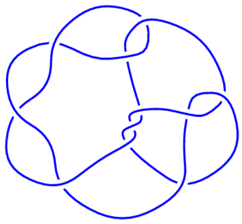
$11n_{101}$ ($K11n_{101}$)



[1]

Arc Sequences

$$\to \overset{\uparrow}{7} \to \overset{\downarrow}{1} \to \overset{\uparrow}{8} \to \overset{\uparrow}{7} \to \overset{\uparrow}{10} \to \overset{\uparrow}{2} \to \overset{\uparrow}{4} \to \overset{\downarrow}{11} \to \overset{\uparrow}{6} \to \overset{\downarrow}{9} \to \overset{\downarrow}{8} \to$$

Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{3} I_i^u$$

$$\begin{aligned}
I_1^u &= \langle b^6 + b^4 + 2b^2 + 1,\ b^5 + b + u,\ b^5 + b^4 + b^3 + 2b + a + 1\rangle \\
I_2^u &= \langle u^{12} + u^{11} + 2u^{10} + 2u^9 + 5u^8 + 5u^7 + 13u^6 + 11u^5 + 15u^4 + 11u^3 + 8u^2 + 4u + 1, \\
&\quad - 402u^{11} - 264u^{10} + \cdots + 281a - 157,\ -290u^{11} - 224u^{10} + \cdots + 281b - 576\rangle \\
I_3^u &= \langle u^{13} + u^{11} - u^{10} + 7u^9 + 3u^7 - 5u^6 + 8u^5 + u^4 + 4u^3 - 2u^2 - 1, \\
&\quad 3u^{12} + 3u^{11} + u^9 + 14u^8 + 24u^7 - 13u^6 - 2u^5 - 2u^4 + 37u^3 - 7u^2 + 8b + u - 11, \\
&\quad - 3u^{12} - 5u^{11} + 2u^{10} - 3u^9 - 14u^8 - 38u^7 + 21u^6 - 2u^5 - 6u^4 - 53u^3 + 9u^2 + 8a - 3u + 7\rangle
\end{aligned}$$

There are 3 irreducible components with 31 representations.

[1]The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

I. $I_1^u = \langle b^6 + b^4 + 2b^2 + 1,\ b^5 + b + u,\ b^5 + b^4 + b^3 + 2b + a + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.00000I$ $a = 0.100079 + 1.224638I$ $b = -0.744862 - 0.877439I$	$-0.26574 + 2.82812I$	$-0.49024 - 2.97945I$
$u = 1.00000I$ $a = 0.100079 - 1.224638I$ $b = -0.744862 + 0.877439I$	$-0.26574 - 2.82812I$	$-0.49024 + 2.97945I$
$u = 1.00000I$ $a = -1.32472 + 1.32472I$ $b = -0.754878I$	-4.40332	-7.01951
$u = -1.00000I$ $a = -1.32472 - 1.32472I$ $b = 0.754878I$	-4.40332	-7.01951
$u = -1.00000I$ $a = 1.224638 + 0.100079I$ $b = 0.744862 - 0.877439I$	$-0.26574 - 2.82812I$	$-0.49024 + 2.97945I$
$u = 1.00000I$ $a = 1.224638 - 0.100079I$ $b = 0.744862 + 0.877439I$	$-0.26574 + 2.82812I$	$-0.49024 - 2.97945I$

II. $I_2^u = \langle u^{12} + u^{11} + \cdots + 4u + 1,\ -402u^{11} - 264u^{10} + \cdots + 281a - 157,\ -290u^{11} - 224u^{10} + \cdots + 281b - 576\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1.43060u^{11} + 0.939502u^{10} + \cdots + 4.47687u + 0.558719 \\ 1.03203u^{11} + 0.797153u^{10} + \cdots + 5.01068u + 2.04982 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.220641u^{11} + 0.935943u^{10} + \cdots + 4.74021u + 3.12100 \\ -0.779359u^{11} - 0.0640569u^{10} + \cdots - 3.25979u - 0.879004 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.754448u^{11} - 0.555160u^{10} + \cdots - 4.91815u - 3.28470 \\ 0.896797u^{11} + 0.320285u^{10} + \cdots + 5.29893u + 1.39502 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.163701u^{11} + 0.370107u^{10} + \cdots - 2.38790u - 0.476868 \\ -0.199288u^{11} - 0.0711744u^{10} + \cdots + 0.266904u - 0.754448 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.879004u^{11} - 0.0996441u^{10} + \cdots - 4.62633u - 1.25623 \\ -0.715302u^{11} - 0.469751u^{10} + \cdots - 2.23843u - 1.77936 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.879004u^{11} - 0.0996441u^{10} + \cdots - 4.62633u - 1.25623 \\ -1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.879004u^{11} - 0.0996441u^{10} + \cdots - 4.62633u - 1.25623 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =**unknown**

