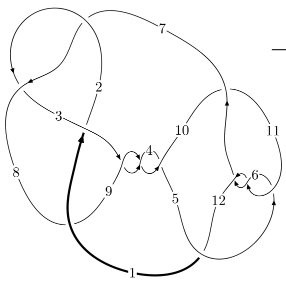
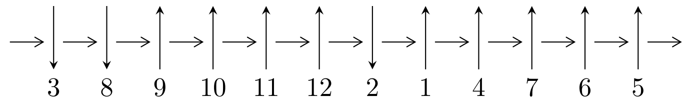
$12a_{0718}$ ($K12a_{0718}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{69} - 2u^{68} + \cdots + 2u^2 - 1 \rangle$$
$$I_2^u = \langle u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 70 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. $I_1^u = \langle u^{69} - 2u^{68} + \cdots + 2u^2 - 1 \rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

$$a_1 = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^{10} - 5u^8 + 8u^6 - 3u^4 - 3u^2 + 1 \\ -u^{10} + 4u^8 - 5u^6 + 3u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{17} + 8u^{15} - 25u^{13} + 36u^{11} - 17u^9 - 12u^7 + 12u^5 + 2u^3 - 3u \\ u^{17} - 7u^{15} + 19u^{13} - 22u^{11} + 3u^9 + 14u^7 - 6u^5 - 4u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{24} + 11u^{22} + \cdots - 6u^2 + 1 \\ u^{24} - 10u^{22} + \cdots - 2u^4 + 4u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{55} + 24u^{53} + \cdots - 28u^5 + 12u^3 \\ u^{55} - 23u^{53} + \cdots - 2u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^{29} + 12u^{27} + \cdots - 2u^3 - 3u \\ -u^{31} + 13u^{29} + \cdots - 8u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{68} - 116u^{66} + \cdots - 8u + 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{69} + 30u^{68} + \cdots + 4u + 1$
c_2, c_7	$u^{69} + 2u^{68} + \cdots - 2u^2 + 1$
c_3, c_4, c_9	$u^{69} - 35u^{67} + \cdots + 16u + 1$
c_5, c_6, c_{11}	$u^{69} + 2u^{68} + \cdots - 2u^2 + 1$
c_8	$u^{69} + 3u^{68} + \cdots - 8u - 1$
c_{10}, c_{12}	$u^{69} - 3u^{68} + \cdots + 4u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{69} + 18y^{68} + \cdots - 28y - 1$
c_2, c_7	$y^{69} - 30y^{68} + \cdots + 4y - 1$
c_3, c_4, c_9	$y^{69} - 70y^{68} + \cdots + 100y - 1$
c_5, c_6, c_{11}	$y^{69} - 58y^{68} + \cdots + 4y - 1$
c_8	$y^{69} - 3y^{68} + \cdots + 4y - 1$
c_{10}, c_{12}	$y^{69} + 33y^{68} + \cdots - 12y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.957601 + 0.300766I$	$5.05918 + 6.89076I$	$6.00000 - 4.16482I$
$u = -0.957601 - 0.300766I$	$5.05918 - 6.89076I$	$6.00000 + 4.16482I$
$u = -0.970924 + 0.140812I$	$1.64199 + 0.00698I$	$6.00000 + 0.I$
$u = -0.970924 - 0.140812I$	$1.64199 - 0.00698I$	$6.00000 + 0.I$
$u = 0.933707 + 0.288136I$	$6.89512 - 1.63728I$	$11.63888 + 0.I$
$u = 0.933707 - 0.288136I$	$6.89512 + 1.63728I$	$11.63888 + 0.I$
$u = 0.857602 + 0.279930I$	$7.01858 + 1.34841I$	$12.02587 - 1.24080I$
$u = 0.857602 - 0.279930I$	$7.01858 - 1.34841I$	$12.02587 + 1.24080I$
$u = -0.825401 + 0.288872I$	$5.28751 - 6.59810I$	$9.41471 + 6.14577I$
$u = -0.825401 - 0.288872I$	$5.28751 + 6.59810I$	$9.41471 - 6.14577I$
$u = -0.189683 + 0.774659I$	$2.65904 - 10.93250I$	$5.56084 + 8.27245I$
$u = -0.189683 - 0.774659I$	$2.65904 + 10.93250I$	$5.56084 - 8.27245I$
$u = 0.193338 + 0.767498I$	$4.55534 + 5.62792I$	$8.38609 - 3.88248I$
$u = 0.193338 - 0.767498I$	$4.55534 - 5.62792I$	$8.38609 + 3.88248I$
$u = 1.184060 + 0.293256I$	$-1.37585 - 2.62316I$	0
$u = 1.184060 - 0.293256I$	$-1.37585 + 2.62316I$	0
$u = 0.205061 + 0.747895I$	$4.87077 + 2.53274I$	$8.88434 - 3.60320I$
$u = 0.205061 - 0.747895I$	$4.87077 - 2.53274I$	$8.88434 + 3.60320I$
$u = -0.177328 + 0.752440I$	$-0.80018 - 3.75250I$	$2.22528 + 3.72594I$
$u = -0.177328 - 0.752440I$	$-0.80018 + 3.75250I$	$2.22528 - 3.72594I$
$u = -0.211423 + 0.738250I$	$3.23850 + 2.75221I$	$6.50930 - 1.22477I$
$u = -0.211423 - 0.738250I$	$3.23850 - 2.75221I$	$6.50930 + 1.22477I$
$u = 0.080892 + 0.759659I$	$-4.71738 + 6.46211I$	$0.26695 - 7.64034I$
