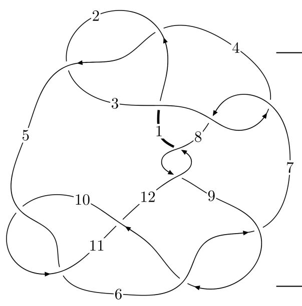
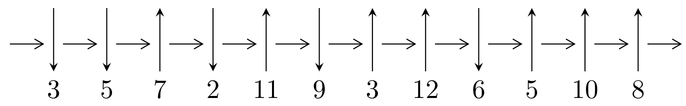
$12n_{0218}$ ($K12n_{0218}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{22} - 2u^{21} + \cdots + b - 1,\ -u^{22} - u^{21} + \cdots + a - 1,\ u^{23} + 2u^{22} + \cdots + 2u + 1 \rangle$$
$$I_2^u = \langle u^8 - 2u^6 + u^5 + 2u^4 - u^3 + b + u,\ u^7 - 2u^5 + u^4 + 2u^3 - u^2 + a + u,$$
$$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 32 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.

$$\boldsymbol{I_1^u = \langle -u^{22}-2u^{21}+\cdots+b-1,\ -u^{22}-u^{21}+\cdots+a-1,\ u^{23}+2u^{22}+\cdots+2u+1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u^{22}+u^{21}+\cdots+2u+1\\u^{22}+2u^{21}+\cdots+2u+1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}2u^{22}+2u^{21}+\cdots+3u+1\\2u^{22}+3u^{21}+\cdots+3u+2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^{19}+4u^{17}-8u^{15}+8u^{13}-5u^{11}+2u^9-2u^7-u^3\\-u^{21}+5u^{19}-13u^{17}+20u^{15}-20u^{13}+11u^{11}-u^9-4u^7+u^5+u^3-u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}3u^{22}+3u^{21}+\cdots+5u+2\\3u^{22}+4u^{21}+\cdots+5u+3\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}u^3\\u^5-u^3+u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^3\\-u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u^6-u^4+1\\u^6-2u^4+u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^{11}+2u^9-2u^7-u^3\\-u^{13}+3u^{11}-5u^9+4u^7-2u^5-u^3+u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= 10u^{22}+11u^{21}-52u^{20}-76u^{19}+117u^{18}+231u^{17}-102u^{16}-390u^{15}-69u^{14}+358u^{13}+268u^{12}-113u^{11}-261u^{10}-92u^9+98u^8+84u^7+19u^6+10u^5-11u^4-33u^3-u^2+12u+11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{23}+44u^{22}+\cdots+46u+1$
c_2, c_4	$u^{23}-10u^{22}+\cdots+10u-1$
c_3, c_7	$u^{23}-u^{22}+\cdots+512u-512$
c_5, c_{10}	$u^{23}-2u^{22}+\cdots+2u-1$
c_6, c_9	$u^{23}-6u^{22}+\cdots+30u-7$
c_8, c_{12}	$u^{23}+24u^{21}+\cdots+2u-1$
c_{11}	$u^{23}-12u^{22}+\cdots+2u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{23} - 168y^{22} + \cdots + 3538y - 1$
c_2, c_4	$y^{23} - 44y^{22} + \cdots + 46y - 1$
c_3, c_7	$y^{23} + 57y^{22} + \cdots + 2621440y - 262144$
c_5, c_{10}	$y^{23} - 12y^{22} + \cdots + 2y - 1$
c_6, c_9	$y^{23} + 12y^{22} + \cdots + 410y - 49$
c_8, c_{12}	$y^{23} + 48y^{22} + \cdots + 2y - 1$
c_{11}	$y^{23} + 24y^{21} + \cdots - 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.793555 + 0.695238I$ $a = 0.27094 - 1.56138I$ $b = 0.563681 - 0.478675I$	$19.5669 - 2.6314I$	$-2.85971 + 2.82212I$
$u = -0.793555 - 0.695238I$ $a = 0.27094 + 1.56138I$ $b = 0.563681 + 0.478675I$	$19.5669 + 2.6314I$	$-2.85971 - 2.82212I$
