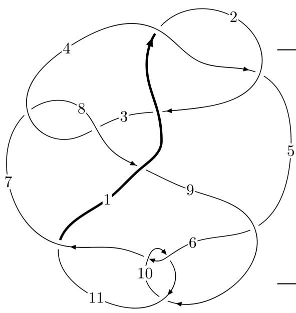
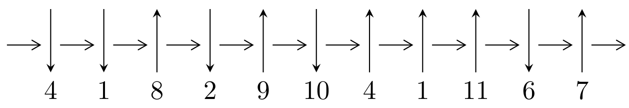
$11n_{53}$ ($K11n_{53}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{22} + 2u^{21} + \cdots + b + 1,\ u^{21} - u^{20} + \cdots + 2u^3 + a,\ u^{23} - 2u^{22} + \cdots - 2u + 1 \rangle$$
$$I_2^u = \langle b,\ -u^2 + a - u - 1,\ u^5 + u^4 + 2u^3 + u^2 + u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 28 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.

$$\boldsymbol{I^u_1 = \langle -u^{22}+2u^{21}+\cdots+b+1,\ u^{21}-u^{20}+\cdots+2u^3+a,\ u^{23}-2u^{22}+\cdots-2u+1\rangle}$$

(i) Arc colorings

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

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

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

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

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

$$a_4 = \begin{pmatrix}-u^{21}+u^{20}+\cdots-u^4-2u^3\\u^{22}-2u^{21}+\cdots+2u-1\end{pmatrix}$$

