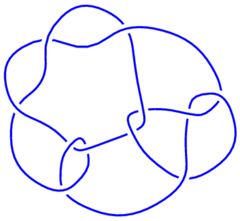
$11a_{33}$ $(K11a_{33})$



[1]

Arc Sequences

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

Solving Sequence

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

Representation Ideals

$$I = I_1^u \bigcap I_1^v$$

$$\begin{aligned} I_1^u = \langle & u^{52} + u^{51} + \cdots - 232u^2 + 32, \\ & -2.80455 \times 10^{71} u^{51} - 8.84488 \times 10^{70} u^{50} + \cdots + 1.82929 \times 10^{71} a - 1.41514 \times 10^{73}, \\ & -3.59162 \times 10^{71} u^{51} - 6.81177 \times 10^{70} u^{50} + \cdots + 3.65857 \times 10^{71} b - 1.51817 \times 10^{73} \rangle \end{aligned}$$

$$I_1^v = \langle b^5 + 2b^4 + 3b^3 + 2b^2 + 2b + 1,\ -b^4 - 2b^3 - 3b^2 - b + v - 1,\ a \rangle$$

There are 2 irreducible components with 57 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. $I_1^u =$
$\langle u^{52}+u^{51}+\cdots-232u^2+32,\ -2.80\times10^{71}u^{51}-8.84\times10^{70}u^{50}+\cdots+1.83\times10^{71}a-1.42\times10^{73},\ -3.59\times10^{71}u^{51}-6.81\times10^{70}u^{50}+\cdots+3.66\times10^{71}b-1.52\times10^{73}\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u^2+1\\-u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}1.53314u^{51}+0.483515u^{50}+\cdots-115.343u+77.3601\\0.981700u^{51}+0.186187u^{50}+\cdots-59.2802u+41.4962\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1.19425u^{51}+0.481246u^{50}+\cdots-105.268u+66.6624\\-0.198263u^{51}+0.0892578u^{50}+\cdots+14.3724u-11.3632\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}1.53314u^{51}+0.483515u^{50}+\cdots-115.343u+77.3601\\0.291067u^{51}+0.0291784u^{50}+\cdots-10.2198u+7.90835\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.196295u^{51}-0.00549239u^{50}+\cdots-23.5061u+20.3598\\-0.117453u^{51}-0.0692387u^{50}+\cdots+9.18679u-4.42523\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.154147u^{51}-0.0397948u^{50}+\cdots-20.0268u+17.5330\\-0.241668u^{51}-0.208983u^{50}+\cdots+11.8129u-3.67724\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.828488u^{51}-0.493482u^{50}+\cdots+70.9484u-33.7554\\0.125795u^{51}-0.105171u^{50}+\cdots-13.0041u+13.1784\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.321903u^{51}-0.139407u^{50}+\cdots+26.4114u-18.3279\\-0.125608u^{51}-0.144899u^{50}+\cdots+2.90533u+2.03198\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.321903u^{51}-0.139407u^{50}+\cdots+26.4114u-18.3279\\-0.125608u^{51}-0.144899u^{50}+\cdots+2.90533u+2.03198\end{pmatrix}$$

(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
$u = -1.41956 - 0.37842I$ $a = 0.592117 - 0.130057I$ $b = 0.891165 - 0.384837I$	$9.80914 + 2.73925I$	$5.98913 - 0.86649I$
$u = -1.41956 + 0.37842I$ $a = 0.592117 + 0.130057I$ $b = 0.891165 + 0.384837I$	$9.80914 - 2.73925I$	$5.98913 + 0.86649I$
$u = -1.38824 - 0.60897I$ $a = 0.593747 + 0.651040I$ $b = -0.27948 + 2.56319I$	$12.02741 + 4.30908I$	$7.47308 - 2.21383I$
$u = -1.38824 + 0.60897I$ $a = 0.593747 - 0.651040I$ $b = -0.27948 - 2.56319I$	$12.02741 - 4.30908I$	$7.47308 + 2.21383I$
$u = -1.35988 - 0.65311I$ $a = -0.058130 - 0.886872I$ $b = -0.39139 - 3.66290I$	$11.4963 + 13.8946I$	$6.59320 - 8.24119I$
$u = -1.35988 + 0.65311I$ $a = -0.058130 + 0.886872I$ $b = -0.39139 + 3.66290I$	$11.4963 - 13.8946I$	$6.59320 + 8.24119I$
$u = -1.260839 - 0.032726I$ $a = -0.218091 - 0.886432I$ $b = 0.07148 - 2.21557I$	$5.88940 - 2.23703I$	$9.81871 + 3.17171I$
$u = -1.260839 + 0.032726I$ $a = -0.218091 + 0.886432I$ $b = 0.07148 + 2.21557I$	$5.88940 + 2.23703I$	$9.81871 - 3.17171I$
$u = -1.153569 - 0.455280I$ $a = -0.577895 - 0.088468I$ $b = -0.123541 + 0.688937I$	$0.72885 + 5.40223I$	$0.76570 - 5.29849I$
$u = -1.153569 + 0.455280I$ $a = -0.577895 + 0.088468I$ $b = -0.123541 - 0.688937I$	$0.72885 - 5.40223I$	$0.76570 + 5.29849I$

