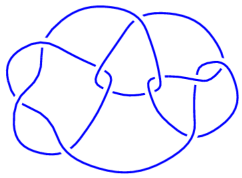
$11n_{25}$ $(K11n_{25})$



[1]

Arc Sequences

$$\to \downarrow_{4} \to \downarrow_{1} \to \uparrow_{8} \to \downarrow_{2} \to \downarrow_{8} \to \uparrow_{10} \to \uparrow_{3} \to \downarrow_{11} \to \downarrow_{1} \to \uparrow_{6} \to \downarrow_{9} \to$$

Solving Sequence

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

Representation Ideals

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

$$\begin{aligned}
I_1^u &= \langle a^5 - 4a^3 + 5a^2 - 2a + 1,\ u - 1,\ 4a^4 + 2a^3 - 15a^2 + 5b + 10a - 3 \rangle \\
I_2^u &= \langle u^{28} + 6u^{27} + \cdots - 5u - 1, \\
&\quad 9638303859u^{27} + 52339632768u^{26} + \cdots + 6328729192b - 20601849560, \\
&\quad 50635683183u^{27} + 281882635795u^{26} + \cdots + 12657458384a - 138622973167 \rangle
\end{aligned}$$

There are 2 irreducible components with 33 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. $\boldsymbol{I_1^u = \langle a^5 - 4a^3 + 5a^2 - 2a + 1,\ u - 1,\ 4a^4 + 2a^3 - 15a^2 + 5b + 10a - 3\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ -\frac{4}{5}a^4 - \frac{2}{5}a^3 + 3a^2 - 2a + \frac{3}{5} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{4}{5}a^4 + \frac{2}{5}a^3 - 3a^2 + 3a - \frac{3}{5} \\ -\frac{4}{5}a^4 - \frac{2}{5}a^3 + 3a^2 - 2a + \frac{3}{5} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{2}{5}a^4 + \frac{1}{5}a^3 - 2a^2 + a + \frac{1}{5} \\ \frac{3}{5}a^4 + \frac{4}{5}a^3 - 2a^2 - \frac{1}{5} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ \frac{1}{5}a^4 + \frac{3}{5}a^3 - a - \frac{2}{5} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1 \\ \frac{2}{5}a^4 + \frac{6}{5}a^3 - a + \frac{1}{5} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ \frac{1}{5}a^4 + \frac{3}{5}a^3 - a - \frac{2}{5} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ \frac{1}{5}a^4 + \frac{3}{5}a^3 - a - \frac{2}{5} \end{pmatrix}$$

(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
$u = 1.00000$ $a = -2.52181$ $b = -1.21774$	-4.04602	-10.7190
$u = 1.00000$ $a = 0.118634 - 0.489365I$ $b = -0.309916 + 0.549911I$	$-1.97403 + 1.53058I$	$-6.52924 - 5.40154I$
$u = 1.00000$ $a = 0.118634 + 0.489365I$ $b = -0.309916 - 0.549911I$	$-1.97403 - 1.53058I$	$-6.52924 + 5.40154I$
$u = 1.00000$ $a = 1.142272 - 0.509071I$ $b = 1.41878 + 0.21917I$	$-7.51750 - 4.40083I$	$-11.11126 + 1.16747I$
$u = 1.00000$ $a = 1.142272 + 0.509071I$ $b = 1.41878 - 0.21917I$	$-7.51750 + 4.40083I$	$-11.11126 - 1.16747I$

