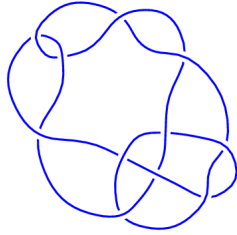
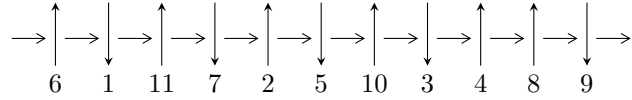


11a₁₄₁ (K11a₁₄₁)

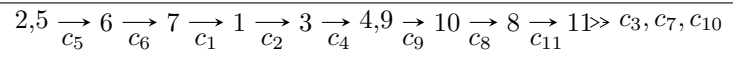


1

Arc Sequences



Solving Sequence



Representation Ideals

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

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

$$I_2^u = \langle u^{53} + 2u^{52} + \dots + 5u + 1, 1.03514 \times 10^{16}u^{52} - 2.19460 \times 10^{16}u^{51} + \dots + 1.36187 \times 10^{16}a - 7.39600 \times 10^{13} \\ 1.27599 \times 10^{17}u^{52} + 1.86278 \times 10^{17}u^{51} + \dots + 4.08560 \times 10^{16}b + 5.55636 \times 10^{16} \rangle$$

There are 2 irreducible components with 55 representations.

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

$$\text{I. } I_1^u = \langle u^2 + u + 1, b + u, a - 1 \rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} u \\ u + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u \\ -u - 1 \end{pmatrix}$$

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

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

$$a_9 = \begin{pmatrix} 1 \\ -u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u + 1 \\ -u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ -u - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ -u - 1 \end{pmatrix}$$

(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
$u = -0.500000 - 0.866025I$	$1.64493 + 2.02988I$	$3.00000 - 3.46410I$
$a = 1.00000$		
$b = 0.500000 + 0.866025I$		
$u = -0.500000 + 0.866025I$	$1.64493 - 2.02988I$	$3.00000 + 3.46410I$
$a = 1.00000$		
$b = 0.500000 - 0.866025I$		

$$\text{II. } J_2^u = \langle u^{53} + 2u^{52} + \dots + 5u + 1, 1.04 \times 10^{16}u^{52} - 2.19 \times 10^{16}u^{51} + \dots + 1.36 \times 10^{16}a - 7.40 \times 10^{13}, 1.28 \times 10^{17}u^{52} + 1.86 \times 10^{17}u^{51} + \dots + 4.09 \times 10^{16}b + 5.56 \times 10^{16} \rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.760087u^{52} + 1.61146u^{51} + \dots + 11.9099u + 0.00543079 \\ -3.12313u^{52} - 4.55937u^{51} + \dots - 7.60537u - 1.35999 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2.36000u^{52} - 1.33084u^{51} + \dots + 4.11655u - 1.34293 \\ -2.39422u^{52} - 2.96526u^{51} + \dots - 1.21779u + 0.239857 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -2.35999u^{52} - 1.46007u^{51} + \dots + 5.59821u - 1.61217 \\ -2.25654u^{52} - 2.75552u^{51} + \dots - 0.347308u + 0.240103 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.200023u^{52} + 0.0418941u^{51} + \dots + 1.97228u - 0.477613 \\ -0.441941u^{52} + 0.197074u^{51} + \dots - 0.522504u - 0.200023 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.200023u^{52} + 0.0418941u^{51} + \dots + 1.97228u - 0.477613 \\ -0.441941u^{52} + 0.197074u^{51} + \dots - 0.522504u - 0.200023 \end{pmatrix}$$

