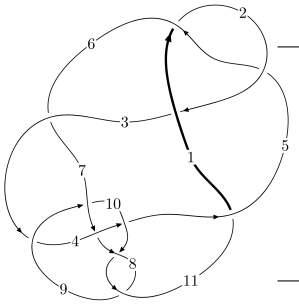
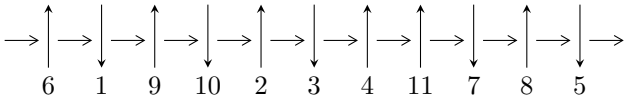
$11a_{80}$ $(K11a_{80})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$2,5 \underset{c_5}{\longrightarrow} 6 \underset{c_1}{\longrightarrow} 1 \underset{c_2}{\longrightarrow} 3 \underset{c_{11}}{\rightarrow} 8,11 \underset{c_8}{\rightarrow} 9 \underset{c_{10}}{\rightarrow} 10 \underset{c_4}{\rightarrow} 4 \underset{c_7}{\longrightarrow} 7 \longrightarrow\!\!\!\!\rightarrow c_3, c_6, c_9$$

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

$I_1^u = \langle -1.10807 \times 10^{23} u^{69} + 2.13624 \times 10^{23} u^{68} + \cdots + 3.25909 \times 10^{22} b + 1.02987 \times 10^{23},$
$7.69171 \times 10^{22} u^{69} - 4.41119 \times 10^{22} u^{68} + \cdots + 3.25909 \times 10^{22} a - 4.48719 \times 10^{22},\ u^{70} - 2u^{69} + \cdots - 5u + 1 \rangle$
$I_2^u = \langle b + 2u - 1,\ a - 2,\ u^2 - u + 1 \rangle$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 72 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.

