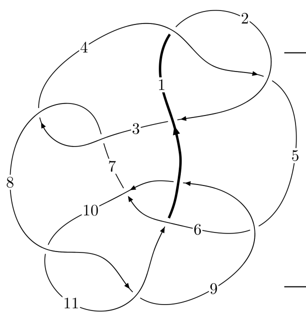
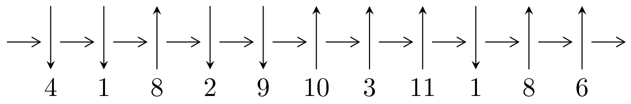
$11n_{34}$ ($K11n_{34}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -3u^{10} + 32u^9 - 129u^8 + 203u^7 + 53u^6 - 484u^5 + 234u^4 + 343u^3 - 48u^2 + 32b - 158u - 11, \\
& -9u^{10} + 101u^9 - 444u^8 + 857u^7 - 238u^6 - 1654u^5 + 1824u^4 + 793u^3 - 1185u^2 + 16a - 713u + 124, \\
& u^{11} - 11u^{10} + 47u^9 - 86u^8 + 12u^7 + 181u^6 - 170u^5 - 107u^4 + 111u^3 + 86u^2 - u + 1\rangle \\
I_2^u = \langle & 3a^5 - 13a^4 + 7a^3 + 17a^2 + 13b + 21a - 7,\ a^6 - 6a^5 + 11a^4 - 4a^3 - a^2 - a + 1,\ u + 1\rangle \\
I_3^u = \langle & b,\ -u^4 + 2u^3 + u^2 + a - 2u - 1,\ u^5 - u^4 - 2u^3 + u^2 + u + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 22 representations.

