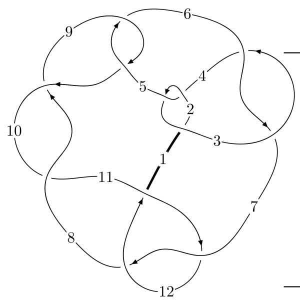
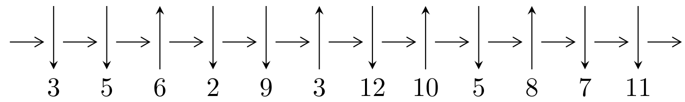
$12n_{0119}$ ($K12n_{0119}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 6027u^{16} + 12005u^{15} + \cdots + 18155b + 3034,\ 2046u^{16} + 7175u^{15} + \cdots + 18155a - 15643, \\
& u^{17} + 2u^{16} + 2u^{15} + 7u^{13} + 14u^{12} + 14u^{11} + 2u^{10} + 7u^9 + 14u^8 + 14u^7 + 12u^6 + 2u^2 - u - 1\rangle \\
I_2^u = \langle & b + 1,\ u^8 + 2u^7 + 3u^6 + 3u^5 + 4u^4 + 4u^3 + 3u^2 + a + 2u + 1,\ u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 26 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. $\boldsymbol{I^u_1 = \langle 6027u^{16} + 12005u^{15} + \cdots + 18155b + 3034,\ 2046u^{16} + 7175u^{15} + \cdots + 18155a - 15643,\ u^{17} + 2u^{16} + \cdots - u - 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} -0.112696u^{16} - 0.395208u^{15} + \cdots - 0.119581u + 0.861636 \\ -0.331975u^{16} - 0.661250u^{15} + \cdots - 0.611787u - 0.167116 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.297108u^{16} - 0.860094u^{15} + \cdots - 0.406169u + 0.544313 \\ -0.309777u^{16} - 0.234922u^{15} + \cdots - 0.512476u + 0.102561 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.444671u^{16} - 1.05646u^{15} + \cdots - 0.731369u + 0.694519 \\ -0.331975u^{16} - 0.661250u^{15} + \cdots - 0.611787u - 0.167116 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.389535u^{16} - 1.25558u^{15} + \cdots - 0.355660u + 0.912751 \\ 0.0924263u^{16} + 0.395483u^{15} + \cdots - 0.0505095u - 0.368438 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.120848u^{16} - 0.427706u^{15} + \cdots - 0.448857u + 0.864335 \\ -0.283063u^{16} - 0.466263u^{15} + \cdots - 0.636133u - 0.183310 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -u^5 - u \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.802534u^{16} - 0.874966u^{15} + \cdots - 0.821261u + 0.711650 \\ 0.114128u^{16} - 0.545029u^{15} + \cdots + 0.609860u - 0.0377857 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{25781}{18155}u^{16} + \frac{6669}{3631}u^{15} + \cdots + \frac{4791}{18155}u - \frac{139178}{18155}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} + 40u^{16} + \cdots + 501u + 1$
c_2, c_4	$u^{17} - 10u^{16} + \cdots + 25u - 1$
c_3, c_6	$u^{17} + 3u^{16} + \cdots + 512u + 512$
c_5, c_9	$u^{17} + 2u^{16} + \cdots - u - 1$
c_7, c_{11}	$u^{17} - 2u^{16} + \cdots - u - 1$
c_8, c_{10}	$u^{17} + 18u^{15} + \cdots + 5u + 1$
c_{12}	$u^{17} + 12u^{16} + \cdots + 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} - 244y^{16} + \cdots + 241285y - 1$
c_2, c_4	$y^{17} - 40y^{16} + \cdots + 501y - 1$
c_3, c_6	$y^{17} + 57y^{16} + \cdots + 6553600y - 262144$
c_5, c_9	$y^{17} + 18y^{15} + \cdots + 5y - 1$
c_7, c_{11}	$y^{17} - 12y^{16} + \cdots + 5y - 1$
c_8, c_{10}	$y^{17} + 36y^{16} + \cdots + 17y - 1$
c_{12}	$y^{17} - 12y^{16} + \cdots + 81y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.01926$ $a=1.09396$ $b=-2.50941$	-7.51678	-13.0910
$u=0.814269+0.697849I$ $a=-0.135222+1.183260I$ $b=-0.021919-1.343220I$	$-3.61218-4.89234I$	$-8.33842+5.53487I$
$u=0.814269-0.697849I$ $a=-0.135222-1.183260I$ $b=-0.021919+1.343220I$	$-3.61218+4.89234I$	$-8.33842-5.53487I$
$u=-0.151212+0.886118I$ $a=0.259000-0.151859I$ $b=0.317232+0.130128I$	$1.33808+1.89910I$	$2.88769-4.28758I$
$u=-0.151212-0.886118I$ $a=0.259000+0.151859I$ $b=0.317232-0.130128I$	$1.33808-1.89910I$	$2.88769+4.28758I$
$u=-0.524511+0.603470I$ $a=0.421833-0.890237I$ $b=-0.173796+0.509907I$	$-0.23007+1.50880I$	$-2.26409-4.36176I$
$u=-0.524511-0.603470I$ $a=0.421833+0.890237I$ $b=-0.173796-0.509907I$	$-0.23007-1.50880I$	$-2.26409+4.36176I$
$u=0.413009+0.524274I$ $a=2.66953+0.96171I$ $b=-0.655191+0.306962I$	$-3.04819+0.77610I$	$-9.75157+2.68802I$
$u=0.413009-0.524274I$ $a=2.66953-0.96171I$ $b=-0.655191-0.306962I$	$-3.04819-0.77610I$	$-9.75157-2.68802I$
$u=0.568174$ $a=-1.49974$ $b=-1.19167$	-2.38424	-2.38490

