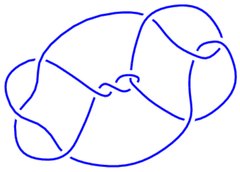
$11a_{64}$ $(K11a_{64})$



[1]

Arc Sequences

$$\rightarrow \overset{\uparrow}{5} \rightarrow \overset{\downarrow}{1} \rightarrow \overset{\uparrow}{9} \rightarrow \overset{\uparrow}{2} \rightarrow \overset{\downarrow}{4} \rightarrow \overset{\uparrow}{11} \rightarrow \overset{\uparrow}{10} \rightarrow \overset{\uparrow}{3} \rightarrow \overset{\uparrow}{8} \rightarrow \overset{\uparrow}{6} \rightarrow \overset{\uparrow}{7} \rightarrow$$

Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{2} I_i^u$$

$$I_1^u = \langle u^2 + u + 1,\ b - 1,\ a + u + 1 \rangle$$
$$I_2^u = \langle u^{50} + 2u^{49} + \cdots - 3u + 1,\ -u^{48} - u^{47} + \cdots + b - 1,\ u^{49} + u^{48} + \cdots + a - 1 \rangle$$

There are 2 irreducible components with 52 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. $I_1^u = \langle u^2+u+1,\ b-1,\ a+u+1\rangle$

(i) Arc colorings

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

(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
$u = -0.500000 - 0.866025I$ $a = -0.500000 + 0.866025I$ $b = \quad 1.00000$	$1.64493 + 2.02988I$	$9.00000 - 3.46410I$
$u = -0.500000 + 0.866025I$ $a = -0.500000 - 0.866025I$ $b = \quad 1.00000$	$1.64493 - 2.02988I$	$9.00000 + 3.46410I$

II.

$$\boldsymbol{I_2^u = \langle u^{50}+2u^{49}+\cdots-3u+1,\ -u^{48}-u^{47}+\cdots+b-1,\ u^{49}+u^{48}+\cdots+a-1\rangle}$$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u^2+1\\-u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-u^{49}-u^{48}+\cdots-5u+1\\u^{48}+u^{47}+\cdots-2u+1\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u^{49}-2u^{48}+\cdots-2u+1\\u^{48}+u^{47}+\cdots-3u+1\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u^3\\u^5+u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u^{49}-3u^{48}+\cdots+26u^3+2u\\u^{48}+u^{47}+\cdots-3u+1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^{49}-u^{48}+\cdots-3u+1\\u^{48}+u^{47}+\cdots-2u+1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^{49}-3u^{48}+\cdots-2u^2+3u\\-u^{49}+u^{48}+\cdots-3u+1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^{49}-3u^{48}+\cdots-2u^2+3u\\-u^{49}+u^{48}+\cdots-3u+1\end{pmatrix}$$

