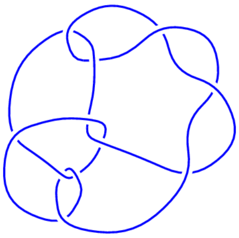
$11n_{12}$ ($K11n_{12}$)



[1]

Arc Sequences

$$\rightarrow \uparrow \rightarrow \downarrow \rightarrow \uparrow \rightarrow \uparrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \uparrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow$$

↑	↓	↑	↑	↓	↓	↑	↓	↓	↓	↓
5	1	8	2	3	10	3	1	11	7	9

Solving Sequence

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

Representation Ideals

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

$$\begin{aligned}
I_1^u &= \langle a,\ b^3 + b^2 + 2b + 1,\ u^2 - u + 1 \rangle \\
I_2^u &= \langle u^{12} + 14u^{10} + 53u^8 + 3u^7 + 24u^6 + 21u^5 + 28u^4 + 41u^3 + 17u^2 - 10u + 1, \\
&\quad 1126209u^{11} + 148751u^{10} + \cdots + 4824304b - 3958502, \\
&\quad - 5466003u^{11} - 1105303u^{10} + \cdots + 2412152a + 26309632 \rangle
\end{aligned}$$

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

(i) Arc colorings

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

(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
$u = 0.500000 - 0.866025I$ $a = 0$ $b = -0.569840$	$-1.11345 + 2.02988I$	$-5.31735 - 1.07831I$
$u = 0.500000 + 0.866025I$ $a = 0$ $b = -0.569840$	$-1.11345 - 2.02988I$	$-5.31735 + 1.07831I$
$u = 0.500000 - 0.866025I$ $a = 0$ $b = -0.215080 - 1.307141I$	$3.02413 - 0.79824I$	$-0.946254 + 0.677361I$
$u = 0.500000 + 0.866025I$ $a = 0$ $b = -0.215080 - 1.307141I$	$3.02413 - 4.85801I$	$-2.23639 + 5.66123I$
$u = 0.500000 - 0.866025I$ $a = 0$ $b = -0.215080 + 1.307141I$	$3.02413 + 4.85801I$	$-2.23639 - 5.66123I$
$u = 0.500000 + 0.866025I$ $a = 0$ $b = -0.215080 + 1.307141I$	$3.02413 + 0.79824I$	$-0.946254 - 0.677361I$