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.471408$ $a = 1.15792$ $b = 0.0451202$	-1.25348	-8.31380
$u = -1.08781 + 1.09421I$ $a = -1.21553 + 1.53450I$ $b = 2.42560 - 0.51435I$	$15.4466 + 9.8759I$	$-8.70686 - 4.52620I$
$u = -1.08781 - 1.09421I$ $a = -1.21553 - 1.53450I$ $b = 2.42560 + 0.51435I$	$15.4466 - 9.8759I$	$-8.70686 + 4.52620I$
$u = 1.09696 + 1.09725I$ $a = -1.31679 - 1.21871I$ $b = 2.40736 + 0.21866I$	$19.7302 - 4.0499I$	$-6.15248 + 1.91448I$
$u = 1.09696 - 1.09725I$ $a = -1.31679 + 1.21871I$ $b = 2.40736 - 0.21866I$	$19.7302 + 4.0499I$	$-6.15248 - 1.91448I$
$u = -1.09946 + 1.09842I$ $a = -1.55889 + 0.97165I$ $b = 2.52869 + 0.07532I$	$15.4312 - 1.7937I$	$-8.77960 + 0.70466I$
$u = -1.09946 - 1.09842I$ $a = -1.55889 - 0.97165I$ $b = 2.52869 - 0.07532I$	$15.4312 + 1.7937I$	$-8.77960 - 0.70466I$

II.

$$\boldsymbol{I_2^u = \langle b+1,\ u^8+2u^7+\cdots+a+1,\ u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^8-8u^7-12u^6-11u^5-18u^4-17u^3-15u^2-6u-16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^9$
c_3, c_6	u^9
c_4	$(u+1)^9$
c_5	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$
c_7	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_8	$u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1$
c_9	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_{10}	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$
c_{11}	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_{12}	$u^9 + 5u^8 + 12u^7 + 15u^6 + 9u^5 - u^4 - 4u^3 - 2u^2 + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_6	y^9
c_5, c_9	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_7, c_{11}	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_8, c_{10}	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_{12}	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.140343 + 0.966856I$ $a = 1.004430 + 0.297869I$ $b = -1.00000$	$0.13850 - 2.09337I$	$-5.16894 + 4.06115I$
$u = 0.140343 - 0.966856I$ $a = 1.004430 - 0.297869I$ $b = -1.00000$	$0.13850 + 2.09337I$	$-5.16894 - 4.06115I$
$u = 0.628449 + 0.875112I$ $a = 0.275254 + 0.816341I$ $b = -1.00000$	$-2.26187 - 2.45442I$	$-4.66498 + 3.27944I$
$u = 0.628449 - 0.875112I$ $a = 0.275254 - 0.816341I$ $b = -1.00000$	$-2.26187 + 2.45442I$	$-4.66498 - 3.27944I$
$u = -0.796005 + 0.733148I$ $a = -0.070080 - 0.850995I$ $b = -1.00000$	$-6.01628 - 1.33617I$	$-9.21174 + 0.80685I$
$u = -0.796005 - 0.733148I$ $a = -0.070080 + 0.850995I$ $b = -1.00000$	$-6.01628 + 1.33617I$	$-9.21174 - 0.80685I$
$u = -0.728966 + 0.986295I$ $a = 0.195086 - 0.635552I$ $b = -1.00000$	$-5.24306 + 7.08493I$	$-7.33806 - 6.93476I$
$u = -0.728966 - 0.986295I$ $a = 0.195086 + 0.635552I$ $b = -1.00000$	$-5.24306 - 7.08493I$	$-7.33806 + 6.93476I$
$u = 0.512358$ $a = -3.80937$ $b = -1.00000$	-2.84338	-27.2330

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^{17}+40u^{16}+\cdots+501u+1)$
c_2	$((u-1)^9)(u^{17}-10u^{16}+\cdots+25u-1)$
c_3, c_6	$u^9(u^{17}+3u^{16}+\cdots+512u+512)$
c_4	$((u+1)^9)(u^{17}-10u^{16}+\cdots+25u-1)$
c_5	$(u^9+u^8+\cdots+u-1)(u^{17}+2u^{16}+\cdots-u-1)$
c_7	$(u^9+u^8+\cdots-u-1)(u^{17}-2u^{16}+\cdots-u-1)$
c_8	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{17}+18u^{15}+\cdots+5u+1)$
c_9	$(u^9-u^8+\cdots+u+1)(u^{17}+2u^{16}+\cdots-u-1)$
c_{10}	$(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{17}+18u^{15}+\cdots+5u+1)$
c_{11}	$(u^9-u^8+\cdots-u+1)(u^{17}-2u^{16}+\cdots-u-1)$
c_{12}	$(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)$ $\cdot(u^{17}+12u^{16}+\cdots+5u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^{17} - 244y^{16} + \cdots + 241285y - 1)$
c_2, c_4	$((y-1)^9)(y^{17} - 40y^{16} + \cdots + 501y - 1)$
c_3, c_6	$y^9(y^{17} + 57y^{16} + \cdots + 6553600y - 262144)$
c_5, c_9	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)$ $\cdot (y^{17} + 18y^{15} + \cdots + 5y - 1)$
c_7, c_{11}	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)$ $\cdot (y^{17} - 12y^{16} + \cdots + 5y - 1)$
c_8, c_{10}	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)$ $\cdot (y^{17} + 36y^{16} + \cdots + 17y - 1)$
c_{12}	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)$ $\cdot (y^{17} - 12y^{16} + \cdots + 81y - 1)$