II.
$\boldsymbol{I_2^u = \langle u^{28}+6u^{27}+\cdots-5u-1,\ 9.64\times10^9u^{27}+5.23\times10^{10}u^{26}+\cdots+6.33\times10^9b-2.06\times10^{10},\ 5.06\times10^{10}u^{27}+2.82\times10^{11}u^{26}+\cdots+1.27\times10^{10}a-1.39\times10^{11}\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-4.00046u^{27}-22.2701u^{26}+\cdots+20.3633u+10.9519\\-1.52294u^{27}-8.27016u^{26}+\cdots+8.65519u+3.25529\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-2.47752u^{27}-13.9999u^{26}+\cdots+11.7081u+7.69659\\-1.52294u^{27}-8.27016u^{26}+\cdots+8.65519u+3.25529\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}6.28771u^{27}+35.0870u^{26}+\cdots-34.7666u-14.8747\\1.84572u^{27}+10.8568u^{26}+\cdots-14.3792u-5.66634\end{pmatrix}$$
$$a_8 = \begin{pmatrix}3.82346u^{27}+21.1363u^{26}+\cdots-22.7235u-7.90968\\1.72945u^{27}+10.4516u^{26}+\cdots-14.3019u-5.55290\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u^4-u^2-2u+1\\-\frac{1}{16}u^{27}-\frac{5}{16}u^{26}+\cdots+\frac{1}{4}u+\frac{1}{16}\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1.46822u^{27}+9.01064u^{26}+\cdots-12.4207u-4.62805\\2.28027u^{27}+12.2926u^{26}+\cdots-13.3972u-5.01107\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1.46822u^{27}+9.01064u^{26}+\cdots-12.4207u-4.62805\\2.28027u^{27}+12.2926u^{26}+\cdots-13.3972u-5.01107\end{pmatrix}$$

