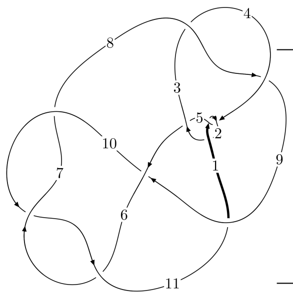
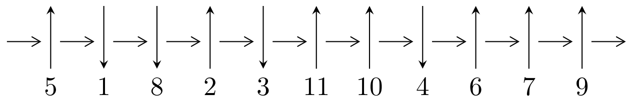
$11a_8$ $(K11a_8)$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 4u^{63} - 11u^{62} + \cdots + 2b - 2,\ -5u^{63} + 14u^{62} + \cdots + 2a + 12,\ u^{64} - 3u^{63} + \cdots - 3u + 1\rangle$$
$$I_2^u = \langle -u^2a - au + b,\ -u^2a + a^2 - au + 2u^2 - 2a + u + 3,\ u^3 + u^2 + 2u + 1\rangle$$

* 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. $I_1^u = \langle 4u^{63}-11u^{62}+\cdots+2b-2,\ -5u^{63}+14u^{62}+\cdots+2a+12,\ u^{64}-3u^{63}+\cdots-3u+1\rangle$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix}\frac{5}{2}u^{63}-7u^{62}+\cdots+7u-6\\-2u^{63}+\frac{11}{2}u^{62}+\cdots-\frac{1}{2}u+1\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}\frac{1}{2}u^{63}-u^{62}+\cdots+4u+1\\-\frac{1}{2}u^{62}+u^{61}+\cdots-\frac{5}{2}u^2-\frac{1}{2}u\end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix}\frac{9}{2}u^{63}-10u^{62}+\cdots+8u-7\\-4u^{63}+\frac{17}{2}u^{62}+\cdots-\frac{1}{2}u+1\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-u^3-2u\\-u^5-u^3+u\end{pmatrix}$$

$$a_1 = \begin{pmatrix}u^7+4u^5+4u^3\\u^9+3u^7+u^5-2u^3+u\end{pmatrix}$$

$$a_2 = \begin{pmatrix}4u^{63}-9u^{62}+\cdots+\frac{17}{2}u-\frac{13}{2}\\-3u^{63}+6u^{62}+\cdots+\frac{3}{2}u+\frac{1}{2}\end{pmatrix}$$

$$a_2 = \begin{pmatrix}4u^{63}-9u^{62}+\cdots+\frac{17}{2}u-\frac{13}{2}\\-3u^{63}+6u^{62}+\cdots+\frac{3}{2}u+\frac{1}{2}\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{63}-\frac{3}{2}u^{62}+\cdots+7u+\frac{1}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{64} + 4u^{63} + \cdots + 4u + 1$
c_2	$u^{64} + 32u^{63} + \cdots + 4u + 1$
c_3, c_8	$u^{64} - u^{63} + \cdots + 32u + 64$
c_5	$u^{64} - 4u^{63} + \cdots + 393u + 306$
c_6, c_7, c_{10}	$u^{64} + 3u^{63} + \cdots + 3u + 1$
c_9	$u^{64} - 3u^{63} + \cdots + 139u + 34$
c_{11}	$u^{64} + 13u^{63} + \cdots + 9803u + 563$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{64} + 32y^{63} + \cdots + 4y + 1$
c_2	$y^{64} + 4y^{63} + \cdots + 32y + 1$
c_3, c_8	$y^{64} - 35y^{63} + \cdots - 62464y + 4096$
c_5	$y^{64} - 24y^{63} + \cdots - 628749y + 93636$
c_6, c_7, c_{10}	$y^{64} + 59y^{63} + \cdots + 9y + 1$
c_9	$y^{64} + 7y^{63} + \cdots + 48679y + 1156$
c_{11}	$y^{64} + 27y^{63} + \cdots - 7846307y + 316969$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.015524+1.136780I$ $a=-0.552080-1.014190I$ $b=\ 0.36725+2.32487I$	$-0.80196-1.43696I$	0
