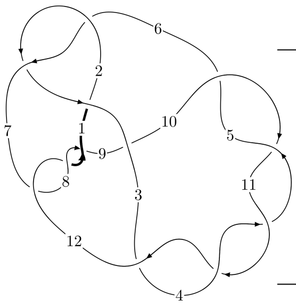
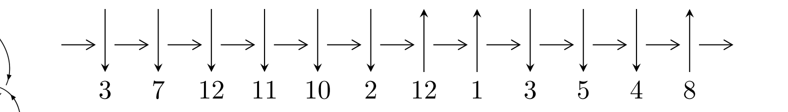
$12n_{0582}$ ($K12n_{0582}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle -u^7 + u^6 - 6u^5 + 4u^4 - 9u^3 + 3u^2 + 2b - 2u,\ -u^8 - 7u^6 - 2u^5 - 13u^4 - 10u^3 - 3u^2 + 4a - 10u + 2, \\
&\quad u^9 - u^8 + 9u^7 - 5u^6 + 25u^5 - 3u^4 + 23u^3 + 7u^2 + 6u + 2 \rangle \\
I_2^u &= \langle b - u - 1,\ 3a - u,\ u^2 + 3 \rangle \\
I_3^u &= \langle b + u + 1,\ a + u,\ u^2 + 1 \rangle \\
\\
I_1^v &= \langle a,\ b - 1,\ v - 1 \rangle
\end{aligned}
$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 14 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. $\boldsymbol{I_1^u = \langle -u^7 + u^6 - 6u^5 + 4u^4 - 9u^3 + 3u^2 + 2b - 2u,\ -u^8 - 7u^6 + \cdots + 4a + 2,\ u^9 - u^8 + \cdots + 6u + 2\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} \frac{1}{4}u^8 + \frac{7}{4}u^6 + \cdots + \frac{5}{2}u - \frac{1}{2} \\ \frac{1}{2}u^7 - \frac{1}{2}u^6 + \cdots - \frac{3}{2}u^2 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{1}{4}u^8 - \frac{7}{4}u^6 + \cdots - \frac{3}{2}u - \frac{1}{2} \\ -\frac{1}{4}u^8 - \frac{5}{4}u^6 + \cdots - \frac{5}{4}u^2 - \frac{1}{2} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^5 + 4u^3 + 3u \\ u^5 + 3u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{1}{4}u^8 + \frac{7}{4}u^6 + \cdots + \frac{5}{2}u - \frac{1}{2} \\ -\frac{1}{4}u^8 - \frac{9}{4}u^6 + \cdots - u - \frac{1}{2} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{2}u^6 + \frac{1}{2}u^5 + \cdots - \frac{7}{2}u^2 - \frac{3}{2}u \\ -\frac{1}{4}u^8 - \frac{5}{4}u^6 + \cdots - \frac{5}{4}u^2 - \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^4 - 3u^2 - 1 \\ -u^6 - 4u^4 - 3u^2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 + 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2u^8 + 2u^7 - 18u^6 + 10u^5 - 50u^4 + 6u^3 - 46u^2 - 12u - 12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9 - 4u^8 + \cdots + 145u + 64$
c_2, c_6	$u^9 - 2u^8 + 4u^7 - 6u^6 + 18u^5 - 2u^4 + 8u^3 - 6u^2 - 7u + 8$
c_3, c_4, c_5 c_{10}, c_{11}	$u^9 - u^8 + 9u^7 - 5u^6 + 25u^5 - 3u^4 + 23u^3 + 7u^2 + 6u + 2$
c_7, c_8, c_{12}	$u^9 + 2u^8 - 8u^7 - 18u^6 + 18u^5 + 50u^4 + 4u^3 - 34u^2 + 9u + 8$
c_9	$u^9 - 19u^8 + \cdots - 654u + 82$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^9 + 40y^8 + \cdots + 6177y - 4096$
c_2, c_6	$y^9 + 4y^8 + \cdots + 145y - 64$
c_3, c_4, c_5 c_{10}, c_{11}	$y^9 + 17y^8 + \cdots + 8y - 4$
c_7, c_8, c_{12}	$y^9 - 20y^8 + \cdots + 625y - 64$
c_9	$y^9 + 17y^8 + \cdots - 49688y - 6724$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.286210 + 1.260340I$ $a = 0.755885 - 0.774032I$ $b = 0.258411 - 0.633815I$	$6.78979 + 0.44094I$	$1.257807 - 0.497446I$
$u = 0.286210 - 1.260340I$ $a = 0.755885 + 0.774032I$ $b = 0.258411 + 0.633815I$	$6.78979 - 0.44094I$	$1.257807 + 0.497446I$
$u = -0.064698 + 0.563024I$ $a = -0.501501 + 1.062470I$ $b = 0.419693 - 0.038751I$	$0.80178 + 1.43893I$	$-0.93515 - 5.88586I$
$u = -0.064698 - 0.563024I$ $a = -0.501501 - 1.062470I$ $b = 0.419693 + 0.038751I$	$0.80178 - 1.43893I$	$-0.93515 + 5.88586I$
$u = -0.312120$ $a = -1.25225$ $b = -0.623552$	-0.900968	-13.4400
$u = 0.30797 + 1.73568I$ $a = -0.412318 + 1.116980I$ $b = -0.65742 + 2.01585I$	$17.2800 - 2.5995I$	$1.01236 + 1.23711I$
$u = 0.30797 - 1.73568I$ $a = -0.412318 - 1.116980I$ $b = -0.65742 - 2.01585I$	$17.2800 + 2.5995I$	$1.01236 - 1.23711I$
$u = 0.12658 + 1.95644I$ $a = -0.215942 - 1.161020I$ $b = 0.29109 - 2.91331I$	$-7.97178 - 5.85424I$	$0.38489 + 1.87688I$
$u = 0.12658 - 1.95644I$ $a = -0.215942 + 1.161020I$ $b = 0.29109 + 2.91331I$	$-7.97178 + 5.85424I$	$0.38489 - 1.87688I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.73205I$		
$a =$	$0.577350I$	13.1595	0
$b =$	$1.00000 + 1.73205I$		
$u =$	$-1.73205I$		
$a =$	$-0.577350I$	13.1595	0
$b =$	$1.00000 - 1.73205I$		