II.
$\boldsymbol{I_2^u = \langle u^{12} + 14u^{10} + \cdots - 10u + 1,\ 1.13 \times 10^6 u^{11} + 1.49 \times 10^5 u^{10} + \cdots + 4.82 \times 10^6 b - 3.96 \times 10^6,\ -5.47 \times 10^6 u^{11} - 1.11 \times 10^6 u^{10} + \cdots + 2.41 \times 10^6 a + 2.63 \times 10^7 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2.26603u^{11} + 0.458223u^{10} + \cdots + 59.3369u - 10.9071 \\ -0.233445u^{11} - 0.0308337u^{10} + \cdots - 6.42975u + 0.820533 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 2.24932u^{11} + 0.342917u^{10} + \cdots + 54.4532u - 12.5017 \\ -0.343415u^{11} - 0.0950259u^{10} + \cdots - 9.48410u + 2.15479 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2.49947u^{11} + 0.489056u^{10} + \cdots + 65.7666u - 11.7277 \\ -0.233445u^{11} - 0.0308337u^{10} + \cdots - 6.42975u + 0.820533 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2.15479u^{11} + 0.343415u^{10} + \cdots + 52.6665u - 12.0638 \\ -0.437943u^{11} - 0.0945280u^{10} + \cdots - 11.2708u + 2.59273 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 2.15479u^{11} + 0.343415u^{10} + \cdots + 52.6665u - 12.0638 \\ -0.342917u^{11} - 0.0959940u^{10} + \cdots - 9.99143u + 2.24932 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 2.26603u^{11} + 0.458223u^{10} + \cdots + 59.3369u - 10.9071 \\ -0.176472u^{11} + 0.0152468u^{10} + \cdots - 4.11355u + 0.362311 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2.39886u^{11} + 0.431340u^{10} + \cdots + 61.3605u - 11.5934 \\ -0.244069u^{11} - 0.0879250u^{10} + \cdots - 8.69398u + 1.52958 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 4.60384u^{11} + 0.856077u^{10} + \cdots + 120.144u - 23.1236 \\ -0.447599u^{11} - 0.141116u^{10} + \cdots - 13.6345u + 2.30227 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 4.60384u^{11} + 0.856077u^{10} + \cdots + 120.144u - 23.1236 \\ -0.447599u^{11} - 0.141116u^{10} + \cdots - 13.6345u + 2.30227 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.710253 - 0.293852I$ $a = 0.24191 + 1.80874I$ $b = -0.18845 + 1.62161I$	$4.35182 + 3.22757I$	$0.42641 - 2.31513I$
$u = -0.710253 + 0.293852I$ $a = 0.24191 - 1.80874I$ $b = -0.18845 - 1.62161I$	$4.35182 - 3.22757I$	$0.42641 + 2.31513I$
$u = -0.253204 - 0.975027I$ $a = 1.159791 - 0.390081I$ $b = 0.449650 + 0.155107I$	$1.31906 + 1.56861I$	$1.73907 - 2.71444I$
$u = -0.253204 + 0.975027I$ $a = 1.159791 + 0.390081I$ $b = 0.449650 - 0.155107I$	$1.31906 - 1.56861I$	$1.73907 + 2.71444I$
$u = -0.20524 - 2.65012I$ $a = 0.205058 - 1.243186I$ $b = 0.19909 - 2.16177I$	$-18.9549 + 0.4085I$	$0.320898 + 0.107074I$
$u = -0.20524 + 2.65012I$ $a = 0.205058 + 1.243186I$ $b = 0.19909 + 2.16177I$	$-18.9549 - 0.4085I$	$0.320898 - 0.107074I$
$u = 0.170401 - 0.021130I$ $a = 2.69026 - 2.19674I$ $b = -0.625204 + 0.231089I$	$-1.40636 + 0.34980I$	$-7.54487 - 0.48017I$
$u = 0.170401 + 0.021130I$ $a = 2.69026 + 2.19674I$ $b = -0.625204 - 0.231089I$	$-1.40636 - 0.34980I$	$-7.54487 + 0.48017I$
$u = 0.20123 - 2.58899I$ $a = -0.245697 + 1.178476I$ $b = -0.16491 + 2.16925I$	$-19.3015 + 8.0703I$	$-0.10811 - 3.87488I$
$u = 0.20123 + 2.58899I$ $a = -0.245697 - 1.178476I$ $b = -0.16491 - 2.16925I$	$-19.3015 - 8.0703I$	$-0.10811 + 3.87488I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.797071 - 0.743025I$ $a = 0.448685 + 0.511064I$ $b = -0.170188 + 0.372008I$	$-0.55164 + 2.71818I$	$-0.33339 - 6.77292I$
$u = 0.797071 + 0.743025I$ $a = 0.448685 - 0.511064I$ $b = -0.170188 - 0.372008I$	$-0.55164 - 2.71818I$	$-0.33339 + 6.77292I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_4	$(u^2-u+1)^3(u^{12}+4u^{11}+\cdots+2u+1)$
c_2	$(u^2+u+1)^3(u^{12}+14u^{10}+\cdots+10u+1)$
c_3, c_7	$u^6(u^{12}+u^{11}+\cdots+288u+64)$
c_5	$(u^2-u+1)^3(u^{12}+4u^{11}+\cdots-532u+193)$
c_6	$(u^3+u^2-1)^2(u^{12}+3u^{11}+4u^{10}+u^9+u^8+7u^7+12u^6+6u^5+u+1)$
c_8, c_9, c_{11}	$(u^3+u^2+2u+1)^2(u^{12}+u^{11}+\cdots+u+1)$
c_{10}	$(u^3-u^2+1)^2(u^{12}+3u^{11}+4u^{10}+u^9+u^8+7u^7+12u^6+6u^5+u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y^2+y+1)^3(y^{12}+14y^{10}+\cdots+10y+1)$
c_2	$(y^2+y+1)^3(y^{12}+28y^{11}+\cdots-66y+1)$
c_3, c_7	$y^6(y^{12}-35y^{11}+\cdots-9216y+4096)$
c_5	$(y^2+y+1)^3(y^{12}+56y^{11}+\cdots+602074y+37249)$
c_6, c_{10}	$(y^3-y^2+2y-1)^2(y^{12}-y^{11}+\cdots-y+1)$
c_8, c_9, c_{11}	$(y^3+3y^2+2y-1)^2(y^{12}+23y^{11}+\cdots-y+1)$