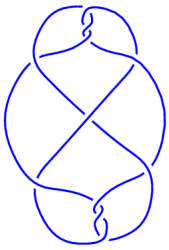
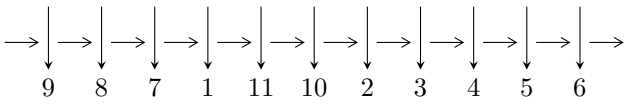
$11a_{357}$ $(K11a_{357})$



[1]

Arc Sequences



Solving Sequence

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

Representation Ideals

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

$$I_1^u = \langle u^9 - 4u^7 + 5u^5 + u^2 - 3u - 1 \rangle$$
$$I_2^u = \langle u^{36} - u^{35} + \cdots - 4u^3 + 1 \rangle$$

There are 2 irreducible components with 45 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. $I_1^u = \langle u^9 - 4u^7 + 5u^5 + u^2 - 3u - 1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^4 + u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^4 + u^2 + 1 \\ u^6 - 2u^4 + u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^7 - 2u^5 - u^4 + u^2 + u + 1 \\ -u^7 + u^6 + 3u^5 - 2u^4 - 2u^3 + u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^7 + 2u^5 - u^4 + u^2 - 2u \\ u^7 + u^6 - 3u^5 - 2u^4 + 2u^3 + u^2 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^8 + u^7 - 3u^6 - 2u^5 + 2u^4 + u^2 + 2u \\ -u^7 + 2u^5 + u^4 + u^3 - u^2 - 3u - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^8 - u^7 + 2u^6 + 3u^5 - u^4 - u^3 - 3u \\ u^8 - 2u^6 - u^5 + u^3 + u^2 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^8 - u^7 + 2u^6 + 3u^5 - u^4 - u^3 - 3u \\ u^8 - 2u^6 - u^5 + u^3 + u^2 + u \end{pmatrix}$$

(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
$u=-1.37937$	-11.3909	-21.8268
$u=-1.188582-0.361061I$	$0.69960-3.87858I$	$-10.64109+3.78555I$
$u=-1.188582+0.361061I$	$0.69960+3.87858I$	$-10.64109-3.78555I$
$u=-0.306233$	-0.504287	-19.6540
$u=0.098375-0.814801I$	$7.35406+4.61617I$	$-4.22495-4.01969I$
$u=0.098375+0.814801I$	$7.35406-4.61617I$	$-4.22495+4.01969I$
$u=1.18251$	-5.71950	-15.9090
$u=1.341754-0.354713I$	$-1.71371+13.05001I$	$-13.4391-8.3124I$
$u=1.341754+0.354713I$	$-1.71371-13.05001I$	$-13.4391+8.3124I$

II. $I_2^u = \langle u^{36} - u^{35} + \cdots - 4u^3 + 1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^4 + u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^4 + u^2 + 1 \\ u^6 - 2u^4 + u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^{14} + 5u^{12} - 8u^{10} + u^8 + 8u^6 - 4u^4 - 2u^2 + 1 \\ u^{14} - 6u^{12} + 13u^{10} - 10u^8 - 2u^6 + 4u^4 + u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^{11} - 4u^9 + 4u^7 + 2u^5 - 3u^3 - 2u \\ -u^{13} + 5u^{11} - 9u^9 + 6u^7 - u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{21} - 8u^{19} + \cdots + 6u^3 + u \\ -u^{23} + 9u^{21} + \cdots - 4u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{35} - 14u^{33} + \cdots - 3u + 1 \\ -u^{34} + 14u^{32} + \cdots + 2u - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{35} - 14u^{33} + \cdots - 3u + 1 \\ -u^{34} + 14u^{32} + \cdots + 2u - 1 \end{pmatrix}$$