$u = 1.022100 + 0.407841I$ $a = 1.44074 + 0.54244I$ $b = -0.140040 + 1.113520I$	$0.05293 + 1.76634I$	$1.02070 - 2.91905I$
$u = 1.022100 - 0.407841I$ $a = 1.44074 - 0.54244I$ $b = -0.140040 - 1.113520I$	$0.05293 - 1.76634I$	$1.02070 + 2.91905I$
$u = -0.260502 + 0.851460I$ $a = -0.101202 + 0.883554I$ $b = 2.59298 - 0.76044I$	$-16.8734 + 5.0391I$	$-2.11769 - 1.80422I$
$u = -0.260502 - 0.851460I$ $a = -0.101202 - 0.883554I$ $b = 2.59298 + 0.76044I$	$-16.8734 - 5.0391I$	$-2.11769 + 1.80422I$
$u = -1.072240 + 0.511021I$ $a = 0.05623 + 2.46640I$ $b = 1.31169 + 1.69266I$	$-0.80606 - 4.86361I$	$0.58399 + 4.58744I$
$u = -1.072240 - 0.511021I$ $a = 0.05623 - 2.46640I$ $b = 1.31169 - 1.69266I$	$-0.80606 + 4.86361I$	$0.58399 - 4.58744I$
$u = -1.151200 + 0.397103I$ $a = 0.378436 - 0.814303I$ $b = -0.061499 - 0.968355I$	$4.03412 - 1.87941I$	$8.76933 + 1.17253I$
$u = -1.151200 - 0.397103I$ $a = 0.378436 + 0.814303I$ $b = -0.061499 + 0.968355I$	$4.03412 + 1.87941I$	$8.76933 - 1.17253I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.669270 + 0.402839I$ $a = 0.378364 - 0.834298I$ $b = 0.169751 + 0.377973I$	$-1.04289 + 1.55239I$	$-1.64388 - 5.32889I$
$u = 0.669270 - 0.402839I$ $a = 0.378364 + 0.834298I$ $b = 0.169751 - 0.377973I$	$-1.04289 - 1.55239I$	$-1.64388 + 5.32889I$
$u = -0.769798$ $a = 0.600191$ $b = 0.484933$	1.02417	10.8970
$u = 1.151500 + 0.497191I$ $a = -0.371757 - 0.631221I$ $b = 0.523099 - 0.584172I$	$3.31594 + 6.22870I$	$6.08610 - 5.76635I$
$u = 1.151500 - 0.497191I$ $a = -0.371757 + 0.631221I$ $b = 0.523099 + 0.584172I$	$3.31594 - 6.22870I$	$6.08610 + 5.76635I$
$u = 1.233100 + 0.274609I$ $a = -2.75962 + 0.02500I$ $b = -1.94681 - 1.66946I$	$-12.07890 - 1.46711I$	$2.75909 - 0.30473I$
$u = 1.233100 - 0.274609I$ $a = -2.75962 - 0.02500I$ $b = -1.94681 + 1.66946I$	$-12.07890 + 1.46711I$	$2.75909 + 0.30473I$
$u = 0.152344 + 0.678389I$ $a = 0.370495 + 0.387642I$ $b = -0.142963 - 0.519552I$	$0.49322 - 1.74871I$	$2.97942 + 3.32574I$
$u = 0.152344 - 0.678389I$ $a = 0.370495 - 0.387642I$ $b = -0.142963 + 0.519552I$	$0.49322 + 1.74871I$	$2.97942 - 3.32574I$
$u = -1.179040 + 0.569666I$ $a = -1.36258 - 2.90160I$ $b = -3.23838 - 0.97939I$	$-14.1285 - 10.2729I$	$0.79116 + 5.29982I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.179040 - 0.569666I$ $a = -1.36258 + 2.90160I$ $b = -3.23838 + 0.97939I$	$-14.1285 + 10.2729I$	$0.79116 - 5.29982I$
$u = -0.386868 + 0.554823I$ $a = -1.100140 - 0.404039I$ $b = -1.37398 + 0.73498I$	$-2.78460 + 0.52794I$	$-2.81721 + 0.26390I$
$u = -0.386868 - 0.554823I$ $a = -1.100140 + 0.404039I$ $b = -1.37398 - 0.73498I$	$-2.78460 - 0.52794I$	$-2.81721 - 0.26390I$