(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
$u = -0.820332 - 0.598366I$ $a = \ \ 1.72642 + 0.48517I$ $b = -1.352761 + 0.362996I$	$3.29225 - 8.34439I$	$11.22860 + 4.83765I$
$u = -0.820332 + 0.598366I$ $a = \ \ 1.72642 - 0.48517I$ $b = -1.352761 - 0.362996I$	$3.29225 + 8.34439I$	$11.22860 - 4.83765I$
$u = -0.784288 - 0.784815I$ $a = \ \ 2.49385 - 0.28996I$ $b = -1.41586 + 0.11171I$	$9.73666 - 1.34570I$	$15.5702 + 0.7599I$
$u = -0.784288 + 0.784815I$ $a = \ \ 2.49385 + 0.28996I$ $b = -1.41586 - 0.11171I$	$9.73666 + 1.34570I$	$15.5702 - 0.7599I$
$u = -0.774646 - 0.583619I$ $a = -0.1120235 + 0.0271994I$ $b = \ \ 0.133262 - 0.831170I$	$-1.38173 - 4.04307I$	$7.01868 + 3.20265I$
$u = -0.774646 + 0.583619I$ $a = -0.1120235 - 0.0271994I$ $b = \ \ 0.133262 + 0.831170I$	$-1.38173 + 4.04307I$	$7.01868 - 3.20265I$
$u = -0.744548 - 0.937493I$ $a = \ \ 2.34902 - 1.59118I$ $b = -1.41536 - 0.14641I$	$9.27302 + 7.09927I$	$14.4198 - 6.3991I$
$u = -0.744548 + 0.937493I$ $a = \ \ 2.34902 + 1.59118I$ $b = -1.41536 + 0.14641I$	$9.27302 - 7.09927I$	$14.4198 + 6.3991I$
$u = -0.691553 - 0.810916I$ $a = -0.302555 + 0.293069I$ $b = \ \ 0.566666 - 0.530676I$	$3.39308 + 0.60483I$	$12.63177 + 0.83622I$
$u = -0.691553 + 0.810916I$ $a = -0.302555 - 0.293069I$ $b = \ \ 0.566666 + 0.530676I$	$3.39308 - 0.60483I$	$12.63177 - 0.83622I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.691332 - 1.051380I$ $a = 1.50080 - 2.19587I$ $b = -1.356027 - 0.382707I$	$1.9302 + 14.0131I$	$9.10827 - 9.32145I$
$u = -0.691332 + 1.051380I$ $a = 1.50080 + 2.19587I$ $b = -1.356027 + 0.382707I$	$1.9302 - 14.0131I$	$9.10827 + 9.32145I$
$u = -0.687541 - 0.895098I$ $a = -1.017637 + 0.499800I$ $b = 0.490724 + 0.589200I$	$3.13688 + 4.70114I$	$11.25136 - 7.35452I$
$u = -0.687541 + 0.895098I$ $a = -1.017637 - 0.499800I$ $b = 0.490724 - 0.589200I$	$3.13688 - 4.70114I$	$11.25136 + 7.35452I$
$u = -0.682574 - 0.595506I$ $a = -1.22843 + 0.73443I$ $b = 1.096203 + 0.388771I$	$1.57629 + 0.36486I$	$10.25677 + 0.07653I$
$u = -0.682574 + 0.595506I$ $a = -1.22843 - 0.73443I$ $b = 1.096203 - 0.388771I$	$1.57629 - 0.36486I$	$10.25677 - 0.07653I$
$u = -0.671404 - 1.040633I$ $a = -1.074443 + 0.524871I$ $b = 0.126757 + 0.868356I$	$-2.73323 + 9.52065I$	$5.03643 - 7.69857I$
$u = -0.671404 + 1.040633I$ $a = -1.074443 - 0.524871I$ $b = 0.126757 - 0.868356I$	$-2.73323 - 9.52065I$	$5.03643 + 7.69857I$
$u = -0.649765 - 1.016232I$ $a = -0.147703 + 0.611241I$ $b = 1.136100 - 0.443889I$	$0.35735 + 4.82997I$	$8.07489 - 4.80231I$
$u = -0.649765 + 1.016232I$ $a = -0.147703 - 0.611241I$ $b = 1.136100 + 0.443889I$	$0.35735 - 4.82997I$	$8.07489 + 4.80231I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.215855 - 0.483721I$ $a = -1.24120 + 2.09218I$ $b = 1.087887 + 0.165328I$	$1.40881 + 0.77400I$	$6.94609 + 0.76417I$
$u = -0.215855 + 0.483721I$ $a = -1.24120 - 2.09218I$ $b = 1.087887 - 0.165328I$	$1.40881 - 0.77400I$	$6.94609 - 0.76417I$
$u = -0.015708 - 1.080761I$ $a = 0.40973 + 1.39311I$ $b = 1.224772 + 0.385024I$	$-3.57195 + 1.39688I$	$3.31825 - 0.66691I$
$u = -0.015708 + 1.080761I$ $a = 0.40973 - 1.39311I$ $b = 1.224772 - 0.385024I$	$-3.57195 - 1.39688I$	$3.31825 + 0.66691I$
$u = 0.030065 - 1.108866I$ $a = 0.032879 - 1.296561I$ $b = 0.047274 - 0.835322I$	$-7.20082 - 2.98868I$	$0.09209 + 2.99503I$
$u = 0.030065 + 1.108866I$ $a = 0.032879 + 1.296561I$ $b = 0.047274 + 0.835322I$	$-7.20082 + 2.98868I$	$0.09209 - 2.99503I$
$u = 0.069277 - 1.129561I$ $a = -0.353052 + 1.270343I$ $b = -1.302713 + 0.373085I$	$-2.98615 - 7.33040I$	$4.59712 + 5.87500I$
$u = 0.069277 + 1.129561I$ $a = -0.353052 - 1.270343I$ $b = -1.302713 - 0.373085I$	$-2.98615 + 7.33040I$	$4.59712 - 5.87500I$
$u = 0.203905 - 0.774988I$ $a = 0.339779 - 0.707399I$ $b = 0.104654 - 0.432324I$	$-1.18724 - 1.58310I$	$1.45548 + 5.77798I$
$u = 0.203905 + 0.774988I$ $a = 0.339779 + 0.707399I$ $b = 0.104654 + 0.432324I$	$-1.18724 + 1.58310I$	$1.45548 - 5.77798I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.294861$ $a = 0.407744$ $b = 0.375797$	0.739246	14.0544
$u = 0.330969 - 1.011959I$ $a = 0.103921 + 1.108893I$ $b = -1.260390 + 0.078461I$	$2.80671 - 3.20550I$	$10.87412 + 5.48169I$
$u = 0.330969 + 1.011959I$ $a = 0.103921 - 1.108893I$ $b = -1.260390 - 0.078461I$	$2.80671 + 3.20550I$	$10.87412 - 5.48169I$
$u = 0.568393 - 0.860366I$ $a = 0.881581 + 0.266099I$ $b = -0.263398 + 0.099445I$	$0.39231 - 2.25929I$	$1.99740 + 3.42645I$
$u = 0.568393 + 0.860366I$ $a = 0.881581 - 0.266099I$ $b = -0.263398 - 0.099445I$	$0.39231 + 2.25929I$	$1.99740 - 3.42645I$
$u = 0.587482 - 1.054521I$ $a = 0.122117 + 0.706179I$ $b = -1.241067 - 0.324695I$	$0.243412 + 0.350536I$	$7.73133 - 1.27441I$
$u = 0.587482 + 1.054521I$ $a = 0.122117 - 0.706179I$ $b = -1.241067 + 0.324695I$	$0.243412 - 0.350536I$	$7.73133 + 1.27441I$
$u = 0.630329 - 1.035100I$ $a = 1.103981 + 0.520432I$ $b = -0.039568 + 0.776582I$	$-3.45504 - 3.62076I$	$3.32917 + 2.61098I$
$u = 0.630329 + 1.035100I$ $a = 1.103981 - 0.520432I$ $b = -0.039568 - 0.776582I$	$-3.45504 + 3.62076I$	$3.32917 - 2.61098I$
$u = 0.640142$ $a = 2.08837$ $b = -1.32705$	5.84071	16.2554

