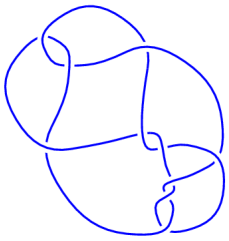
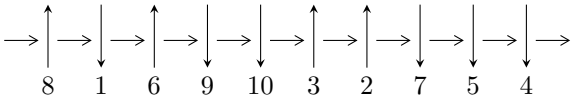
10_{29} $(K10a_{53})$



[1]

Arc Sequences



Solving Sequence

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

Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{31} - u^{30} + \cdots + 2u^2 + 1 \rangle$$

There are 1 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. $I_1^u = \langle u^{31} - u^{30} + \cdots + 2u^2 + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} -u^9 - 2u^7 - 3u^5 - 2u^3 - u \\ -u^9 - u^7 - u^5 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{14} + 3u^{12} + 6u^{10} + 7u^8 + 6u^6 + 4u^4 + 2u^2 + 1 \\ u^{14} + 2u^{12} + 3u^{10} + 2u^8 - u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{18} + 3u^{16} + 8u^{14} + 13u^{12} + 17u^{10} + 17u^8 + 12u^6 + 8u^4 + 3u^2 + 1 \\ u^{20} + 4u^{18} + 10u^{16} + 18u^{14} + 23u^{12} + 24u^{10} + 18u^8 + 10u^6 + 5u^4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^{26} + 5u^{24} + \cdots + 3u^2 + 1 \\ u^{26} + 4u^{24} + \cdots - 2u^4 + u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -4u^{30} - 20u^{28} - 4u^{27} - 68u^{26} - 20u^{25} - 160u^{24} - 64u^{23} - 300u^{22} - 144u^{21} - 460u^{20} - 252u^{19} - 592u^{18} - 364u^{17} - 660u^{16} - 436u^{15} - 628u^{14} - 452u^{13} - 528u^{12} - 396u^{11} - 380u^{10} - 296u^9 - 236u^8 - 188u^7 - 128u^6 - 92u^5 - 52u^4 - 40u^3 - 20u^2 - 12u - 6$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.752643-0.616875I$	$0.72976-2.73446I$	$-0.23310+3.38925I$
$u=-0.752643+0.616875I$	$0.72976+2.73446I$	$-0.23310-3.38925I$
$u=-0.709633-0.857826I$	$3.99591+2.71284I$	$3.89942-3.44665I$
$u=-0.709633+0.857826I$	$3.99591-2.71284I$	$3.89942+3.44665I$
$u=-0.696118-0.446614I$	$-5.89237+3.33239I$	$-5.23670-3.21859I$
$u=-0.696118+0.446614I$	$-5.89237-3.33239I$	$-5.23670+3.21859I$
$u=-0.673649-1.023568I$	$-0.47562+8.17190I$	$-2.44268-8.00325I$
$u=-0.673649+1.023568I$	$-0.47562-8.17190I$	$-2.44268+8.00325I$
$u=-0.611328-1.036445I$	$-7.51197+1.64856I$	$-8.01509-2.12263I$
$u=-0.611328+1.036445I$	$-7.51197-1.64856I$	$-8.01509+2.12263I$
$u=-0.495857$	-2.75281	-1.58212
$u=-0.307711-0.890519I$	$-5.22411+2.56488I$	$-9.16453-4.43258I$
$u=-0.307711+0.890519I$	$-5.22411-2.56488I$	$-9.16453+4.43258I$
$u=-0.048600-1.113390I$	$-11.00386+5.04935I$	$-11.12529-3.42516I$
$u=-0.048600+1.113390I$	$-11.00386-5.04935I$	$-11.12529+3.42516I$
$u=\ 0.028596-1.074733I$	$-4.89690-1.99617I$	$-7.89924+3.62729I$
$u=\ 0.028596+1.074733I$	$-4.89690+1.99617I$	$-7.89924-3.62729I$
$u=\ 0.330533-0.488116I$	$-0.107136-1.026304I$	$-1.81008+6.41690I$
$u=\ 0.330533+0.488116I$	$-0.107136+1.026304I$	$-1.81008-6.41690I$
$u=\ 0.630136-0.611565I$	$0.007927-0.929922I$	$-2.40372+3.68841I$
$u=\ 0.630136+0.611565I$	$0.007927+0.929922I$	$-2.40372-3.68841I$
$u=\ 0.642253-1.006365I$	$-1.14145-4.14236I$	$-4.20039+2.04013I$
$u=\ 0.642253+1.006365I$	$-1.14145+4.14236I$	$-4.20039-2.04013I$
$u=\ 0.680810-1.043631I$	$-6.33335-11.60291I$	$-6.34947+7.70694I$
$u=\ 0.680810+1.043631I$	$-6.33335+11.60291I$	$-6.34947-7.70694I$
$u=\ 0.711244-0.915096I$	$0.12823-5.89464I$	$-1.94513+6.44091I$
$u=\ 0.711244+0.915096I$	$0.12823+5.89464I$	$-1.94513-6.44091I$
$u=\ 0.730031-0.790482I$	$0.502956+0.402984I$	$-0.929300-0.528315I$
$u=\ 0.730031+0.790482I$	$0.502956-0.402984I$	$-0.929300+0.528315I$
$u=\ 0.794006-0.593785I$	$-4.99237+6.04082I$	$-4.35365-3.16093I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\ 0.794006+0.593785I$	$-4.99237-6.04082I$	$-4.35365+3.16093I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_7	$(u^{31}+u^{30}+\cdots-2u^2-1)$
c_2, c_8	$(u^{31}+11u^{30}+\cdots-4u-1)$
c_3, c_6	$(u^{31}+5u^{30}+\cdots+40u+7)$
c_4, c_5, c_9	$(u^{31}+u^{30}+\cdots+2u+1)$
c_{10}	$(u^{31}+3u^{30}+\cdots-13u+16)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_7	$(y^{31} + 11y^{30} + \cdots - 4y - 1)$
c_2, c_8	$(y^{31} + 19y^{30} + \cdots - 8y - 1)$
c_3, c_6	$(y^{31} + 23y^{30} + \cdots - 640y - 49)$
c_4, c_5, c_9	$(y^{31} - 29y^{30} + \cdots - 4y - 1)$
c_{10}	$(y^{31} - 9y^{30} + \cdots + 1481y - 256)$