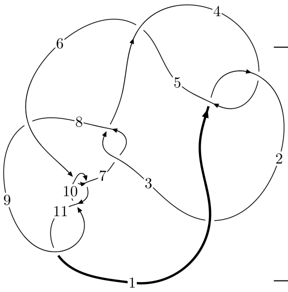
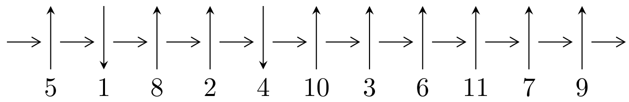
$11a_{48}$ ($K11a_{48}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -14u^{61} + 23u^{60} + \cdots + 4b - 7,\ -9u^{61} + 37u^{60} + \cdots + 4a + 12,\ u^{62} - 4u^{61} + \cdots + u + 1 \rangle$$
$$I_2^u = \langle -au + b - a,\ a^3 + a^2u - 2au - 2a + 1,\ u^2 + u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 68 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. $I_1^u = \langle -14u^{61} + 23u^{60} + \cdots + 4b - 7,\ -9u^{61} + 37u^{60} + \cdots + 4a + 12,\ u^{62} - 4u^{61} + \cdots + u + 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{9}{4}u^{61} - \frac{37}{4}u^{60} + \cdots - \frac{3}{4}u - 3 \\ \frac{7}{2}u^{61} - \frac{23}{4}u^{60} + \cdots + \frac{13}{2}u + \frac{7}{4} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{11}{4}u^{61} - \frac{35}{2}u^{60} + \cdots - \frac{49}{4}u - \frac{35}{4} \\ \frac{13}{2}u^{61} - \frac{47}{4}u^{60} + \cdots + \frac{23}{2}u + \frac{11}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{13}{4}u^{61} - \frac{23}{2}u^{60} + \cdots - \frac{7}{4}u - \frac{13}{4} \\ \frac{3}{2}u^{61} - \frac{1}{4}u^{60} + \cdots + \frac{13}{2}u + \frac{9}{4} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{4}u^{60} + \frac{3}{4}u^{59} + \cdots + \frac{5}{2}u + \frac{7}{4} \\ \frac{1}{4}u^{61} - u^{60} + \cdots - \frac{5}{4}u - \frac{1}{4} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{11}{4}u^{61} + \frac{47}{4}u^{60} + \cdots + \frac{7}{4}u + 1 \\ -\frac{3}{4}u^{61} - \frac{1}{4}u^{60} + \cdots - \frac{17}{4}u - \frac{5}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{11}{4}u^{61} + \frac{47}{4}u^{60} + \cdots + \frac{7}{4}u + 1 \\ -\frac{3}{4}u^{61} - \frac{1}{4}u^{60} + \cdots - \frac{17}{4}u - \frac{5}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3u^{61} + \frac{1}{2}u^{60} + \cdots + u + 16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{62} + 4u^{61} + \cdots - u + 1$
c_2, c_5	$u^{62} + 20u^{61} + \cdots - 17u + 1$
c_3, c_7	$u^{62} - u^{61} + \cdots + 224u - 64$
c_6, c_{10}	$u^{62} - 3u^{61} + \cdots + 2u - 1$
c_8	$u^{62} + 3u^{61} + \cdots - 4452u - 1201$
c_9, c_{11}	$u^{62} - 21u^{61} + \cdots - 16u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{62} + 20y^{61} + \cdots - 17y + 1$
c_2, c_5	$y^{62} + 48y^{61} + \cdots - 369y + 1$
c_3, c_7	$y^{62} - 35y^{61} + \cdots - 37888y + 4096$
c_6, c_{10}	$y^{62} - 21y^{61} + \cdots - 16y + 1$
c_8	$y^{62} - 17y^{61} + \cdots - 41957136y + 1442401$
c_9, c_{11}	$y^{62} + 43y^{61} + \cdots - 16y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.580047+0.850451I$ $a=-0.615466-0.047953I$ $b=-0.105015+0.107324I$	$0.46590-2.28716I$	$1.57514+4.44404I$
$u=-0.580047-0.850451I$ $a=-0.615466+0.047953I$ $b=-0.105015-0.107324I$	$0.46590+2.28716I$	$1.57514-4.44404I$
$u=-0.708480+0.748571I$ $a=-0.625956-0.954656I$ $b=-0.035473+0.874104I$	$-0.06793-2.21961I$	$7.00000+3.72035I$