$u = 0.080892 - 0.759659I$	$-4.71738 - 6.46211I$	$0.26695 + 7.64034I$
$u = -1.211110 + 0.265826I$	$1.02259 - 1.39020I$	0
$u = -1.211110 - 0.265826I$	$1.02259 + 1.39020I$	0
$u = 0.037081 + 0.752751I$	$-5.81603 - 0.56590I$	$-2.61211 + 0.31548I$
$u = 0.037081 - 0.752751I$	$-5.81603 + 0.56590I$	$-2.61211 - 0.31548I$
$u = -0.075375 + 0.730057I$	$-2.40624 - 2.22308I$	$3.89696 + 3.92721I$
$u = -0.075375 - 0.730057I$	$-2.40624 + 2.22308I$	$3.89696 - 3.92721I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.229420 + 0.304406I$	$-2.15788 + 4.39261I$	0
$u = \quad 1.229420 - 0.304406I$	$-2.15788 - 4.39261I$	0
$u = \quad 1.310820 + 0.046148I$	$5.92654 + 0.72025I$	0
$u = \quad 1.310820 - 0.046148I$	$5.92654 - 0.72025I$	0
$u = -1.286920 + 0.315645I$	$-1.69307 - 3.29241I$	0
$u = -1.286920 - 0.315645I$	$-1.69307 + 3.29241I$	0
$u = -1.322760 + 0.090992I$	$4.47049 - 5.27183I$	0
$u = -1.322760 - 0.090992I$	$4.47049 + 5.27183I$	0
$u = -1.307600 + 0.227331I$	$3.03142 - 0.82065I$	0
$u = -1.307600 - 0.227331I$	$3.03142 + 0.82065I$	0
$u = \quad 1.319690 + 0.261661I$	$3.51103 + 5.18896I$	0
$u = \quad 1.319690 - 0.261661I$	$3.51103 - 5.18896I$	0
$u = \quad 1.312500 + 0.307397I$	$1.94259 + 5.98180I$	0
$u = \quad 1.312500 - 0.307397I$	$1.94259 - 5.98180I$	0
$u = -1.314070 + 0.323446I$	$-0.34941 - 10.37660I$	0
$u = -1.314070 - 0.323446I$	$-0.34941 + 10.37660I$	0
$u = -0.088647 + 0.610634I$	$-0.91571 - 1.95235I$	$6.00572 + 4.84634I$
$u = -0.088647 - 0.610634I$	$-0.91571 + 1.95235I$	$6.00572 - 4.84634I$
$u = \quad 1.367020 + 0.315964I$	$4.07913 + 7.62771I$	0
$u = \quad 1.367020 - 0.315964I$	$4.07913 - 7.62771I$	0
$u = \quad 1.378610 + 0.304843I$	$8.26841 + 1.03300I$	0
$u = \quad 1.378610 - 0.304843I$	$8.26841 - 1.03300I$	0
$u = -1.377770 + 0.309975I$	$9.87821 - 6.36933I$	0
$u = -1.377770 - 0.309975I$	$9.87821 + 6.36933I$	0
$u = -1.375830 + 0.320526I$	$9.51830 - 9.56822I$	0
$u = -1.375830 - 0.320526I$	$9.51830 + 9.56822I$	0
$u = \quad 1.375220 + 0.324354I$	$7.6078 + 14.9103I$	0
$u = \quad 1.375220 - 0.324354I$	$7.6078 - 14.9103I$	0
$u = \quad 1.41865$	8.31659	0
$u = -1.43187 + 0.00706I$	$13.96300 - 1.63595I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.43187 - 0.00706I$	$13.96300 + 1.63595I$	0
$u = 1.43193 + 0.01291I$	$12.19380 + 7.00395I$	0
$u = 1.43193 - 0.01291I$	$12.19380 - 7.00395I$	0
$u = 0.399202 + 0.279360I$	$-0.70238 + 4.07184I$	$6.74606 - 8.81132I$
$u = 0.399202 - 0.279360I$	$-0.70238 - 4.07184I$	$6.74606 + 8.81132I$
$u = 0.198393 + 0.391221I$	$-1.31494 - 1.68072I$	$3.43317 - 0.28369I$
$u = 0.198393 - 0.391221I$	$-1.31494 + 1.68072I$	$3.43317 + 0.28369I$
$u = -0.399566 + 0.111347I$	$0.839509 - 0.175599I$	$12.54321 + 2.20743I$
$u = -0.399566 - 0.111347I$	$0.839509 + 0.175599I$	$12.54321 - 2.20743I$

II. $I_2^u = \langle u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$	1.64493	6.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u+1)(u^{69}+30u^{68}+\cdots+4u+1)$
c_2, c_7	$(u-1)(u^{69}+2u^{68}+\cdots-2u^2+1)$
c_3, c_4, c_9	$(u-1)(u^{69}-35u^{67}+\cdots+16u+1)$
c_5, c_6, c_{11}	$(u-1)(u^{69}+2u^{68}+\cdots-2u^2+1)$
c_8	$u(u^{69}+3u^{68}+\cdots-8u-1)$
c_{10}, c_{12}	$u(u^{69}-3u^{68}+\cdots+4u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)(y^{69}+18y^{68}+\cdots-28y-1)$
c_2, c_7	$(y-1)(y^{69}-30y^{68}+\cdots+4y-1)$
c_3, c_4, c_9	$(y-1)(y^{69}-70y^{68}+\cdots+100y-1)$
c_5, c_6, c_{11}	$(y-1)(y^{69}-58y^{68}+\cdots+4y-1)$
c_8	$y(y^{69}-3y^{68}+\cdots+4y-1)$
c_{10}, c_{12}	$y(y^{69}+33y^{68}+\cdots-12y-1)$