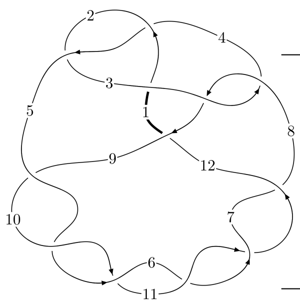
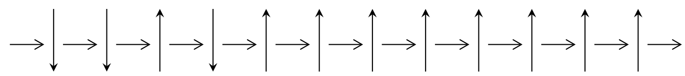
$12n_{0233}$ ($K12n_{0233}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2u^{16} - 22u^{14} + \cdots + b - 2,\ -u^{16} + u^{15} + \cdots + a - 3u,\ u^{17} + 2u^{16} + \cdots - u - 1\rangle$$
$$I_2^u = \langle b - u,\ u^2 + a - 2,\ u^3 - u^2 - 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 20 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.

$$\boldsymbol{I_1^u = \langle 2u^{16} - 22u^{14} + \cdots + b - 2,\ -u^{16} + u^{15} + \cdots + a - 3u,\ u^{17} + 2u^{16} + \cdots - u - 1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{16} - u^{15} + \cdots - 9u^2 + 3u \\ -2u^{16} + 22u^{14} + \cdots + u + 2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{15} + 10u^{13} + \cdots + 3u + 1 \\ -u^{16} + 11u^{14} + \cdots + u + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^8 - 5u^6 + 7u^4 - 4u^2 + 1 \\ -u^8 + 4u^6 - 2u^4 - 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{16} + u^{15} + \cdots - 4u - 1 \\ u^6 - 4u^4 + 3u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^3 + 2u \\ u^5 - 3u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{16} + 11u^{14} - 2u^{13} - 49u^{12} + 17u^{11} + 116u^{10} - 50u^9 - 163u^8 + 56u^7 + 146u^6 - 2u^5 - 88u^4 - 47u^3 + 32u^2 + 26u + 7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17}+22u^{16}+\cdots+120u+1$
c_2, c_4	$u^{17}-4u^{16}+\cdots+12u-1$
c_3, c_8	$u^{17}+u^{16}+\cdots+20u-8$
c_5, c_6, c_7 c_9, c_{10}, c_{11}	$u^{17}+2u^{16}+\cdots-u-1$
c_{12}	$u^{17}+18u^{15}+\cdots+u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} - 50y^{16} + \cdots + 11308y - 1$
c_2, c_4	$y^{17} - 22y^{16} + \cdots + 120y - 1$
c_3, c_8	$y^{17} + 21y^{16} + \cdots + 656y - 64$
c_5, c_6, c_7 c_9, c_{10}, c_{11}	$y^{17} - 24y^{16} + \cdots + 3y - 1$
c_{12}	$y^{17} + 36y^{16} + \cdots + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.982279 + 0.151832I$ $a = 0.168994 - 0.909972I$ $b = -0.73475 + 1.67481I$	$1.92118 + 2.31259I$	$9.54984 - 4.08399I$
$u = 0.982279 - 0.151832I$ $a = 0.168994 + 0.909972I$ $b = -0.73475 - 1.67481I$	$1.92118 - 2.31259I$	$9.54984 + 4.08399I$
$u = -0.865450$ $a = 1.36121$ $b = 0.158508$	0.152271	10.7240
$u = 1.134090 + 0.377025I$ $a = -0.290069 + 0.747188I$ $b = 1.58149 - 1.34476I$	$-6.34608 + 5.60143I$	$7.40158 - 3.76696I$
$u = 1.134090 - 0.377025I$ $a = -0.290069 - 0.747188I$ $b = 1.58149 + 1.34476I$	$-6.34608 - 5.60143I$	$7.40158 + 3.76696I$
$u = -1.19563$ $a = -0.435884$ $b = 0.101957$	5.72559	17.0640
$u = -0.374547 + 0.647974I$ $a = -0.529092 - 1.284900I$ $b = -0.554996 - 0.754476I$	$-11.06150 - 2.09782I$	$3.78406 + 2.85716I$
$u = -0.374547 - 0.647974I$ $a = -0.529092 + 1.284900I$ $b = -0.554996 + 0.754476I$	$-11.06150 + 2.09782I$	$3.78406 - 2.85716I$
$u = 0.373542$ $a = 0.533717$ $b = -0.273837$	0.571638	17.3900
$u = -0.161903 + 0.300607I$ $a = 0.05405 + 2.11440I$ $b = 0.442012 + 0.466984I$	$-1.59083 - 0.74897I$	$-0.41320 + 3.78790I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.161903 - 0.300607I$ $a = 0.05405 - 2.11440I$ $b = 0.442012 - 0.466984I$	$-1.59083 + 0.74897I$	$-0.41320 - 3.78790I$
$u = 1.70139$ $a = 0.253107$ $b = -1.16331$	9.39467	9.61340
$u = -1.72231 + 0.03669I$ $a = -0.59162 - 2.45052I$ $b = 0.95501 + 2.99216I$	$11.62350 - 3.05566I$	$10.30225 + 2.57182I$
$u = -1.72231 - 0.03669I$ $a = -0.59162 + 2.45052I$ $b = 0.95501 - 2.99216I$	$11.62350 + 3.05566I$	$10.30225 - 2.57182I$
$u = -1.75947 + 0.10503I$ $a = 1.37142 + 1.82000I$ $b = -2.29897 - 2.04908I$	$3.97600 - 7.68149I$	$8.50094 + 3.18214I$
$u = -1.75947 - 0.10503I$ $a = 1.37142 - 1.82000I$ $b = -2.29897 + 2.04908I$	$3.97600 + 7.68149I$	$8.50094 - 3.18214I$
$u = 1.78986$ $a = -0.0795251$ $b = 0.397105$	16.7200	17.9570

