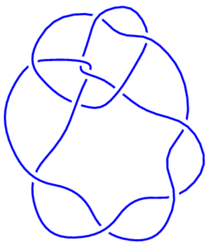
$11a_{323}$ ($K11a_{323}$)



[1]

Arc Sequences

$$\to \uparrow \to \downarrow \to \downarrow \to \downarrow \to \uparrow \to \downarrow \to \uparrow \to \uparrow \to \uparrow \to \downarrow \to \downarrow \to$$

9 6 1 11 8 2 10 3 7 5 4

Solving Sequence

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

Representation Ideals

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

$$I_1^u = \langle 5u^3 + 7u^2 + 4u + 1,\ 5u^2 + a + 7u + 4,\ 5u^2 + b + 7u + 3\rangle$$

$$\begin{aligned} I_2^u = \langle & 5u^{44} - 2u^{43} + \cdots + 23513u + 5383, \\ & 1.87940 \times 10^{129}u^{43} - 2.53353 \times 10^{129}u^{42} + \cdots + 3.49617 \times 10^{129}b + 2.14240 \times 10^{132}, \\ & -6.80107 \times 10^{133}u^{43} + 9.67201 \times 10^{133}u^{42} + \cdots + 9.40995 \times 10^{133}a - 7.19988 \times 10^{136}\rangle \end{aligned}$$

There are 2 irreducible components with 47 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. $\boldsymbol{I_1^u = \langle 5u^3 + 7u^2 + 4u + 1,\ 5u^2 + a + 7u + 4,\ 5u^2 + b + 7u + 3\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -5u^2 - 7u - 4 \\ -5u^2 - 7u - 3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ -5u^2 - 7u - 3 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -5u^2 - 7u - 2 \\ -10u^2 - 9u - 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -5u^2 - 2u \\ -5u^2 - 2u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ -5u^2 - 2u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -5u^2 - 2u \\ -2u^2 + u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 5u^2 + 7u + 4 \\ 5u^2 + 8u + 3 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

(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
$u=-0.637007$ $a=-1.56984$ $b=-0.569840$	0.531480	-3.13592
$u=-0.381496-0.410401I$ $a=-1.21508+1.30714I$ $b=-0.215080+1.307141I$	$4.66906+2.82812I$	$9.94796-2.62108I$
$u=-0.381496+0.410401I$ $a=-1.21508-1.30714I$ $b=-0.215080-1.307141I$	$4.66906-2.82812I$	$9.94796+2.62108I$

II. $I_2^u = \langle 5u^{44} - 2u^{43} + \cdots + 23513u + 5383,\ 1.88 \times 10^{129}u^{43} - 2.53 \times 10^{129}u^{42} + \cdots + 3.50 \times 10^{129}b + 2.14 \times 10^{132},\ -6.80 \times 10^{133}u^{43} + 9.67 \times 10^{133}u^{42} + \cdots + 9.41 \times 10^{133}a - 7.20 \times 10^{136}\rangle$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix} 0.722752u^{43} - 1.02785u^{42} + \cdots + 2586.58u + 765.134 \\ -0.537558u^{43} + 0.724658u^{42} + \cdots - 2021.84u - 612.784 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.26031u^{43} - 1.75251u^{42} + \cdots + 4608.42u + 1377.92 \\ -0.537558u^{43} + 0.724658u^{42} + \cdots - 2021.84u - 612.784 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0515498u^{43} - 0.0263977u^{42} + \cdots - 443.995u - 166.981 \\ -0.411238u^{43} + 0.637229u^{42} + \cdots - 1344.60u - 383.990 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.784662u^{43} + 1.16662u^{42} + \cdots - 2663.67u - 762.790 \\ 1.01355u^{43} - 1.47148u^{42} + \cdots + 3540.83u + 1033.08 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.653754u^{43} + 0.913813u^{42} + \cdots - 2393.61u - 721.619 \\ 0.411203u^{43} - 0.631638u^{42} + \cdots + 1350.46u + 384.109 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.907644u^{43} + 1.23871u^{42} + \cdots - 3406.87u - 1039.79 \\ 0.613833u^{43} - 0.903617u^{42} + \cdots + 2127.42u + 624.562 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.293195u^{43} + 0.309363u^{42} + \cdots - 1323.05u - 426.247 \\ 0.425716u^{43} - 0.569926u^{42} + \cdots + 1625.33u + 498.237 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.329464u^{43} + 0.326857u^{42} + \cdots - 1567.67u - 522.281 \\ -0.517227u^{43} + 0.801484u^{42} + \cdots - 1666.33u - 464.586 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.329464u^{43} + 0.326857u^{42} + \cdots - 1567.67u - 522.281 \\ -0.517227u^{43} + 0.801484u^{42} + \cdots - 1666.33u - 464.586 \end{pmatrix}$$

