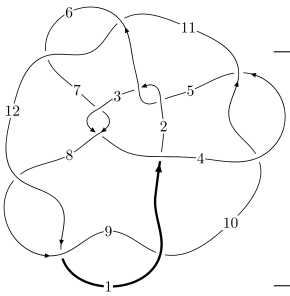
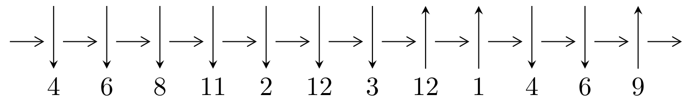
$12n_{0749}$ ($K12n_{0749}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^7 + u^6 - 5u^5 - 5u^4 + 6u^3 + 8u^2 + b + u - 1,\ -u^7 - u^6 + 5u^5 + 5u^4 - 6u^3 - 8u^2 + a - u + 2,$$
$$u^9 + 3u^8 - 3u^7 - 15u^6 - 3u^5 + 22u^4 + 15u^3 - 5u^2 - 5u + 1\rangle$$
$$I_2^u = \langle -u^4 + u^3 + 3u^2 + b - u - 2,\ u^4 - u^3 - 3u^2 + a + u + 3,\ u^6 - 2u^5 - 3u^4 + 5u^3 + 4u^2 - 3u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 15 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. $\boldsymbol{I^u_1 = \langle u^7 + u^6 - 5u^5 - 5u^4 + 6u^3 + 8u^2 + b + u - 1,\ -u^7 - u^6 + 5u^5 + 5u^4 - 6u^3 - 8u^2 + a - u + 2,\ u^9 + 3u^8 + \cdots - 5u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_1 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^7 + u^6 - 5u^5 - 5u^4 + 6u^3 + 8u^2 + u - 2 \\ -u^7 - u^6 + 5u^5 + 5u^4 - 6u^3 - 8u^2 - u + 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -1 \\ -u^7 - u^6 + 5u^5 + 5u^4 - 6u^3 - 8u^2 - u + 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^7 - u^6 + 5u^5 + 5u^4 - 6u^3 - 8u^2 - u + 2 \\ u^8 - 6u^6 + 12u^4 + 3u^3 - 9u^2 - 5u + 1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} u^8 + u^7 - 5u^6 - 5u^5 + 7u^4 + 8u^3 - u^2 - 2u \\ -3u^8 - 3u^7 + 16u^6 + 15u^5 - 25u^4 - 26u^3 + 8u^2 + 12u - 2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 7u^8 + 7u^7 - 37u^6 - 33u^5 + 56u^4 + 54u^3 - 17u^2 - 22u + 6 \\ -2u^8 - 3u^7 + 11u^6 + 13u^5 - 17u^4 - 19u^3 + 5u^2 + 8u - 2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^8 + u^7 - 5u^6 - 5u^5 + 7u^4 + 8u^3 - 2u^2 - 3u + 1 \\ -3u^8 - 3u^7 + 16u^6 + 15u^5 - 24u^4 - 25u^3 + 6u^2 + 11u - 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3u^8 + 11u^7 - 6u^6 - 54u^5 - 23u^4 + 73u^3 + 62u^2 - 4u - 17$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_{10}	$u^9 - u^8 + 18u^7 + 15u^6 - 15u^5 + 3u^4 - 13u^3 - 4u^2 - 2u - 1$
c_2, c_5	$u^9 + 15u^7 - 31u^6 + 42u^5 - 72u^4 + 30u^3 + 10u^2 - 7u + 1$
c_3, c_7	$u^9 - 9u^8 + 38u^7 - 94u^6 + 144u^5 - 132u^4 + 57u^3 + 8u^2 - 20u + 8$
c_6, c_{11}	$u^9 + 2u^8 + 12u^7 + 4u^6 + 39u^5 + 14u^4 + 8u^3 + 11u^2 - u - 1$
c_8, c_9, c_{12}	$u^9 - 3u^8 - 3u^7 + 15u^6 - 3u^5 - 22u^4 + 15u^3 + 5u^2 - 5u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{10}	$y^9 + 35y^8 + \cdots - 4y - 1$
c_2, c_5	$y^9 + 30y^8 + \cdots + 29y - 1$
c_3, c_7	$y^9 - 5y^8 + \cdots + 272y - 64$
c_6, c_{11}	$y^9 + 20y^8 + \cdots + 23y - 1$
c_8, c_9, c_{12}	$y^9 - 15y^8 + \cdots + 35y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.803718 + 0.480044I$ $a = -0.545358 + 0.558768I$ $b = -0.454642 - 0.558768I$	$1.43676 - 1.39156I$	$-1.67156 + 5.14855I$
$u = -0.803718 - 0.480044I$ $a = -0.545358 - 0.558768I$ $b = -0.454642 + 0.558768I$	$1.43676 + 1.39156I$	$-1.67156 - 5.14855I$
$u = -1.39574$ $a = 0.458311$ $b = -1.45831$	-1.87529	-5.03640
$u = 0.479009$ $a = 0.602594$ $b = -1.60259$	-8.12479	0.759950
$u = 1.56290 + 0.23534I$ $a = 0.115329 - 1.184520I$ $b = -1.11533 + 1.18452I$	$9.69068 + 4.28297I$	$-4.64998 - 2.95733I$