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[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. $\boldsymbol{I^u_1 = \langle -3u^{10} + 32u^9 + \cdots + 32b - 11,\ -9u^{10} + 101u^9 + \cdots + 16a + 124,\ u^{11} - 11u^{10} + \cdots - u + 1\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 0.562500u^{10} - 6.31250u^9 + \cdots + 44.5625u - 7.75000 \\ \frac{3}{32}u^{10} - u^9 + \cdots + \frac{79}{16}u + \frac{11}{32} \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 0.468750u^{10} - 5.31250u^9 + \cdots + 39.6250u - 8.09375 \\ \frac{3}{32}u^{10} - u^9 + \cdots + \frac{79}{16}u + \frac{11}{32} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.437500u^{10} + 4.31250u^9 + \cdots - 25.5625u - 4.37500 \\ \frac{7}{32}u^{10} - \frac{33}{16}u^9 + \cdots + \frac{31}{8}u - \frac{7}{32} \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -0.218750u^{10} + 2.31250u^9 + \cdots - 25.6250u - 4.53125 \\ -0.0625000u^9 + 0.562500u^8 + \cdots + 3.93750u - 0.0625000 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.218750u^{10} - 2.43750u^9 + \cdots + 16.5000u - 2.46875 \\ \frac{1}{32}u^{10} - \frac{5}{16}u^9 + \cdots + \frac{9}{4}u + \frac{7}{32} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.718750u^{10} - 7.87500u^9 + \cdots + 45.5625u - 11.2813 \\ -0.0937500u^{10} + 0.812500u^9 + \cdots + 7.87500u + 0.593750 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.312500u^{10} - 3.06250u^9 + \cdots + 21.5625u + 4.50000 \\ -0.593750u^{10} + 5.56250u^9 + \cdots - 4.12500u + 0.343750 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.312500u^{10} - 3.06250u^9 + \cdots + 21.5625u + 4.50000 \\ -0.593750u^{10} + 5.56250u^9 + \cdots - 4.12500u + 0.343750 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{1}{16}u^{10} - \frac{13}{16}u^9 + \frac{35}{8}u^8 - \frac{193}{16}u^7 + \frac{119}{8}u^6 + \frac{19}{4}u^5 - \frac{275}{8}u^4 + \frac{389}{16}u^3 + \frac{223}{16}u^2 - \frac{147}{16}u - \frac{39}{8}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{11} - 10u^{10} + \cdots + 10u - 1$
c_2	$u^{11} + 24u^{10} + \cdots + 182u + 1$
c_3, c_7	$u^{11} + u^{10} + \cdots + 96u - 32$
c_5	$u^{11} + 13u^{9} + \cdots + 66u - 101$
c_6	$u^{11} - 2u^{10} + \cdots + 136u - 1357$
c_8, c_{10}	$u^{11} + 11u^{10} + \cdots - u - 1$
c_9	$u^{11} - u^{10} + \cdots - 192u - 64$
c_{11}	$u^{11} + 2u^{10} + 2u^9 + 6u^7 + 12u^6 + 12u^5 + u^3 + 2u^2 + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{11} - 24y^{10} + \cdots + 182y - 1$
c_2	$y^{11} - 36y^{10} + \cdots + 32578y - 1$
c_3, c_7	$y^{11} + 21y^{10} + \cdots + 7680y - 1024$
c_5	$y^{11} + 26y^{10} + \cdots - 108562y - 10201$
c_6	$y^{11} - 30y^{10} + \cdots - 15893686y - 1841449$
c_8, c_{10}	$y^{11} - 27y^{10} + \cdots - 171y - 1$
c_9	$y^{11} + 27y^{10} + \cdots + 4096y - 4096$
c_{11}	$y^{11} + 16y^9 + 86y^7 + 160y^5 + 25y^3 - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.16062$ $a = -0.487360$ $b = -0.271903$	2.30902	2.53950
$u = -0.570873 + 0.314013I$ $a = -1.11819 + 1.14047I$ $b = -0.204727 + 0.543309I$	$0.69226 - 1.35881I$	$4.43349 + 4.96761I$
$u = -0.570873 - 0.314013I$ $a = -1.11819 - 1.14047I$ $b = -0.204727 - 0.543309I$	$0.69226 + 1.35881I$	$4.43349 - 4.96761I$
$u = 0.0123536 + 0.1046970I$ $a = -7.99180 + 4.91916I$ $b = 0.392173 + 0.533181I$	$-1.88779 - 0.79699I$	$-5.15274 - 0.95060I$
$u = 0.0123536 - 0.1046970I$ $a = -7.99180 - 4.91916I$ $b = 0.392173 - 0.533181I$	$-1.88779 + 0.79699I$	$-5.15274 + 0.95060I$
$u = 1.99230 + 1.10149I$ $a = -0.812502 + 0.545736I$ $b = 2.19746 + 2.02033I$	$-17.0622 + 11.2191I$	$1.86536 - 4.34062I$
$u = 1.99230 - 1.10149I$ $a = -0.812502 - 0.545736I$ $b = 2.19746 - 2.02033I$	$-17.0622 - 11.2191I$	$1.86536 + 4.34062I$
$u = 2.11551 + 1.00650I$ $a = 0.775984 - 0.370969I$ $b = -1.98959 - 2.25555I$	$-17.0176 + 3.4378I$	$1.85943 - 0.49918I$
$u = 2.11551 - 1.00650I$ $a = 0.775984 + 0.370969I$ $b = -1.98959 + 2.25555I$	$-17.0176 - 3.4378I$	$1.85943 + 0.49918I$
$u = 2.53102 + 0.11992I$ $a = -0.109810 - 0.279561I$ $b = 0.24063 + 3.13515I$	$2.86702 + 4.05320I$	$1.72472 - 1.91622I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 2.53102 - 0.11992I$		
$a = -0.109810 + 0.279561I$	$2.86702 - 4.05320I$	$1.72472 + 1.91622I$
$b = 0.24063 - 3.13515I$		

