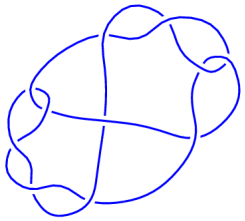
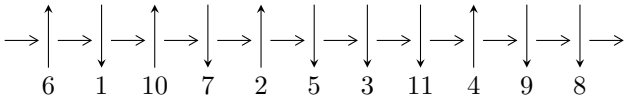
$11a_{119}$ ($K11a_{119}$)



[1]

Arc Sequences



Solving Sequence

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

Representation Ideals

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

$$I_1^u = \langle u^8 + u^6 + 3u^4 + 2u^2 - u + 1 \rangle$$
$$I_2^u = \langle u^{30} - u^{29} + \cdots + 2u + 1 \rangle$$

There are 2 irreducible components with 38 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. $I_1^u = \langle u^8 + u^6 + 3u^4 + 2u^2 - u + 1 \rangle$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} u^5 - u^4 - u^2 + u \\ u^7 + u^5 - u^4 + 2u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^7 + u^6 + u^4 - u^3 + u^2 + 1 \\ u^6 + u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^7 - u^5 + u^4 - 2u^3 + u^2 - u + 1 \\ u^6 + 2u^4 + u^3 + 2u^2 + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^7 - u^5 - 2u^3 + u^2 - u + 1 \\ u^4 + u^3 + u^2 + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^7 - u^5 - 2u^3 + u^2 - u + 1 \\ u^4 + u^3 + u^2 + 1 \end{pmatrix}$$

(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
$u=-0.894334-0.857566I$	$13.66308+0.79369I$	$4.03459-2.11393I$
$u=-0.894334+0.857566I$	$13.66308-0.79369I$	$4.03459+2.11393I$
$u=-0.338450-0.907350I$	$-2.36499+4.78635I$	$-7.25990-9.32742I$
$u=-0.338450+0.907350I$	$-2.36499-4.78635I$	$-7.25990+9.32742I$
$u=\ \ 0.392471-0.514949I$	$0.469731-1.216757I$	$2.55801+5.53294I$
$u=\ \ 0.392471+0.514949I$	$0.469731+1.216757I$	$2.55801-5.53294I$
$u=\ \ 0.840313-0.975020I$	$12.9062-12.0580I$	$2.66730+7.52058I$
$u=\ \ 0.840313+0.975020I$	$12.9062+12.0580I$	$2.66730-7.52058I$

II. $I_2^u = \langle u^{30} - u^{29} + \cdots + 2u + 1 \rangle$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -u^{11} - 2u^9 - 4u^7 - 4u^5 - 3u^3 \\ -u^{11} - u^9 - 2u^7 - u^5 + u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{20} + 3u^{18} + 9u^{16} + 16u^{14} + 24u^{12} + 25u^{10} + 21u^8 + 10u^6 + 3u^4 + u^2 + 1 \\ u^{20} + 2u^{18} + 6u^{16} + 8u^{14} + 9u^{12} + 6u^{10} - 4u^6 - 3u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{29} - 4u^{27} + \cdots - 6u^3 - u \\ -u^{29} - 3u^{27} + \cdots + u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2u^{29} - 7u^{27} + \cdots + u + 1 \\ -2u^{29} + u^{28} + \cdots + 5u + 2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2u^{29} - 7u^{27} + \cdots + u + 1 \\ -2u^{29} + u^{28} + \cdots + 5u + 2 \end{pmatrix}$$

