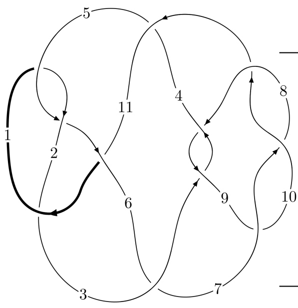
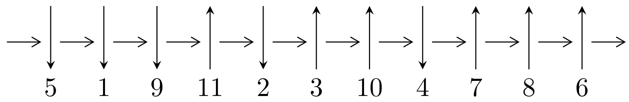
$11a_{82}$ ($K11a_{82}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2u^{52} + 4u^{51} + \cdots + b + 2,\ 2u^{52} + 2u^{51} + \cdots + a + 1,\ u^{53} + 2u^{52} + \cdots + u + 1 \rangle$$
$$I_2^u = \langle u^5 - u^3 + b + u,\ u^4 - u^2 + a + u,\ u^6 - u^5 - u^4 + 2u^3 - u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 59 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.

$\boldsymbol{I_1^u = \langle 2u^{52}+4u^{51}+\cdots+b+2,\ 2u^{52}+2u^{51}+\cdots+a+1,\ u^{53}+2u^{52}+\cdots+u+1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^3\\-u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u^8-u^6+u^4+1\\u^8-2u^6+2u^4\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u^3\\u^5-u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u^8-u^6+u^4+1\\u^{10}-2u^8+3u^6-2u^4+u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-2u^{52}-2u^{51}+\cdots-3u-1\\-2u^{52}-4u^{51}+\cdots-2u-2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^{50}+u^{49}+\cdots+2u^2-3u\\-u^{31}+7u^{29}+\cdots+2u^2-u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u^{52}-u^{51}+\cdots+3u^2-3u\\-u^{52}-2u^{51}+\cdots-u-1\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-u^{52}-u^{51}+\cdots+3u^2-3u\\-u^{52}-2u^{51}+\cdots-u-1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{52}-6u^{51}+\cdots+9u^2-2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{53} + 2u^{52} + \cdots + u + 1$
c_2	$u^{53} + 24u^{52} + \cdots + 5u + 1$
c_3, c_8	$u^{53} - u^{52} + \cdots - 64u - 64$
c_4, c_6	$u^{53} - 2u^{52} + \cdots - 144u + 36$
c_7, c_9, c_{10}	$u^{53} + 7u^{52} + \cdots - 6u - 1$
c_{11}	$u^{53} + 6u^{52} + \cdots - 5u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{53} - 24y^{52} + \cdots + 5y - 1$
c_2	$y^{53} + 12y^{52} + \cdots - 27y - 1$
c_3, c_8	$y^{53} + 39y^{52} + \cdots + 8192y - 4096$
c_4, c_6	$y^{53} - 48y^{52} + \cdots + 10728y - 1296$
c_7, c_9, c_{10}	$y^{53} - 55y^{52} + \cdots + 14y - 1$
c_{11}	$y^{53} + 54y^{51} + \cdots + 45y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.974772+0.241666I$ $a=-0.636930-0.032053I$ $b=-0.591584+0.107088I$	$-1.72966+0.52144I$	$-5.77451-0.49909I$
$u=-0.974772-0.241666I$ $a=-0.636930+0.032053I$ $b=-0.591584-0.107088I$	$-1.72966-0.52144I$	$-5.77451+0.49909I$
$u=\ \ 0.799486+0.620081I$ $a=\ \ 0.938129-0.652027I$ $b=\ \ 0.075820+0.997850I$	$8.47576-2.42942I$	$9.05009+3.27749I$
$u=\ \ 0.799486-0.620081I$ $a=\ \ 0.938129+0.652027I$ $b=\ \ 0.075820-0.997850I$	$8.47576+2.42942I$	$9.05009-3.27749I$
$u=-0.547871+0.781328I$ $a=-0.308221-0.327517I$ $b=-0.62380-2.01056I$	$13.9720+5.2869I$	$9.56069-3.45269I$
