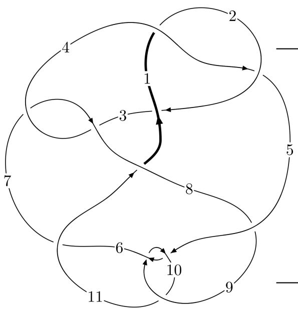
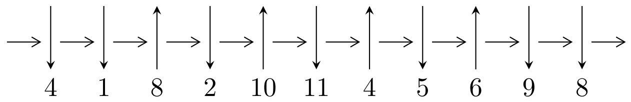
$11n_{52}$ ($K11n_{52}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I^u_1 = \langle -u^{32} - u^{31} + \cdots + b + u,\ -u^{32} - u^{31} + \cdots + a - 1,\ u^{34} + 2u^{33} + \cdots - 2u - 1\rangle$$
$$I^u_2 = \langle b + 1,\ -u^3 + u^2 + a - u + 2,\ u^5 - u^4 + 2u^3 - u^2 + u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 39 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.

$$\boldsymbol{I_1^u = \langle -u^{32}-u^{31}+\cdots+b+u,\ -u^{32}-u^{31}+\cdots+a-1,\ u^{34}+2u^{33}+\cdots-2u-1\rangle}$$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{32}+u^{31}+\cdots-5u^3+1 \\ u^{32}+u^{31}+\cdots-u^2-u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -2u^{32}-2u^{31}+\cdots+u^2+u \\ -u^{32}-u^{31}+\cdots+u^2+2u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{11}-2u^9-2u^7-u^3 \\ -u^{11}-3u^9-4u^7-u^5+u^3+u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 4u^{32}+4u^{31}+\cdots-3u-1 \\ 2u^{32}+u^{31}+\cdots-u^2-3u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -u^3 \\ u^5+u^3+u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^3 \\ u^3+u \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{33}-11u^{32}-46u^{31}-97u^{30}-238u^{29}-421u^{28}-758u^{27}-1154u^{26}-1651u^{25}-2191u^{24}-2586u^{23}-2978u^{22}-2933u^{21}-2856u^{20}-2304u^{19}-1728u^{18}-973u^{17}-263u^{16}+258u^{15}+646u^{14}+764u^{13}+710u^{12}+560u^{11}+314u^{10}+160u^9+16u^8-52u^7-64u^6-51u^5-4u^4+16u^3+18u^2+15u+3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{34} - 6u^{33} + \cdots + 4u - 1$
c_2	$u^{34} + 10u^{33} + \cdots + 2u^2 + 1$
c_3, c_7	$u^{34} - u^{33} + \cdots + 32u + 32$
c_5, c_9	$u^{34} - 2u^{33} + \cdots + 2u - 1$
c_6, c_8	$u^{34} + 2u^{33} + \cdots - 58u - 17$
c_{10}	$u^{34} + 18u^{33} + \cdots + 2u + 1$
c_{11}	$u^{34} - 2u^{33} + \cdots + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{34} - 10y^{33} + \cdots + 2y^2 + 1$
c_2	$y^{34} + 34y^{33} + \cdots + 4y + 1$
c_3, c_7	$y^{34} - 33y^{33} + \cdots - 11776y + 1024$
c_5, c_9	$y^{34} + 18y^{33} + \cdots + 2y + 1$
c_6, c_8	$y^{34} - 22y^{33} + \cdots + 682y + 289$
c_{10}	$y^{34} - 2y^{33} + \cdots - 18y + 1$
c_{11}	$y^{34} + 38y^{33} + \cdots + 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.392064 + 0.911772I$ $a = -1.220400 + 0.149546I$ $b = -0.151137 - 0.378084I$	$-0.33123 - 1.99737I$	$-1.04171 + 3.94659I$
$u = -0.392064 - 0.911772I$ $a = -1.220400 - 0.149546I$ $b = -0.151137 + 0.378084I$	$-0.33123 + 1.99737I$	$-1.04171 - 3.94659I$
$u = 0.643857 + 0.740919I$ $a = 0.444510 + 0.058747I$ $b = -0.919309 - 0.963610I$	$7.32303 - 1.01150I$	$0.462803 - 0.538404I$
$u = 0.643857 - 0.740919I$ $a = 0.444510 - 0.058747I$ $b = -0.919309 + 0.963610I$	$7.32303 + 1.01150I$	$0.462803 + 0.538404I$