(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
$u = -1.19993 - 0.90908I$ $a = -0.28768 + 1.47974I$ $b = -1.35468 - 0.45041I$	$3.42542 - 12.18295I$	$-4.89577 + 7.01706I$
$u = -1.19993 + 0.90908I$ $a = -0.28768 - 1.47974I$ $b = -1.35468 + 0.45041I$	$3.42542 + 12.18295I$	$-4.89577 - 7.01706I$
$u = -1.08859 - 0.96445I$ $a = 0.398928 - 1.004300I$ $b = 0.078918 + 0.962099I$	$7.91461 - 7.14026I$	$-1.25171 + 4.70902I$
$u = -1.08859 + 0.96445I$ $a = 0.398928 + 1.004300I$ $b = 0.078918 - 0.962099I$	$7.91461 + 7.14026I$	$-1.25171 - 4.70902I$
$u = -1.009534 - 0.935602I$ $a = 0.36725 - 1.61724I$ $b = 1.338027 + 0.423130I$	$4.11604 - 5.09421I$	$-3.90084 + 3.07789I$
$u = -1.009534 + 0.935602I$ $a = 0.36725 + 1.61724I$ $b = 1.338027 - 0.423130I$	$4.11604 + 5.09421I$	$-3.90084 - 3.07789I$
$u = -0.935182 - 0.968465I$ $a = -0.288301 + 0.440523I$ $b = 1.236485 - 0.512229I$	$4.35345 - 1.91548I$	$-3.75065 + 1.71492I$
$u = -0.935182 + 0.968465I$ $a = -0.288301 - 0.440523I$ $b = 1.236485 + 0.512229I$	$4.35345 + 1.91548I$	$-3.75065 - 1.71492I$
$u = -0.911044 - 1.077816I$ $a = -0.458098 + 1.032117I$ $b = -0.064858 - 0.917024I$	$8.51104 - 0.29713I$	$-0.154356 + 0.088934I$
$u = -0.911044 + 1.077816I$ $a = -0.458098 - 1.032117I$ $b = -0.064858 + 0.917024I$	$8.51104 + 0.29713I$	$-0.154356 - 0.088934I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.75795 - 1.19696I$ $a = 0.390377 - 0.447368I$ $b = -1.238707 + 0.461764I$	$4.88950 + 4.61956I$	$-3.15122 - 3.64430I$
$u = -0.75795 + 1.19696I$ $a = 0.390377 + 0.447368I$ $b = -1.238707 - 0.461764I$	$4.88950 - 4.61956I$	$-3.15122 + 3.64430I$
$u = -0.718471 - 0.266513I$ $a = -1.52427 + 1.03156I$ $b = -1.46446 - 0.20354I$	$-6.89024 - 4.97150I$	$-3.93501 + 6.51666I$
$u = -0.718471 + 0.266513I$ $a = -1.52427 - 1.03156I$ $b = -1.46446 + 0.20354I$	$-6.89024 + 4.97150I$	$-3.93501 - 6.51666I$
$u = -0.400892 - 0.243999I$ $a = 0.950705 - 0.523467I$ $b = 0.429683 + 0.631440I$	$-0.69638 - 1.96456I$	$-1.12748 + 4.70329I$
$u = -0.400892 + 0.243999I$ $a = 0.950705 + 0.523467I$ $b = 0.429683 - 0.631440I$	$-0.69638 + 1.96456I$	$-1.12748 - 4.70329I$
$u = -0.368305$ $a = 4.11745$ $b = 1.29906$	-2.76755	-1.63488
$u = 0.228563 - 0.587267I$ $a = -0.73804 + 1.26670I$ $b = -0.018893 - 0.524896I$	$0.76347 + 1.52310I$	$1.12747 - 4.03193I$
$u = 0.228563 + 0.587267I$ $a = -0.73804 - 1.26670I$ $b = -0.018893 + 0.524896I$	$0.76347 - 1.52310I$	$1.12747 + 4.03193I$
$u = 0.437353 - 0.245772I$ $a = -2.11505 + 1.83903I$ $b = 1.062795 - 0.195424I$	$-2.13241 + 0.82619I$	$-5.35184 + 1.04773I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.437353 + 0.245772I$ $a = -2.11505 - 1.83903I$ $b = 1.062795 + 0.195424I$	$-2.13241 - 0.82619I$	$-5.35184 - 1.04773I$
$u = 0.567968 - 0.981093I$ $a = 0.677871 - 0.778475I$ $b = -1.184168 + 0.243247I$	$-2.65368 + 4.42550I$	$-6.50791 - 7.50568I$
$u = 0.567968 + 0.981093I$ $a = 0.677871 + 0.778475I$ $b = -1.184168 - 0.243247I$	$-2.65368 - 4.42550I$	$-6.50791 + 7.50568I$
$u = 1.026243 - 0.160821I$ $a = -0.585416 + 0.602683I$ $b = 0.194298 - 0.209673I$	$-1.90419 + 0.70187I$	$-5.30439 + 2.49815I$
$u = 1.026243 + 0.160821I$ $a = -0.585416 - 0.602683I$ $b = 0.194298 + 0.209673I$	$-1.90419 - 0.70187I$	$-5.30439 - 2.49815I$
$u = 1.07174$ $a = 4.01472$ $b = 1.08514$	-3.64067	25.0753
$u = 1.40975 - 0.40034I$ $a = -0.354368 - 0.681108I$ $b = -1.206546 + 0.074740I$	$-5.80044 + 1.71298I$	$-12.51650 - 3.41779I$
$u = 1.40975 + 0.40034I$ $a = -0.354368 + 0.681108I$ $b = -1.206546 - 0.074740I$	$-5.80044 - 1.71298I$	$-12.51650 + 3.41779I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^5(u^{28}+6u^{27}+\cdots-5u-1)$
c_2	$(u+1)^5(u^{28}+6u^{27}+\cdots+17u+1)$
c_3, c_7	$u^5(u^{28}+3u^{27}+\cdots+128u+32)$
c_4	$(u+1)^5(u^{28}+6u^{27}+\cdots-5u-1)$
c_5	$(u^5-3u^4+\cdots-u+1)(u^{28}+6u^{27}+\cdots+3079u-1609)$
c_6	$(u^5-u^4+\cdots+u-1)(u^{28}+2u^{27}+\cdots-u-1)$
c_8, c_9	$(u^5+u^4+\cdots+u-1)(u^{28}+2u^{27}+\cdots-5u+1)$
c_{10}	$(u^5+u^4+\cdots+u+1)(u^{28}+2u^{27}+\cdots-u-1)$
c_{11}	$(u^5-u^4+\cdots+u+1)(u^{28}+2u^{27}+\cdots-5u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^5(y^{28} - 6y^{27} + \cdots - 17y + 1)$
c_2	$(y-1)^5(y^{28} + 38y^{27} + \cdots - 17y + 1)$
c_3, c_7	$y^5(y^{28} - 33y^{27} + \cdots - 14848y + 1024)$
c_5	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)$ $(y^{28} + 22y^{27} + \cdots + 19658749y + 2588881)$
c_6, c_{10}	$(y^5 + 3y^4 + \cdots - y - 1)(y^{28} + 6y^{27} + \cdots + 5y + 1)$
c_8, c_9, c_{11}	$(y^5 - 5y^4 + \cdots - y - 1)(y^{28} - 22y^{27} + \cdots + 5y + 1)$