$u=-0.708480-0.748571I$ $a=-0.625956+0.954656I$ $b=-0.035473-0.874104I$	$-0.06793+2.21961I$	$7.00000-3.72035I$
$u=-0.176329+0.912969I$ $a=-0.631715+0.212995I$ $b=\ \ 0.204630+0.113298I$	$-1.47231-1.88154I$	$1.17198+4.94319I$
$u=-0.176329-0.912969I$ $a=-0.631715-0.212995I$ $b=\ \ 0.204630-0.113298I$	$-1.47231+1.88154I$	$1.17198-4.94319I$
$u=\ \ 0.067320+0.925637I$ $a=-1.65632+1.56093I$ $b=-0.021019+1.209610I$	$-5.17463-1.43170I$	$-0.06499+2.83805I$
$u=\ \ 0.067320-0.925637I$ $a=-1.65632-1.56093I$ $b=-0.021019-1.209610I$	$-5.17463+1.43170I$	$-0.06499-2.83805I$
$u=-0.762893+0.779001I$ $a=\ \ 0.88438+1.40384I$ $b=-0.547272-1.284430I$	$0.86999+2.89738I$	0
$u=-0.762893-0.779001I$ $a=\ \ 0.88438-1.40384I$ $b=-0.547272+1.284430I$	$0.86999-2.89738I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.672440 + 0.859246I$ $a = -1.094710 + 0.307283I$ $b = -0.15697 + 1.45420I$	$-1.87828 - 0.43024I$	0
$u = 0.672440 - 0.859246I$ $a = -1.094710 - 0.307283I$ $b = -0.15697 - 1.45420I$	$-1.87828 + 0.43024I$	0
$u = 0.113095 + 0.896419I$ $a = 1.43284 - 1.95950I$ $b = -0.35266 - 1.38822I$	$-4.68648 + 4.26236I$	$0.88079 - 2.61775I$
$u = 0.113095 - 0.896419I$ $a = 1.43284 + 1.95950I$ $b = -0.35266 + 1.38822I$	$-4.68648 - 4.26236I$	$0.88079 + 2.61775I$
$u = 0.848922 + 0.694333I$ $a = -0.858355 + 0.429131I$ $b = 0.287596 - 1.039470I$	$3.14061 - 3.35098I$	0
$u = 0.848922 - 0.694333I$ $a = -0.858355 - 0.429131I$ $b = 0.287596 + 1.039470I$	$3.14061 + 3.35098I$	0
$u = -0.288556 + 1.063810I$ $a = -0.278572 + 0.779132I$ $b = -0.996600 + 0.151978I$	$1.97217 - 3.44390I$	0
$u = -0.288556 - 1.063810I$ $a = -0.278572 - 0.779132I$ $b = -0.996600 - 0.151978I$	$1.97217 + 3.44390I$	0
$u = -0.172015 + 1.093990I$ $a = -1.05796 - 1.37125I$ $b = 0.117190 - 1.069160I$	$-3.80732 - 3.28559I$	0
$u = -0.172015 - 1.093990I$ $a = -1.05796 + 1.37125I$ $b = 0.117190 + 1.069160I$	$-3.80732 + 3.28559I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.872766 + 0.690242I$ $a = 0.873901 - 0.662198I$ $b = -0.58873 + 1.46893I$	$4.38951 - 9.08805I$	0
$u = 0.872766 - 0.690242I$ $a = 0.873901 + 0.662198I$ $b = -0.58873 - 1.46893I$	$4.38951 + 9.08805I$	0
$u = 0.673310 + 0.886698I$ $a = 0.848443 - 0.513970I$ $b = -0.08966 - 1.42530I$	$-1.96729 + 5.63314I$	0
$u = 0.673310 - 0.886698I$ $a = 0.848443 + 0.513970I$ $b = -0.08966 + 1.42530I$	$-1.96729 - 5.63314I$	0
$u = 0.811900 + 0.775479I$ $a = -1.206090 - 0.072648I$ $b = 0.416947 + 0.445355I$	$4.85281 - 0.38708I$	0
$u = 0.811900 - 0.775479I$ $a = -1.206090 + 0.072648I$ $b = 0.416947 - 0.445355I$	$4.85281 + 0.38708I$	0
$u = -0.193615 + 1.121270I$ $a = 0.76073 + 1.80584I$ $b = -0.50338 + 1.40284I$	$-2.88060 - 8.87825I$	0
$u = -0.193615 - 1.121270I$ $a = 0.76073 - 1.80584I$ $b = -0.50338 - 1.40284I$	$-2.88060 + 8.87825I$	0
$u = -0.491392 + 1.033550I$ $a = 0.487519 + 1.001310I$ $b = -0.126717 + 1.022770I$	$-1.94981 - 3.50251I$	0