(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
$u=-1.347925-0.085501I$	$-2.91493-2.96900I$	$-12.88830+4.22200I$
$u=-1.347925+0.085501I$	$-2.91493+2.96900I$	$-12.88830-4.22200I$
$u=-1.335909-0.303663I$	$-7.50591-6.65729I$	$-18.0029+5.6815I$
$u=-1.335909+0.303663I$	$-7.50591+6.65729I$	$-18.0029-5.6815I$
$u=-1.332130-0.356156I$	$2.86466-8.83442I$	$-8.85054+6.32425I$
$u=-1.332130+0.356156I$	$2.86466+8.83442I$	$-8.85054-6.32425I$
$u=-1.253707-0.284832I$	$-1.22218-2.17847I$	$-11.24475-0.74332I$
$u=-1.253707+0.284832I$	$-1.22218+2.17847I$	$-11.24475+0.74332I$
$u=-1.137595-0.360537I$	$-0.25332+4.56891I$	$-11.76762-2.55639I$
$u=-1.137595+0.360537I$	$-0.25332-4.56891I$	$-11.76762+2.55639I$
$u=-0.488414-0.379131I$	$-1.69882-5.26707I$	$-12.9078+7.0444I$
$u=-0.488414+0.379131I$	$-1.69882+5.26707I$	$-12.9078-7.0444I$
$u=-0.330280-0.456150I$	$-1.22218+2.17847I$	$-11.24475+0.74332I$
$u=-0.330280+0.456150I$	$-1.22218-2.17847I$	$-11.24475-0.74332I$
$u=-0.114880-0.814996I$	$2.86466-8.83442I$	$-8.85054+6.32425I$
$u=-0.114880+0.814996I$	$2.86466+8.83442I$	$-8.85054-6.32425I$
$u=-0.075687-0.812840I$	$4.10849-0.36044I$	$-7.24415+0.04898I$
$u=-0.075687+0.812840I$	$4.10849+0.36044I$	$-7.24415-0.04898I$
$u=-0.042366-0.732635I$	$2.49914-1.48028I$	$-7.39740+4.69129I$
$u=-0.042366+0.732635I$	$2.49914+1.48028I$	$-7.39740-4.69129I$
$u=0.125186-0.707270I$	$-2.91493+2.96900I$	$-12.88830-4.22200I$
$u=0.125186+0.707270I$	$-2.91493-2.96900I$	$-12.88830+4.22200I$
$u=0.410957-0.392187I$	$2.49914+1.48028I$	$-7.39740-4.69129I$
$u=0.410957+0.392187I$	$2.49914-1.48028I$	$-7.39740+4.69129I$
$u=0.629383$	-5.41700	-18.3114
$u=1.161329-0.360877I$	$4.10849-0.36044I$	$-7.24415+0.04898I$
$u=1.161329+0.360877I$	$4.10849+0.36044I$	$-7.24415-0.04898I$
$u=1.294406-0.195773I$	-6.07645	-17.0816
$u=1.294406+0.195773I$	-6.07645	-17.0816
$u=1.299395-0.312670I$	$-1.69882+5.26707I$	$-12.9078-7.0444I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=1.299395+0.312670I$	$-1.69882-5.26707I$	$-12.9078+7.0444I$
$u=1.31676$	-5.41700	-18.3114
$u=1.317493-0.356084I$	$-0.25332+4.56891I$	$-11.76762-2.55639I$
$u=1.317493+0.356084I$	$-0.25332-4.56891I$	$-11.76762+2.55639I$
$u=1.377056-0.080377I$	$-7.50591+6.65729I$	$-18.0029-5.6815I$
$u=1.377056+0.080377I$	$-7.50591-6.65729I$	$-18.0029+5.6815I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_3, c_4	$(u^9 + 4u^7 - 2u^6 + 5u^5 - 6u^4 - 2u^3 - 5u^2 - 5u - 1)$
c_6	$(u^{36} + 3u^{35} + \cdots - 12u - 7)$
c_2, c_5, c_7 c_8, c_{10}, c_{11}	$(u^9 - 4u^7 + \cdots - 3u + 1)(u^{36} + u^{35} + \cdots + 4u^3 + 1)$
c_9	$(u^9 + 7u^8 + 25u^7 + 54u^6 + 74u^5 + 55u^4 + u^3 - 42u^2 - 36u - 8)$ $(1 - 7u + 9u^2 - 13u^3 + 9u^4 - u^5 + 4u^6 - 9u^7 + 22u^8 - 25u^9 + 21u^{10} - 31u^{11} + 44u^{12} - 30u^{1}$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_3, c_4	$(y^9 + 8y^8 + 26y^7 + 32y^6 - 25y^5 - 116y^4 - 110y^3 - 17y^2 + 15y - 1)$
c_6	$(y^{36} + 23y^{35} + \cdots - 340y + 49)$
c_2, c_5, c_7	$(y^9 - 8y^8 + 26y^7 - 40y^6 + 19y^5 + 24y^4 - 30y^3 - y^2 + 11y - 1)$
c_8, c_{10}, c_{11}	$(y^{36} - 29y^{35} + \cdots + 8y^2 + 1)$
c_9	$(y^9 + y^8 + 17y^7 + 16y^6 + 102y^5 - 29y^4 + 157y^3 - 956y^2 + 624y - 64)$ $(1 - 31y - 83y^2 - 13y^3 + 45y^4 - 75y^5 - 224y^6 + 21y^7 + 354y^8 + 207y^9 + 449y^{10} + 25y^{11} + 6$