$u = 0.631061 + 0.814143I$ $a = -1.09866 - 1.38992I$ $b = -0.986984 + 0.934448I$	$7.11131 + 5.93371I$	$-0.19300 - 5.69756I$
$u = 0.631061 - 0.814143I$ $a = -1.09866 + 1.38992I$ $b = -0.986984 - 0.934448I$	$7.11131 - 5.93371I$	$-0.19300 + 5.69756I$
$u = -0.820098 + 0.217356I$ $a = -1.021230 - 0.783883I$ $b = -1.088070 + 0.833628I$	$3.98565 + 7.54944I$	$-1.73478 - 4.55602I$
$u = -0.820098 - 0.217356I$ $a = -1.021230 + 0.783883I$ $b = -1.088070 - 0.833628I$	$3.98565 - 7.54944I$	$-1.73478 + 4.55602I$
$u = -0.775445 + 0.276843I$ $a = -0.000113 + 0.147223I$ $b = -0.749373 - 0.980750I$	$5.05465 + 0.88184I$	$-0.0341976 + 0.1167760I$
$u = -0.775445 - 0.276843I$ $a = -0.000113 - 0.147223I$ $b = -0.749373 + 0.980750I$	$5.05465 - 0.88184I$	$-0.0341976 - 0.1167760I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.255241+1.154760I$ $a=-1.63194-0.61364I$ $b=-0.719802-0.838712I$	$0.59034-2.20193I$	$-5.39762+2.89255I$
$u=-0.255241-1.154760I$ $a=-1.63194+0.61364I$ $b=-0.719802+0.838712I$	$0.59034+2.20193I$	$-5.39762-2.89255I$
$u=\ 0.401589+1.121620I$ $a=\ 0.740490+0.229483I$ $b=\ 0.867707+0.523486I$	$-4.35229+1.60461I$	$-8.26502-1.09622I$
$u=\ 0.401589-1.121620I$ $a=\ 0.740490-0.229483I$ $b=\ 0.867707-0.523486I$	$-4.35229-1.60461I$	$-8.26502+1.09622I$
$u=\ 0.803313$ $a=-1.12207$ $b=-0.598522$	-3.18504	0.914630
$u=-0.421626+0.667896I$ $a=-0.457995-0.776702I$ $b=\ 0.257061+0.435953I$	$0.37642-1.53920I$	$0.52977+5.14051I$
$u=-0.421626-0.667896I$ $a=-0.457995+0.776702I$ $b=\ 0.257061-0.435953I$	$0.37642+1.53920I$	$0.52977-5.14051I$
$u=-0.449017+1.136970I$ $a=\ 2.83048-1.35162I$ $b=\ 1.307530+0.065436I$	$-5.63834-3.94702I$	$-6.39479+3.36113I$
$u=-0.449017-1.136970I$ $a=\ 2.83048+1.35162I$ $b=\ 1.307530-0.065436I$	$-5.63834+3.94702I$	$-6.39479-3.36113I$
$u=\ 0.490186+1.136270I$ $a=\ 1.31533+1.01208I$ $b=\ 0.706452-0.661902I$	$-3.70744+6.19607I$	$-6.22304-6.67245I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.490186 - 1.136270I$ $a = 1.31533 - 1.01208I$ $b = 0.706452 + 0.661902I$	$-3.70744 - 6.19607I$	$-6.22304 + 6.67245I$
$u = -0.316626 + 1.211300I$ $a = -1.82873 + 0.86114I$ $b = -1.058350 + 0.773720I$	$-0.44863 + 3.88868I$	$-6.63703 - 2.26154I$
$u = -0.316626 - 1.211300I$ $a = -1.82873 - 0.86114I$ $b = -1.058350 - 0.773720I$	$-0.44863 - 3.88868I$	$-6.63703 + 2.26154I$
$u = -0.548880 + 1.145350I$ $a = 0.412467 + 1.244140I$ $b = -0.692953 + 1.024120I$	$2.49823 - 5.83735I$	$-3.10039 + 3.72465I$
$u = -0.548880 - 1.145350I$ $a = 0.412467 - 1.244140I$ $b = -0.692953 - 1.024120I$	$2.49823 + 5.83735I$	$-3.10039 - 3.72465I$
$u = 0.456179 + 1.214870I$ $a = -1.73132 - 0.47368I$ $b = -0.649218 + 0.049959I$	$-6.76337 + 4.50518I$	$-1.87945 - 4.07859I$
$u = 0.456179 - 1.214870I$ $a = -1.73132 + 0.47368I$ $b = -0.649218 - 0.049959I$	$-6.76337 - 4.50518I$	$-1.87945 + 4.07859I$