$u = -0.491392 - 1.033550I$ $a = 0.487519 - 1.001310I$ $b = -0.126717 - 1.022770I$	$-1.94981 + 3.50251I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.740943 + 0.874063I$ $a = 1.87255 + 0.82263I$ $b = -1.074740 + 0.047853I$	$4.66247 - 2.81474I$	0
$u = -0.740943 - 0.874063I$ $a = 1.87255 - 0.82263I$ $b = -1.074740 - 0.047853I$	$4.66247 + 2.81474I$	0
$u = 0.866327 + 0.751351I$ $a = 1.39239 - 0.33135I$ $b = -1.227950 + 0.228420I$	$9.59400 - 2.64881I$	0
$u = 0.866327 - 0.751351I$ $a = 1.39239 + 0.33135I$ $b = -1.227950 - 0.228420I$	$9.59400 + 2.64881I$	0
$u = -0.446047 + 1.065130I$ $a = -0.990242 - 0.647003I$ $b = -0.466356 - 1.245930I$	$-1.36538 + 1.65817I$	0
$u = -0.446047 - 1.065130I$ $a = -0.990242 + 0.647003I$ $b = -0.466356 + 1.245930I$	$-1.36538 - 1.65817I$	0
$u = 0.838512 + 0.820293I$ $a = 1.45343 + 0.32563I$ $b = -0.784520 - 1.117280I$	$6.92919 + 4.19000I$	0
$u = 0.838512 - 0.820293I$ $a = 1.45343 - 0.32563I$ $b = -0.784520 + 1.117280I$	$6.92919 - 4.19000I$	0
$u = -0.696514 + 0.949067I$ $a = -2.10523 + 0.43360I$ $b = 0.084369 - 0.956151I$	$-0.66167 - 3.18112I$	0
$u = -0.696514 - 0.949067I$ $a = -2.10523 - 0.43360I$ $b = 0.084369 + 0.956151I$	$-0.66167 + 3.18112I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.728645 + 0.950887I$ $a = 2.59637 - 0.18053I$ $b = -0.54347 + 1.35036I$	$0.34590 - 8.55449I$	0
$u = -0.728645 - 0.950887I$ $a = 2.59637 + 0.18053I$ $b = -0.54347 - 1.35036I$	$0.34590 + 8.55449I$	0
$u = -0.760261 + 0.159745I$ $a = 0.938749 - 0.389340I$ $b = -0.56323 + 1.31677I$	$1.40736 - 5.86221I$	$11.56645 + 5.83230I$
$u = -0.760261 - 0.159745I$ $a = 0.938749 + 0.389340I$ $b = -0.56323 - 1.31677I$	$1.40736 + 5.86221I$	$11.56645 - 5.83230I$
$u = 0.752971 + 0.970116I$ $a = -0.630063 + 0.503155I$ $b = 0.456679 - 0.367835I$	$4.25170 + 6.26267I$	0
$u = 0.752971 - 0.970116I$ $a = -0.630063 - 0.503155I$ $b = 0.456679 + 0.367835I$	$4.25170 - 6.26267I$	0
$u = 0.789356 + 0.948317I$ $a = 0.026334 - 1.083390I$ $b = -0.815193 + 1.043280I$	$6.52873 + 1.87763I$	0
$u = 0.789356 - 0.948317I$ $a = 0.026334 + 1.083390I$ $b = -0.815193 - 1.043280I$	$6.52873 - 1.87763I$	0
$u = -0.744263$ $a = 1.16786$ $b = -1.09986$	5.44766	16.7720
$u = 0.741510 + 1.026060I$ $a = -2.01086 + 0.29598I$ $b = 0.288482 + 1.092220I$	$2.12433 + 9.28782I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.741510 - 1.026060I$ $a = -2.01086 - 0.29598I$ $b = 0.288482 - 1.092220I$	$2.12433 - 9.28782I$	0
$u = 0.774379 + 1.004960I$ $a = 1.35473 - 1.13843I$ $b = -1.218840 - 0.287269I$	$8.80808 + 8.74834I$	0
$u = 0.774379 - 1.004960I$ $a = 1.35473 + 1.13843I$ $b = -1.218840 + 0.287269I$	$8.80808 - 8.74834I$	0
$u = 0.749728 + 1.037360I$ $a = 2.34145 - 0.53630I$ $b = -0.56778 - 1.49568I$	$3.3199 + 15.1181I$	0
$u = 0.749728 - 1.037360I$ $a = 2.34145 + 0.53630I$ $b = -0.56778 + 1.49568I$	$3.3199 - 15.1181I$	0
$u = -0.675568 + 0.188318I$ $a = -0.786334 + 0.175025I$ $b = 0.053146 - 0.874363I$	$0.358267 - 0.639742I$	$9.73626 + 0.89260I$
