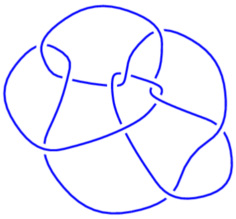
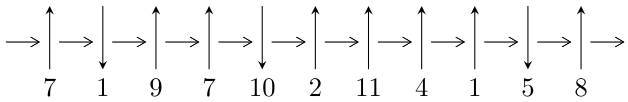
$11n_{122}$ ($K11n_{122}$)



1

Arc Sequences



Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{3} I_i^u$$

$$I_1^u = \langle b^6 + 4b^5 + 11b^4 + 10b^3 + 8b^2 + 2b + 1,\ -7b^5 - 25b^4 - 69b^3 - 54b^2 - 60b + 19u - 10,$$
$$12b^5 + 51b^4 + 140b^3 + 136b^2 + 92b + 19a + 28\rangle$$
$$I_2^u = \langle u^3 + u - 1,\ -u^2 + b - u,\ -u^2 + a - 1\rangle$$
$$I_3^u = \langle u^{16} - u^{15} + \cdots + 14u + 5,\ 3169332u^{15} - 3873553u^{14} + \cdots + 78266108b + 42681492,$$
$$-68965897u^{15} + 83246472u^{14} + \cdots + 782661080a - 2333564583\rangle$$

There are 3 irreducible components with 25 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. $\boldsymbol{I_1^u = \langle b^6+4b^5+11b^4+10b^3+8b^2+2b+1,\ -7b^5+19u+\cdots-60b-10,\ 12b^5+51b^4+\cdots+19a+28\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0\\0.368421b^5+1.31579b^4+\cdots+3.15789b+0.526316\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.368421b^5+1.31579b^4+\cdots+3.15789b+0.526316\\0.368421b^5+1.31579b^4+\cdots+3.15789b+0.526316\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.631579b^5-2.68421b^4+\cdots-4.84211b-1.47368\\b\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.631579b^5-2.68421b^4+\cdots-4.84211b-1.47368\\-0.631579b^5-2.68421b^4+\cdots-3.84211b-1.47368\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0\\-1\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.473684b^5+2.26316b^4+\cdots+5.63158b+2.10526\\b\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.947368b^5-3.52632b^4+\cdots-3.26316b+0.789474\\-0.789474b^5-3.10526b^4+\cdots-3.05263b-0.842105\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.368421b^5-1.31579b^4+\cdots-1.15789b+1.47368\\-b^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}b\\-0.210526b^5-0.894737b^4+\cdots+1.05263b-0.157895\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.526316b^5-1.73684b^4+\cdots-1.36842b+1.10526\\-0.157895b^5-0.421053b^4+\cdots-0.210526b-0.368421\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.526316b^5-1.73684b^4+\cdots-1.36842b+1.10526\\-0.157895b^5-0.421053b^4+\cdots-0.210526b-0.368421\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000I$ $a = -0.215080 + 1.307141I$ $b = -1.52978 - 2.18458I$	$3.02413 + 2.82812I$	$7.50976 - 2.97945I$
$u = -1.00000I$ $a = -0.215080 - 1.307141I$ $b = -1.52978 + 2.18458I$	$3.02413 - 2.82812I$	$7.50976 + 2.97945I$
$u = -1.00000I$ $a = -0.569840$ $b = -0.430160 - 0.754878I$	-1.11345	0.980489
$u = 1.00000I$ $a = -0.569840$ $b = -0.430160 + 0.754878I$	-1.11345	0.980489
$u = -1.00000I$ $a = -0.215080 + 1.307141I$ $b = -0.040058 - 0.429702I$	$3.02413 + 2.82812I$	$7.50976 - 2.97945I$
$u = 1.00000I$ $a = -0.215080 - 1.307141I$ $b = -0.040058 + 0.429702I$	$3.02413 - 2.82812I$	$7.50976 + 2.97945I$

II. $I_2^u = \langle u^3 + u - 1,\ -u^2 + b - u,\ -u^2 + a - 1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ u^2 + u \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} -u^2 - 1 \\ -u^2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -u + 1 \\ u^2 - u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u + 1 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

(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
$u = -0.341164 - 1.161541I$ $a = -0.232786 + 0.792552I$ $b = -1.57395 - 0.36899I$	1.64493	6.00000
$u = -0.341164 + 1.161541I$ $a = -0.232786 - 0.792552I$ $b = -1.57395 + 0.36899I$	1.64493	6.00000
$u = \;\; 0.682328$ $a = \;\; 1.46557$ $b = \;\; 1.14790$	1.64493	6.00000

III.