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.666955 - 1.024889I$ $a = -1.65644 - 2.46648I$ $b = 1.297339 - 0.337432I$	$0.72091 - 7.64132I$	$8.02664 + 5.65658I$
$u = 0.666955 + 1.024889I$ $a = -1.65644 + 2.46648I$ $b = 1.297339 + 0.337432I$	$0.72091 + 7.64132I$	$8.02664 - 5.65658I$
$u = 0.697130 - 0.856379I$ $a = -3.37809 - 1.13298I$ $b = 1.311800 - 0.024858I$	$5.15830 - 2.67468I$	$12.04075 + 3.18893I$
$u = 0.697130 + 0.856379I$ $a = -3.37809 + 1.13298I$ $b = 1.311800 + 0.024858I$	$5.15830 + 2.67468I$	$12.04075 - 3.18893I$
$u = 0.700858 - 0.501693I$ $a = 0.128943 - 0.081096I$ $b = 0.015463 - 0.734978I$	$-1.96381 - 1.49641I$	$5.67052 + 2.83851I$
$u = 0.700858 + 0.501693I$ $a = 0.128943 + 0.081096I$ $b = 0.015463 + 0.734978I$	$-1.96381 + 1.49641I$	$5.67052 - 2.83851I$
$u = 0.735015 - 0.393449I$ $a = 1.51775 + 0.59793I$ $b = -1.290933 + 0.313969I$	$2.12444 - 5.28818I$	$11.12195 + 5.66232I$
$u = 0.735015 + 0.393449I$ $a = 1.51775 - 0.59793I$ $b = -1.290933 - 0.313969I$	$2.12444 + 5.28818I$	$11.12195 - 5.66232I$
$u = 0.741668 - 0.605033I$ $a = -1.94725 + 0.82754I$ $b = 1.274810 + 0.306801I$	$1.95830 + 2.25536I$	$10.04739 - 0.82477I$
$u = 0.741668 + 0.605033I$ $a = -1.94725 - 0.82754I$ $b = 1.274810 - 0.306801I$	$1.95830 - 2.25536I$	$10.04739 + 0.82477I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^2+u+1)(u^{50}+2u^{49}+\cdots-3u+1)$
c_2, c_5	$(u^2+u+1)(u^{50}+18u^{49}+\cdots+u+1)$
c_3, c_8	$u^2(u^{50}+u^{49}+\cdots+4u-4)$
c_4	$(u^2-u+1)(u^{50}+2u^{49}+\cdots-3u+1)$
c_6	$(u+1)^2(u^{50}+3u^{49}+\cdots+9u^2-1)$
c_7	$u^2(u^{50}+15u^{49}+\cdots+104u+16)$
c_9	$u^2(u^{50}+15u^{49}+\cdots+104u+16)$
c_{10}	$(u-1)^2(u^{50}+3u^{49}+\cdots+9u^2-1)$
c_{11}	$(u-1)^2(u^{50}+3u^{49}+\cdots+9u^2-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y^2+y+1)(y^{50}+18y^{49}+\cdots+y+1)$
c_2, c_5	$(y^2+y+1)(y^{50}+30y^{49}+\cdots-119y+1)$
c_3, c_8	$y^2(y^{50}-15y^{49}+\cdots-104y+16)$
c_6	$(y-1)^2(y^{50}-41y^{49}+\cdots-18y+1)$
c_7	$y^2(y^{50}+37y^{49}+\cdots-3360y+256)$
c_9	$y^2(y^{50}+37y^{49}+\cdots-3360y+256)$
c_{10}	$(y-1)^2(y^{50}-41y^{49}+\cdots-18y+1)$
c_{11}	$(y-1)^2(y^{50}-41y^{49}+\cdots-18y+1)$