$\boldsymbol{I_1^u = \langle -1.11\times 10^{23}u^{69}+2.14\times 10^{23}u^{68}+\cdots+3.26\times 10^{22}b+1.03\times 10^{23},\ 7.69\times 10^{22}u^{69}-4.41\times 10^{22}u^{68}+\cdots+3.26\times 10^{22}a-4.49\times 10^{22},\ u^{70}-2u^{69}+\cdots-5u+1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_3 = \begin{pmatrix} -u^3 \\ u^5+u^3+u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -2.36008u^{69}+1.35350u^{68}+\cdots+2.96444u+1.37682 \\ 3.39992u^{69}-6.55471u^{68}+\cdots+15.8232u-3.16000 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -2.36035u^{69}+1.58814u^{68}+\cdots+2.07836u+1.59404 \\ 3.19965u^{69}-6.13729u^{68}+\cdots+14.0060u-2.96000 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 2.55997u^{69}-1.82063u^{68}+\cdots-3.25615u-1.70993 \\ -3.20003u^{69}+6.36373u^{68}+\cdots-14.8901u+3.16000 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 6.40571u^{69}-13.1764u^{68}+\cdots+34.5221u-3.44819 \\ 1.36498u^{69}+3.63005u^{68}+\cdots-22.5376u+5.79503 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^6-u^4+1 \\ u^8+2u^6+2u^4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^6-u^4+1 \\ u^8+2u^6+2u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{8016654066325487259087 3}{1086364450112927298584 3}u^{69}-\frac{3902078084485108795577 07}{1086364450112927298584 3}u^{68}+\cdots+\frac{1547885087409440226722281}{1086364450112927298584 3}u-\frac{3213394580684184103984 08}{1086364450112927298584 3}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{70} - 2u^{69} + \cdots - 5u + 1$
c_2	$u^{70} + 38u^{69} + \cdots - u + 1$
c_3	$u^{70} + 2u^{69} + \cdots + 23u + 107$
c_4	$u^{70} + 31u^{68} + \cdots - 13u + 1$
c_6, c_{11}	$u^{70} + 2u^{69} + \cdots - 169u + 17$
c_7	$u^{70} - 2u^{69} + \cdots - u + 1$
c_8, c_{10}	$u^{70} + 3u^{69} + \cdots - 4u + 1$
c_9	$u^{70} - 11u^{69} + \cdots + 4u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{70} + 38y^{69} + \cdots - y + 1$
c_2	$y^{70} - 10y^{69} + \cdots - 93y + 1$
c_3	$y^{70} + 70y^{69} + \cdots + 344439y + 11449$
c_4	$y^{70} + 62y^{69} + \cdots + 127y + 1$
c_6, c_{11}	$y^{70} - 58y^{69} + \cdots - 16865y + 289$
c_7	$y^{70} - 10y^{69} + \cdots - y + 1$
c_8, c_{10}	$y^{70} - 41y^{69} + \cdots + 16y + 1$
c_9	$y^{70} - 15y^{69} + \cdots - 200y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.629527 + 0.806981I$ $a = 1.41570 - 0.09923I$ $b = 0.33030 - 1.77174I$	$1.04825 + 2.45107I$	0
$u = 0.629527 - 0.806981I$ $a = 1.41570 + 0.09923I$ $b = 0.33030 + 1.77174I$	$1.04825 - 2.45107I$	0
$u = -0.067651 + 1.027570I$ $a = 0.485648 + 1.262690I$ $b = 0.577177 + 0.334792I$	$-3.59009 + 0.96831I$	0
$u = -0.067651 - 1.027570I$ $a = 0.485648 - 1.262690I$ $b = 0.577177 - 0.334792I$	$-3.59009 - 0.96831I$	0
$u = 0.384830 + 0.888904I$ $a = 0.644025 + 0.369584I$ $b = 0.586602 - 0.314795I$	$-0.32453 + 1.95228I$	$0. - 3.30692I$
$u = 0.384830 - 0.888904I$ $a = 0.644025 - 0.369584I$ $b = 0.586602 + 0.314795I$	$-0.32453 - 1.95228I$	$0. + 3.30692I$
$u = -0.479076 + 0.914334I$ $a = -0.835502 - 0.636450I$ $b = -0.0502703 - 0.0626528I$	$-0.79732 - 5.73779I$	0
$u = -0.479076 - 0.914334I$ $a = -0.835502 + 0.636450I$ $b = -0.0502703 + 0.0626528I$	$-0.79732 + 5.73779I$	0
$u = -0.463852 + 0.816066I$ $a = 1.03712 - 1.14502I$ $b = -0.065861 + 1.165360I$	$3.32585 - 3.64623I$	$8.36983 + 8.12955I$