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.18584 - 0.84722I$ $a = -0.951052 + 0.505357I$ $b = -0.932789 + 0.951611I$	$12.06461 - 3.42721I$	$5.95500 + 2.25224I$
$u = -1.18584 + 0.84722I$ $a = -0.951052 - 0.505357I$ $b = -0.932789 - 0.951611I$	$12.06461 + 3.42721I$	$5.95500 - 2.25224I$
$u = -0.419110 - 0.222236I$ $a = -0.496924 - 0.802130I$ $b = 0.716019 - 0.809696I$	$1.35295 - 2.65597I$	$5.58115 + 3.39809I$
$u = -0.419110 + 0.222236I$ $a = -0.496924 + 0.802130I$ $b = 0.716019 + 0.809696I$	$1.35295 + 2.65597I$	$5.58115 - 3.39809I$
$u = -0.247920 - 0.814674I$ $a = -2.14725 - 0.42856I$ $b = -0.283231 - 0.633899I$	$-3.54796 + 1.10871I$	$0.46385 - 6.18117I$
$u = -0.247920 + 0.814674I$ $a = -2.14725 + 0.42856I$ $b = -0.283231 + 0.633899I$	$-3.54796 - 1.10871I$	$0.46385 + 6.18117I$
$u = -0.073688 - 1.173753I$ $a = 0.276467 - 1.109671I$ $b = -0.283231 + 0.633899I$	$-3.54796 - 1.10871I$	$0.46385 + 6.18117I$
$u = -0.073688 + 1.173753I$ $a = 0.276467 + 1.109671I$ $b = -0.283231 - 0.633899I$	$-3.54796 + 1.10871I$	$0.46385 - 6.18117I$
$u = 0.276186 - 0.937280I$ $a = 0.825821 + 0.685494I$ $b = 0.716019 - 0.809696I$	$1.35295 - 2.65597I$	$5.58115 + 3.39809I$
$u = 0.276186 + 0.937280I$ $a = 0.825821 - 0.685494I$ $b = 0.716019 + 0.809696I$	$1.35295 + 2.65597I$	$5.58115 - 3.39809I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.15037 - 0.92808I$ $a = -1.50706 - 0.08967I$ $b = -0.932789 + 0.951611I$	$12.06461 - 3.42721I$	$5.95500 + 2.25224I$
$u = \quad 1.15037 + 0.92808I$ $a = -1.50706 + 0.08967I$ $b = -0.932789 - 0.951611I$	$12.06461 + 3.42721I$	$5.95500 - 2.25224I$

