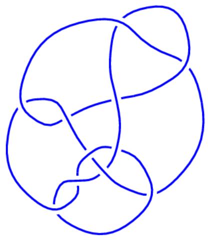
$11n_{41}$ ($K11n_{41}$)



[1]

Arc Sequences

$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$	$\uparrow$	$\downarrow$	$\downarrow$	$\downarrow$	$\uparrow$	$\downarrow$	$\uparrow$
4	1	7	2	10	9	4	11	1	8	6

Solving Sequence

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

Representation Ideals

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

$$I_1^u = \langle b^6 + b^5 - b^4 - 2b^3 + b + 1,\ u - 1,\ -b^4 + 2b^2 + a - 2\rangle$$

$$I_2^u = \langle u^3 + u^2 - 1,\ b,\ -3u^2 + a - 5u - 4\rangle$$

$$I_3^u = \langle u^{35} + 8u^{34} + \cdots + 9u + 1,\ 5.06381 \times 10^{26}u^{34} + 3.18576 \times 10^{27}u^{33} + \cdots + 7.97336 \times 10^{26}b - 1.25386 \times 10^{26}$$
$$- 4.65925 \times 10^{25}u^{34} + 3.98163 \times 10^{24}u^{33} + \cdots + 7.97336 \times 10^{26}a + 6.92161 \times 10^{26}\rangle$$

There are 3 irreducible components with 44 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. $\boldsymbol{I_1^u = \langle b^6 + b^5 - b^4 - 2b^3 + b + 1,\ u - 1,\ -b^4 + 2b^2 + a - 2\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} b^4 - 2b^2 + 2 \\ b \end{pmatrix}$$

$$a_6 = \begin{pmatrix} b^5 - 2b^3 + 2b - 1 \\ b^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} b^4 - 2b^2 - b + 2 \\ b \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ b^4 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} b^4 - 2b^2 + 2 \\ b^4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ b^4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ b^4 \end{pmatrix}$$

(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
$u = 1.00000$ $a = -0.415113 - 0.381252I$ $b = -1.073950 - 0.558752I$	$-1.64493 + 5.69302I$	$-11.7058 - 8.3306I$
$u = 1.00000$ $a = -0.415113 + 0.381252I$ $b = -1.073950 + 0.558752I$	$-1.64493 - 5.69302I$	$-11.7058 + 8.3306I$
$u = 1.00000$ $a = 2.25915 - 1.43225I$ $b = -0.428243 - 0.664531I$	$-3.53554 - 0.92430I$	$-12.60470 - 5.55069I$
$u = 1.00000$ $a = 2.25915 + 1.43225I$ $b = -0.428243 + 0.664531I$	$-3.53554 + 0.92430I$	$-12.60470 + 5.55069I$
$u = 1.00000$ $a = 0.655968 + 0.098281I$ $b = 1.002193 - 0.295542I$	$0.245672 - 0.924305I$	$-5.68949 + 0.25702I$
$u = 1.00000$ $a = 0.655968 - 0.098281I$ $b = 1.002193 + 0.295542I$	$0.245672 + 0.924305I$	$-5.68949 - 0.25702I$

II. $I_2^u = \langle u^3 + u^2 - 1,\ b,\ -3u^2 + a - 5u - 4 \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^2 + u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 3u^2 + 5u + 4 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 9u^2 + 15u + 12 \\ u^2 + u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 3u^2 + 5u + 4 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u^2 + u - 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 3u^2 + 6u + 4 \\ -2u^2 - u + 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ 2u^2 + u - 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ 2u^2 + u - 2 \end{pmatrix}$$

(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
$u = -0.877439 - 0.744862I$ $a = 0.258045 + 0.197115I$ $b = 0$	$1.37919 - 2.82812I$	$-9.0124 + 12.0277I$
$u = -0.877439 + 0.744862I$ $a = 0.258045 - 0.197115I$ $b = 0$	$1.37919 + 2.82812I$	$-9.0124 - 12.0277I$
$u = 0.754878$ $a = 9.48391$ $b = 0$	-2.75839	-102.975

III. $\boldsymbol{I^u_3 =}$
$\boldsymbol{\langle u^{35}+8u^{34}+\cdots+9u+1,\ 5.06\times10^{26}u^{34}+3.19\times10^{27}u^{33}+\cdots+7.97\times10^{26}b-1.25\times10^{26},\ -4.66\times10^{25}u^{34}+3.98\times10^{24}u^{33}+\cdots+7.97\times10^{26}a+6.92\times10^{26}\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.0584352u^{34}-0.00499367u^{33}+\cdots+87.4344u-0.868092\\-0.635091u^{34}-3.99551u^{33}+\cdots+1.26311u+0.157257\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-1.72094u^{34}-17.6948u^{33}+\cdots+67.6060u+13.1818\\-0.291426u^{34}-1.97724u^{33}+\cdots-9.21351u-0.566549\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.693526u^{34}+3.99051u^{33}+\cdots+86.1713u-1.02535\\-0.635091u^{34}-3.99551u^{33}+\cdots+1.26311u+0.157257\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.135945u^{34}+1.32830u^{33}+\cdots+28.8699u-0.0316372\\0.201606u^{34}+1.17050u^{33}+\cdots+2.73205u+0.337551\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.242664u^{34}-0.573718u^{33}+\cdots-63.3575u-0.192908\\0.239495u^{34}+1.52839u^{33}+\cdots-0.429444u-0.0968115\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.135945u^{34}+1.32830u^{33}+\cdots+28.8699u-0.0316372\\-0.239495u^{34}-1.52839u^{33}+\cdots+0.429444u+0.0968115\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.135945u^{34}+1.32830u^{33}+\cdots+28.8699u-0.0316372\\-0.239495u^{34}-1.52839u^{33}+\cdots+0.429444u+0.0968115\end{pmatrix}$$