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.087850 - 0.046512I$ $a = 0.376309 - 1.154149I$ $b = 0.08249 - 3.57499I$	$6.39075 + 4.67632I$	$6.63994 - 3.34452I$
$u = -1.087850 + 0.046512I$ $a = 0.376309 + 1.154149I$ $b = 0.08249 + 3.57499I$	$6.39075 - 4.67632I$	$6.63994 + 3.34452I$
$u = -1.086042 - 0.309013I$ $a = -0.134864 + 1.017298I$ $b = 0.96499 + 2.04338I$	$4.31532 + 4.63289I$	$7.37710 - 5.03996I$
$u = -1.086042 + 0.309013I$ $a = -0.134864 - 1.017298I$ $b = 0.96499 - 2.04338I$	$4.31532 - 4.63289I$	$7.37710 + 5.03996I$
$u = -1.029524 - 0.333804I$ $a = 0.273111 - 0.744365I$ $b = -1.062748 - 0.265689I$	$-0.40755 + 4.20725I$	$0.31053 - 6.85372I$
$u = -1.029524 + 0.333804I$ $a = 0.273111 + 0.744365I$ $b = -1.062748 + 0.265689I$	$-0.40755 - 4.20725I$	$0.31053 + 6.85372I$
$u = -0.628086 - 0.011759I$ $a = -0.76361 - 1.86660I$ $b = 0.511707 - 0.778773I$	$5.00504 - 4.26604I$	$11.11018 + 2.65342I$
$u = -0.628086 + 0.011759I$ $a = -0.76361 + 1.86660I$ $b = 0.511707 + 0.778773I$	$5.00504 + 4.26604I$	$11.11018 - 2.65342I$
$u = -0.480287 - 0.488293I$ $a = -0.864357 - 0.262015I$ $b = -1.207531 + 0.101260I$	$-2.08809 - 0.78607I$	$-3.98062 - 1.52380I$
$u = -0.480287 + 0.488293I$ $a = -0.864357 + 0.262015I$ $b = -1.207531 - 0.101260I$	$-2.08809 + 0.78607I$	$-3.98062 + 1.52380I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.347952-0.680449I$ $a=-0.145116-0.640559I$ $b=-0.550550-0.741461I$	$-1.79468-0.95889I$	$-4.14280+1.57937I$
$u=-0.347952+0.680449I$ $a=-0.145116+0.640559I$ $b=-0.550550+0.741461I$	$-1.79468+0.95889I$	$-4.14280-1.57937I$
$u=-0.248057-1.187933I$ $a=-1.080896+0.174432I$ $b=\ \ 1.48256+0.53189I$	$7.94604-7.28946I$	$5.85423+5.70080I$
$u=-0.248057+1.187933I$ $a=-1.080896-0.174432I$ $b=\ \ 1.48256-0.53189I$	$7.94604+7.28946I$	$5.85423-5.70080I$
$u=-0.169899-1.183751I$ $a=\ \ 0.977658+0.522136I$ $b=-1.24731+0.93979I$	$8.11586+2.13977I$	$6.28937-0.51740I$
$u=-0.169899+1.183751I$ $a=\ \ 0.977658-0.522136I$ $b=-1.24731-0.93979I$	$8.11586-2.13977I$	$6.28937+0.51740I$
$u=\ \ 0.010942-0.814358I$ $a=\ \ 1.204071-0.360898I$ $b=-0.142030-0.656396I$	$0.986067-0.922209I$	$5.57805+0.78370I$
$u=\ \ 0.010942+0.814358I$ $a=\ \ 1.204071+0.360898I$ $b=-0.142030+0.656396I$	$0.986067+0.922209I$	$5.57805-0.78370I$
$u=\ \ 0.213178-1.155909I$ $a=\ \ 0.113479+0.723602I$ $b=-0.063002+0.215299I$	$4.28726+2.50747I$	$2.75724-2.68671I$
$u=\ \ 0.213178+1.155909I$ $a=\ \ 0.113479-0.723602I$ $b=-0.063002-0.215299I$	$4.28726-2.50747I$	$2.75724+2.68671I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.301724 - 0.398387I$ $a = 0.95370 - 1.34817I$ $b = 0.290241 - 0.488400I$	$0.450033 - 1.234717I$	$4.74084 + 5.50358I$