II. $I_2^u = \langle 3a^5-13a^4+7a^3+17a^2+13b+21a-7,\ a^6-6a^5+11a^4-4a^3-a^2-a+1,\ u+1\rangle$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} a \\ -\frac{3}{13}a^5 + a^4 + \cdots - \frac{21}{13}a + \frac{7}{13} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{3}{13}a^5 - a^4 + \cdots + \frac{34}{13}a - \frac{7}{13} \\ -\frac{3}{13}a^5 + a^4 + \cdots - \frac{21}{13}a + \frac{7}{13} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.53846a^5 + 8a^4 + \cdots + 1.23077a + 1.92308 \\ \frac{15}{13}a^5 - 6a^4 + \cdots - \frac{12}{13}a - \frac{9}{13} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1.15385a^5 + 6a^4 + \cdots + 0.923077a + 0.692308 \\ \frac{10}{13}a^5 - 4a^4 + \cdots - \frac{8}{13}a + \frac{7}{13} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2.07692a^5 + 11a^4 + \cdots + 2.46154a + 2.84615 \\ 2.07692a^5 - 11a^4 + \cdots - 2.46154a - 2.84615 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.92308a^5 + 10a^4 + \cdots + 1.53846a + 2.15385 \\ \frac{25}{13}a^5 - 10a^4 + \cdots - \frac{7}{13}a - \frac{28}{13} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.53846a^5 + 8a^4 + \cdots + 1.23077a + 1.92308 \\ \frac{15}{13}a^5 - 6a^4 + \cdots - \frac{12}{13}a - \frac{9}{13} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.53846a^5 + 8a^4 + \cdots + 1.23077a + 1.92308 \\ \frac{15}{13}a^5 - 6a^4 + \cdots - \frac{12}{13}a - \frac{9}{13} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{92}{13}a^5 + 37a^4 - \frac{622}{13}a^3 - \frac{179}{13}a^2 - \frac{20}{13}a + \frac{180}{13}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \ \ 0.658836 + 0.177500I$ $b = -1.073950 - 0.558752I$	$1.64493 + 5.69302I$	$0.29418 - 8.33058I$
$u = -1.00000$ $a = \ \ 0.658836 - 0.177500I$ $b = -1.073950 + 0.558752I$	$1.64493 - 5.69302I$	$0.29418 + 8.33058I$
$u = -1.00000$ $a = -0.346225 + 0.393823I$ $b = \ \ 1.002190 - 0.295542I$	$3.53554 - 0.92430I$	$6.31051 + 0.25702I$
$u = -1.00000$ $a = -0.346225 - 0.393823I$ $b = \ \ 1.002190 + 0.295542I$	$3.53554 + 0.92430I$	$6.31051 - 0.25702I$
$u = -1.00000$ $a = \ \ 2.68739 + 0.76772I$ $b = -0.428243 + 0.664531I$	$-0.245672 + 0.924305I$	$-0.60470 + 5.55069I$
$u = -1.00000$ $a = \ \ 2.68739 - 0.76772I$ $b = -0.428243 - 0.664531I$	$-0.245672 - 0.924305I$	$-0.60470 - 5.55069I$

III. $I_3^u = \langle b,\ -u^4+2u^3+u^2+a-2u-1,\ u^5-u^4-2u^3+u^2+u+1\rangle$

(i) Arc colorings

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

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

$a_4 = \begin{pmatrix} u^4-2u^3-u^2+2u+1 \\ 0 \end{pmatrix}$

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

$a_3 = \begin{pmatrix} u^4-2u^3-u^2+2u+1 \\ 0 \end{pmatrix}$

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

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

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

$a_1 = \begin{pmatrix} u^4-u^2-1 \\ -u^4-u^3+u^2+2u+1 \end{pmatrix}$

$a_2 = \begin{pmatrix} 2u^4-2u^3-2u^2+2u \\ -u^4-u^3+u^2+2u+1 \end{pmatrix}$

$a_5 = \begin{pmatrix} -u^4+u^2+1 \\ u^4+u^3-u^2-2u-1 \end{pmatrix}$

$a_5 = \begin{pmatrix} -u^4+u^2+1 \\ u^4+u^3-u^2-2u-1 \end{pmatrix}$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^4-u^3+2u^2+10u+5$

(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_9	$u^5 + u^4 + 2u^3 + u^2 + u + 1$
c_6, c_8	$u^5 - u^4 - 2u^3 + u^2 + u + 1$
c_{10}	$u^5 + u^4 - 2u^3 - u^2 + u - 1$
c_{11}	$u^5 - 3u^4 + 4u^3 - u^2 - u + 1$