(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
$u = -1.76327 - 0.92521I$ $a = 0.820451 - 0.133626I$ $b = 0.15119 - 1.69109I$	$18.5526 + 13.4473I$	$7.67631 - 6.21892I$
$u = -1.76327 + 0.92521I$ $a = 0.820451 + 0.133626I$ $b = 0.15119 + 1.69109I$	$18.5526 - 13.4473I$	$7.67631 + 6.21892I$
$u = -1.47948 - 0.71625I$ $a = 0.922862 - 0.156791I$ $b = 0.531615 - 0.932164I$	$9.4938 + 10.7466I$	$6.37940 - 7.40860I$
$u = -1.47948 + 0.71625I$ $a = 0.922862 + 0.156791I$ $b = 0.531615 + 0.932164I$	$9.4938 - 10.7466I$	$6.37940 + 7.40860I$
$u = -1.44023 - 0.74181I$ $a = -0.605643 + 0.449292I$ $b = -0.265508 - 0.254499I$	$4.32587 - 0.97456I$	$-0.21065 + 1.62578I$
$u = -1.44023 + 0.74181I$ $a = -0.605643 - 0.449292I$ $b = -0.265508 + 0.254499I$	$4.32587 + 0.97456I$	$-0.21065 - 1.62578I$
$u = -1.210861 - 0.409862I$ $a = 1.105903 - 0.132214I$ $b = 0.797364 - 0.047017I$	$6.50673 + 6.32792I$	$4.03492 - 4.79564I$
$u = -1.210861 + 0.409862I$ $a = 1.105903 + 0.132214I$ $b = 0.797364 + 0.047017I$	$6.50673 - 6.32792I$	$4.03492 + 4.79564I$
$u = -1.196397 - 0.475903I$ $a = 1.076943 - 0.370447I$ $b = 0.17519 - 1.69800I$	$17.9861 + 1.4504I$	$9.54859 - 0.45700I$
$u = -1.196397 + 0.475903I$ $a = 1.076943 + 0.370447I$ $b = 0.17519 + 1.69800I$	$17.9861 - 1.4504I$	$9.54859 + 0.45700I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.128223 - 0.022553I$ $a = 1.232015 - 0.124519I$ $b = 0.604409 - 0.897873I$	$9.03616 - 1.64979I$	$8.22123 + 0.49453I$
$u = -1.128223 + 0.022553I$ $a = 1.232015 + 0.124519I$ $b = 0.604409 + 0.897873I$	$9.03616 + 1.64979I$	$8.22123 - 0.49453I$
$u = -1.047697 - 0.043518I$ $a = -0.233660 - 0.845090I$ $b = -0.06818 + 1.63407I$	$8.58047 + 3.25505I$	$1.41297 - 2.89644I$
$u = -1.047697 + 0.043518I$ $a = -0.233660 + 0.845090I$ $b = -0.06818 - 1.63407I$	$8.58047 - 3.25505I$	$1.41297 + 2.89644I$
$u = -0.872611 - 0.476152I$ $a = -2.00665 + 0.23740I$ $b = -0.02340 + 1.67896I$	$16.7506 + 2.5780I$	$11.49091 - 2.59989I$
$u = -0.872611 + 0.476152I$ $a = -2.00665 - 0.23740I$ $b = -0.02340 - 1.67896I$	$16.7506 - 2.5780I$	$11.49091 + 2.59989I$
$u = -0.822646 - 0.066084I$ $a = -1.97484 - 0.53323I$ $b = -0.102848 + 0.888493I$	$7.69062 + 2.11031I$	$11.34242 - 3.52324I$
$u = -0.822646 + 0.066084I$ $a = -1.97484 + 0.53323I$ $b = -0.102848 - 0.888493I$	$7.69062 - 2.11031I$	$11.34242 + 3.52324I$
$u = -0.537650 - 0.192122I$ $a = -0.457711 - 0.938356I$ $b = -0.305152 + 0.698148I$	$0.43661 + 1.95503I$	$-1.24229 - 4.92252I$
$u = -0.537650 + 0.192122I$ $a = -0.457711 + 0.938356I$ $b = -0.305152 - 0.698148I$	$0.43661 - 1.95503I$	$-1.24229 + 4.92252I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.053641-0.448598I$ $a=-0.521545-0.685854I$ $b=-0.454810-0.226491I$	$-0.971761-0.735222I$	$-7.08962+4.08922I$
$u=-0.053641+0.448598I$ $a=-0.521545+0.685854I$ $b=-0.454810+0.226491I$	$-0.971761+0.735222I$	$-7.08962-4.08922I$
$u=0.139758-0.614578I$ $a=-0.160320-1.052852I$ $b=-0.151472-1.375049I$	$4.06071-2.79744I$	$-3.56462+2.17151I$
$u=0.139758+0.614578I$ $a=-0.160320+1.052852I$ $b=-0.151472+1.375049I$	$4.06071+2.79744I$	$-3.56462-2.17151I$
$u=0.676797-0.789439I$ $a=0.669794-0.315046I$ $b=0.458929+0.000125I$	$1.39676-2.58910I$	$-1.63153+3.81812I$
$u=0.676797+0.789439I$ $a=0.669794+0.315046I$ $b=0.458929-0.000125I$	$1.39676+2.58910I$	$-1.63153-3.81812I$
$u=0.692318$ $a=1.29930$ $b=0.195443$	1.30800	9.71570
$u=0.853036-0.630068I$ $a=0.893505-0.709277I$ $b=0.305076+0.810839I$	$3.79818-5.24105I$	$5.59410+7.80794I$
$u=0.853036+0.630068I$ $a=0.893505+0.709277I$ $b=0.305076-0.810839I$	$3.79818+5.24105I$	$5.59410-7.80794I$
$u=0.991990$ $a=-1.25628$ $b=-0.872602$	1.65108	6.63726