$\boldsymbol{I^u_3 = \langle u^{16} - u^{15} + \cdots + 14u + 5,\ 3.17 \times 10^6 u^{15} - 3.87 \times 10^6 u^{14} + \cdots + 7.83 \times 10^7 b + 4.27 \times 10^7,\ -6.90 \times 10^7 u^{15} + 8.32 \times 10^7 u^{14} + \cdots + 7.83 \times 10^8 a - 2.33 \times 10^9 \rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.0881172u^{15} - 0.106363u^{14} + \cdots - 1.75694u + 2.98158 \\ -0.0404943u^{15} + 0.0494921u^{14} + \cdots - 0.475198u - 0.545338 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0881172u^{15} - 0.106363u^{14} + \cdots - 1.75694u + 2.98158 \\ -0.0666612u^{15} + 0.0867678u^{14} + \cdots - 0.290059u - 0.636569 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.146114u^{15} - 0.176168u^{14} + \cdots - 3.58050u + 2.67329 \\ -0.142245u^{15} + 0.217246u^{14} + \cdots - 0.241323u - 0.898131 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.295676u^{15} - 0.375222u^{14} + \cdots + 2.18214u + 4.27038 \\ 0.0731003u^{15} - 0.121686u^{14} + \cdots - 0.170342u + 1.48163 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.539146u^{15} - 0.806823u^{14} + \cdots + 5.67472u + 7.01358 \\ 0.318586u^{15} - 0.390881u^{14} + \cdots + 0.0487607u + 4.11236 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.253272u^{15} + 0.339269u^{14} + \cdots + 3.64900u - 3.72169 \\ 0.0631942u^{15} - 0.115526u^{14} + \cdots + 1.97305u + 0.421239 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.136312u^{15} - 0.268499u^{14} + \cdots + 3.56108u + 1.69481 \\ 0.203960u^{15} - 0.180133u^{14} + \cdots + 0.369678u + 1.93594 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.136312u^{15} - 0.268499u^{14} + \cdots + 3.56108u + 1.69481 \\ 0.203960u^{15} - 0.180133u^{14} + \cdots + 0.369678u + 1.93594 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.501898 - 1.170947I$ $a = -0.503764 - 0.361443I$ $b = -0.0767367 + 0.0423889I$	$-4.05827 + 0.49300I$	$-0.617664 - 0.214534I$
$u = -0.501898 + 1.170947I$ $a = -0.503764 + 0.361443I$ $b = -0.0767367 - 0.0423889I$	$-4.05827 - 0.49300I$	$-0.617664 + 0.214534I$
$u = -0.353855 - 0.072083I$ $a = 3.59505 - 0.29198I$ $b = 1.07980 + 1.11316I$	$5.01976 + 2.82849I$	$13.14002 - 4.04275I$
$u = -0.353855 + 0.072083I$ $a = 3.59505 + 0.29198I$ $b = 1.07980 - 1.11316I$	$5.01976 - 2.82849I$	$13.14002 + 4.04275I$
$u = -0.21307 - 1.91064I$ $a = 0.524290 + 0.017898I$ $b = 0.308221 + 0.434571I$	$-15.2325 + 4.4644I$	$1.08918 - 2.21387I$