$u = 0.301724 + 0.398387I$ $a = 0.95370 + 1.34817I$ $b = 0.290241 + 0.488400I$	$0.450033 + 1.234717I$	$4.74084 - 5.50358I$
$u = 0.371907 - 0.887604I$ $a = -1.124251 - 0.005251I$ $b = 0.266407 - 0.850009I$	$-0.04250 + 4.54357I$	$1.88793 - 7.26372I$
$u = 0.371907 + 0.887604I$ $a = -1.124251 + 0.005251I$ $b = 0.266407 + 0.850009I$	$-0.04250 - 4.54357I$	$1.88793 + 7.26372I$
$u = 0.611417$ $a = 1.15720$ $b = -0.0192669$	1.69898	7.12316
$u = 0.723834 - 0.276102I$ $a = 0.016422 + 1.324742I$ $b = -0.61718 + 2.91051I$	$-0.88919 - 2.40502I$	$4.23135 + 7.49678I$
$u = 0.723834 + 0.276102I$ $a = 0.016422 - 1.324742I$ $b = -0.61718 - 2.91051I$	$-0.88919 + 2.40502I$	$4.23135 - 7.49678I$
$u = 0.961653 - 0.221131I$ $a = -0.684968 + 0.680475I$ $b = 0.961581 - 0.230355I$	$-0.0437779 + 0.0269953I$	$1.92084 - 0.19212I$
$u = 0.961653 + 0.221131I$ $a = -0.684968 - 0.680475I$ $b = 0.961581 + 0.230355I$	$-0.0437779 - 0.0269953I$	$1.92084 + 0.19212I$
$u = 1.035659 - 0.105451I$ $a = 0.619944 - 0.157919I$ $b = 0.049581 + 0.344007I$	$1.98030 - 0.48005I$	$3.97181 + 0.10468I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.035659 + 0.105451I$ $a = 0.619944 + 0.157919I$ $b = 0.049581 - 0.344007I$	$1.98030 + 0.48005I$	$3.97181 - 0.10468I$
$u = 1.04965$ $a = -0.808700$ $b = -1.42937$	2.68190	3.52272
$u = 1.187855 - 0.537240I$ $a = 0.033870 + 0.877672I$ $b = -1.29133 + 2.25907I$	$2.58119 - 9.82991I$	$3.68059 + 9.74649I$
$u = 1.187855 + 0.537240I$ $a = 0.033870 - 0.877672I$ $b = -1.29133 - 2.25907I$	$2.58119 + 9.82991I$	$3.68059 - 9.74649I$
$u = 1.279685 - 0.359861I$ $a = 0.348404 - 0.778179I$ $b = -0.14985 - 2.12750I$	$5.10574 - 3.32861I$	$8.68775 + 2.82645I$
$u = 1.279685 + 0.359861I$ $a = 0.348404 + 0.778179I$ $b = -0.14985 + 2.12750I$	$5.10574 + 3.32861I$	$8.68775 - 2.82645I$
$u = 1.35677 - 0.62431I$ $a = -0.557359 - 0.207593I$ $b = -0.855811 - 0.619829I$	$7.94022 - 8.91057I$	$3.69132 + 5.27448I$
$u = 1.35677 + 0.62431I$ $a = -0.557359 + 0.207593I$ $b = -0.855811 + 0.619829I$	$7.94022 + 8.91057I$	$3.69132 - 5.27448I$
$u = 1.43065 - 0.41648I$ $a = -0.079812 - 0.898014I$ $b = 0.36339 - 3.60048I$	$13.4799 - 7.6731I$	$8.99342 + 3.94688I$
$u = 1.43065 + 0.41648I$ $a = -0.079812 + 0.898014I$ $b = 0.36339 + 3.60048I$	$13.4799 + 7.6731I$	$8.99342 - 3.94688I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.45538 - 0.35264I$ $a = -0.487731 + 0.750918I$ $b = 0.27049 + 2.93111I$	$13.79828 + 1.96896I$	$9.43817 - 2.22913I$
$u = 1.45538 + 0.35264I$ $a = -0.487731 - 0.750918I$ $b = 0.27049 - 2.93111I$	$13.79828 - 1.96896I$	$9.43817 + 2.22913I$