(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
$u = -0.926910 - 0.856986I$ $a = -1.90387 + 1.52415I$ $b = -2.82735 + 0.30557I$	$13.0625 - 8.3599I$	$7.18417 + 3.58155I$
$u = -0.926910 + 0.856986I$ $a = -1.90387 - 1.52415I$ $b = -2.82735 - 0.30557I$	$13.0625 + 8.3599I$	$7.18417 - 3.58155I$
$u = -0.884612 - 0.880353I$ $a = 1.85986 - 1.99564I$ $b = 3.21759 - 0.55317I$	$7.52996 - 2.28269I$	$5.62010 + 3.30544I$
$u = -0.884612 + 0.880353I$ $a = 1.85986 + 1.99564I$ $b = 3.21759 + 0.55317I$	$7.52996 + 2.28269I$	$5.62010 - 3.30544I$
$u = -0.882408 - 0.910943I$ $a = 2.43146 - 0.47337I$ $b = 2.15509 + 1.87394I$	$11.69802 + 1.02561I$	$10.87976 + 0.50038I$
$u = -0.882408 + 0.910943I$ $a = 2.43146 + 0.47337I$ $b = 2.15509 - 1.87394I$	$11.69802 - 1.02561I$	$10.87976 - 0.50038I$
$u = -0.872759 - 0.932792I$ $a = -0.70461 + 2.03440I$ $b = -2.53818 + 1.54576I$	$11.62836 + 5.46563I$	$10.65072 - 5.50593I$
$u = -0.872759 + 0.932792I$ $a = -0.70461 - 2.03440I$ $b = -2.53818 - 1.54576I$	$11.62836 - 5.46563I$	$10.65072 + 5.50593I$
$u = -0.860730 - 0.991421I$ $a = 2.17777 - 1.54190I$ $b = 2.86230 + 0.65631I$	$12.6289 + 14.9456I$	$6.43602 - 8.20300I$
$u = -0.860730 + 0.991421I$ $a = 2.17777 + 1.54190I$ $b = 2.86230 - 0.65631I$	$12.6289 - 14.9456I$	$6.43602 + 8.20300I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.853770 - 0.953263I$ $a = -2.54415 + 1.46489I$ $b = -3.12541 - 1.04451I$	$7.29873 + 8.71850I$	$5.04593 - 8.06406I$
$u = -0.853770 + 0.953263I$ $a = -2.54415 - 1.46489I$ $b = -3.12541 + 1.04451I$	$7.29873 - 8.71850I$	$5.04593 + 8.06406I$
$u = -0.806775 - 0.311658I$ $a = 0.458288 - 0.270389I$ $b = 0.245348 + 0.573062I$	$5.20216 + 2.75088I$	$10.46106 - 4.15294I$
$u = -0.806775 + 0.311658I$ $a = 0.458288 + 0.270389I$ $b = 0.245348 - 0.573062I$	$5.20216 - 2.75088I$	$10.46106 + 4.15294I$
$u = -0.648943 - 0.852337I$ $a = -0.459968 - 0.111768I$ $b = 0.075343 - 0.782400I$	$0.64509 + 2.50411I$	$-2.75636 - 4.40791I$
$u = -0.648943 + 0.852337I$ $a = -0.459968 + 0.111768I$ $b = 0.075343 + 0.782400I$	$0.64509 - 2.50411I$	$-2.75636 + 4.40791I$
$u = -0.465334 - 1.071851I$ $a = 0.142876 - 0.041867I$ $b = -0.542933 + 0.173207I$	$2.69406 + 1.87334I$	$10.35800 - 0.26395I$
$u = -0.465334 + 1.071851I$ $a = 0.142876 + 0.041867I$ $b = -0.542933 - 0.173207I$	$2.69406 - 1.87334I$	$10.35800 + 0.26395I$
$u = -0.402299 - 0.726076I$ $a = 4.02954 + 0.55406I$ $b = 0.53133 + 3.17196I$	$1.60800 + 1.58917I$	$-20.2435 + 28.7194I$
$u = -0.402299 + 0.726076I$ $a = 4.02954 - 0.55406I$ $b = 0.53133 - 3.17196I$	$1.60800 - 1.58917I$	$-20.2435 - 28.7194I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.373944 - 0.452314I$ $a = -1.057608 - 0.025773I$ $b = -0.134970 - 0.975042I$	$0.630433 + 1.227032I$	$4.67740 - 4.85116I$
