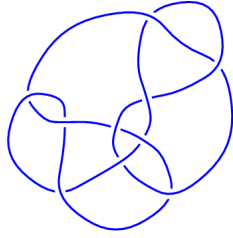
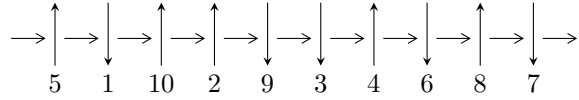


10<sub>88</sub> (K10a<sub>11</sub>)

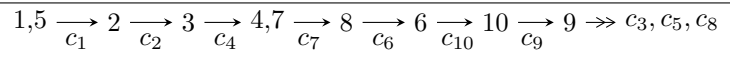


1

**Arc Sequences**



**Solving Sequence**



**Representation Ideals**

$$I = I_1^u$$

$$I_1^u = \langle u^{50} - u^{49} + \dots - 5u + 1, -5.77827 \times 10^{31}u^{49} + 5.91011 \times 10^{31}u^{48} + \dots + 2.44356 \times 10^{32}b + 1.95082 \times 10^{33} \\ 3.27753 \times 10^{32}a^{49} - 2.73003 \times 10^{32}a^{48} + \dots + 2.44356 \times 10^{32}a - 1.16957 \times 10^{33} \rangle$$

There are 1 irreducible components with 50 representations.

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

$$\mathbf{I. } I_1^u = \langle u^{50} - u^{49} + \dots - 5u + 1, -5.78 \times 10^{31} u^{49} + 5.91 \times 10^{31} u^{48} + \dots + 2.44 \times 10^{32} b + 1.95 \times 10^{32}, 3.28 \times 10^{32} u^{49} - 2.73 \times 10^{32} u^{48} + \dots + 2.44 \times 10^{32} a - 1.17 \times 10^{33} \rangle$$

(i) Arc colorings

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

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

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

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

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

$$a_7 = \begin{pmatrix} -1.34130u^{49} + 1.11724u^{48} + \dots - 19.9537u + 4.78632 \\ 0.236470u^{49} - 0.241865u^{48} + \dots + 1.64559u - 0.798352 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -2.34009u^{49} + 2.13672u^{48} + \dots - 21.4649u + 5.25428 \\ 1.32218u^{49} - 1.44382u^{48} + \dots + 2.05452u - 1.24562 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2.09684u^{49} + 1.91902u^{48} + \dots - 19.1825u + 4.30323 \\ 1.39488u^{49} - 1.53232u^{48} + \dots + 2.47751u - 0.884162 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.46215u^{49} - 0.542111u^{48} + \dots + 2.95469u - 2.54530 \\ -0.920041u^{49} + 1.03313u^{48} + \dots - 4.76545u + 1.46215 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.25875u^{49} - 1.06276u^{48} + \dots + 3.11814u + 0.330705 \\ -0.662346u^{49} + 0.916453u^{48} + \dots - 3.97180u + 0.758359 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $-2.37628u^{49} + 0.986125u^{48} + \dots + 35.4700u - 13.0744$