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

(i) Arc colorings

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

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

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

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

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

$$a_1 = \begin{pmatrix} -1 \\ -u^2 \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} u^6 - u^4 + 1 \\ u^6 - 2u^4 + u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^6 - u^4 + 1 \\ u^6 - 2u^4 + u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.772920 + 0.510351I$ $a = -0.628748 - 1.040710I$ $b = -0.390818 - 0.846696I$	$-3.42837 + 2.09337I$	$-2.59545 - 4.13635I$
$u = 0.772920 - 0.510351I$ $a = -0.628748 + 1.040710I$ $b = -0.390818 + 0.846696I$	$-3.42837 - 2.09337I$	$-2.59545 + 4.13635I$
$u = -0.825933$ $a = 1.66309$ $b = 0.134499$	-0.446489	0.580470
$u = -1.173910 + 0.391555I$ $a = 1.321020 + 0.175437I$ $b = 0.779205 - 0.999551I$	$2.72642 - 1.33617I$	$3.11790 + 0.38556I$
$u = -1.173910 - 0.391555I$ $a = 1.321020 - 0.175437I$ $b = 0.779205 + 0.999551I$	$2.72642 + 1.33617I$	$3.11790 - 0.38556I$
$u = 0.141484 + 0.739668I$ $a = 0.081981 + 0.728244I$ $b = -1.195640 - 0.366692I$	$-1.02799 - 2.45442I$	$-1.02595 + 3.19656I$
$u = 0.141484 - 0.739668I$ $a = 0.081981 - 0.728244I$ $b = -1.195640 + 0.366692I$	$-1.02799 + 2.45442I$	$-1.02595 - 3.19656I$
$u = 1.172470 + 0.500383I$ $a = 0.89420 - 1.47834I$ $b = 1.74000 - 0.61288I$	$1.95319 + 7.08493I$	$2.21327 - 6.71575I$
$u = 1.172470 - 0.500383I$ $a = 0.89420 + 1.47834I$ $b = 1.74000 + 0.61288I$	$1.95319 - 7.08493I$	$2.21327 + 6.71575I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^{23}+44u^{22}+\cdots+46u+1)$
c_2	$((u-1)^9)(u^{23}-10u^{22}+\cdots+10u-1)$
c_3, c_7	$u^9(u^{23}-u^{22}+\cdots+512u-512)$
c_4	$((u+1)^9)(u^{23}-10u^{22}+\cdots+10u-1)$
c_5	$(u^9-u^8+\cdots-u+1)(u^{23}-2u^{22}+\cdots+2u-1)$
c_6	$(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{23}-6u^{22}+\cdots+30u-7)$
c_8	$(u^9-u^8+\cdots+u+1)(u^{23}+24u^{21}+\cdots+2u-1)$
c_9	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{23}-6u^{22}+\cdots+30u-7)$
c_{10}	$(u^9+u^8+\cdots-u-1)(u^{23}-2u^{22}+\cdots+2u-1)$
c_{11}	$(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)$ $\cdot(u^{23}-12u^{22}+\cdots+2u-1)$
c_{12}	$(u^9+u^8+\cdots+u-1)(u^{23}+24u^{21}+\cdots+2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^{23}-168y^{22}+\cdots+3538y-1)$
c_2, c_4	$((y-1)^9)(y^{23}-44y^{22}+\cdots+46y-1)$
c_3, c_7	$y^9(y^{23}+57y^{22}+\cdots+2621440y-262144)$
c_5, c_{10}	$(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{23}-12y^{22}+\cdots+2y-1)$
c_6, c_9	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{23}+12y^{22}+\cdots+410y-49)$
c_8, c_{12}	$(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{23}+48y^{22}+\cdots+2y-1)$
c_{11}	$(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{23}+24y^{21}+\cdots-2y-1)$