$u = -0.675568 - 0.188318I$ $a = -0.786334 - 0.175025I$ $b = 0.053146 + 0.874363I$	$0.358267 + 0.639742I$	$9.73626 - 0.89260I$
$u = -0.017068 + 0.625651I$ $a = 0.059805 - 1.358870I$ $b = -0.665979 - 0.287190I$	$0.589690 + 0.350421I$	$8.57728 - 0.80469I$
$u = -0.017068 - 0.625651I$ $a = 0.059805 + 1.358870I$ $b = -0.665979 + 0.287190I$	$0.589690 - 0.350421I$	$8.57728 + 0.80469I$
$u = 0.361194 + 0.064869I$ $a = -0.06161 - 2.33790I$ $b = -0.267132 + 1.196310I$	$-2.33982 - 2.66219I$	$4.81398 + 3.49490I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.361194 - 0.064869I$ $a = -0.06161 + 2.33790I$ $b = -0.267132 - 1.196310I$	$-2.33982 + 2.66219I$	$4.81398 - 3.49490I$
$u = -0.246452$ $a = -1.59617$ $b = -0.280872$	0.790964	12.7580

II. $I_2^u = \langle -au + b - a,\ a^3 + a^2u - 2au - 2a + 1,\ u^2 + u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 6a^2u + a^2 - 4au - 5a + u + 14$

(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_7	u^6
c_4	$(u^2-u+1)^3$
c_6	$(u^3-u^2+1)^2$
c_8, c_{11}	$(u^3-u^2+2u-1)^2$
c_9	$(u^3+u^2+2u+1)^2$
c_{10}	$(u^3+u^2-1)^2$

(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_7	y^6
c_6, c_{10}	$(y^3 - y^2 + 2y - 1)^2$
c_8, c_9, c_{11}	$(y^3 + 3y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -1.024480 - 0.839835I$ $b = 0.215080 - 1.307140I$	$-3.02413 - 4.85801I$	$4.03424 + 5.28153I$
$u = -0.500000 + 0.866025I$ $a = 1.239560 + 0.467306I$ $b = 0.215080 + 1.307140I$	$-3.02413 + 0.79824I$	$2.74410 - 0.29766I$
$u = -0.500000 + 0.866025I$ $a = 0.284920 - 0.493496I$ $b = 0.569840$	$1.11345 - 2.02988I$	$12.72167 + 1.07831I$
$u = -0.500000 - 0.866025I$ $a = -1.024480 + 0.839835I$ $b = 0.215080 + 1.307140I$	$-3.02413 + 4.85801I$	$4.03424 - 5.28153I$
$u = -0.500000 - 0.866025I$ $a = 1.239560 - 0.467306I$ $b = 0.215080 - 1.307140I$	$-3.02413 - 0.79824I$	$2.74410 + 0.29766I$
$u = -0.500000 - 0.866025I$ $a = 0.284920 + 0.493496I$ $b = 0.569840$	$1.11345 + 2.02988I$	$12.72167 - 1.07831I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^3)(u^{62}+4u^{61}+\cdots-u+1)$
c_2, c_5	$((u^2+u+1)^3)(u^{62}+20u^{61}+\cdots-17u+1)$
c_3, c_7	$u^6(u^{62}-u^{61}+\cdots+224u-64)$
c_4	$((u^2-u+1)^3)(u^{62}+4u^{61}+\cdots-u+1)$
c_6	$((u^3-u^2+1)^2)(u^{62}-3u^{61}+\cdots+2u-1)$
c_8	$((u^3-u^2+2u-1)^2)(u^{62}+3u^{61}+\cdots-4452u-1201)$
c_9	$((u^3+u^2+2u+1)^2)(u^{62}-21u^{61}+\cdots-16u+1)$
c_{10}	$((u^3+u^2-1)^2)(u^{62}-3u^{61}+\cdots+2u-1)$
c_{11}	$((u^3-u^2+2u-1)^2)(u^{62}-21u^{61}+\cdots-16u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^3)(y^{62}+20y^{61}+\cdots-17y+1)$
c_2, c_5	$((y^2+y+1)^3)(y^{62}+48y^{61}+\cdots-369y+1)$
c_3, c_7	$y^6(y^{62}-35y^{61}+\cdots-37888y+4096)$
c_6, c_{10}	$((y^3-y^2+2y-1)^2)(y^{62}-21y^{61}+\cdots-16y+1)$
c_8	$((y^3+3y^2+2y-1)^2)(y^{62}-17y^{61}+\cdots-4.19571\times10^7y+1442401)$
c_9, c_{11}	$((y^3+3y^2+2y-1)^2)(y^{62}+43y^{61}+\cdots-16y+1)$