$u = -0.21307 + 1.91064I$ $a = 0.524290 - 0.017898I$ $b = 0.308221 - 0.434571I$	$-15.2325 - 4.4644I$	$1.08918 + 2.21387I$
$u = 0.05915 - 1.92604I$ $a = 0.262645 - 0.667097I$ $b = 0.57327 + 1.88623I$	$-11.56799 + 1.02407I$	$3.53875 - 0.89724I$
$u = 0.05915 + 1.92604I$ $a = 0.262645 + 0.667097I$ $b = 0.57327 - 1.88623I$	$-11.56799 - 1.02407I$	$3.53875 + 0.89724I$
$u = 0.191592 - 0.407882I$ $a = 0.865782 + 0.145223I$ $b = -0.139705 - 0.543596I$	$0.504151 - 0.997325I$	$7.27390 + 6.88407I$
$u = 0.191592 + 0.407882I$ $a = 0.865782 - 0.145223I$ $b = -0.139705 + 0.543596I$	$0.504151 + 0.997325I$	$7.27390 - 6.88407I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.219282 - 1.218529I$ $a = -0.005279 + 1.129211I$ $b = -0.23172 - 2.01108I$	$0.90149 + 3.13168I$	$3.23299 - 2.68195I$
$u = 0.219282 + 1.218529I$ $a = -0.005279 - 1.129211I$ $b = -0.23172 + 2.01108I$	$0.90149 - 3.13168I$	$3.23299 + 2.68195I$
$u = 0.31759 - 1.82628I$ $a = 0.377606 + 0.685129I$ $b = 1.93408 - 2.15013I$	$-10.6907 - 9.7305I$	$4.40505 + 4.74516I$
$u = 0.31759 + 1.82628I$ $a = 0.377606 - 0.685129I$ $b = 1.93408 + 2.15013I$	$-10.6907 + 9.7305I$	$4.40505 - 4.74516I$
$u = 0.781211 - 0.999484I$ $a = -0.816330 - 0.523237I$ $b = -1.94720 + 0.86621I$	$-1.06445 - 4.80370I$	$3.93778 + 5.08204I$
$u = 0.781211 + 0.999484I$ $a = -0.816330 + 0.523237I$ $b = -1.94720 - 0.86621I$	$-1.06445 + 4.80370I$	$3.93778 - 5.08204I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_6	$u^3(u^6+u^4+2u^2+1)(u^{16}+3u^{15}+\cdots-163u+62)$
c_2	$u^3(1+2u+u^2+u^3)^2(u^{16}+29u^{15}+\cdots+16707u+3844)$
c_3, c_8	$(u^2+1)^3(u^3+u+1)(u^{16}+u^{15}+\cdots-14u+5)$
c_4	$(u^3-2u^2+u+1)(u^6+4u^5+11u^4+10u^3+8u^2+2u+1)$ $(u^{16}+5u^{15}+\cdots-6u+67)$
c_5, c_{10}	$(u^2+1)^3(u^3+u+1)(u^{16}+u^{15}+\cdots-8u+5)$
c_7, c_{11}	$(u+1)^3(u^6-3u^4+2u^2+1)(u^{16}-2u^{15}+\cdots+u+2)$
c_9	$(u^3+u+1)(u^6-2u^5-u^4+8u^3+12u^2+6u+1)$ $(u^{16}+u^{15}+\cdots+2824u+1117)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_6	$y^3(1+2y+y^2+y^3)^2(y^{16}+29y^{15}+\cdots+16707y+3844)$
c_2	$y^3(y^3+3y^2+2y-1)^2$ $(y^{16}-75y^{15}+\cdots+939185823y+14776336)$
c_3, c_8	$(y+1)^6(y^3+2y^2+y-1)(y^{16}+27y^{15}+\cdots-96y+25)$
c_4	$(y^3-2y^2+5y-1)(y^6+6y^5+57y^4+62y^3+46y^2+12y+1)$ $(y^{16}+19y^{15}+\cdots+15374y+4489)$
c_5, c_{10}	$(y+1)^6(y^3+2y^2+y-1)(y^{16}-y^{15}+\cdots-64y+25)$
c_7, c_{11}	$(y-1)^3(1+2y-3y^2+y^3)^2(y^{16}-12y^{15}+\cdots+19y+4)$
c_9	$(y^3+2y^2+y-1)(y^6-6y^5+57y^4-62y^3+46y^2-12y+1)$ $(y^{16}+51y^{15}+\cdots-7186374y+1247689)$