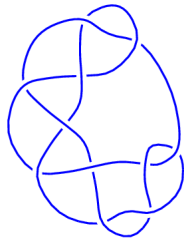
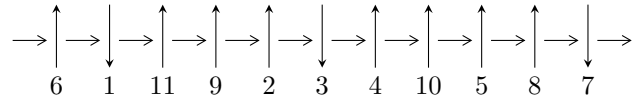


11a₇₇ (K11a₇₇)

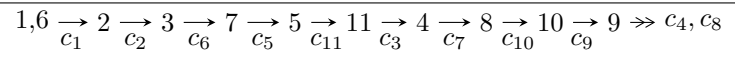


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{65} - u^{64} + \dots + 3u - 1 \rangle$$

There are 1 irreducible components with 65 representations.

¹The knot diagram image is adapter from “C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, <http://www.indiana.edu/~knotinfo>”

$$\text{I. } \Gamma_1^u = \langle u^{65} - u^{64} + \dots + 3u - 1 \rangle$$

(i) Arc colorings

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

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^5 - 2u^3 - u \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{10} + 3u^8 + 4u^6 + 3u^4 + u^2 + 1 \\ -u^{10} - 2u^8 - 3u^6 - 2u^4 - u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{18} + 5u^{16} + 12u^{14} + 17u^{12} + 15u^{10} + 9u^8 + 4u^6 + 2u^4 + u^2 + 1 \\ -u^{18} - 4u^{16} - 9u^{14} - 12u^{12} - 11u^{10} - 6u^8 - 2u^6 - u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{31} + 8u^{29} + \dots + 12u^7 + 4u^5 \\ -u^{31} - 7u^{29} + \dots - 4u^7 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^{52} + 13u^{50} + \dots + u^2 + 1 \\ -u^{52} - 12u^{50} + \dots - 2u^8 - u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{56} - 13u^{54} + \dots + u^4 + 1 \\ u^{58} + 14u^{56} + \dots + 2u^4 + u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{56} - 13u^{54} + \dots + u^4 + 1 \\ u^{58} + 14u^{56} + \dots + 2u^4 + u^2 \end{pmatrix}$$

(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
$u = -0.758291 - 0.320143I$	$-2.33998 - 4.47857I$	$3.88200 + 2.31592I$
$u = -0.758291 + 0.320143I$	$-2.33998 + 4.47857I$	$3.88200 - 2.31592I$
$u = -0.695956 - 0.327319I$	$0.19197 - 2.46276I$	$3.81248 + 3.42438I$
$u = -0.695956 + 0.327319I$	$0.19197 + 2.46276I$	$3.81248 - 3.42438I$
$u = -0.684044 - 0.204074I$	$-3.96704 - 1.98381I$	$1.83545 + 2.52797I$
$u = -0.684044 + 0.204074I$	$-3.96704 + 1.98381I$	$1.83545 - 2.52797I$
$u = -0.661128 - 0.499003I$	$2.30161 - 3.09152I$	$10.04446 + 3.08842I$
$u = -0.661128 + 0.499003I$	$2.30161 + 3.09152I$	$10.04446 - 3.08842I$
$u = -0.643068 - 0.639899I$	$0.15648 + 8.12741I$	$7.24544 - 7.96091I$
$u = -0.643068 + 0.639899I$	$0.15648 - 8.12741I$	$7.24544 + 7.96091I$
$u = -0.642935 - 0.580003I$	$5.09135 + 2.55649I$	$13.39578 - 4.21201I$
$u = -0.642935 + 0.580003I$	$5.09135 - 2.55649I$	$13.39578 + 4.21201I$
$u = -0.565027 - 1.031629I$	$0.74043 + 7.86664I$	$6.95687 - 8.47685I$
$u = -0.565027 + 1.031629I$	$0.74043 - 7.86664I$	$6.95687 + 8.47685I$
$u = -0.563129 - 1.128905I$	$-4.71040 + 9.46363I$	$0.71218 - 5.96163I$
$u = -0.563129 + 1.128905I$	$-4.71040 - 9.46363I$	$0.71218 + 5.96163I$
$u = -0.560390 - 0.925994I$	$-0.68502 - 3.40527I$	$5.84550 + 1.97177I$
$u = -0.560390 + 0.925994I$	$-0.68502 + 3.40527I$	$5.84550 - 1.97177I$
$u = -0.558826 - 0.982733I$	$3.90580 + 2.15177I$	$11.37394 - 2.20893I$
$u = -0.558826 + 0.982733I$	$3.90580 - 2.15177I$	$11.37394 + 2.20893I$
$u = -0.548456 - 1.110996I$	$-2.07374 + 7.24801I$	$0.44286 - 6.94914I$
$u = -0.548456 + 1.110996I$	$-2.07374 - 7.24801I$	$0.44286 + 6.94914I$
$u = -0.512781 - 1.127881I$	$-6.57059 + 6.52849I$	$-1.42353 - 6.24475I$
$u = -0.512781 + 1.127881I$	$-6.57059 - 6.52849I$	$-1.42353 + 6.24475I$
$u = -0.334950 - 1.134059I$	$-7.77271 + 1.28375I$	$-3.33892 - 0.93529I$
$u = -0.334950 + 1.134059I$	$-7.77271 - 1.28375I$	$-3.33892 + 0.93529I$
$u = -0.285066 - 1.094866I$	$-3.86299 + 0.19977I$	$-3.23482 + 0.27466I$
$u = -0.285066 + 1.094866I$	$-3.86299 - 0.19977I$	$-3.23482 - 0.27466I$
$u = -0.248337 - 1.135168I$	$-6.81733 - 1.64607I$	$-2.42168 + 0.12311I$
$u = -0.248337 + 1.135168I$	$-6.81733 + 1.64607I$	$-2.42168 - 0.12311I$

