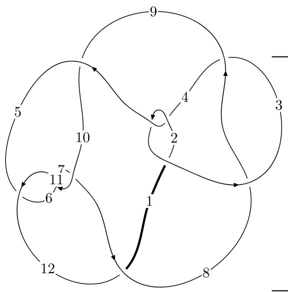
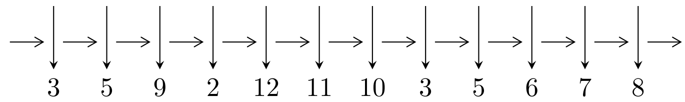
$12n_{0244}$ ($K12n_{0244}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{19} + u^{18} + \cdots + u^2 + b,\ -u^{19} - u^{18} + \cdots + a - 2,\ u^{20} + 2u^{19} + \cdots + 2u + 1 \rangle$$
$$I_2^u = \langle b - 1,\ u^6 - 3u^4 - u^3 + 2u^2 + a + 2u + 1,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 28 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.

$$I_1^u = \langle u^{19}+u^{18}+\cdots+u^2+b,\ -u^{19}-u^{18}+\cdots+a-2,\ u^{20}+2u^{19}+\cdots+2u+1\rangle$$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ -u^3+u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{19}+u^{18}+\cdots+3u+2 \\ -u^{19}-u^{18}+\cdots-8u^3-u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^3+2u \\ -u^3+u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2u^{19}+2u^{18}+\cdots+6u+3 \\ -u^{19}-u^{18}+\cdots-12u^3+u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{12}+5u^{10}-9u^8+6u^6-u^2+1 \\ u^{14}-6u^{12}+13u^{10}-10u^8-2u^6+4u^4+u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -3u^{19}-3u^{18}+\cdots-6u-3 \\ u^{19}+u^{18}+\cdots-2u^2-u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2+1 \\ u^4-2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^5+2u^3-u \\ u^7-3u^5+2u^3+u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^{10}-5u^8+8u^6-3u^4-3u^2+1 \\ u^{10}-4u^8+5u^6-3u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 5u^{19}+4u^{18}-38u^{17}-21u^{16}+118u^{15}+27u^{14}-176u^{13}+40u^{12}+88u^{11}-121u^{10}+80u^9+58u^8-89u^7+52u^6-36u^5-27u^4+46u^3-16u^2+12u-11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} + 39u^{19} + \cdots + 18u + 1$
c_2, c_4	$u^{20} - 9u^{19} + \cdots + 9u^2 - 1$
c_3, c_8	$u^{20} + u^{19} + \cdots - 640u - 256$
c_5, c_7	$u^{20} - 6u^{19} + \cdots + 2u - 5$
c_6, c_{10}, c_{11}	$u^{20} + 2u^{19} + \cdots + 2u + 1$
c_9, c_{12}	$u^{20} - 2u^{19} + \cdots + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{20} - 155y^{19} + \cdots - 690y + 1$
c_2, c_4	$y^{20} - 39y^{19} + \cdots - 18y + 1$
c_3, c_8	$y^{20} - 51y^{19} + \cdots + 16384y + 65536$
c_5, c_7	$y^{20} + 6y^{19} + \cdots - 194y + 25$
c_6, c_{10}, c_{11}	$y^{20} - 18y^{19} + \cdots - 6y + 1$
c_9, c_{12}	$y^{20} - 42y^{19} + \cdots - 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.911170 + 0.459727I$ $a = -1.34870 - 0.62192I$ $b = -2.12337 + 0.10108I$	$-17.2402 + 0.6353I$	$-16.0469 + 1.1994I$
$u = 0.911170 - 0.459727I$ $a = -1.34870 + 0.62192I$ $b = -2.12337 - 0.10108I$	$-17.2402 - 0.6353I$	$-16.0469 - 1.1994I$
$u = 0.247662 + 0.821626I$ $a = -2.43556 - 1.84521I$ $b = -2.12150 - 0.21202I$	$-15.1547 - 5.2095I$	$-13.60177 + 3.17253I$
$u = 0.247662 - 0.821626I$ $a = -2.43556 + 1.84521I$ $b = -2.12150 + 0.21202I$	$-15.1547 + 5.2095I$	$-13.60177 - 3.17253I$
$u = -1.208090 + 0.243596I$ $a = 0.570598 + 0.429334I$ $b = -0.218634 + 0.234930I$	$-1.33162 + 1.52088I$	$-9.67152 - 0.73849I$
$u = -1.208090 - 0.243596I$ $a = 0.570598 - 0.429334I$ $b = -0.218634 - 0.234930I$	$-1.33162 - 1.52088I$	$-9.67152 + 0.73849I$
$u = -0.102862 + 0.701439I$ $a = 0.082707 - 0.900739I$ $b = -0.141682 - 0.411106I$	$1.97616 + 1.89773I$	$-7.07242 - 3.81165I$
$u = -0.102862 - 0.701439I$ $a = 0.082707 + 0.900739I$ $b = -0.141682 + 0.411106I$	$1.97616 - 1.89773I$	$-7.07242 + 3.81165I$
$u = 1.312190 + 0.118081I$ $a = 0.496056 - 0.398382I$ $b = 0.691084 - 0.636911I$	$-4.98968 - 0.65533I$	$-18.6254 + 0.2318I$
$u = 1.312190 - 0.118081I$ $a = 0.496056 + 0.398382I$ $b = 0.691084 + 0.636911I$	$-4.98968 + 0.65533I$	$-18.6254 - 0.2318I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.335820 + 0.290040I$ $a = -0.158410 + 0.393649I$ $b = -0.140101 + 0.577407I$	$-2.56262 - 5.49819I$	$-13.3788 + 5.1703I$
$u = 1.335820 - 0.290040I$ $a = -0.158410 - 0.393649I$ $b = -0.140101 - 0.577407I$	$-2.56262 + 5.49819I$	$-13.3788 - 5.1703I$
$u = -1.371860 + 0.209407I$ $a = -0.86878 - 1.49091I$ $b = 1.54182 - 0.34669I$	$-6.47245 + 3.72845I$	$-18.3956 - 2.9383I$
$u = -1.371860 - 0.209407I$ $a = -0.86878 + 1.49091I$ $b = 1.54182 + 0.34669I$	$-6.47245 - 3.72845I$	$-18.3956 + 2.9383I$
$u = -1.41274 + 0.33785I$ $a = -0.17556 + 2.27560I$ $b = -2.15361 + 0.28774I$	$19.0447 + 9.4000I$	$-17.5612 - 4.3303I$
$u = -1.41274 - 0.33785I$ $a = -0.17556 - 2.27560I$ $b = -2.15361 - 0.28774I$	$19.0447 - 9.4000I$	$-17.5612 + 4.3303I$
$u = 0.188195 + 0.497650I$ $a = 0.89217 + 2.08322I$ $b = 1.230350 + 0.275114I$	$-1.49234 - 1.05642I$	$-12.43000 + 2.14230I$
$u = 0.188195 - 0.497650I$ $a = 0.89217 - 2.08322I$ $b = 1.230350 - 0.275114I$	$-1.49234 + 1.05642I$	$-12.43000 - 2.14230I$
$u = -1.49219$ $a = 0.836574$ $b = -2.31363$	14.2449	-19.8440
$u = -0.306795$ $a = 1.05438$ $b = 0.184912$	-0.567629	-17.5890

