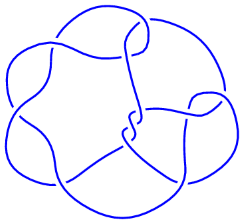
$11n_{100}$ $(K11n_{100})$



1

Arc Sequences

$$\rightarrow \underset{6}{\uparrow} \rightarrow \underset{1}{\downarrow} \rightarrow \underset{7}{\downarrow} \rightarrow \underset{10}{\downarrow} \rightarrow \underset{2}{\uparrow} \rightarrow \underset{4}{\downarrow} \rightarrow \underset{3}{\downarrow} \rightarrow \underset{1}{\uparrow} \rightarrow \underset{11}{\uparrow} \rightarrow \underset{4}{\downarrow} \rightarrow \underset{9}{\uparrow} \rightarrow$$

Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{4} I_i^u$$

$$\begin{aligned}
I_1^u &= \langle u^2 - u + 1,\ a - 1,\ b - u + 1 \rangle \\
I_2^u &= \langle b^6 + 2b^5 + 7b^4 + 4b^3 + 8b^2 - 2b + 5,\ -b^5 - 7b^3 - b^2 - 17b + 11u + 3, \\
&\quad - 16b^5 - 33b^4 - 90b^3 - 49b^2 - 52b + 55a + 15 \rangle \\
I_3^u &= \langle u^4 + u^3 + 2u^2 + 2u + 1,\ u^3 + a + 2u + 1,\ u^3 + u^2 + b + 3u + 2 \rangle \\
I_4^u &= \langle u^{22} + u^{21} + \cdots - 4u + 1, \\
&\quad 27401760606u^{21} + 32283303162u^{20} + \cdots + 1219061980036b + 36114460969, \\
&\quad 306481557535u^{21} + 364610096714u^{20} + \cdots + 243812396072a - 76785066689 \rangle
\end{aligned}$$

There are 4 irreducible components with 34 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. $I_1^u = \langle u^2 - u + 1,\ a - 1,\ b - u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =**unknown**

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 - 0.866025I$ $a = 1.00000$ $b = -0.500000 - 0.866025I$	$2.02988I$	$-3.46410I$
$u = 0.500000 + 0.866025I$ $a = 1.00000$ $b = -0.500000 + 0.866025I$	$-2.02988I$	$3.46410I$

II. $I_2^u = \langle b^6 + 2b^5 + 7b^4 + 4b^3 + 8b^2 - 2b + 5,\ -b^5 - 7b^3 - b^2 - 17b + 11u + 3,\ -16b^5 - 33b^4 + \cdots + 55a + 15\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ 0.0909091b^5 + 0.636364b^3 + \cdots + 1.54545b - 0.272727 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.0909091b^5 + 0.636364b^3 + \cdots + 1.54545b - 0.272727 \\ 0.0909091b^5 + 0.636364b^3 + \cdots + 1.54545b - 0.272727 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{16}{55}b^5 + \frac{3}{5}b^4 + \cdots + \frac{52}{55}b - \frac{3}{11} \\ b \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0363636b^5 - 0.200000b^4 + \cdots + 0.381818b + 0.909091 \\ -\frac{2}{55}b^5 - \frac{1}{5}b^4 + \cdots + \frac{21}{55}b - \frac{1}{11} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{55}b^5 - \frac{2}{5}b^4 + \cdots + \frac{17}{55}b - \frac{5}{11} \\ \frac{6}{55}b^5 - \frac{2}{5}b^4 + \cdots + \frac{102}{55}b - \frac{8}{11} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{12}{55}b^5 + \frac{1}{5}b^4 + \cdots - \frac{16}{55}b - \frac{16}{11} \\ -\frac{2}{55}b^5 - \frac{1}{5}b^4 + \cdots + \frac{21}{55}b - \frac{1}{11} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{4}{55}b^5 - \frac{2}{5}b^4 + \cdots - \frac{68}{55}b - \frac{2}{11} \\ \frac{1}{55}b^5 - \frac{2}{5}b^4 + \cdots + \frac{17}{55}b - \frac{5}{11} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{4}{55}b^5 - \frac{2}{5}b^4 + \cdots - \frac{68}{55}b - \frac{2}{11} \\ 0.0909091b^5 + 0.636364b^3 + \cdots + 1.54545b - 0.272727 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{4}{55}b^5 - \frac{2}{5}b^4 + \cdots - \frac{68}{55}b - \frac{2}{11} \\ 0.0909091b^5 + 0.636364b^3 + \cdots + 1.54545b - 0.272727 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000I$ $a = -0.877439 - 0.744862I$ $b = -0.77736 - 1.96950I$	$-3.02413 + 2.82812I$	$-3.50976 - 2.97945I$
$u = -1.00000I$ $a = -0.877439 + 0.744862I$ $b = -0.77736 + 1.96950I$	$-3.02413 - 2.82812I$	$-3.50976 + 2.97945I$
$u = -1.00000I$ $a = 0.754878$ $b = -0.56984 - 1.32472I$	1.11345	3.01951
$u = 1.00000I$ $a = 0.754878$ $b = -0.56984 + 1.32472I$	1.11345	3.01951
$u = -1.00000I$ $a = -0.877439 - 0.744862I$ $b = 0.347200 - 0.644782I$	$-3.02413 + 2.82812I$	$-3.50976 - 2.97945I$
$u = 1.00000I$ $a = -0.877439 + 0.744862I$ $b = 0.347200 + 0.644782I$	$-3.02413 - 2.82812I$	$-3.50976 + 2.97945I$