$u = -0.544284 + 1.179770I$ $a = -2.56097 + 1.10413I$ $b = -1.127080 - 0.824983I$	$1.13195 - 12.58770I$	$-4.92167 + 7.87699I$
$u = -0.544284 - 1.179770I$ $a = -2.56097 - 1.10413I$ $b = -1.127080 + 0.824983I$	$1.13195 + 12.58770I$	$-4.92167 - 7.87699I$
$u = 0.157297 + 0.676103I$ $a = 1.45465 + 1.84751I$ $b = 1.034700 - 0.173788I$	$-2.09473 + 0.78471I$	$-6.87662 + 2.65408I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.157297 - 0.676103I$ $a = 1.45465 - 1.84751I$ $b = 1.034700 + 0.173788I$	$-2.09473 - 0.78471I$	$-6.87662 - 2.65408I$
$u = 0.637571 + 0.171045I$ $a = -0.049058 - 1.073020I$ $b = 0.658221 + 0.529258I$	$-0.99883 - 1.83078I$	$-2.95289 + 3.76618I$
$u = 0.637571 - 0.171045I$ $a = -0.049058 + 1.073020I$ $b = 0.658221 - 0.529258I$	$-0.99883 + 1.83078I$	$-2.95289 - 3.76618I$
$u = -0.592232$ $a = 1.92705$ $b = 1.21971$	-2.64346	-1.59530

II. $\boldsymbol{I^u_2 = \langle b+1,\ -u^3+u^2+a-u+2,\ u^5-u^4+2u^3-u^2+u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^4+7u^3-8u^2+6u-12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^5$
c_3, c_7	y^5
c_5, c_9	$y^5+3y^4+4y^3+y^2-y-1$
c_6, c_8, c_{11}	$y^5-5y^4+8y^3-3y^2-y-1$
c_{10}	$y^5-y^4+8y^3-3y^2+3y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.339110 + 0.822375I$ $a = -1.12878 + 1.10766I$ $b = -1.00000$	$-1.97403 - 1.53058I$	$-5.00899 + 6.23673I$
$u = -0.339110 - 0.822375I$ $a = -1.12878 - 1.10766I$ $b = -1.00000$	$-1.97403 + 1.53058I$	$-5.00899 - 6.23673I$
$u = 0.766826$ $a = -1.37029$ $b = -1.00000$	-4.04602	-9.63840
$u = 0.455697 + 1.200150I$ $a = -2.18608 - 0.87465I$ $b = -1.00000$	$-7.51750 + 4.40083I$	$-13.17182 - 3.02310I$
$u = 0.455697 - 1.200150I$ $a = -2.18608 + 0.87465I$ $b = -1.00000$	$-7.51750 - 4.40083I$	$-13.17182 + 3.02310I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{34}-6u^{33}+\cdots+4u-1)$
c_2	$((u+1)^5)(u^{34}+10u^{33}+\cdots+2u^2+1)$
c_3, c_7	$u^5(u^{34}-u^{33}+\cdots+32u+32)$
c_4	$((u+1)^5)(u^{34}-6u^{33}+\cdots+4u-1)$
c_5	$(u^5-u^4+2u^3-u^2+u-1)(u^{34}-2u^{33}+\cdots+2u-1)$
c_6	$(u^5+u^4-2u^3-u^2+u-1)(u^{34}+2u^{33}+\cdots-58u-17)$
c_8	$(u^5-u^4-2u^3+u^2+u+1)(u^{34}+2u^{33}+\cdots-58u-17)$
c_9	$(u^5+u^4+2u^3+u^2+u+1)(u^{34}-2u^{33}+\cdots+2u-1)$
c_{10}	$(u^5+3u^4+4u^3+u^2-u-1)(u^{34}+18u^{33}+\cdots+2u+1)$
c_{11}	$(u^5-u^4-2u^3+u^2+u+1)(u^{34}-2u^{33}+\cdots+2u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^5)(y^{34}-10y^{33}+\cdots+2y^2+1)$
c_2	$((y-1)^5)(y^{34}+34y^{33}+\cdots+4y+1)$
c_3, c_7	$y^5(y^{34}-33y^{33}+\cdots-11776y+1024)$
c_5, c_9	$(y^5+3y^4+4y^3+y^2-y-1)(y^{34}+18y^{33}+\cdots+2y+1)$
c_6, c_8	$(y^5-5y^4+8y^3-3y^2-y-1)(y^{34}-22y^{33}+\cdots+682y+289)$
c_{10}	$(y^5-y^4+8y^3-3y^2+3y-1)(y^{34}-2y^{33}+\cdots-18y+1)$
c_{11}	$(y^5-5y^4+8y^3-3y^2-y-1)(y^{34}+38y^{33}+\cdots+2y+1)$