III. $I_3^u = \langle b+u+1,\ a+u,\ u^2+1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ -u-1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ -1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u+1 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ -u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -1.000000I$ $b = -1.00000 - 1.00000I$	3.28987	0
$u = -1.000000I$ $a = 1.000000I$ $b = -1.00000 + 1.00000I$	3.28987	0

IV. $I_1^v = \langle a,\ b-1,\ v-1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_1 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6 c_7, c_8, c_{12}	$y - 1$
c_3, c_4, c_5 c_9, c_{10}, c_{11}	y

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v =$	1.00000		
$a =$	0	0	0
$b =$	1.00000		

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^9-4u^8+\cdots+145u+64)$
c_2	$(u-1)^3(u+1)^2$ $\cdot(u^9-2u^8+4u^7-6u^6+18u^5-2u^4+8u^3-6u^2-7u+8)$
c_3, c_4, c_5 c_{10}, c_{11}	$u(u^2+1)(u^2+3)(u^9-u^8+\cdots+6u+2)$
c_6	$(u-1)^2(u+1)^3$ $\cdot(u^9-2u^8+4u^7-6u^6+18u^5-2u^4+8u^3-6u^2-7u+8)$
c_7, c_8	$(u-1)^2(u+1)^3$ $\cdot(u^9+2u^8-8u^7-18u^6+18u^5+50u^4+4u^3-34u^2+9u+8)$
c_9	$u(u^2+1)(u^2+3)(u^9-19u^8+\cdots-654u+82)$
c_{12}	$(u-1)^3(u+1)^2$ $\cdot(u^9+2u^8-8u^7-18u^6+18u^5+50u^4+4u^3-34u^2+9u+8)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^9+40y^8+\cdots+6177y-4096)$
c_2, c_6	$((y-1)^5)(y^9+4y^8+\cdots+145y-64)$
c_3, c_4, c_5 c_{10}, c_{11}	$y(y+1)^2(y+3)^2(y^9+17y^8+\cdots+8y-4)$
c_7, c_8, c_{12}	$((y-1)^5)(y^9-20y^8+\cdots+625y-64)$
c_9	$y(y+1)^2(y+3)^2(y^9+17y^8+\cdots-49688y-6724)$