$$a_2 = \begin{pmatrix}u^{18}-u^{17}+\cdots-u^2+u\\-u^8-2u^6-2u^4\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-u^{21}+u^{20}+\cdots+2u-1\\u^{22}-2u^{21}+\cdots+u-1\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}-u^6-u^4+1\\u^8+2u^6+2u^4\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-u^{11}-2u^9-2u^7-u^3\\-u^{11}-3u^9-4u^7-u^5+u^3+u\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-u^{11}-2u^9-2u^7-u^3\\-u^{11}-3u^9-4u^7-u^5+u^3+u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{22}-9u^{21}+30u^{20}-48u^{19}+96u^{18}-131u^{17}+190u^{16}-224u^{15}+249u^{14}-262u^{13}+237u^{12}-210u^{11}+148u^{10}-93u^9+53u^8-6u^7-14u^6+25u^5-18u^4-10u^2+9u-5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{23} - 6u^{22} + \cdots + 4u - 1$
c_2	$u^{23} + 32u^{22} + \cdots - 16u + 1$
c_3, c_7	$u^{23} - u^{22} + \cdots + 32u - 32$
c_5, c_{11}	$u^{23} - 2u^{22} + \cdots + 30u - 9$
c_6, c_{10}	$u^{23} + 2u^{22} + \cdots - 2u - 1$
c_8	$u^{23} + 24u^{21} + \cdots + 2u - 1$
c_9	$u^{23} - 12u^{22} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{23} - 32y^{22} + \cdots - 16y - 1$
c_2	$y^{23} - 76y^{22} + \cdots + 772y - 1$
c_3, c_7	$y^{23} + 33y^{22} + \cdots + 3584y - 1024$
c_5, c_{11}	$y^{23} - 12y^{22} + \cdots - 162y - 81$
c_6, c_{10}	$y^{23} + 12y^{22} + \cdots - 2y - 1$
c_8	$y^{23} + 48y^{22} + \cdots - 2y - 1$
c_9	$y^{23} + 24y^{21} + \cdots - 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.700458+0.794163I$ $a=-1.45877+0.07887I$ $b=-0.09416-2.13003I$	$-14.1192+2.6463I$	$-3.65714-2.84707I$
$u=-0.700458-0.794163I$ $a=-1.45877-0.07887I$ $b=-0.09416+2.13003I$	$-14.1192-2.6463I$	$-3.65714+2.84707I$
$u=\ \ 0.855800+0.265895I$ $a=-0.795468-0.188526I$ $b=-0.45428-1.93201I$	$-11.07970+5.13429I$	$-2.96602-2.08249I$
$u=\ \ 0.855800-0.265895I$ $a=-0.795468+0.188526I$ $b=-0.45428+1.93201I$	$-11.07970-5.13429I$	$-2.96602+2.08249I$
$u=\ \ 0.366516+1.072630I$ $a=\ \ 0.312367-0.791611I$ $b=-0.215406-0.997383I$	$1.62847-1.16584I$	$3.47504+0.42481I$
$u=\ \ 0.366516-1.072630I$ $a=\ \ 0.312367+0.791611I$ $b=-0.215406+0.997383I$	$1.62847+1.16584I$	$3.47504-0.42481I$
$u=-0.477094+1.041350I$ $a=\ \ 2.43046-1.25941I$ $b=\ \ 1.105500+0.395247I$	$-0.82985+3.19017I$	$0.92409-4.72756I$
$u=-0.477094-1.041350I$ $a=\ \ 2.43046+1.25941I$ $b=\ \ 1.105500-0.395247I$	$-0.82985-3.19017I$	$0.92409+4.72756I$
$u=\ \ 0.270789+0.755843I$ $a=\ \ 0.693663+0.260910I$ $b=\ \ 0.349805-0.349927I$	$0.390924-1.217980I$	$4.26810+5.45735I$
$u=\ \ 0.270789-0.755843I$ $a=\ \ 0.693663-0.260910I$ $b=\ \ 0.349805+0.349927I$	$0.390924+1.217980I$	$4.26810-5.45735I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.514060 + 1.104640I$ $a = -1.31154 + 0.63853I$ $b = 0.143374 + 1.329070I$	$0.55803 - 6.09572I$	$0.93537 + 6.19372I$
$u = 0.514060 - 1.104640I$ $a = -1.31154 - 0.63853I$ $b = 0.143374 - 1.329070I$	$0.55803 + 6.09572I$	$0.93537 - 6.19372I$
$u = -0.455035 + 1.182370I$ $a = -1.061190 + 0.524858I$ $b = -0.608111 - 0.025252I$	$5.15559 + 4.27437I$	$9.78577 - 3.28837I$
$u = -0.455035 - 1.182370I$ $a = -1.061190 - 0.524858I$ $b = -0.608111 + 0.025252I$	$5.15559 - 4.27437I$	$9.78577 + 3.28837I$
$u = 0.269522 + 1.238660I$ $a = 0.24803 + 2.58133I$ $b = 0.34057 + 1.76704I$	$-6.23110 + 1.56382I$	$1.72734 - 0.04821I$
$u = 0.269522 - 1.238660I$ $a = 0.24803 - 2.58133I$ $b = 0.34057 - 1.76704I$	$-6.23110 - 1.56382I$	$1.72734 + 0.04821I$
$u = -0.719779$ $a = 0.526584$ $b = 0.562756$	1.81820	6.35980
$u = 0.573488 + 1.178530I$ $a = 2.84278 - 1.00616I$ $b = 0.57374 - 1.89861I$	$-8.35091 - 10.39480I$	$-0.03516 + 5.66347I$
$u = 0.573488 - 1.178530I$ $a = 2.84278 + 1.00616I$ $b = 0.57374 + 1.89861I$	$-8.35091 + 10.39480I$	$-0.03516 - 5.66347I$
$u = -0.469209 + 0.502755I$ $a = -0.699918 - 0.973698I$ $b = -0.674614 + 0.656598I$	$-2.46377 + 0.78545I$	$-4.30142 - 0.09221I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.469209-0.502755I$ $a=-0.699918+0.973698I$ $b=-0.674614-0.656598I$	$-2.46377-0.78545I$	$-4.30142+0.09221I$
$u=\quad 0.611511+0.287188I$ $a=\quad 0.036277-0.858010I$ $b=-0.247796+1.071450I$	$-1.75612+1.64275I$	$-3.33585-2.40342I$
$u=\quad 0.611511-0.287188I$ $a=\quad 0.036277+0.858010I$ $b=-0.247796-1.071450I$	$-1.75612-1.64275I$	$-3.33585+2.40342I$