II.

$$\boldsymbol{I_2^u = \langle b-1,\ u^6-3u^4-u^3+2u^2+a+2u+1,\ u^8-u^7-3u^6+2u^5+3u^4-2u-1\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^7-2u^6+2u^5+8u^4+3u^3-7u^2-8u-19$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^8$
c_3, c_8	y^8
c_5, c_7	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$
c_6, c_{10}, c_{11}	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$
c_9, c_{12}	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.180120 + 0.268597I$ $a = 0.646194 - 0.127698I$ $b = 1.00000$	$-2.68559 + 1.13123I$	$-15.9046 - 0.8051I$
$u = -1.180120 - 0.268597I$ $a = 0.646194 + 0.127698I$ $b = 1.00000$	$-2.68559 - 1.13123I$	$-15.9046 + 0.8051I$
$u = -0.108090 + 0.747508I$ $a = 1.43073 - 0.89199I$ $b = 1.00000$	$0.51448 + 2.57849I$	$-11.78039 - 3.88175I$
$u = -0.108090 - 0.747508I$ $a = 1.43073 + 0.89199I$ $b = 1.00000$	$0.51448 - 2.57849I$	$-11.78039 + 3.88175I$
$u = 1.37100$ $a = -0.966009$ $b = 1.00000$	-8.14766	-19.8290
$u = 1.334530 + 0.318930I$ $a = 0.142888 + 1.323540I$ $b = 1.00000$	$-4.02461 - 6.44354I$	$-16.5091 + 6.0410I$
$u = 1.334530 - 0.318930I$ $a = 0.142888 - 1.323540I$ $b = 1.00000$	$-4.02461 + 6.44354I$	$-16.5091 - 6.0410I$
$u = -0.463640$ $a = -0.473616$ $b = 1.00000$	-2.48997	-16.7830

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^{20}+39u^{19}+\cdots+18u+1)$
c_2	$((u-1)^8)(u^{20}-9u^{19}+\cdots+9u^2-1)$
c_3, c_8	$u^8(u^{20}+u^{19}+\cdots-640u-256)$
c_4	$((u+1)^8)(u^{20}-9u^{19}+\cdots+9u^2-1)$
c_5, c_7	$(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot\,(u^{20}-6u^{19}+\cdots+2u-5)$
c_6	$(u^8+u^7-3u^6-2u^5+3u^4+2u-1)(u^{20}+2u^{19}+\cdots+2u+1)$
c_9, c_{12}	$(u^8+u^7+\cdots-2u-1)(u^{20}-2u^{19}+\cdots+2u+1)$
c_{10}, c_{11}	$(u^8-u^7-3u^6+2u^5+3u^4-2u-1)(u^{20}+2u^{19}+\cdots+2u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^{20}-155y^{19}+\cdots-690y+1)$
c_2, c_4	$((y-1)^8)(y^{20}-39y^{19}+\cdots-18y+1)$
c_3, c_8	$y^8(y^{20}-51y^{19}+\cdots+16384y+65536)$
c_5, c_7	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{20}+6y^{19}+\cdots-194y+25)$
c_6, c_{10}, c_{11}	$(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot(y^{20}-18y^{19}+\cdots-6y+1)$
c_9, c_{12}	$(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(y^{20}-42y^{19}+\cdots-6y+1)$