III. $\boldsymbol{I_3^u = \langle u^4 + u^3 + 2u^2 + 2u + 1,\ u^3 + a + 2u + 1,\ u^3 + u^2 + b + 3u + 2\rangle}$

(i) Arc colorings

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

(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
$u = -0.621744 - 0.440597I$ $a = \quad 0.121744 + 1.306622I$ $b = -0.448952 + 1.199342I$	$2.02988I$	$-3.46410I$
$u = -0.621744 + 0.440597I$ $a = \quad 0.121744 - 1.306622I$ $b = -0.448952 - 1.199342I$	$-2.02988I$	$3.46410I$
$u = \quad 0.121744 - 1.306622I$ $a = -0.621744 + 0.440597I$ $b = -0.05105 + 2.06537I$	$-2.02988I$	$3.46410I$
$u = \quad 0.121744 + 1.306622I$ $a = -0.621744 - 0.440597I$ $b = -0.05105 - 2.06537I$	$2.02988I$	$-3.46410I$

IV.
$\boldsymbol{I^u_4 = \langle u^{22}+u^{21}+\cdots-4u+1,\ 2.74\times10^{10}u^{21}+3.23\times10^{10}u^{20}+\cdots+1.22\times10^{11}b+ 3.61\times10^{10},\ 3.06\times10^{11}u^{21}+3.65\times10^{11}u^{20}+\cdots+2.44\times10^{11}a-7.68\times10^{10}\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-1.25704u^{21}-1.49545u^{20}+\cdots-21.5598u+0.314935\\-0.224777u^{21}-0.264821u^{20}+\cdots-4.42658u-0.296248\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.520062u^{21}-0.941512u^{20}+\cdots-6.20121u-4.83139\\0.0606928u^{21}+0.0275143u^{20}+\cdots+1.35703u-1.46367\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-1.80972u^{21}-1.88500u^{20}+\cdots-30.6024u+5.10082\\-0.421450u^{21}-0.474311u^{20}+\cdots-5.91163u+0.520062\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.329536u^{21}-0.900218u^{20}+\cdots-1.13762u-7.60006\\0.0752832u^{21}-0.00470735u^{20}+\cdots+2.13807u-1.80972\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u^4+u^2+1\\u^4\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-1.46826u^{21}-1.49856u^{20}+\cdots-25.1993u+4.50547\\-0.426044u^{21}-0.448508u^{20}+\cdots-5.90074u+0.527894\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1.85194u^{21}+1.93505u^{20}+\cdots+31.9010u-5.07839\\0.388271u^{21}+0.410694u^{20}+\cdots+5.69074u-0.580755\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1.85194u^{21}+1.93505u^{20}+\cdots+31.9010u-5.07839\\0.388271u^{21}+0.410694u^{20}+\cdots+5.69074u-0.580755\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.153311 - 0.765089I$ $a = \ \ 0.824436 + 0.428112I$ $b = -1.09341 + 1.04813I$	$9.48603 - 4.13683I$	$2.53393 + 2.55439I$
$u = -1.153311 + 0.765089I$ $a = \ \ 0.824436 - 0.428112I$ $b = -1.09341 - 1.04813I$	$9.48603 + 4.13683I$	$2.53393 - 2.55439I$
$u = -1.07708 - 1.03335I$ $a = -0.536672 - 0.615239I$ $b = \ \ 0.98592 - 2.18536I$	$13.19150 + 3.89903I$	$4.72901 - 2.42961I$
$u = -1.07708 + 1.03335I$ $a = -0.536672 + 0.615239I$ $b = \ \ 0.98592 + 2.18536I$	$13.19150 - 3.89903I$	$4.72901 + 2.42961I$
$u = -0.90302 - 1.18611I$ $a = \ \ 0.302390 + 0.821075I$ $b = -0.31975 + 2.72877I$	$8.10703 + 11.57362I$	$0.88963 - 6.62056I$
$u = -0.90302 + 1.18611I$ $a = \ \ 0.302390 - 0.821075I$ $b = -0.31975 - 2.72877I$	$8.10703 - 11.57362I$	$0.88963 + 6.62056I$
$u = -0.595604 - 0.824126I$ $a = \ \ 0.833215 - 0.205043I$ $b = \ \ 0.368315 + 0.238347I$	$-0.94737 + 2.13228I$	$-3.49508 - 3.26961I$
$u = -0.595604 + 0.824126I$ $a = \ \ 0.833215 + 0.205043I$ $b = \ \ 0.368315 - 0.238347I$	$-0.94737 - 2.13228I$	$-3.49508 + 3.26961I$
$u = -0.217043 - 0.710982I$ $a = \ \ 0.364202 + 0.538543I$ $b = -0.340220 + 0.348326I$	$-0.380875 + 1.140107I$	$-4.34193 - 6.22750I$
$u = -0.217043 + 0.710982I$ $a = \ \ 0.364202 - 0.538543I$ $b = -0.340220 - 0.348326I$	$-0.380875 - 1.140107I$	$-4.34193 + 6.22750I$