$u = -0.463852 - 0.816066I$ $a = 1.03712 + 1.14502I$ $b = -0.065861 - 1.165360I$	$3.32585 + 3.64623I$	$8.36983 - 8.12955I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.584393+0.923619I$ $a=-2.09703+0.21211I$ $b=-0.57442-1.93822I$	$3.25750-10.82580I$	0
$u=-0.584393-0.923619I$ $a=-2.09703-0.21211I$ $b=-0.57442+1.93822I$	$3.25750+10.82580I$	0
$u=\ 0.377490+0.808869I$ $a=-4.46362-0.46805I$ $b=\ 0.09813+3.87415I$	$1.50422+1.66288I$	$-31.1505+27.2219I$
$u=\ 0.377490-0.808869I$ $a=-4.46362+0.46805I$ $b=\ 0.09813-3.87415I$	$1.50422-1.66288I$	$-31.1505-27.2219I$
$u=-0.653862+0.578775I$ $a=-0.775452+0.290765I$ $b=\ 0.31099-1.84334I$	$4.24693+6.03843I$	$5.38503-4.49312I$
$u=-0.653862-0.578775I$ $a=-0.775452-0.290765I$ $b=\ 0.31099+1.84334I$	$4.24693-6.03843I$	$5.38503+4.49312I$
$u=\ 0.851538+0.139959I$ $a=-1.044180-0.205566I$ $b=-1.12487-1.81917I$	$-0.99836-11.50700I$	$1.84093+6.73084I$
$u=\ 0.851538-0.139959I$ $a=-1.044180+0.205566I$ $b=-1.12487+1.81917I$	$-0.99836+11.50700I$	$1.84093-6.73084I$
$u=\ 0.060029+1.146880I$ $a=-0.18745+2.16143I$ $b=-0.299074+1.201650I$	$-1.44288+5.44607I$	0
$u=\ 0.060029-1.146880I$ $a=-0.18745-2.16143I$ $b=-0.299074-1.201650I$	$-1.44288-5.44607I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.830885+0.169788I$ $a=0.885873-0.209106I$ $b=1.24593-1.41968I$	$-2.35547+3.73849I$	$-0.65968-5.52505I$
$u=-0.830885-0.169788I$ $a=0.885873+0.209106I$ $b=1.24593+1.41968I$	$-2.35547-3.73849I$	$-0.65968+5.52505I$
$u=-0.844269+0.045265I$ $a=0.529036-0.217259I$ $b=0.438531+0.049854I$	$-3.62841+0.20387I$	$-2.37460+1.94241I$
$u=-0.844269-0.045265I$ $a=0.529036+0.217259I$ $b=0.438531-0.049854I$	$-3.62841-0.20387I$	$-2.37460-1.94241I$
$u=0.696611+0.477869I$ $a=-0.242169+0.044656I$ $b=-0.23295-1.56391I$	$3.77878+3.85148I$	$5.41405-7.02923I$
$u=0.696611-0.477869I$ $a=-0.242169-0.044656I$ $b=-0.23295+1.56391I$	$3.77878-3.85148I$	$5.41405+7.02923I$
$u=-0.441288+0.716327I$ $a=1.55504-1.61375I$ $b=0.220804+0.919376I$	$3.62277-0.21985I$	$9.90987+0.81181I$
$u=-0.441288-0.716327I$ $a=1.55504+1.61375I$ $b=0.220804-0.919376I$	$3.62277+0.21985I$	$9.90987-0.81181I$
$u=0.589180+1.012730I$ $a=2.20968-0.22515I$ $b=0.60519-1.40546I$	$2.24373+1.06051I$	0
$u=0.589180-1.012730I$ $a=2.20968+0.22515I$ $b=0.60519+1.40546I$	$2.24373-1.06051I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.816520 + 0.092061I$ $a = -0.246027 - 0.625616I$ $b = 0.227076 + 0.411053I$	$-4.47780 - 5.27299I$	$-1.13386 + 5.09920I$
$u = 0.816520 - 0.092061I$ $a = -0.246027 + 0.625616I$ $b = 0.227076 - 0.411053I$	$-4.47780 + 5.27299I$	$-1.13386 - 5.09920I$
$u = 0.155133 + 0.771122I$ $a = 1.09854 - 0.97547I$ $b = -0.000848 - 1.218090I$	$0.526876 + 1.304500I$	$2.10750 - 3.09155I$
$u = 0.155133 - 0.771122I$ $a = 1.09854 + 0.97547I$ $b = -0.000848 + 1.218090I$	$0.526876 - 1.304500I$	$2.10750 + 3.09155I$
$u = -0.751358 + 0.033892I$ $a = -1.004370 + 0.873364I$ $b = -0.74452 + 2.95488I$	$-0.708262 + 0.627776I$	$0.33072 + 10.74054I$
$u = -0.751358 - 0.033892I$ $a = -1.004370 - 0.873364I$ $b = -0.74452 - 2.95488I$	$-0.708262 - 0.627776I$	$0.33072 - 10.74054I$
$u = 0.741533 + 0.089293I$ $a = 0.873738 - 0.398690I$ $b = 0.309943 + 1.288770I$	$0.80687 - 3.39629I$	$5.02552 + 6.06179I$
$u = 0.741533 - 0.089293I$ $a = 0.873738 + 0.398690I$ $b = 0.309943 - 1.288770I$	$0.80687 + 3.39629I$	$5.02552 - 6.06179I$