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

(i) Arc colorings

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

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

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

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

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

$$a_4 = \begin{pmatrix} u^2 + u + 1 \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^3 + u^2 + u + 1 \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^2 + u + 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^3 \\ -u^4 - u^3 - u^2 - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^3 \\ -u^3 - u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(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, c_8	$u^5 - u^4 - 2u^3 + u^2 + u + 1$
c_6	$u^5 + u^4 + 2u^3 + u^2 + u + 1$
c_9	$u^5 + 3u^4 + 4u^3 + u^2 - u - 1$
c_{10}	$u^5 - u^4 + 2u^3 - u^2 + u - 1$
c_{11}	$u^5 + u^4 - 2u^3 - u^2 + u - 1$

(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_8, c_{11}	$y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1$
c_6, c_{10}	$y^5 + 3y^4 + 4y^3 + y^2 - y - 1$
c_9	$y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.339110 + 0.822375I$ $a = 0.77780 + 1.38013I$ $b = 0$	$-1.31583 - 1.53058I$	$0.02124 + 2.62456I$
$u = 0.339110 - 0.822375I$ $a = 0.77780 - 1.38013I$ $b = 0$	$-1.31583 + 1.53058I$	$0.02124 - 2.62456I$
$u = -0.766826$ $a = 0.821196$ $b = 0$	0.756147	-2.67610
$u = -0.455697 + 1.200150I$ $a = -0.688402 + 0.106340I$ $b = 0$	$4.22763 + 4.40083I$	$0.31681 - 3.97407I$
$u = -0.455697 - 1.200150I$ $a = -0.688402 - 0.106340I$ $b = 0$	$4.22763 - 4.40083I$	$0.31681 + 3.97407I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{23}-6u^{22}+\cdots+4u-1)$
c_2	$((u+1)^5)(u^{23}+32u^{22}+\cdots-16u+1)$
c_3, c_7	$u^5(u^{23}-u^{22}+\cdots+32u-32)$
c_4	$((u+1)^5)(u^{23}-6u^{22}+\cdots+4u-1)$
c_5	$(u^5-u^4-2u^3+u^2+u+1)(u^{23}-2u^{22}+\cdots+30u-9)$
c_6	$(u^5+u^4+2u^3+u^2+u+1)(u^{23}+2u^{22}+\cdots-2u-1)$
c_8	$(u^5-u^4-2u^3+u^2+u+1)(u^{23}+24u^{21}+\cdots+2u-1)$
c_9	$(u^5+3u^4+4u^3+u^2-u-1)(u^{23}-12u^{22}+\cdots-2u+1)$
c_{10}	$(u^5-u^4+2u^3-u^2+u-1)(u^{23}+2u^{22}+\cdots-2u-1)$
c_{11}	$(u^5+u^4-2u^3-u^2+u-1)(u^{23}-2u^{22}+\cdots+30u-9)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^5)(y^{23} - 32y^{22} + \cdots - 16y - 1)$
c_2	$((y-1)^5)(y^{23} - 76y^{22} + \cdots + 772y - 1)$
c_3, c_7	$y^5(y^{23} + 33y^{22} + \cdots + 3584y - 1024)$
c_5, c_{11}	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)(y^{23} - 12y^{22} + \cdots - 162y - 81)$
c_6, c_{10}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)(y^{23} + 12y^{22} + \cdots - 2y - 1)$
c_8	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)(y^{23} + 48y^{22} + \cdots - 2y - 1)$
c_9	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)(y^{23} + 24y^{21} + \cdots - 6y - 1)$