(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
$u=-0.849380-0.882463I$	$6.81987+1.98171I$	$4.04276-2.49548I$
$u=-0.849380+0.882463I$	$6.81987-1.98171I$	$4.04276+2.49548I$
$u=-0.844833-0.970234I$	$13.3047+5.6388I$	$3.41159-2.70946I$
$u=-0.844833+0.970234I$	$13.3047-5.6388I$	$3.41159+2.70946I$
$u=-0.832514-0.928695I$	$6.67502+4.27520I$	$3.73863-2.74888I$
$u=-0.832514+0.928695I$	$6.67502-4.27520I$	$3.73863+2.74888I$
$u=-0.661870-0.335265I$	$6.67502-4.27520I$	$3.73863+2.74888I$
$u=-0.661870+0.335265I$	$6.67502+4.27520I$	$3.73863-2.74888I$
$u=-0.470358-0.199229I$	$-0.34244-1.73470I$	$-0.36395+4.47971I$
$u=-0.470358+0.199229I$	$-0.34244+1.73470I$	$-0.36395-4.47971I$
$u=-0.434887-0.955633I$	$4.70557+8.28968I$	$-1.16488-8.39094I$
$u=-0.434887+0.955633I$	$4.70557-8.28968I$	$-1.16488+8.39094I$
$u=-0.197860-0.871029I$	-3.14864	-11.0017
$u=-0.197860+0.871029I$	-3.14864	-11.0017
$u=-0.019728-0.944684I$	$2.41074-3.00115I$	$-4.85411+2.57684I$
$u=-0.019728+0.944684I$	$2.41074+3.00115I$	$-4.85411-2.57684I$
$u=\ 0.343092-0.793576I$	$-0.34244-1.73470I$	$-0.36395+4.47971I$
$u=\ 0.343092+0.793576I$	$-0.34244+1.73470I$	$-0.36395-4.47971I$
$u=\ 0.452252-0.939744I$	$5.01187-2.09461I$	$-0.30918+3.37423I$
$u=\ 0.452252+0.939744I$	$5.01187+2.09461I$	$-0.30918-3.37423I$
$u=\ 0.658622-0.369163I$	$6.81987-1.98171I$	$4.04276+2.49548I$
$u=\ 0.658622+0.369163I$	$6.81987+1.98171I$	$4.04276-2.49548I$
$u=\ 0.799403-0.896020I$	$2.41074-3.00115I$	$-4.85411+2.57684I$
$u=\ 0.799403+0.896020I$	$2.41074+3.00115I$	$-4.85411-2.57684I$
$u=\ 0.815148-0.948838I$	$4.70557-8.28968I$	$-1.16488+8.39094I$
$u=\ 0.815148+0.948838I$	$4.70557+8.28968I$	$-1.16488-8.39094I$
$u=\ 0.847869-0.850065I$	$5.01187+2.09461I$	$-0.30918-3.37423I$
$u=\ 0.847869+0.850065I$	$5.01187-2.09461I$	$-0.30918+3.37423I$
$u=\ 0.895044-0.849606I$	$13.3047+5.6388I$	$3.41159-2.70946I$
$u=\ 0.895044+0.849606I$	$13.3047-5.6388I$	$3.41159+2.70946I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_3, c_5 c_9	$(u^8+u^6+\cdots+u+1)(u^{30}+u^{29}+\cdots-2u+1)$
c_2, c_4, c_6 c_8, c_{10}, c_{11}	$(u^8+2u^7+7u^6+10u^5+15u^4+14u^3+10u^2+3u+1)$ $(u^{30}+7u^{29}+\cdots+4u^2+1)$
c_7	$(u^8+7u^7+26u^6+57u^5+81u^4+71u^3+42u^2+20u+8)$ $(7-5u+14u^2+u^3-5u^4+62u^5-48u^6+77u^7-44u^8+56u^9-28u^{10}+27u^{11}-12u^{12}+9$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_3, c_5	$(y^8 + 2y^7 + 7y^6 + 10y^5 + 15y^4 + 14y^3 + 10y^2 + 3y + 1)$
c_9	$(y^{30} + 7y^{29} + \cdots + 4y^2 + 1)$
c_2, c_4, c_6	$(y^8 + 10y^7 + 39y^6 + 74y^5 + 75y^4 + 58y^3 + 46y^2 + 11y + 1)$
c_8, c_{10}, c_{11}	$(y^{30} + 31y^{29} + \cdots + 8y + 1)$
c_7	$(y^8 + 3y^7 + 40y^6 + 53y^5 + 387y^4 - 101y^3 + 220y^2 + 272y + 64)$ $(-49 - 171y - 136y^2 + 193y^3 + 1289y^4 + 4582y^5 + 7598y^6 + 8711y^7 + 7320y^8 + 4766y^9 + 24$