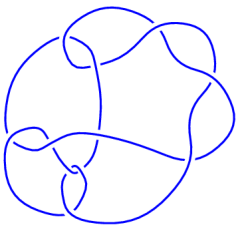
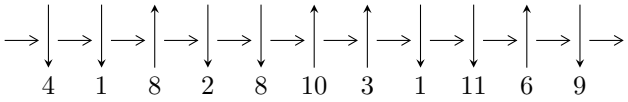
$11n_{28}$ $(K11n_{28})$



1

Arc Sequences



Solving Sequence

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

Representation Ideals

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

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

$I_2^u = \langle u^{14} + u^{13} + \cdots + 5u + 1,$

$-271965455479u^{13} - 11438964108u^{12} + \cdots + 2446025522016a + 14628820700249,$

$-308923491301u^{13} - 413049036210u^{12} + \cdots + 4892051044032b - 3107040395155 \rangle$

There are 2 irreducible components with 18 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. $I_1^u = \langle b^4 + b^2 - b + 1,\ u - 1,\ -b^3 - b + a + 1 \rangle$

(i) Arc colorings

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

(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
$u = \quad 1.00000$ $a = \quad 0.351808 - 0.720342I$ $b = -0.547424 - 1.120873I$	$-1.85594 - 1.41510I$	$-5.13523 + 6.85627I$
$u = \quad 1.00000$ $a = \quad 0.351808 + 0.720342I$ $b = -0.547424 + 1.120873I$	$-1.85594 + 1.41510I$	$-5.13523 - 6.85627I$
$u = \quad 1.00000$ $a = -0.851808 - 0.911292I$ $b = \quad 0.547424 - 0.585652I$	$5.14581 + 3.16396I$	$0.63523 - 2.29471I$
$u = \quad 1.00000$ $a = -0.851808 + 0.911292I$ $b = \quad 0.547424 + 0.585652I$	$5.14581 - 3.16396I$	$0.63523 + 2.29471I$

II. $I_2^u =$
$\langle u^{14}+u^{13}+\cdots+5u+1,\ -2.72\times10^{11}u^{13}-1.14\times10^{10}u^{12}+\cdots+2.45\times10^{12}a+1.46\times10^{13},\ -3.09\times10^{11}u^{13}-4.13\times10^{11}u^{12}+\cdots+4.89\times10^{12}b-3.11\times10^{12}\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.111187u^{13}+0.00467655u^{12}+\cdots-5.37669u-5.98065\\0.0631481u^{13}+0.0844327u^{12}+\cdots+5.48597u+0.635120\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.837327u^{13}+0.807911u^{12}+\cdots+35.8519u+0.145921\\-0.0747090u^{13}-0.0508090u^{12}+\cdots+0.907321u+0.616101\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0.111187u^{13}+0.00467655u^{12}+\cdots-5.37669u-5.98065\\0.0680857u^{13}+0.0928447u^{12}+\cdots+5.06461u+0.528610\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.501986u^{13}+0.489429u^{12}+\cdots+22.6456u-1.10759\\-0.0584250u^{13}-0.0317344u^{12}+\cdots+1.59756u+0.586684\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.155664u^{13}-0.198576u^{12}+\cdots-7.49944u-3.10013\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.0429122u^{13}+0.0234198u^{12}+\cdots+2.32181u+0.844336\\-u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.762618u^{13}+0.757102u^{12}+\cdots+36.7592u+0.762022\\-0.0747090u^{13}-0.0508090u^{12}+\cdots+0.907321u+0.616101\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.653072u^{13}-0.640947u^{12}+\cdots-21.7576u+1.26505\\-0.0251734u^{13}-0.0694250u^{12}+\cdots-2.74279u-0.684274\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.540734u^{13}-0.518543u^{12}+\cdots-18.1346u+1.76849\\-0.0121243u^{13}-0.0580186u^{12}+\cdots-2.53041u-0.653072\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.540734u^{13}-0.518543u^{12}+\cdots-18.1346u+1.76849\\-0.0121243u^{13}-0.0580186u^{12}+\cdots-2.53041u-0.653072\end{pmatrix}$$