$u = 0.457271 + 1.166860I$ $a = -2.33391 - 0.73724I$ $b = -0.832098 + 0.217701I$	$-0.90108 + 4.15644I$	0
$u = 0.457271 - 1.166860I$ $a = -2.33391 + 0.73724I$ $b = -0.832098 - 0.217701I$	$-0.90108 - 4.15644I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.420042 + 1.181250I$ $a = -0.283873 - 1.352310I$ $b = -0.459172 - 1.228100I$	$-2.80139 + 0.62222I$	0
$u = 0.420042 - 1.181250I$ $a = -0.283873 + 1.352310I$ $b = -0.459172 + 1.228100I$	$-2.80139 - 0.62222I$	0
$u = -0.441328 + 1.192850I$ $a = -0.53713 - 4.16968I$ $b = 1.05472 - 2.74195I$	$-4.22443 - 3.62054I$	0
$u = -0.441328 - 1.192850I$ $a = -0.53713 + 4.16968I$ $b = 1.05472 + 2.74195I$	$-4.22443 + 3.62054I$	0
$u = -0.359060 + 1.223280I$ $a = -1.37931 + 2.37042I$ $b = -1.29014 + 1.14965I$	$-6.61992 - 0.21045I$	0
$u = -0.359060 - 1.223280I$ $a = -1.37931 - 2.37042I$ $b = -1.29014 - 1.14965I$	$-6.61992 + 0.21045I$	0
$u = 0.482887 + 1.183360I$ $a = -2.25253 + 0.52090I$ $b = -0.35025 + 1.40847I$	$-2.35077 + 7.93022I$	0
$u = 0.482887 - 1.183360I$ $a = -2.25253 - 0.52090I$ $b = -0.35025 - 1.40847I$	$-2.35077 - 7.93022I$	0
$u = -0.466698 + 1.191900I$ $a = 4.54250 + 2.63619I$ $b = 0.94499 + 3.21611I$	$-4.04232 - 5.06949I$	0
$u = -0.466698 - 1.191900I$ $a = 4.54250 - 2.63619I$ $b = 0.94499 - 3.21611I$	$-4.04232 + 5.06949I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.407480 + 1.222900I$ $a = 0.1138890 - 0.0689488I$ $b = -0.380064 - 0.448611I$	$-8.41392 - 1.04197I$	0
$u = 0.407480 - 1.222900I$ $a = 0.1138890 + 0.0689488I$ $b = -0.380064 + 0.448611I$	$-8.41392 + 1.04197I$	0
$u = 0.373837 + 1.243620I$ $a = 1.02834 + 2.75293I$ $b = 1.16246 + 1.65065I$	$-5.26246 - 7.34394I$	0
$u = 0.373837 - 1.243620I$ $a = 1.02834 - 2.75293I$ $b = 1.16246 - 1.65065I$	$-5.26246 + 7.34394I$	0
$u = 0.496707 + 1.207980I$ $a = -0.337756 - 0.265720I$ $b = -0.173373 + 0.523060I$	$-7.77710 + 10.05510I$	0
$u = 0.496707 - 1.207980I$ $a = -0.337756 + 0.265720I$ $b = -0.173373 - 0.523060I$	$-7.77710 - 10.05510I$	0
$u = -0.529273 + 1.198990I$ $a = -3.19515 - 0.09398I$ $b = -1.41652 - 1.47211I$	$-5.41659 - 8.73511I$	0
$u = -0.529273 - 1.198990I$ $a = -3.19515 + 0.09398I$ $b = -1.41652 + 1.47211I$	$-5.41659 + 8.73511I$	0
$u = -0.429294 + 1.241130I$ $a = -0.746467 + 0.490350I$ $b = -0.261834 - 0.041559I$	$-7.52357 - 4.28857I$	0
$u = -0.429294 - 1.241130I$ $a = -0.746467 - 0.490350I$ $b = -0.261834 + 0.041559I$	$-7.52357 + 4.28857I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.482173+1.223350I$ $a=-0.689773+0.346822I$ $b=-0.471666+0.181421I$	$-7.14118-4.96161I$	0
$u=-0.482173-1.223350I$ $a=-0.689773-0.346822I$ $b=-0.471666-0.181421I$	$-7.14118+4.96161I$	0
$u=0.522937+1.211780I$ $a=3.48715-0.59028I$ $b=1.23167-1.87815I$	$-4.1996+16.5161I$	0
$u=0.522937-1.211780I$ $a=3.48715+0.59028I$ $b=1.23167+1.87815I$	$-4.1996-16.5161I$	0
$u=-0.442791+0.496185I$ $a=0.799445-0.541455I$ $b=-0.011200-0.386745I$	$0.30075+1.79611I$	$2.68640-3.79960I$
$u=-0.442791-0.496185I$ $a=0.799445+0.541455I$ $b=-0.011200+0.386745I$	$0.30075-1.79611I$	$2.68640+3.79960I$
$u=0.316117+0.579912I$ $a=0.878662-0.498135I$ $b=-0.214555-0.695078I$	$0.42343+1.35672I$	$2.64097-4.74847I$
$u=0.316117-0.579912I$ $a=0.878662+0.498135I$ $b=-0.214555+0.695078I$	$0.42343-1.35672I$	$2.64097+4.74847I$
$u=0.643531$ $a=1.80099$ $b=0.494211$	2.26336	7.42670
$u=0.331630$ $a=3.33367$ $b=-0.275880$	2.41420	4.13220