$u = -0.373944 + 0.452314I$ $a = -1.057608 + 0.025773I$ $b = -0.134970 + 0.975042I$	$0.630433 - 1.227032I$	$4.67740 + 4.85116I$
$u = -0.360123 - 0.813464I$ $a = -0.518558 - 0.633193I$ $b = 0.687466 - 0.164898I$	$-0.31212 + 1.82370I$	$-0.23465 - 3.74406I$
$u = -0.360123 + 0.813464I$ $a = -0.518558 + 0.633193I$ $b = 0.687466 + 0.164898I$	$-0.31212 - 1.82370I$	$-0.23465 + 3.74406I$
$u = -0.259947$ $a = -4.73181$ $b = -0.905521$	2.31399	2.87427
$u = -0.169777 - 0.640051I$ $a = -1.56088 - 0.17603I$ $b = 0.30092 - 1.51738I$	$0.76782 + 1.19453I$	$4.26499 - 2.46898I$
$u = -0.169777 + 0.640051I$ $a = -1.56088 + 0.17603I$ $b = 0.30092 + 1.51738I$	$0.76782 - 1.19453I$	$4.26499 + 2.46898I$
$u = -0.049379 - 1.054035I$ $a = -0.604661 + 0.631216I$ $b = 0.1041627 + 0.0410394I$	$0.26646 + 4.82522I$	$0.99533 - 6.65378I$
$u = -0.049379 + 1.054035I$ $a = -0.604661 - 0.631216I$ $b = 0.1041627 - 0.0410394I$	$0.26646 - 4.82522I$	$0.99533 + 6.65378I$
$u = 0.058697 - 0.871659I$ $a = 0.927638 - 0.869241I$ $b = 0.181740 + 0.147836I$	$-2.88229 + 1.21772I$	$-6.65956 - 1.75393I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.058697 + 0.871659I$ $a = 0.927638 + 0.869241I$ $b = 0.181740 - 0.147836I$	$-2.88229 - 1.21772I$	$-6.65956 + 1.75393I$
$u = 0.441064 - 0.891798I$ $a = 0.552726 - 0.641765I$ $b = -0.960052 + 0.658284I$	$-0.83694 - 5.74776I$	$0.02027 + 9.66844I$
$u = 0.441064 + 0.891798I$ $a = 0.552726 + 0.641765I$ $b = -0.960052 - 0.658284I$	$-0.83694 + 5.74776I$	$0.02027 - 9.66844I$
$u = 0.498548 - 1.006321I$ $a = -0.134991 + 0.583990I$ $b = 1.224799 - 0.502353I$	$3.53599 - 10.89694I$	$3.43741 + 9.33368I$
$u = 0.498548 + 1.006321I$ $a = -0.134991 - 0.583990I$ $b = 1.224799 + 0.502353I$	$3.53599 + 10.89694I$	$3.43741 - 9.33368I$
$u = 0.499123 - 0.779146I$ $a = -0.287995 + 0.728865I$ $b = -1.008560 + 0.475037I$	$3.37085 - 3.65736I$	$8.56973 + 8.26952I$
$u = 0.499123 + 0.779146I$ $a = -0.287995 - 0.728865I$ $b = -1.008560 - 0.475037I$	$3.37085 + 3.65736I$	$8.56973 - 8.26952I$
$u = 0.515749 - 0.636430I$ $a = -0.80754 + 1.46000I$ $b = 0.115692 - 0.362039I$	$3.82116 - 0.24618I$	$10.83777 + 0.95093I$
$u = 0.515749 + 0.636430I$ $a = -0.80754 - 1.46000I$ $b = 0.115692 + 0.362039I$	$3.82116 + 0.24618I$	$10.83777 - 0.95093I$
$u = 0.518208 - 0.404309I$ $a = -0.247527 + 0.552010I$ $b = 0.896594 - 0.461393I$	$0.61609 + 2.03745I$	$4.84113 - 3.90583I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.518208 + 0.404309I$ $a = -0.247527 - 0.552010I$ $b = 0.896594 + 0.461393I$	$0.61609 - 2.03745I$	$4.84113 + 3.90583I$