II. $\boldsymbol{I_2^u = \langle b - u,\ u^2 + a - 2,\ u^3 - u^2 - 2u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} -u^2 + 1 \\ u^2 + u - 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^2 + 2 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^2 + u + 2 \\ 0 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ -u \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^2 - u + 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.24698$ $a = 0.445042$ $b = -1.24698$	4.69981	7.80190
$u = 0.445042$ $a = 1.80194$ $b = 0.445042$	−0.939962	4.75300
$u = 1.80194$ $a = -1.24698$ $b = 1.80194$	15.9794	6.44500

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{17}+22u^{16}+\cdots+120u+1)$
c_2	$((u-1)^3)(u^{17}-4u^{16}+\cdots+12u-1)$
c_3, c_8	$u^3(u^{17}+u^{16}+\cdots+20u-8)$
c_4	$((u+1)^3)(u^{17}-4u^{16}+\cdots+12u-1)$
c_5, c_6, c_7	$(u^3+u^2-2u-1)(u^{17}+2u^{16}+\cdots-u-1)$
c_9, c_{10}, c_{11}	$(u^3-u^2-2u+1)(u^{17}+2u^{16}+\cdots-u-1)$
c_{12}	$(u^3-u^2-2u+1)(u^{17}+18u^{15}+\cdots+u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^3)(y^{17} - 50y^{16} + \cdots + 11308y - 1)$
c_2, c_4	$((y-1)^3)(y^{17} - 22y^{16} + \cdots + 120y - 1)$
c_3, c_8	$y^3(y^{17} + 21y^{16} + \cdots + 656y - 64)$
c_5, c_6, c_7 c_9, c_{10}, c_{11}	$(y^3 - 5y^2 + 6y - 1)(y^{17} - 24y^{16} + \cdots + 3y - 1)$
c_{12}	$(y^3 - 5y^2 + 6y - 1)(y^{17} + 36y^{16} + \cdots + 3y - 1)$