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00442 - 1.04123I$ $a = 0.298026 + 0.116607I$ $b = 0.204088 - 0.682624I$	$3.43037 - 0.37049I$	$6.62918 - 1.94701I$
$u = 1.00442 + 1.04123I$ $a = 0.298026 - 0.116607I$ $b = 0.204088 + 0.682624I$	$3.43037 + 0.37049I$	$6.62918 + 1.94701I$
$u = 1.08878 - 0.92273I$ $a = 0.691482 + 0.380811I$ $b = 0.081349 + 0.763523I$	$3.38183 - 0.95789I$	$3.69098 - 0.13410I$
$u = 1.08878 + 0.92273I$ $a = 0.691482 - 0.380811I$ $b = 0.081349 - 0.763523I$	$3.38183 + 0.95789I$	$3.69098 + 0.13410I$
$u = 1.122747 - 0.475891I$ $a = 0.750971 - 0.997825I$ $b = 0.07456 + 1.65915I$	$12.42892 - 6.64650I$	$7.33511 + 5.68449I$
$u = 1.122747 + 0.475891I$ $a = 0.750971 + 0.997825I$ $b = 0.07456 - 1.65915I$	$12.42892 + 6.64650I$	$7.33511 - 5.68449I$
$u = 1.128906 - 0.495735I$ $a = -1.031717 - 0.274472I$ $b = -0.570126 - 0.967451I$	$4.65109 - 4.83905I$	$5.90617 + 6.05459I$
$u = 1.128906 + 0.495735I$ $a = -1.031717 + 0.274472I$ $b = -0.570126 + 0.967451I$	$4.65109 + 4.83905I$	$5.90617 - 6.05459I$
$u = 1.33011 - 1.63777I$ $a = 0.489092 + 0.377327I$ $b = 0.01583 + 1.65226I$	$11.90429 - 1.28750I$	$3.23124 + 0.95491I$
$u = 1.33011 + 1.63777I$ $a = 0.489092 - 0.377327I$ $b = 0.01583 - 1.65226I$	$11.90429 + 1.28750I$	$3.23124 - 0.95491I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.41376 - 0.86384I$ $a = -0.845394 - 0.270995I$ $b = -0.15533 - 1.70224I$	$13.8777 - 7.6987I$	$5.79500 + 4.46382I$
$u = 1.41376 + 0.86384I$ $a = -0.845394 + 0.270995I$ $b = -0.15533 + 1.70224I$	$13.8777 + 7.6987I$	$5.79500 - 4.46382I$
$u = 2.15224 - 1.06636I$ $a = 0.162714 + 0.175006I$ $b = 0.03581 - 1.62441I$	$11.45345 + 0.37506I$	$8.09368 + 2.16495I$
$u = 2.15224 + 1.06636I$ $a = 0.162714 - 0.175006I$ $b = 0.03581 + 1.62441I$	$11.45345 - 0.37506I$	$8.09368 - 2.16495I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(5u^3+4u^2-u-1)(5u^{44}+21u^{43}+\cdots-864u+823)$
c_2	$(u^3+u^2-1)(u^{44}+2u^{43}+\cdots+u-1)$
c_3, c_4	$(u^3+u^2+2u+1)(u^{44}+2u^{43}+\cdots-5u-1)$
c_5	$(5u^3+7u^2+4u+1)(5u^{44}+2u^{43}+\cdots-23513u+5383)$
c_6	$(u^3-u^2+1)(u^{44}+2u^{43}+\cdots+u-1)$
c_7	$(u+1)^3(u^{44}+4u^{43}+\cdots+16u-25)$
c_8	$u^3(u^{44}+u^{43}+\cdots-220u+200)$
c_9	$(u-1)^3(u^{44}+4u^{43}+\cdots+16u-25)$
c_{10}, c_{11}	$(u^3-u^2+2u-1)(u^{44}+2u^{43}+\cdots-5u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1	$(25y^3 - 26y^2 + 9y - 1)(25y^{44} - 671y^{43} + \cdots - 2153826y + 677329)$
c_2, c_6	$(y^3 - y^2 + 2y - 1)(y^{44} + 30y^{43} + \cdots - 23y + 1)$
c_3, c_4, c_{10} c_{11}	$(y^3 + 3y^2 + 2y - 1)(y^{44} + 54y^{43} + \cdots - 23y + 1)$
c_5	$(25y^3 - 9y^2 + 2y - 1)$ $(25y^{44} - 914y^{43} + \cdots - 198282959y + 28976689)$
c_7, c_9	$(y - 1)^3(y^{44} - 40y^{43} + \cdots - 9756y + 625)$
c_8	$y^3(y^{44} - 21y^{43} + \cdots - 482000y + 40000)$