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.029711 - 1.049821I$ $a = -0.806902 - 0.721985I$ $b = -0.219039 - 1.369133I$	$-4.65093 + 2.79195I$	$-9.45575 - 3.06805I$
$u = -0.029711 + 1.049821I$ $a = -0.806902 + 0.721985I$ $b = -0.219039 + 1.369133I$	$-4.65093 - 2.79195I$	$-9.45575 + 3.06805I$
$u = 0.106877 - 0.224236I$ $a = -1.90450 + 4.32043I$ $b = -0.711930 + 0.911129I$	$-1.42494 - 2.89189I$	$2.45935 + 2.97630I$
$u = 0.106877 + 0.224236I$ $a = -1.90450 - 4.32043I$ $b = -0.711930 - 0.911129I$	$-1.42494 + 2.89189I$	$2.45935 - 2.97630I$
$u = 0.678005 - 0.384923I$ $a = -0.747656 + 1.056654I$ $b = 1.04546 + 1.57059I$	$3.57528 - 1.09357I$	$5.97662 + 1.94696I$
$u = 0.678005 + 0.384923I$ $a = -0.747656 - 1.056654I$ $b = 1.04546 - 1.57059I$	$3.57528 + 1.09357I$	$5.97662 - 1.94696I$
$u = 0.778255 - 0.824454I$ $a = 0.283395 - 1.014924I$ $b = -0.68028 - 2.27208I$	$0.39802 - 7.14623I$	$-0.40139 + 7.68801I$
$u = 0.778255 + 0.824454I$ $a = 0.283395 + 1.014924I$ $b = -0.68028 + 2.27208I$	$0.39802 + 7.14623I$	$-0.40139 - 7.68801I$
$u = 0.89009 - 1.10133I$ $a = 0.704841 + 0.246159I$ $b = 0.497167 + 0.394085I$	$6.44298 - 5.66281I$	$-0.84387 + 2.45088I$
$u = 0.89009 + 1.10133I$ $a = 0.704841 - 0.246159I$ $b = 0.497167 - 0.394085I$	$6.44298 + 5.66281I$	$-0.84387 - 2.45088I$

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.022545 - 0.827721I$ $a = -0.316750 - 0.661900I$ $b = -0.032238 - 0.626280I$	$7.32664 - 1.36370I$	$-0.05052 + 1.94758I$
$u = 1.022545 + 0.827721I$ $a = -0.316750 + 0.661900I$ $b = -0.032238 + 0.626280I$	$7.32664 + 1.36370I$	$-0.05052 - 1.94758I$

V. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_5	$(u^2+1)^3(u^2-u+1)(u^4+u^3+\cdots+2u+1)(u^{22}+u^{21}+\cdots-4u+1)$
c_2	$(u+1)^6(u^2+u+1)(u^4+3u^3+2u^2+1)(u^{22}+3u^{21}+\cdots+24u+1)$
c_3, c_6, c_7	$(u^2+1)^3(u^2-u+1)(u^4+u^3+\cdots+2u+1)(u^{22}+u^{21}+\cdots-10u+1)$
c_4, c_{10}	$(u^2+u+1)^3(u^6+u^4+2u^2+1)(u^{22}-2u^{21}+\cdots-u+2)$
c_8, c_9	$(u^2+u+1)^3(1+2u+u^2+u^3)^2(u^{22}+8u^{21}+\cdots+19u+4)$
c_{11}	$(u^2+u+1)^3(-1+2u-u^2+u^3)^2(u^{22}+8u^{21}+\cdots+19u+4)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5	$(y+1)^6(y^2+y+1)(y^4+3y^3+2y^2+1)(y^{22}+3y^{21}+\cdots+24y+1)$
c_2	$(y-1)^6(y^2+y+1)(y^4-5y^3+6y^2+4y+1)$ $(y^{22}+39y^{21}+\cdots+112y+1)$
c_3, c_6, c_7	$(y+1)^6(y^2+y+1)(y^4+3y^3+2y^2+1)(y^{22}+31y^{21}+\cdots+56y+1)$
c_4, c_{10}	$(y^2+y+1)^3(1+2y+y^2+y^3)^2(y^{22}+8y^{21}+\cdots+19y+4)$
c_8, c_9, c_{11}	$(y^2+y+1)^3(-1+2y+3y^2+y^3)^2(y^{22}+12y^{21}+\cdots+623y+16)$