$u=-0.015524-1.136780I$ $a=-0.552080+1.014190I$ $b=\ 0.36725-2.32487I$	$-0.80196+1.43696I$	0
$u=-0.214167+1.143170I$ $a=-0.357469-0.874324I$ $b=\ 0.61975+1.95833I$	$-1.39099-2.85342I$	0
$u=-0.214167-1.143170I$ $a=-0.357469+0.874324I$ $b=\ 0.61975-1.95833I$	$-1.39099+2.85342I$	0
$u=-0.298079+1.147240I$ $a=\ 0.375987+1.027900I$ $b=-0.93034-2.15707I$	$-3.53941-7.25346I$	0
$u=-0.298079-1.147240I$ $a=\ 0.375987-1.027900I$ $b=-0.93034+2.15707I$	$-3.53941+7.25346I$	0
$u=\ 0.476512+0.657222I$ $a=\ 0.793347-0.123841I$ $b=-1.54179-0.10637I$	$-4.93845-6.98785I$	$-1.90680+3.70412I$
$u=\ 0.476512-0.657222I$ $a=\ 0.793347+0.123841I$ $b=-1.54179+0.10637I$	$-4.93845+6.98785I$	$-1.90680-3.70412I$
$u=\ 0.735326+0.331337I$ $a=\ 0.68785-2.32153I$ $b=-0.1013060+0.0578601I$	$-3.76417+11.20390I$	$0.56898-8.94453I$
$u=\ 0.735326-0.331337I$ $a=\ 0.68785+2.32153I$ $b=-0.1013060-0.0578601I$	$-3.76417-11.20390I$	$0.56898+8.94453I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.064188 + 1.195330I$ $a = 0.61441 + 1.33088I$ $b = -0.13482 - 2.80368I$	$-2.10866 + 3.26818I$	0
$u = 0.064188 - 1.195330I$ $a = 0.61441 - 1.33088I$ $b = -0.13482 + 2.80368I$	$-2.10866 - 3.26818I$	0
$u = 0.685998 + 0.378244I$ $a = 0.37879 - 1.68792I$ $b = 0.181491 - 0.102139I$	$-5.86520 + 2.84323I$	$-2.57675 - 3.28324I$
$u = 0.685998 - 0.378244I$ $a = 0.37879 + 1.68792I$ $b = 0.181491 + 0.102139I$	$-5.86520 - 2.84323I$	$-2.57675 + 3.28324I$
$u = 0.705613 + 0.324529I$ $a = -0.36569 + 2.26750I$ $b = -0.0346428 - 0.1104610I$	$-1.18297 + 6.07475I$	$3.41678 - 5.69062I$
$u = 0.705613 - 0.324529I$ $a = -0.36569 - 2.26750I$ $b = -0.0346428 + 0.1104610I$	$-1.18297 - 6.07475I$	$3.41678 + 5.69062I$
$u = 0.536487 + 0.551979I$ $a = 0.443112 + 0.230612I$ $b = -1.088190 + 0.137761I$	$-6.52829 + 1.28000I$	$-4.07342 - 3.16356I$
$u = 0.536487 - 0.551979I$ $a = 0.443112 - 0.230612I$ $b = -1.088190 - 0.137761I$	$-6.52829 - 1.28000I$	$-4.07342 + 3.16356I$
$u = -0.749948 + 0.055820I$ $a = 1.85877 - 0.48714I$ $b = -0.0293520 + 0.1192290I$	$-0.20927 + 3.41413I$	$1.14237 - 4.37134I$
$u = -0.749948 - 0.055820I$ $a = 1.85877 + 0.48714I$ $b = -0.0293520 - 0.1192290I$	$-0.20927 - 3.41413I$	$1.14237 + 4.37134I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.439249 + 0.595498I$ $a = -0.832885 - 0.094483I$ $b = 1.269290 + 0.214528I$	$-2.26669 - 2.10675I$	$0.859060 + 0.119964I$
$u = 0.439249 - 0.595498I$ $a = -0.832885 + 0.094483I$ $b = 1.269290 - 0.214528I$	$-2.26669 + 2.10675I$	$0.859060 - 0.119964I$