III. $I_3^u =$
$\langle u^{13}+u^{11}+\cdots-2u^2-1,\ 3u^{12}+3u^{11}+\cdots+8b-11,\ -3u^{12}-5u^{11}+\cdots+8a+7\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{3}{8}u^{12}+\frac{5}{8}u^{11}+\cdots+\frac{3}{8}u-\frac{7}{8} \\ -\frac{3}{8}u^{12}-\frac{3}{8}u^{11}+\cdots-\frac{1}{8}u+\frac{11}{8} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ \frac{1}{8}u^{12}+\frac{1}{8}u^{11}+\cdots-\frac{9}{8}u-\frac{1}{8} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{3}{4}u^{12}+\frac{1}{4}u^{11}+\cdots-u-\frac{1}{2} \\ -\frac{5}{8}u^{12}-\frac{1}{8}u^{11}+\cdots+\frac{15}{8}u+\frac{3}{8} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{8}u^{12}-\frac{1}{8}u^{11}+\cdots-\frac{1}{8}u+\frac{9}{8} \\ -\frac{1}{8}u^{12}+\frac{1}{8}u^{11}+\cdots+\frac{1}{8}u-\frac{1}{8} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ -\frac{1}{8}u^{12}+\frac{1}{8}u^{11}+\cdots+\frac{1}{8}u-\frac{1}{8} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -\frac{1}{8}u^{12}+\frac{1}{8}u^{11}+\cdots+\frac{1}{8}u-\frac{1}{8} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -\frac{1}{8}u^{12}+\frac{1}{8}u^{11}+\cdots+\frac{1}{8}u-\frac{1}{8} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.95082 - 1.19131I$ $a = 1.63050 - 0.50532I$ $b = 0.885010 + 1.004921I$	$10.8970 + 11.1670I$	$4.44754 - 6.34112I$
$u = -0.95082 + 1.19131I$ $a = 1.63050 + 0.50532I$ $b = 0.885010 - 1.004921I$	$10.8970 - 11.1670I$	$4.44754 + 6.34112I$
$u = -0.745925 - 0.860258I$ $a = -1.37950 + 0.99779I$ $b = -0.534793 - 1.010413I$	$1.03858 + 7.07395I$	$2.58380 - 8.11816I$
$u = -0.745925 + 0.860258I$ $a = -1.37950 - 0.99779I$ $b = -0.534793 + 1.010413I$	$1.03858 - 7.07395I$	$2.58380 + 8.11816I$
$u = -0.438163 - 0.579645I$ $a = 0.62882 - 1.49528I$ $b = 0.014294 + 0.955793I$	$-2.29540 + 1.46021I$	$-0.76105 - 4.77537I$
$u = -0.438163 + 0.579645I$ $a = 0.62882 + 1.49528I$ $b = 0.014294 - 0.955793I$	$-2.29540 - 1.46021I$	$-0.76105 + 4.77537I$
$u = -0.052177 - 0.598239I$ $a = 0.165174 + 1.066639I$ $b = 0.696907 - 0.878523I$	$1.24085 - 2.67797I$	$5.53095 + 2.23117I$
$u = -0.052177 + 0.598239I$ $a = 0.165174 - 1.066639I$ $b = 0.696907 + 0.878523I$	$1.24085 + 2.67797I$	$5.53095 - 2.23117I$
$u = 0.622206$ $a = 0.720555$ $b = 0.524309$	0.957360	10.3808
$u = 0.871545 - 0.665952I$ $a = -0.501025 - 0.543340I$ $b = -0.780232 - 0.483051I$	$2.81429 - 2.20167I$	$6.81300 + 2.37182I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.871545 + 0.665952I$ $a = -0.501025 + 0.543340I$ $b = -0.780232 + 0.483051I$	$2.81429 + 2.20167I$	$6.81300 - 2.37182I$
$u = 1.00444 - 1.14917I$ $a = 0.595760 + 0.655816I$ $b = 0.956659 + 0.875818I$	$11.32248 - 4.40088I$	$5.19535 + 1.84237I$
$u = 1.00444 + 1.14917I$ $a = 0.595760 - 0.655816I$ $b = 0.956659 - 0.875818I$	$11.32248 + 4.40088I$	$5.19535 - 1.84237I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_3, c_4 c_6, c_7	$(u^2+1)^3(u^{12}+u^{11}+\cdots+4u+1)$ $(u^{13}+u^{11}-u^{10}+7u^9+3u^7-5u^6+8u^5+u^4+4u^3-2u^2-1)$
c_2	$(u+1)^6(u^{12}+3u^{11}+\cdots+6u^2+1)(u^{13}+2u^{12}+\cdots-4u-1)$
c_5, c_9	$(u^6+u^4+2u^2+1)(u^6-u^5+u^4+2u^2-u+1)^2$ $(u^{13}+3u^{12}+\cdots+5u+2)$
c_8, c_{10}, c_{11}	$(u^3+u^2+2u+1)^2(u^6+u^5+5u^4+4u^3+6u^2+3u+1)^2$ $(u^{13}+3u^{12}+\cdots+5u-4)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_3, c_4 c_6, c_7	$(y+1)^6(y^{12}+3y^{11}+\cdots+6y^2+1)(y^{13}+2y^{12}+\cdots-4y-1)$
c_2	$(y-1)^6(y^{12}+11y^{11}+\cdots+12y+1)(y^{13}+26y^{12}+\cdots+12y-1)$
c_5, c_9	$(y^3+y^2+2y+1)^2(y^6+y^5+5y^4+4y^3+6y^2+3y+1)^2$ $(y^{13}+3y^{12}+\cdots+5y-4)$
c_8, c_{10}, c_{11}	$(y^3+3y^2+2y-1)^2(y^6+9y^5+29y^4+40y^3+22y^2+3y+1)^2$ $(y^{13}+15y^{12}+\cdots+177y-16)$