$u = 1.56290 - 0.23534I$ $a = 0.115329 + 1.184520I$ $b = -1.11533 - 1.18452I$	$9.69068 - 4.28297I$	$-4.64998 + 2.95733I$
$u = 0.189912$ $a = -1.48814$ $b = 0.488141$	-0.677543	-15.0670
$u = -1.89577 + 0.05938I$ $a = 0.64365 + 1.55034I$ $b = -1.64365 - 1.55034I$	$-16.4807 - 5.9861I$	$-4.50677 + 1.85792I$
$u = -1.89577 - 0.05938I$ $a = 0.64365 - 1.55034I$ $b = -1.64365 + 1.55034I$	$-16.4807 + 5.9861I$	$-4.50677 - 1.85792I$

II. $\boldsymbol{I^u_2 = \langle -u^4+u^3+3u^2+b-u-2,\ u^4-u^3-3u^2+a+u+3,\ u^6-2u^5-3u^4+5u^3+4u^2-3u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^5-11u^4-9u^3+30u^2+10u-24$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{10}	$y^6 + 4y^5 - 2y^4 - 30y^3 + 37y^2 - 10y + 1$
c_2, c_5	$y^6 + 3y^5 - 6y^4 - 12y^3 + 21y^2 - 15y + 1$
c_3, c_7	$y^6 - 5y^5 + 12y^4 - 18y^3 + 12y^2 - 4y + 1$
c_6, c_{11}	$y^6 + y^5 - 3y^4 - 8y^3 + 2y^2 - y + 1$
c_8, c_9, c_{12}	$y^6 - 10y^5 + 37y^4 - 63y^3 + 52y^2 - 17y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.123140 + 0.280028I$ $a = -0.484226 + 0.358962I$ $b = -0.515774 - 0.358962I$	$1.070880 - 0.298492I$	$-3.25325 - 1.22821I$
$u = -1.123140 - 0.280028I$ $a = -0.484226 - 0.358962I$ $b = -0.515774 + 0.358962I$	$1.070880 + 0.298492I$	$-3.25325 + 1.22821I$
$u = \quad 0.779219$ $a = -1.85322$ $b = \quad 0.853215$	-5.05469	-5.15680
$u = -0.272443$ $a = -2.53061$ $b = \quad 1.53061$	-8.45292	-24.3820
$u = \quad 1.86975 + 0.14034I$ $a = \quad 0.176141 - 0.745556I$ $b = -1.176140 + 0.745556I$	$12.26270 + 2.92755I$	$-2.47722 - 2.29256I$
$u = \quad 1.86975 - 0.14034I$ $a = \quad 0.176141 + 0.745556I$ $b = -1.176140 - 0.745556I$	$12.26270 - 2.92755I$	$-2.47722 + 2.29256I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^6+2u^4-4u^3-3u^2+4u-1)$ $\cdot(u^9-u^8+18u^7+15u^6-15u^5+3u^4-13u^3-4u^2-2u-1)$
c_2	$(u^6-u^5+2u^4-5u^2+5u-1)$ $\cdot(u^9+15u^7-31u^6+42u^5-72u^4+30u^3+10u^2-7u+1)$
c_3	$(u^6-u^5-2u^4+4u^3-2u+1)$ $\cdot(u^9-9u^8+38u^7-94u^6+144u^5-132u^4+57u^3+8u^2-20u+8)$
c_5	$(u^6+u^5+2u^4-5u^2-5u-1)$ $\cdot(u^9+15u^7-31u^6+42u^5-72u^4+30u^3+10u^2-7u+1)$
c_6	$(u^6+u^5+u^4-2u^3-4u^2-3u-1)$ $\cdot(u^9+2u^8+12u^7+4u^6+39u^5+14u^4+8u^3+11u^2-u-1)$
c_7	$(u^6+u^5-2u^4-4u^3+2u+1)$ $\cdot(u^9-9u^8+38u^7-94u^6+144u^5-132u^4+57u^3+8u^2-20u+8)$
c_8, c_9	$(u^6-2u^5-3u^4+5u^3+4u^2-3u-1)$ $\cdot(u^9-3u^8-3u^7+15u^6-3u^5-22u^4+15u^3+5u^2-5u-1)$
c_{10}	$(u^6+2u^4+4u^3-3u^2-4u-1)$ $\cdot(u^9-u^8+18u^7+15u^6-15u^5+3u^4-13u^3-4u^2-2u-1)$
c_{11}	$(u^6-u^5+u^4+2u^3-4u^2+3u-1)$ $\cdot(u^9+2u^8+12u^7+4u^6+39u^5+14u^4+8u^3+11u^2-u-1)$
c_{12}	$(u^6+2u^5-3u^4-5u^3+4u^2+3u-1)$ $\cdot(u^9-3u^8-3u^7+15u^6-3u^5-22u^4+15u^3+5u^2-5u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{10}	$(y^6+4y^5+\cdots-10y+1)(y^9+35y^8+\cdots-4y-1)$
c_2, c_5	$(y^6+3y^5+\cdots-15y+1)(y^9+30y^8+\cdots+29y-1)$
c_3, c_7	$(y^6-5y^5+\cdots-4y+1)(y^9-5y^8+\cdots+272y-64)$
c_6, c_{11}	$(y^6+y^5-3y^4-8y^3+2y^2-y+1)(y^9+20y^8+\cdots+23y-1)$
c_8, c_9, c_{12}	$(y^6-10y^5+37y^4-63y^3+52y^2-17y+1)$ $\cdot(y^9-15y^8+\cdots+35y-1)$