$u = -0.299362 + 1.265870I$ $a = 0.850164 + 0.773878I$ $b = -1.58589 - 1.35845I$	$-4.30101 - 0.38221I$	0
$u = -0.299362 - 1.265870I$ $a = 0.850164 - 0.773878I$ $b = -1.58589 + 1.35845I$	$-4.30101 + 0.38221I$	0
$u = -0.619945 + 0.317199I$ $a = 0.53019 - 1.60674I$ $b = 0.658299 - 0.081366I$	$-0.84283 - 5.16860I$	$1.77998 + 6.94898I$
$u = -0.619945 - 0.317199I$ $a = 0.53019 + 1.60674I$ $b = 0.658299 + 0.081366I$	$-0.84283 + 5.16860I$	$1.77998 - 6.94898I$
$u = -0.664883 + 0.102386I$ $a = -1.170250 + 0.773392I$ $b = -0.144321 - 0.070324I$	$1.72799 - 0.42864I$	$6.50290 - 0.62963I$
$u = -0.664883 - 0.102386I$ $a = -1.170250 - 0.773392I$ $b = -0.144321 + 0.070324I$	$1.72799 + 0.42864I$	$6.50290 + 0.62963I$
$u = -0.082869 + 1.329720I$ $a = 0.019279 + 1.184640I$ $b = 0.42102 - 1.92368I$	$-4.92247 - 2.18904I$	0
$u = -0.082869 - 1.329720I$ $a = 0.019279 - 1.184640I$ $b = 0.42102 + 1.92368I$	$-4.92247 + 2.18904I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.600593 + 0.259671I$ $a = 0.91292 + 2.31668I$ $b = -0.406450 - 0.377479I$	$1.11308 + 3.77623I$	$3.53850 - 8.28052I$
$u = 0.600593 - 0.259671I$ $a = 0.91292 - 2.31668I$ $b = -0.406450 + 0.377479I$	$1.11308 - 3.77623I$	$3.53850 + 8.28052I$
$u = -0.259122 + 1.329370I$ $a = -0.933554 - 0.063987I$ $b = 1.58037 + 0.14438I$	$-2.78162 - 3.76575I$	0
$u = -0.259122 - 1.329370I$ $a = -0.933554 + 0.063987I$ $b = 1.58037 - 0.14438I$	$-2.78162 + 3.76575I$	0
$u = -0.592120 + 0.224814I$ $a = -0.69623 + 1.29343I$ $b = -0.391449 + 0.069510I$	$1.38695 - 0.99326I$	$6.93338 + 2.70050I$
$u = -0.592120 - 0.224814I$ $a = -0.69623 - 1.29343I$ $b = -0.391449 - 0.069510I$	$1.38695 + 0.99326I$	$6.93338 - 2.70050I$
$u = -0.449959 + 0.389908I$ $a = 0.250099 - 1.181500I$ $b = 0.500682 - 0.586321I$	$-1.42932 + 1.81815I$	$-0.185423 + 0.070708I$
$u = -0.449959 - 0.389908I$ $a = 0.250099 + 1.181500I$ $b = 0.500682 + 0.586321I$	$-1.42932 - 1.81815I$	$-0.185423 - 0.070708I$
$u = -0.226982 + 1.394010I$ $a = -1.153900 + 0.797633I$ $b = 1.89226 - 1.16346I$	$-3.79975 - 3.98351I$	0
$u = -0.226982 - 1.394010I$ $a = -1.153900 - 0.797633I$ $b = 1.89226 + 1.16346I$	$-3.79975 + 3.98351I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.20854 + 1.39910I$ $a = -1.022540 - 0.095130I$ $b = 2.59444 + 1.05724I$	$-4.62918 + 1.44235I$	0
$u = 0.20854 - 1.39910I$ $a = -1.022540 + 0.095130I$ $b = 2.59444 - 1.05724I$	$-4.62918 - 1.44235I$	0
