1)(y^{19} + 3y^{18} + \cdots + 334530y - 88209)$
c_{10}	$(y^{14} + 12y^{12} + \cdots + 4506y + 961)$ $\cdot (y^{19} + 111y^{18} + \cdots + 3474236893y - 526748401)$
c_{12}	$(y^{14} + 8y^{13} + \cdots + 9y + 1)(y^{19} + 47y^{18} + \cdots + 6y - 1)$