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

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$

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

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

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

$$a_{11} = \begin{pmatrix} -1 \\ u-1 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 1 \\ -u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u+1 \\ -u+1 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u + 5$

(iv) u-Polynomials at the component

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

(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_{11}	$y^2 + y + 1$
c_8, c_{10}	$(y-1)^2$
c_9	y^2

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.500000+0.866025I$		
$a=$	2.00000	$1.64493+2.02988I$	$3.00000-3.46410I$
$b=$	$-1.73205I$		
$u=$	$0.500000-0.866025I$		
$a=$	2.00000	$1.64493-2.02988I$	$3.00000+3.46410I$
$b=$	$1.73205I$		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2+u+1)(u^{70}-2u^{69}+\cdots-5u+1)$
c_2	$(u^2+u+1)(u^{70}+38u^{69}+\cdots-u+1)$
c_3	$(u^2+u+1)(u^{70}+2u^{69}+\cdots+23u+107)$
c_4	$(u^2+u+1)(u^{70}+31u^{68}+\cdots-13u+1)$
c_5	$(u^2-u+1)(u^{70}-2u^{69}+\cdots-5u+1)$
c_6	$(u^2+u+1)(u^{70}+2u^{69}+\cdots-169u+17)$
c_7	$(u^2+u+1)(u^{70}-2u^{69}+\cdots-u+1)$
c_8	$((u+1)^2)(u^{70}+3u^{69}+\cdots-4u+1)$
c_9	$u^2(u^{70}-11u^{69}+\cdots+4u+4)$
c_{10}	$((u-1)^2)(u^{70}+3u^{69}+\cdots-4u+1)$
c_{11}	$(u^2-u+1)(u^{70}+2u^{69}+\cdots-169u+17)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^2+y+1)(y^{70}+38y^{69}+\cdots-y+1)$
c_2	$(y^2+y+1)(y^{70}-10y^{69}+\cdots-93y+1)$
c_3	$(y^2+y+1)(y^{70}+70y^{69}+\cdots+344439y+11449)$
c_4	$(y^2+y+1)(y^{70}+62y^{69}+\cdots+127y+1)$
c_6, c_{11}	$(y^2+y+1)(y^{70}-58y^{69}+\cdots-16865y+289)$
c_7	$(y^2+y+1)(y^{70}-10y^{69}+\cdots-y+1)$
c_8, c_{10}	$((y-1)^2)(y^{70}-41y^{69}+\cdots+16y+1)$
c_9	$y^2(y^{70}-15y^{69}+\cdots-200y+16)$