$u = 0.23406 + 1.40484I$ $a = 1.162710 + 0.633487I$ $b = -2.56792 - 1.98653I$	$-4.22111 + 6.84171I$	0
$u = 0.23406 - 1.40484I$ $a = 1.162710 - 0.633487I$ $b = -2.56792 + 1.98653I$	$-4.22111 - 6.84171I$	0
$u = -0.18905 + 1.42427I$ $a = 0.98672 - 1.33216I$ $b = -1.67530 + 1.89832I$	$-7.17316 - 0.63151I$	0
$u = -0.18905 - 1.42427I$ $a = 0.98672 + 1.33216I$ $b = -1.67530 - 1.89832I$	$-7.17316 + 0.63151I$	0
$u = 0.511462 + 0.222716I$ $a = -1.82560 - 1.87884I$ $b = 0.636732 + 0.407279I$	$0.617090 - 1.254920I$	$0.39440 - 2.97018I$
$u = 0.511462 - 0.222716I$ $a = -1.82560 + 1.87884I$ $b = 0.636732 - 0.407279I$	$0.617090 + 1.254920I$	$0.39440 + 2.97018I$
$u = -0.24055 + 1.42343I$ $a = 1.51122 - 0.99157I$ $b = -2.38619 + 1.44111I$	$-6.41876 - 8.33142I$	0
$u = -0.24055 - 1.42343I$ $a = 1.51122 + 0.99157I$ $b = -2.38619 - 1.44111I$	$-6.41876 + 8.33142I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.27335 + 1.43352I$ $a = 0.93968 + 1.54462I$ $b = -1.82680 - 3.22208I$	$-6.81464 + 9.64252I$	0
$u = 0.27335 - 1.43352I$ $a = 0.93968 - 1.54462I$ $b = -1.82680 + 3.22208I$	$-6.81464 - 9.64252I$	0
$u = 0.13955 + 1.45581I$ $a = 0.374359 + 0.392616I$ $b = 0.375841 - 0.169773I$	$-8.74276 - 0.11604I$	0
$u = 0.13955 - 1.45581I$ $a = 0.374359 - 0.392616I$ $b = 0.375841 + 0.169773I$	$-8.74276 + 0.11604I$	0
$u = 0.28510 + 1.43978I$ $a = -0.92380 - 1.78639I$ $b = 1.70565 + 3.54725I$	$-9.4393 + 14.9162I$	0
$u = 0.28510 - 1.43978I$ $a = -0.92380 + 1.78639I$ $b = 1.70565 - 3.54725I$	$-9.4393 - 14.9162I$	0
$u = 0.25765 + 1.45108I$ $a = -0.52150 - 1.40966I$ $b = 1.29040 + 2.86879I$	$-11.74310 + 6.28318I$	0
$u = 0.25765 - 1.45108I$ $a = -0.52150 + 1.40966I$ $b = 1.29040 - 2.86879I$	$-11.74310 - 6.28318I$	0
$u = 0.12283 + 1.47595I$ $a = -0.686055 - 0.523479I$ $b = 0.129256 + 0.402174I$	$-11.78020 - 5.04358I$	0
$u = 0.12283 - 1.47595I$ $a = -0.686055 + 0.523479I$ $b = 0.129256 - 0.402174I$	$-11.78020 + 5.04358I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.16758 + 1.47356I$ $a = -0.473637 + 0.079429I$ $b = -0.152957 - 0.582701I$	$-13.05130 + 3.75910I$	0
$u = 0.16758 - 1.47356I$ $a = -0.473637 - 0.079429I$ $b = -0.152957 + 0.582701I$	$-13.05130 - 3.75910I$	0
$u = -0.041522 + 0.342357I$ $a = -1.174420 + 0.757126I$ $b = 0.274979 + 0.620859I$	$-0.108314 - 1.390220I$	$-0.08539 + 5.01290I$
$u = -0.041522 - 0.342357I$ $a = -1.174420 - 0.757126I$ $b = 0.274979 - 0.620859I$	$-0.108314 + 1.390220I$	$-0.08539 - 5.01290I$

II.