$u=-0.547871-0.781328I$ $a=-0.308221+0.327517I$ $b=-0.62380+2.01056I$	$13.9720-5.2869I$	$9.56069+3.45269I$
$u=\ \ 0.972428+0.431066I$ $a=-1.87141+0.12673I$ $b=-0.202339-1.299480I$	$0.32639-1.89843I$	$4.06618+4.82062I$
$u=\ \ 0.972428-0.431066I$ $a=-1.87141-0.12673I$ $b=-0.202339+1.299480I$	$0.32639+1.89843I$	$4.06618-4.82062I$
$u=-1.06609$ $a=\ \ 1.05441$ $b=\ \ 1.12898$	3.31477	2.11820
$u=\ \ 1.068650+0.060095I$ $a=-0.00519-3.08536I$ $b=\ \ 0.33759-1.38633I$	$1.15819+2.52423I$	$1.16527-3.38233I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.068650 - 0.060095I$ $a = -0.00519 + 3.08536I$ $b = 0.33759 + 1.38633I$	$1.15819 - 2.52423I$	$1.16527 + 3.38233I$
$u = -0.436206 + 0.813289I$ $a = -0.314398 + 0.221559I$ $b = 0.30278 + 2.64405I$	$13.3377 - 8.5290I$	$8.89957 + 3.73071I$
$u = -0.436206 - 0.813289I$ $a = -0.314398 - 0.221559I$ $b = 0.30278 - 2.64405I$	$13.3377 + 8.5290I$	$8.89957 - 3.73071I$
$u = 0.480967 + 0.776724I$ $a = 0.649586 - 0.094929I$ $b = -0.658204 + 0.307267I$	$8.70701 + 1.51183I$	$8.31702 - 0.27451I$
$u = 0.480967 - 0.776724I$ $a = 0.649586 + 0.094929I$ $b = -0.658204 - 0.307267I$	$8.70701 - 1.51183I$	$8.31702 + 0.27451I$
$u = -0.500888 + 0.763334I$ $a = 0.092905 + 0.528334I$ $b = 0.80992 + 2.38721I$	$6.63504 + 1.32263I$	$7.88405 - 2.69846I$
$u = -0.500888 - 0.763334I$ $a = 0.092905 - 0.528334I$ $b = 0.80992 - 2.38721I$	$6.63504 - 1.32263I$	$7.88405 + 2.69846I$
$u = -0.458619 + 0.779636I$ $a = 0.215540 - 0.450057I$ $b = -0.54372 - 2.68876I$	$6.39750 - 4.28616I$	$7.23871 + 3.29000I$
$u = -0.458619 - 0.779636I$ $a = 0.215540 + 0.450057I$ $b = -0.54372 + 2.68876I$	$6.39750 + 4.28616I$	$7.23871 - 3.29000I$
$u = -1.038310 + 0.379912I$ $a = 0.000675 + 1.082270I$ $b = 0.397647 + 0.928057I$	$-2.65480 + 1.42970I$	$-5.16065 - 0.45006I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.038310 - 0.379912I$ $a = 0.000675 - 1.082270I$ $b = 0.397647 - 0.928057I$	$-2.65480 - 1.42970I$	$-5.16065 + 0.45006I$
$u = -1.015080 + 0.482408I$ $a = -0.90550 - 1.83401I$ $b = -1.37700 - 0.93578I$	$0.80550 + 3.99450I$	$2.19146 - 3.84882I$
$u = -1.015080 - 0.482408I$ $a = -0.90550 + 1.83401I$ $b = -1.37700 + 0.93578I$	$0.80550 - 3.99450I$	$2.19146 + 3.84882I$
$u = 1.139850 + 0.088394I$ $a = 0.10640 + 3.03961I$ $b = -0.47640 + 1.78432I$	$7.92687 + 6.35005I$	$3.13792 - 3.33110I$
$u = 1.139850 - 0.088394I$ $a = 0.10640 - 3.03961I$ $b = -0.47640 - 1.78432I$	$7.92687 - 6.35005I$	$3.13792 + 3.33110I$
$u = 1.063420 + 0.475788I$ $a = 1.062240 + 0.635757I$ $b = -0.372939 + 1.042010I$	$-1.98458 - 5.32256I$	$0. + 8.22615I$
$u = 1.063420 - 0.475788I$ $a = 1.062240 - 0.635757I$ $b = -0.372939 - 1.042010I$	$-1.98458 + 5.32256I$	$0. - 8.22615I$