(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
$u=-1.75068-0.06096I$ $a=\ 0.777922+1.044169I$ $b=\ 1.93922+1.67518I$	$-14.4753-2.5419I$	$-13.83151+2.70823I$
$u=-1.75068+0.06096I$ $a=\ 0.777922-1.044169I$ $b=\ 1.93922-1.67518I$	$-14.4753+2.5419I$	$-13.83151-2.70823I$
$u=-1.72022-0.43828I$ $a=\ 0.296229+1.018866I$ $b=-0.61061+1.35195I$	$-15.2163-5.6356I$	$-10.75742+2.79420I$
$u=-1.72022+0.43828I$ $a=\ 0.296229-1.018866I$ $b=-0.61061-1.35195I$	$-15.2163+5.6356I$	$-10.75742-2.79420I$
$u=-1.70107-0.39786I$ $a=-0.17360-1.42986I$ $b=\ 1.20989-1.48650I$	$-15.7071-13.7623I$	$-9.89343+6.24021I$
$u=-1.70107+0.39786I$ $a=-0.17360+1.42986I$ $b=\ 1.20989+1.48650I$	$-15.7071+13.7623I$	$-9.89343-6.24021I$
$u=-1.68600$ $a=\ 0.808929$ $b=-0.920335$	-11.4779	0.0900530
$u=-1.68299-0.18586I$ $a=-0.18783+1.58377I$ $b=-1.25568+1.90551I$	$-9.90660-6.51942I$	$-9.48439+5.38265I$
$u=-1.68299+0.18586I$ $a=-0.18783-1.58377I$ $b=-1.25568-1.90551I$	$-9.90660+6.51942I$	$-9.48439-5.38265I$
$u=-1.63022-0.11868I$ $a=-0.279124-1.207661I$ $b=\ 0.397690-0.969208I$	$-9.25057-1.88240I$	$-8.12432-1.64929I$