$\boldsymbol{I_2^u = \langle -u^2a - au + b,\ -u^2a + a^2 - au + 2u^2 - 2a + u + 3,\ u^3 + u^2 + 2u + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ u^2a + au \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^2 + a - u - 1 \\ u^2a + au + u^2 + u + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ u^2a + au \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} au + a \\ -au - a \end{pmatrix}$$
$$a_2 = \begin{pmatrix} au + a \\ -au - a \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^2a - 4au + 3u^2 + a + 3u + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_5	$(y^2 + y + 1)^3$
c_3, c_8	y^6
c_6, c_7, c_{10}	$(y^3 + 3y^2 + 2y - 1)^2$
c_9, c_{11}	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=\ \ 0.706350+0.266290I$ $b=-1.52448+0.02619I$	$-3.02413-4.85801I$	$-1.45566+6.64456I$
$u=-0.215080+1.307140I$ $a=-0.583789+0.478572I$ $b=\ \ 0.73956-1.33333I$	$-3.02413-0.79824I$	$2.09851-0.12339I$
$u=-0.215080-1.307140I$ $a=\ \ 0.706350-0.266290I$ $b=-1.52448-0.02619I$	$-3.02413+4.85801I$	$-1.45566-6.64456I$
$u=-0.215080-1.307140I$ $a=-0.583789-0.478572I$ $b=\ \ 0.73956+1.33333I$	$-3.02413+0.79824I$	$2.09851+0.12339I$
$u=-0.569840$ $a=\ \ 0.87744+1.51977I$ $b=-0.215080-0.372529I$	$1.11345-2.02988I$	$5.85715+4.49037I$
$u=-0.569840$ $a=\ \ 0.87744-1.51977I$ $b=-0.215080+0.372529I$	$1.11345+2.02988I$	$5.85715-4.49037I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^3)(u^{64}+4u^{63}+\cdots+4u+1)$
c_2	$((u^2+u+1)^3)(u^{64}+32u^{63}+\cdots+4u+1)$
c_3, c_8	$u^6(u^{64}-u^{63}+\cdots+32u+64)$
c_4	$((u^2-u+1)^3)(u^{64}+4u^{63}+\cdots+4u+1)$
c_5	$((u^2+u+1)^3)(u^{64}-4u^{63}+\cdots+393u+306)$
c_6, c_7	$((u^3+u^2+2u+1)^2)(u^{64}+3u^{63}+\cdots+3u+1)$
c_9	$((u^3+u^2-1)^2)(u^{64}-3u^{63}+\cdots+139u+34)$
c_{10}	$((u^3-u^2+2u-1)^2)(u^{64}+3u^{63}+\cdots+3u+1)$
c_{11}	$((u^3+u^2-1)^2)(u^{64}+13u^{63}+\cdots+9803u+563)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^3)(y^{64}+32y^{63}+\cdots+4y+1)$
c_2	$((y^2+y+1)^3)(y^{64}+4y^{63}+\cdots+32y+1)$
c_3, c_8	$y^6(y^{64}-35y^{63}+\cdots-62464y+4096)$
c_5	$((y^2+y+1)^3)(y^{64}-24y^{63}+\cdots-628749y+93636)$
c_6, c_7, c_{10}	$((y^3+3y^2+2y-1)^2)(y^{64}+59y^{63}+\cdots+9y+1)$
c_9	$((y^3-y^2+2y-1)^2)(y^{64}+7y^{63}+\cdots+48679y+1156)$
c_{11}	$((y^3-y^2+2y-1)^2)(y^{64}+27y^{63}+\cdots-7846307y+316969)$