II. $I^v_1 = \langle b^5 + 2b^4 + 3b^3 + 2b^2 + 2b + 1,\ -b^4 - 2b^3 - 3b^2 - b + v - 1,\ a\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.309916 + 0.549911I$ $a = 0$ $b = -0.871221 - 1.107662I$	$-1.31583 + 1.53058I$	$0.02124 - 2.62456I$
$v = 0.309916 - 0.549911I$ $a = 0$ $b = -0.871221 + 1.107662I$	$-1.31583 - 1.53058I$	$0.02124 + 2.62456I$
$v = 1.21774$ $a = 0$ $b = -0.629714$	0.756147	−2.67610
$v = -1.41878 - 0.21917I$ $a = 0$ $b = 0.186078 - 0.874646I$	$4.22763 + 4.40083I$	$0.31681 - 3.97407I$
$v = -1.41878 + 0.21917I$ $a = 0$ $b = 0.186078 + 0.874646I$	$4.22763 - 4.40083I$	$0.31681 + 3.97407I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^5(u^{52}+6u^{51}+\cdots-5u-1)$
c_2	$(u+1)^5(u^{52}+22u^{51}+\cdots-11u+1)$
c_3, c_7	$u^5(u^{52}+u^{51}+\cdots-232u^2+32)$
c_4	$(u+1)^5(u^{52}+6u^{51}+\cdots-5u-1)$
c_5	$(u^5-u^4+\cdots+u+1)(u^{52}+2u^{51}+\cdots+25u-17)$
c_6	$(u^5+u^4+\cdots+u+1)(u^{52}+2u^{51}+\cdots-u-1)$
c_8, c_9	$(u^5+u^4+\cdots+u-1)(u^{52}+2u^{51}+\cdots+25u-17)$
c_{10}	$(u^5-u^4+\cdots+u-1)(u^{52}+2u^{51}+\cdots-u-1)$
c_{11}	$(u^5-3u^4+\cdots-u+1)(u^{52}+30u^{51}+\cdots+5u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^5(y^{52}-22y^{51}+\cdots+11y+1)$
c_2	$(y-1)^5(y^{52}+22y^{51}+\cdots-349y+1)$
c_3, c_7	$y^5(y^{52}-33y^{51}+\cdots-14848y+1024)$
c_5	1.00000000000000 $(1y^5-5.00000000000000y^4+\cdots-y-1.00000000000000)$ $(1.00y^{52}-58.0y^{51}+\cdots-2.29\times10^3y+289.)$
c_6	1.00000000000 $(1y^5+3.0000000000y^4+\cdots-y-1.00000000000)$ $(1y^{52}+30.000000000y^{51}+\cdots+5.0000000000y+1.00000000000)$
c_8	$(y^5-5y^4+\cdots-y-1)(y^{52}-58y^{51}+\cdots-2291y+289)$
c_9	1.00000000000000 $(1y^5-5.00000000000000y^4+\cdots-y-1.00000000000000)$ $(1.00y^{52}-58.0y^{51}+\cdots-2.29\times10^3y+289.)$
c_{10}	$(y^5+3y^4+\cdots-y-1)(y^{52}+30y^{51}+\cdots+5y+1)$
c_{11}	1.000000000000000 $(1y^5-y^4+\cdots+3.000000000000000y-1.000000000000000)$ $(1.00y^{52}-14.0y^{51}+\cdots+21.0y+1.00)$