$u = 0.779580 - 0.384102I$ $a = -0.390126 - 0.746485I$ $b = -1.026268 + 0.248802I$	$5.58297 + 6.26331I$	$7.90346 - 4.21705I$
$u = 0.779580 + 0.384102I$ $a = -0.390126 + 0.746485I$ $b = -1.026268 - 0.248802I$	$5.58297 - 6.26331I$	$7.90346 + 4.21705I$
$u = 0.844326 - 0.935290I$ $a = 1.24194 + 1.88986I$ $b = 2.11110 + 0.44421I$	$7.02956 - 4.40333I$	$4.24400 + 1.00502I$
$u = 0.844326 + 0.935290I$ $a = 1.24194 - 1.88986I$ $b = 2.11110 - 0.44421I$	$7.02956 + 4.40333I$	$4.24400 - 1.00502I$
$u = 0.863056 - 0.887990I$ $a = -2.13531 - 0.41523I$ $b = -2.11663 + 0.80030I$	$7.17905 - 1.93629I$	$4.70767 + 4.16097I$
$u = 0.863056 + 0.887990I$ $a = -2.13531 + 0.41523I$ $b = -2.11663 - 0.80030I$	$7.17905 + 1.93629I$	$4.70767 - 4.16097I$
$u = 0.863542 - 0.916240I$ $a = 1.54727 - 2.55917I$ $b = 0.09683 - 2.30059I$	$9.03621 - 3.20134I$	$-9.31546 + 1.56581I$
$u = 0.863542 + 0.916240I$ $a = 1.54727 + 2.55917I$ $b = 0.09683 + 2.30059I$	$9.03621 + 3.20134I$	$-9.31546 - 1.56581I$
$u = 0.864734 - 1.003782I$ $a = -1.05016 - 1.16382I$ $b = -1.82557 - 0.02986I$	$11.94948 - 6.58665I$	$8.87522 + 5.03540I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.864734 + 1.003782I$ $a = -1.05016 + 1.16382I$ $b = -1.82557 + 0.02986I$	$11.94948 + 6.58665I$	$8.87522 - 5.03540I$
$u = 0.941108 - 0.850159I$ $a = 1.40447 + 0.61406I$ $b = 1.75235 - 0.35418I$	$12.44449 - 0.05461I$	$9.76232 + 0.06604I$
$u = 0.941108 + 0.850159I$ $a = 1.40447 - 0.61406I$ $b = 1.75235 + 0.35418I$	$12.44449 + 0.05461I$	$9.76232 - 0.06604I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^2 + u + 1)(u^{53} + 2u^{52} + \dots + 5u + 1)$
c_2, c_6	$(u^2 + u + 1)(u^{53} + 12u^{52} + \dots + u - 1)$
c_3	$(u^2 + u + 1)(u^{53} + 4u^{52} + \dots + u + 1)$
c_4	$(u^2 - u + 1)(u^{53} + 12u^{52} + \dots + u - 1)$
c_5	$(u^2 - u + 1)(u^{53} + 2u^{52} + \dots + 5u + 1)$
c_7	$(u + 1)^2(u^{53} + 3u^{52} + \dots + 8u - 1)$
c_8	$(u^2 + u + 1)(u^{53} + 2u^{52} + \dots + 361u - 31)$
c_9	$(u^2 + u + 1)(u^{53} + 10u^{51} + \dots - 4625u + 6737)$
c_{10}	$(u - 1)^2(u^{53} + 3u^{52} + \dots + 8u - 1)$
c_{11}	$u^2(u^{53} + 9u^{52} + \dots - 4u + 4)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5	$(y^2 + y + 1)(y^{53} + 12y^{52} + \dots + y - 1)$
c_2, c_4, c_6	$(y^2 + y + 1)(y^{53} + 60y^{52} + \dots + 185y - 1)$
c_3	$(y^2 + y + 1)(y^{53} - 8y^{52} + \dots + y - 1)$
c_7, c_{10}	$(y - 1)^2(y^{53} - 43y^{52} + \dots - 84y - 1)$
c_8	$(y^2 + y + 1)(y^{53} + 68y^{52} + \dots + 28145y - 961)$
c_9	$(y^2 + y + 1)(y^{53} + 20y^{52} + \dots + 6.23517 \times 10^8 y - 4.53872 \times 10^7)$
c_{11}	$y^2(y^{53} + 15y^{52} + \dots - 120y - 16)$