$u = -1.125350 + 0.320255I$ $a = 0.763783 - 0.874919I$ $b = 0.417595 - 1.180340I$	$1.92863 - 0.10640I$	0
$u = -1.125350 - 0.320255I$ $a = 0.763783 + 0.874919I$ $b = 0.417595 + 1.180340I$	$1.92863 + 0.10640I$	0
$u = 0.447001 + 0.697020I$ $a = -0.361064 + 0.077633I$ $b = 0.313493 - 0.141443I$	$2.42469 + 1.08462I$	$0.919907 - 0.841939I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.447001 - 0.697020I$ $a = -0.361064 - 0.077633I$ $b = 0.313493 + 0.141443I$	$2.42469 - 1.08462I$	$0.919907 + 0.841939I$
$u = 0.721542 + 0.368379I$ $a = -0.85402 + 1.37597I$ $b = -0.313018 - 0.601468I$	$1.12660 - 1.52721I$	$6.78225 + 4.43587I$
$u = 0.721542 - 0.368379I$ $a = -0.85402 - 1.37597I$ $b = -0.313018 + 0.601468I$	$1.12660 + 1.52721I$	$6.78225 - 4.43587I$
$u = 1.071560 + 0.575084I$ $a = -0.297096 + 0.333184I$ $b = -0.378472 - 0.297843I$	$0.58719 - 5.99085I$	0
$u = 1.071560 - 0.575084I$ $a = -0.297096 - 0.333184I$ $b = -0.378472 + 0.297843I$	$0.58719 + 5.99085I$	0
$u = -1.041330 + 0.643287I$ $a = 2.79132 - 0.19865I$ $b = 0.96495 - 1.60940I$	$12.49880 + 0.07857I$	0
$u = -1.041330 - 0.643287I$ $a = 2.79132 + 0.19865I$ $b = 0.96495 + 1.60940I$	$12.49880 - 0.07857I$	0
$u = -1.062540 + 0.617182I$ $a = -3.41729 + 0.35106I$ $b = -1.39517 + 2.15411I$	$4.96232 + 3.90423I$	0
$u = -1.062540 - 0.617182I$ $a = -3.41729 - 0.35106I$ $b = -1.39517 - 2.15411I$	$4.96232 - 3.90423I$	0
$u = 1.124890 + 0.501254I$ $a = -0.505347 - 0.993245I$ $b = 0.856758 - 0.767375I$	$3.12807 - 7.84635I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.124890 - 0.501254I$ $a = -0.505347 + 0.993245I$ $b = 0.856758 + 0.767375I$	$3.12807 + 7.84635I$	0
$u = 1.076360 + 0.618201I$ $a = 0.492452 - 0.622900I$ $b = 0.734818 + 0.565386I$	$6.93298 - 6.77646I$	0
$u = 1.076360 - 0.618201I$ $a = 0.492452 + 0.622900I$ $b = 0.734818 - 0.565386I$	$6.93298 + 6.77646I$	0
$u = -1.087340 + 0.612889I$ $a = 3.49978 - 1.02104I$ $b = 1.10282 - 2.74374I$	$4.52609 + 9.53770I$	0
$u = -1.087340 - 0.612889I$ $a = 3.49978 + 1.02104I$ $b = 1.10282 + 2.74374I$	$4.52609 - 9.53770I$	0
$u = -1.107260 + 0.619290I$ $a = -3.12658 + 1.31694I$ $b = -0.67475 + 2.83005I$	$11.3318 + 13.8883I$	0
$u = -1.107260 - 0.619290I$ $a = -3.12658 - 1.31694I$ $b = -0.67475 - 2.83005I$	$11.3318 - 13.8883I$	0
$u = 0.193784 + 0.702298I$ $a = 0.687326 + 0.512147I$ $b = -0.466485 - 0.753669I$	$5.78851 + 3.34050I$	$7.33924 - 3.06497I$
$u = 0.193784 - 0.702298I$ $a = 0.687326 - 0.512147I$ $b = -0.466485 + 0.753669I$	$5.78851 - 3.34050I$	$7.33924 + 3.06497I$
$u = -0.435442 + 0.365869I$ $a = 1.37200 + 0.49921I$ $b = 1.123540 - 0.275872I$	$2.39706 - 0.15379I$	$3.69002 - 1.57866I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.435442-0.365869I$ $a=\ \ 1.37200-0.49921I$ $b=\ \ 1.123540+0.275872I$	$2.39706+0.15379I$	$3.69002+1.57866I$