(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_{10}	$y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1$
c_{11}	$y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.21774$ $a = 2.89210$ $b = 0$	0.756147	-9.00270
$u = -0.309916 + 0.549911I$ $a = 0.01014 + 1.59703I$ $b = 0$	$-1.31583 - 1.53058I$	$1.45754 + 4.40323I$
$u = -0.309916 - 0.549911I$ $a = 0.01014 - 1.59703I$ $b = 0$	$-1.31583 + 1.53058I$	$1.45754 - 4.40323I$
$u = 1.41878 + 0.21917I$ $a = 0.043806 - 0.365575I$ $b = 0$	$4.22763 + 4.40083I$	$10.04378 - 5.20937I$
$u = 1.41878 - 0.21917I$ $a = 0.043806 + 0.365575I$ $b = 0$	$4.22763 - 4.40083I$	$10.04378 + 5.20937I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^6+u^5+\cdots+u+1)(u^{11}-10u^{10}+\cdots+10u-1)$
c_2	$(u+1)^5(u^6+3u^5+5u^4+4u^3+2u^2+u+1)$ $\cdot(u^{11}+24u^{10}+\cdots+182u+1)$
c_3	$u^5(u^6-u^5+\cdots-u+1)(u^{11}+u^{10}+\cdots+96u-32)$
c_4	$((u+1)^5)(u^6-u^5+\cdots-u+1)(u^{11}-10u^{10}+\cdots+10u-1)$
c_5	$(u^5+u^4+2u^3+u^2+u+1)(u^6+u^5+2u^4+4u^3+5u^2+3u+1)$ $\cdot(u^{11}+13u^9+\cdots+66u-101)$
c_6	$(u^5-u^4-2u^3+u^2+u+1)(u^6+u^5+2u^4+4u^3+5u^2+3u+1)$ $\cdot(u^{11}-2u^{10}+\cdots+136u-1357)$
c_7	$u^5(u^6+u^5+\cdots+u+1)(u^{11}+u^{10}+\cdots+96u-32)$
c_8	$((u+1)^6)(u^5-u^4+\cdots+u+1)(u^{11}+11u^{10}+\cdots-u-1)$
c_9	$u^6(u^5+u^4+\cdots+u+1)(u^{11}-u^{10}+\cdots-192u-64)$
c_{10}	$((u-1)^6)(u^5+u^4+\cdots+u-1)(u^{11}+11u^{10}+\cdots-u-1)$
c_{11}	$(u^5-3u^4+4u^3-u^2-u+1)(u^6+3u^5+5u^4+4u^3+2u^2+u+1)$ $\cdot(u^{11}+2u^{10}+2u^9+6u^7+12u^6+12u^5+u^3+2u^2+2u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y-1)^5(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $\cdot(y^{11}-24y^{10}+\cdots+182y-1)$
c_2	$((y-1)^5)(y^6+y^5+\cdots+3y+1)(y^{11}-36y^{10}+\cdots+32578y-1)$
c_3, c_7	$y^5(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $\cdot(y^{11}+21y^{10}+\cdots+7680y-1024)$
c_5	$(y^5+3y^4+4y^3+y^2-y-1)(y^6+3y^5+6y^4+5y^2+y+1)$ $\cdot(y^{11}+26y^{10}+\cdots-108562y-10201)$
c_6	$(y^5-5y^4+8y^3-3y^2-y-1)(y^6+3y^5+6y^4+5y^2+y+1)$ $\cdot(y^{11}-30y^{10}+\cdots-15893686y-1841449)$
c_8, c_{10}	$((y-1)^6)(y^5-5y^4+\cdots-y-1)(y^{11}-27y^{10}+\cdots-171y-1)$
c_9	$y^6(y^5+3y^4+\cdots-y-1)(y^{11}+27y^{10}+\cdots+4096y-4096)$
c_{11}	$(y^5-y^4+8y^3-3y^2+3y-1)(y^6+y^5+5y^4+6y^2+3y+1)$ $\cdot(y^{11}+16y^9+86y^7+160y^5+25y^3-1)$