Solution to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.63022+0.11868I$ $a=-0.279124+1.207661I$ $b=\ \ 0.397690+0.969208I$	$-9.25057+1.88240I$	$-8.12432+1.64929I$
$u=-0.990139-0.655507I$ $a=-0.328445+0.034132I$ $b=-0.537541-0.273251I$	$1.54213-2.47872I$	$-0.53499-5.93000I$
$u=-0.990139+0.655507I$ $a=-0.328445-0.034132I$ $b=-0.537541+0.273251I$	$1.54213+2.47872I$	$-0.53499+5.93000I$
$u=-0.686181-0.154265I$ $a=\ \ 0.838455+0.370991I$ $b=\ \ 0.977826+0.650468I$	$-1.08296+5.42643I$	$-0.21975-3.30530I$
$u=-0.686181+0.154265I$ $a=\ \ 0.838455-0.370991I$ $b=\ \ 0.977826-0.650468I$	$-1.08296-5.42643I$	$-0.21975+3.30530I$
$u=-0.294421-0.137620I$ $a=-1.30767+1.56416I$ $b=-0.805847+0.442462I$	$1.40601-1.20005I$	$2.74470+1.99044I$
$u=-0.294421+0.137620I$ $a=-1.30767-1.56416I$ $b=-0.805847-0.442462I$	$1.40601+1.20005I$	$2.74470-1.99044I$
$u=-0.0306219-0.0974691I$ $a=-7.02532-6.31954I$ $b=\ \ 0.458623-0.535266I$	$-1.92040+0.80331I$	$-4.44102+0.15082I$
$u=-0.0306219+0.0974691I$ $a=-7.02532+6.31954I$ $b=\ \ 0.458623+0.535266I$	$-1.92040-0.80331I$	$-4.44102-0.15082I$
$u=\ \ 0.605532-0.380104I$ $a=-1.43703-0.00546I$ $b=-0.043259+0.568475I$	$-1.46738+0.11420I$	$-8.20214-0.34884I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.605532 + 0.380104I$ $a = -1.43703 + 0.00546I$ $b = -0.043259 - 0.568475I$	$-1.46738 - 0.11420I$	$-8.20214 + 0.34884I$
$u = 0.656190 - 1.188229I$ $a = 0.395829 + 0.005674I$ $b = 0.109496 - 1.311600I$	$-7.58070 - 0.56154I$	$-10.57137 + 0.23440I$
$u = 0.656190 + 1.188229I$ $a = 0.395829 - 0.005674I$ $b = 0.109496 + 1.311600I$	$-7.58070 + 0.56154I$	$-10.57137 - 0.23440I$
$u = 0.679243 - 0.583622I$ $a = 0.692444 + 0.020033I$ $b = -0.491434 - 1.250359I$	$-1.63296 + 3.48211I$	$-7.94104 - 7.54592I$
$u = 0.679243 + 0.583622I$ $a = 0.692444 - 0.020033I$ $b = -0.491434 + 1.250359I$	$-1.63296 - 3.48211I$	$-7.94104 + 7.54592I$
$u = 0.704998$ $a = 12.6158$ $b = -0.141812$	-2.72892	194.387
$u = 0.730316 - 1.119096I$ $a = -0.586120 + 0.340107I$ $b = 0.70143 + 1.39478I$	$-7.84770 + 8.00129I$	$-9.44018 - 5.26349I$
$u = 0.730316 + 1.119096I$ $a = -0.586120 - 0.340107I$ $b = 0.70143 - 1.39478I$	$-7.84770 - 8.00129I$	$-9.44018 + 5.26349I$
$u = 0.779230$ $a = -0.816856$ $b = -0.118472$	-1.12597	-9.35809
$u = 0.964380 - 0.326022I$ $a = -1.34533 + 1.00277I$ $b = 1.165204 - 0.364382I$	$-4.47629 + 0.99972I$	$-15.2464 - 0.4133I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.964380 + 0.326022I$ $a = -1.34533 - 1.00277I$ $b = 1.165204 + 0.364382I$	$-4.47629 - 0.99972I$	$-15.2464 + 0.4133I$
$u = 1.204595 - 0.063415I$ $a = -1.45117 + 1.83159I$ $b = -0.035022 + 0.979858I$	$-3.08874 - 1.42303I$	$-6.41632 + 5.79805I$
$u = 1.204595 + 0.063415I$ $a = -1.45117 - 1.83159I$ $b = -0.035022 - 0.979858I$	$-3.08874 + 1.42303I$	$-6.41632 - 5.79805I$
$u = 1.74717 - 0.03675I$ $a = 0.316839 - 1.172532I$ $b = 0.41033 - 1.45360I$	$-10.19429 - 4.27290I$	$-10.69965 + 2.77091I$
$u = 1.74717 + 0.03675I$ $a = 0.316839 + 1.172532I$ $b = 0.41033 + 1.45360I$	$-10.19429 + 4.27290I$	$-10.69965 - 2.77091I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^6(u^3+u^2-1)(u^{35}+8u^{34}+\cdots+9u+1)$
c_2	$(u+1)^6(u^3+u^2+2u+1)(u^{35}+42u^{34}+\cdots-129u+1)$
c_3	$u^6(u^3-u^2+2u-1)(u^{35}+2u^{34}+\cdots-320u-64)$
c_4	$(u+1)^6(u^3-u^2+1)(u^{35}+8u^{34}+\cdots+9u+1)$
c_5	$(u^3+2u^2-3u+1)(u^6-u^5-u^4+2u^3-u+1)$ $(u^{35}+4u^{34}+\cdots+1417u-1219)$
c_6	$(u^3+2u^2-3u+1)(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $(u^{35}+8u^{34}+\cdots+73u-31)$
c_7	$u^6(u^3+u^2+2u+1)(u^{35}+2u^{34}+\cdots-320u-64)$
c_8	$(u-1)^3(u^6+u^5+\cdots+u+1)(u^{35}+5u^{34}+\cdots+67u+1)$
c_9	$u^3(u^6-u^5+\cdots-u+1)(u^{35}+6u^{34}+\cdots+124u-8)$
c_{10}	$(u+1)^3(u^6-u^5+\cdots-u+1)(u^{35}+5u^{34}+\cdots+67u+1)$
c_{11}	$(u^3+3u^2+2u-1)(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $(u^{35}+3u^{34}+\cdots+2u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^6(y^3-y^2+2y-1)(y^{35}-42y^{34}+\cdots-129y-1)$
c_2	$(y-1)^6(y^3+3y^2+2y-1)(y^{35}-90y^{34}+\cdots+6323y-1)$
c_3, c_7	$y^6(y^3+3y^2+2y-1)(y^{35}-36y^{34}+\cdots-20480y-4096)$
c_5	$(y^3-10y^2+5y-1)(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $(y^{35}-4y^{34}+\cdots+25178641y-1485961)$
c_6	$(y^3-10y^2+5y-1)(y^6+y^5+5y^4+6y^2+3y+1)$ $(y^{35}-52y^{34}+\cdots+29509y-961)$
c_8, c_{10}	$(y-1)^3(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $(y^{35}-33y^{34}+\cdots+5091y-1)$
c_9	$y^3(y^6-3y^5+\cdots-y+1)(y^{35}+18y^{34}+\cdots+7312y-64)$
c_{11}	$(y^3-5y^2+10y-1)(y^6+y^5+5y^4+6y^2+3y+1)$ $(y^{35}+y^{34}+\cdots+14y-1)$