$u=\ \ 0.204119+0.487719I$ $a=-0.596303-0.904911I$ $b=\ \ 0.071665+0.625933I$	$0.239475+1.389700I$	$2.08792-5.18976I$
$u=\ \ 0.204119-0.487719I$ $a=-0.596303+0.904911I$ $b=\ \ 0.071665-0.625933I$	$0.239475-1.389700I$	$2.08792+5.18976I$

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

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^3 \\ -u^5 + u^3 - u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^4 + u^2 - u \\ -u^5 + u^3 - u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^4 + u^2 - u \\ -u^5 + u^3 - u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^4 + u^3 + u^2 - u \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^4 + u^3 + u^2 - u \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_6	$y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1$
c_2, c_{11}	$y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1$
c_3, c_8	y^6
c_7, c_9, c_{10}	$(y-1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.002190 + 0.295542I$ $a = 1.42918 + 0.19856I$ $b = 0.428243 - 0.664531I$	$-0.245672 + 0.924305I$	$-0.635956 + 0.093695I$
$u = -1.002190 - 0.295542I$ $a = 1.42918 - 0.19856I$ $b = 0.428243 + 0.664531I$	$-0.245672 - 0.924305I$	$-0.635956 - 0.093695I$
$u = 0.428243 + 0.664531I$ $a = -0.429179 + 0.198557I$ $b = -1.002190 - 0.295542I$	$3.53554 + 0.92430I$	$9.40317 - 0.69886I$
$u = 0.428243 - 0.664531I$ $a = -0.429179 - 0.198557I$ $b = -1.002190 + 0.295542I$	$3.53554 - 0.92430I$	$9.40317 + 0.69886I$
$u = 1.073950 + 0.558752I$ $a = 0.50000 - 1.37764I$ $b = 1.073950 - 0.558752I$	$1.64493 - 5.69302I$	$5.23279 + 4.86918I$
$u = 1.073950 - 0.558752I$ $a = 0.50000 + 1.37764I$ $b = 1.073950 + 0.558752I$	$1.64493 + 5.69302I$	$5.23279 - 4.86918I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^6+u^5-u^4-2u^3+u+1)(u^{53}+2u^{52}+\cdots+u+1)$
c_2	$(u^6+3u^5+5u^4+4u^3+2u^2+u+1)(u^{53}+24u^{52}+\cdots+5u+1)$
c_3, c_8	$u^6(u^{53}-u^{52}+\cdots-64u-64)$
c_4, c_6	$(u^6+u^5-u^4-2u^3+u+1)(u^{53}-2u^{52}+\cdots-144u+36)$
c_5	$(u^6-u^5-u^4+2u^3-u+1)(u^{53}+2u^{52}+\cdots+u+1)$
c_7	$((u+1)^6)(u^{53}+7u^{52}+\cdots-6u-1)$
c_9, c_{10}	$((u-1)^6)(u^{53}+7u^{52}+\cdots-6u-1)$
c_{11}	$(u^6+3u^5+5u^4+4u^3+2u^2+u+1)(u^{53}+6u^{52}+\cdots-5u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^6-3y^5+5y^4-4y^3+2y^2-y+1)(y^{53}-24y^{52}+\cdots+5y-1)$
c_2	$(y^6+y^5+5y^4+6y^2+3y+1)(y^{53}+12y^{52}+\cdots-27y-1)$
c_3, c_8	$y^6(y^{53}+39y^{52}+\cdots+8192y-4096)$
c_4, c_6	$(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $\cdot(y^{53}-48y^{52}+\cdots+10728y-1296)$
c_7, c_9, c_{10}	$((y-1)^6)(y^{53}-55y^{52}+\cdots+14y-1)$
c_{11}	$(y^6+y^5+5y^4+6y^2+3y+1)(y^{53}+54y^{51}+\cdots+45y-1)$