(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
$u=-0.841212-1.029315I$ $a=-0.025061-0.872571I$ $b=\ \ 1.268210-0.615843I$	$7.00688-0.55948I$	$2.27714+0.75874I$
$u=-0.841212+1.029315I$ $a=-0.025061+0.872571I$ $b=\ \ 1.268210+0.615843I$	$7.00688+0.55948I$	$2.27714-0.75874I$
$u=-0.337193-1.184656I$ $a=\ \ 0.920439-0.366491I$ $b=-1.54747+0.60627I$	$6.27413+5.41755I$	$1.11952-5.07443I$
$u=-0.337193+1.184656I$ $a=\ \ 0.920439+0.366491I$ $b=-1.54747-0.60627I$	$6.27413-5.41755I$	$1.11952+5.07443I$
$u=-0.196229-0.341059I$ $a=-1.93607+0.51409I$ $b=-0.550908-0.305501I$	$0.65784+1.53044I$	$1.45925-4.48215I$
$u=-0.196229+0.341059I$ $a=-1.93607-0.51409I$ $b=-0.550908+0.305501I$	$0.65784-1.53044I$	$1.45925+4.48215I$
$u=-0.17769-2.99241I$ $a=\ \ 0.294120+0.345863I$ $b=-2.42912+0.26319I$	$18.9281+1.0022I$	$1.174737+0.209171I$
$u=-0.17769+2.99241I$ $a=\ \ 0.294120-0.345863I$ $b=-2.42912-0.26319I$	$18.9281-1.0022I$	$1.174737-0.209171I$
$u=-0.038211-0.159690I$ $a=-5.38896+0.83379I$ $b=\ \ 0.190892-0.700537I$	$-0.35154+1.84409I$	$-0.79789-4.83996I$
$u=-0.038211+0.159690I$ $a=-5.38896-0.83379I$ $b=\ \ 0.190892+0.700537I$	$-0.35154-1.84409I$	$-0.79789+4.83996I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.07654 - 2.96001I$ $a = -0.329002 + 0.327325I$ $b = 2.94643 + 0.61854I$	$18.7301 + 8.0616I$	$0.87427 - 4.09385I$
$u = 0.07654 + 2.96001I$ $a = -0.329002 - 0.327325I$ $b = 2.94643 - 0.61854I$	$18.7301 - 8.0616I$	$0.87427 + 4.09385I$
$u = 1.013993 - 0.325583I$ $a = -0.035467 - 0.501132I$ $b = 0.621959 - 1.014427I$	$-1.89748 + 0.70166I$	$-5.60702 + 2.76477I$
$u = 1.013993 + 0.325583I$ $a = -0.035467 + 0.501132I$ $b = 0.621959 + 1.014427I$	$-1.89748 - 0.70166I$	$-5.60702 - 2.76477I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^4(u^{14}+5u^{13}+\cdots+3u+1)$
c_2	$(u+1)^4(u^{14}+u^{13}+\cdots+5u+1)$
c_3, c_7	$u^4(u^{14}+u^{13}+\cdots+72u+16)$
c_4	$(u+1)^4(u^{14}+5u^{13}+\cdots+3u+1)$
c_5	$(u^4-u^3+3u^2-2u+1)(u^{14}+2u^{13}+\cdots-540u+200)$
c_6	$(u^4-u^3+u^2+1)(u^{14}+2u^{13}+\cdots+u+1)$
c_8, c_9	$(u^4-u^3+3u^2-2u+1)(u^{14}+2u^{13}+\cdots+7u+1)$
c_{10}	$(u^4+u^3+u^2+1)(u^{14}+2u^{13}+\cdots+u+1)$
c_{11}	$(u^4+u^3+3u^2+2u+1)(u^{14}+2u^{13}+\cdots+7u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^4(y^{14}+y^{13}+\cdots+5y+1)$
c_2	$(y-1)^4(y^{14}+37y^{13}+\cdots+73y+1)$
c_3, c_7	$y^4(y^{14}-27y^{13}+\cdots-832y+256)$
c_5	$(y^4+5y^3+\cdots+2y+1)(y^{14}+82y^{13}+\cdots+531600y+40000)$
c_6, c_{10}	$(y^4+y^3+3y^2+2y+1)(y^{14}+2y^{13}+\cdots+7y+1)$
c_8, c_9, c_{11}	$(y^4+5y^3+\cdots+2y+1)(y^{14}+22y^{13}+\cdots+7y+1)$