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.074336 - 0.892519I$	$-2.22679 - 2.52501I$	$1.11303 + 3.27520I$
$u = 0.074336 + 0.892519I$	$-2.22679 + 2.52501I$	$1.11303 - 3.27520I$
$u = 0.232247 - 1.091922I$	$-0.41947 + 2.11288I$	$4.80416 - 3.07590I$
$u = 0.232247 + 1.091922I$	$-0.41947 - 2.11288I$	$4.80416 + 3.07590I$
$u = 0.237049 - 1.137455I$	$-5.94902 + 7.42747I$	$-0.69589 - 5.16735I$
$u = 0.237049 + 1.137455I$	$-5.94902 - 7.42747I$	$-0.69589 + 5.16735I$
$u = 0.348154 - 1.135213I$	$-7.18458 - 7.06765I$	$-2.06509 + 6.44159I$
$u = 0.348154 + 1.135213I$	$-7.18458 + 7.06765I$	$-2.06509 - 6.44159I$
$u = 0.355182 - 1.053114I$	$-1.51926 - 2.99365I$	$3.32010 + 5.42677I$
$u = 0.355182 + 1.053114I$	$-1.51926 + 2.99365I$	$3.32010 - 5.42677I$
$u = 0.458191$	1.17985	8.77651
$u = 0.502096 - 1.127009I$	$-6.14634 - 0.74794I$	$-0.696097 + 0.704227I$
$u = 0.502096 + 1.127009I$	$-6.14634 + 0.74794I$	$-0.696097 - 0.704227I$
$u = 0.522623 - 1.030148I$	$-0.40000 - 3.37253I$	$3.73657 + 2.56528I$
$u = 0.522623 + 1.030148I$	$-0.40000 + 3.37253I$	$3.73657 - 2.56528I$
$u = 0.529062 - 0.917260I$	$-1.58337 - 2.03293I$	$3.89738 + 3.26899I$
$u = 0.529062 + 0.917260I$	$-1.58337 + 2.03293I$	$3.89738 - 3.26899I$
$u = 0.553967 - 1.081516I$	$-0.02873 - 3.68623I$	$6.08412 + 2.12264I$
$u = 0.553967 + 1.081516I$	$-0.02873 + 3.68623I$	$6.08412 - 2.12264I$
$u = 0.560440 - 0.528463I$	$1.11205 - 0.99447I$	$6.38117 + 3.96144I$
$u = 0.560440 + 0.528463I$	$1.11205 + 0.99447I$	$6.38117 - 3.96144I$
$u = 0.566872 - 1.112853I$	$1.79362 - 9.57441I$	$8.04394 + 8.42502I$
$u = 0.566872 + 1.112853I$	$1.79362 + 9.57441I$	$8.04394 - 8.42502I$
$u = 0.568116 - 1.129190I$	$-3.7395 - 15.2573I$	$2.52574 + 10.74972I$
$u = 0.568116 + 1.129190I$	$-3.7395 + 15.2573I$	$2.52574 - 10.74972I$
$u = 0.620733 - 0.643139I$	$-0.78159 - 2.53862I$	$5.40480 + 3.10900I$
$u = 0.620733 + 0.643139I$	$-0.78159 + 2.53862I$	$5.40480 - 3.10900I$
$u = 0.674549 - 0.172737I$	$-3.48204 - 3.70053I$	$2.82049 + 3.17595I$
$u = 0.674549 + 0.172737I$	$-3.48204 + 3.70053I$	$2.82049 - 3.17595I$
$u = 0.681930 - 0.411486I$	$1.93533 - 1.09584I$	$9.59662 + 2.36982I$
Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.681930 + 0.411486I$	$1.93533 + 1.09584I$	$9.59662 - 2.36982I$
$u = 0.738945 - 0.355594I$	$4.01245 + 4.61295I$	$11.51833 - 4.52005I$
$u = 0.738945 + 0.355594I$	$4.01245 - 4.61295I$	$11.51833 + 4.52005I$
$u = 0.766990 - 0.328520I$	$-1.38595 + 10.22917I$	$5.69436 - 7.11928I$
$u = 0.766990 + 0.328520I$	$-1.38595 - 10.22917I$	$5.69436 + 7.11928I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_5	$(u^{65} + u^{64} + \dots + 3u + 1)$
c_2	$(u^{65} + 31u^{64} + \dots + u - 1)$
c_3	$(u^{65} + 7u^{64} + \dots + 1657u + 101)$
c_4	$(u^{65} + u^{64} + \dots - u - 1)$
c_6	$(u^{65} + u^{64} + \dots - 191u - 37)$
c_7	$(u^{65} + u^{64} + \dots - 7u + 1)$
c_8, c_{10}	$(u^{65} + 21u^{64} + \dots + u + 1)$
c_9	$(u^{65} + u^{64} + \dots - u - 1)$
c_{11}	$(u^{65} + 5u^{64} + \dots + 163u + 21)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5	$(y^{65} + 31y^{64} + \dots + y - 1)$
c_2	$(y^{65} + 7y^{64} + \dots + 9y - 1)$
c_3	$(y^{65} + 19y^{64} + \dots + 722417y - 10201)$
c_4	$(y^{65} - 21y^{64} + \dots + y - 1)$
c_6	$(y^{65} - 17y^{64} + \dots + 2293y - 1369)$
c_7	$(y^{65} - y^{64} + \dots + 33y - 1)$
c_8, c_{10}	$(y^{65} + 47y^{64} + \dots - 7y - 1)$
c_9	$(y^{65} - 21y^{64} + \dots + y - 1)$
c_{11}	$(y^{65} + 11y^{64} + \dots - 30047y - 441)$