(iv) Complex Volumes and Cusp Shapes

Solution to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.963579 - 0.664758I$	$3.06399 + 4.68595I$	$8.49449 - 8.00357I$
$a = -0.018868 - 0.739103I$		
$b = -0.147304 + 0.726802I$		
$u = -0.963579 + 0.664758I$	$3.06399 - 4.68595I$	$8.49449 + 8.00357I$
$a = -0.018868 + 0.739103I$		
$b = -0.147304 - 0.726802I$		
$u = -0.948189 - 0.263019I$	$3.46714 - 1.26448I$	$10.24310 + 1.49533I$
$a = 0.065897 - 0.591797I$		
$b = -0.049325 + 0.745601I$		
$u = -0.948189 + 0.263019I$	$3.46714 + 1.26448I$	$10.24310 - 1.49533I$
$a = 0.065897 + 0.591797I$		
$b = -0.049325 - 0.745601I$		
$u = -0.802649 - 0.956850I$	$2.17019 + 1.69704I$	$6.69422 - 3.84304I$
$a = 0.271194 + 0.809780I$		
$b = 0.267111 - 0.654143I$		
$u = -0.802649 + 0.956850I$	$2.17019 - 1.69704I$	$6.69422 + 3.84304I$
$a = 0.271194 - 0.809780I$		
$b = 0.267111 + 0.654143I$		
$u = -0.669156 - 1.208826I$	$0.67245 + 7.17988I$	$2.47305 - 11.09561I$
$a = 0.435295 + 0.562814I$		
$b = 0.430659 - 0.655819I$		
$u = -0.669156 + 1.208826I$	$0.67245 - 7.17988I$	$2.47305 + 11.09561I$
$a = 0.435295 - 0.562814I$		
$b = 0.430659 + 0.655819I$		
$u = -0.634283 - 0.564662I$	$1.12648 + 1.44226I$	$2.47190 - 3.48786I$
$a = -0.296946 + 0.881799I$		
$b = 0.067730 - 0.654885I$		
$u = -0.634283 + 0.564662I$	$1.12648 - 1.44226I$	$2.47190 + 3.48786I$
$a = -0.296946 - 0.881799I$		
$b = 0.067730 + 0.654885I$		

Solution to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.520399 - 0.919399I$ $a = 2.05379 - 1.48565I$ $b = 0.370275 + 0.298968I$	$4.46279I$	$17.3614I$
$u = -0.520399 + 0.919399I$ $a = 2.05379 + 1.48565I$ $b = 0.370275 - 0.298968I$	$-4.46279I$	$-17.3614I$
$u = -0.518931 - 1.139543I$ $a = -0.643358 - 0.500388I$ $b = -0.478882 + 0.556148I$	$-0.60255 + 2.94954I$	$-1.13612 - 5.37680I$
$u = -0.518931 + 1.139543I$ $a = -0.643358 + 0.500388I$ $b = -0.478882 - 0.556148I$	$-0.60255 - 2.94954I$	$-1.13612 + 5.37680I$
$u = -0.513623 - 0.775619I$ $a = 2.26315 - 0.54310I$ $b = 0.515770 + 0.025610I$	$0.465700 - 0.257544I$	$-10.73692 - 5.77650I$
$u = -0.513623 + 0.775619I$ $a = 2.26315 + 0.54310I$ $b = 0.515770 - 0.025610I$	$0.465700 + 0.257544I$	$-10.73692 + 5.77650I$
$u = -0.436223 - 0.912127I$ $a = -1.50208 + 1.68534I$ $b = -0.270487 - 0.448313I$	$-0.465700 + 0.257544I$	$10.73692 + 5.77650I$
$u = -0.436223 + 0.912127I$ $a = -1.50208 - 1.68534I$ $b = -0.270487 + 0.448313I$	$-0.465700 - 0.257544I$	$10.73692 - 5.77650I$
$u = -0.428462 - 0.986061I$ $a = -1.141964 - 0.441085I$ $b = -0.486342 + 0.377319I$	$-0.42985 + 2.78493I$	$1.80718 - 4.91633I$
$u = -0.428462 + 0.986061I$ $a = -1.141964 + 0.441085I$ $b = -0.486342 - 0.377319I$	$-0.42985 - 2.78493I$	$1.80718 + 4.91633I$

Solution to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.151838 - 0.411336I$ $a = -2.06760 + 1.63293I$ $b = -0.732250 - 0.062379I$	$0.42985 + 2.78493I$	$-1.80718 - 4.91633I$
$u = -0.151838 + 0.411336I$ $a = -2.06760 - 1.63293I$ $b = -0.732250 + 0.062379I$	$0.42985 - 2.78493I$	$-1.80718 + 4.91633I$
$u = 0.016221 - 1.300023I$ $a = -0.247516 + 0.113366I$ $b = -0.869182 + 0.638710I$	$-4.44668 + 7.08217I$	$-4.03427 - 7.44469I$
$u = 0.016221 + 1.300023I$ $a = -0.247516 - 0.113366I$ $b = -0.869182 - 0.638710I$	$-4.44668 - 7.08217I$	$-4.03427 + 7.44469I$
$u = 0.101263 - 1.224451I$ $a = 0.181918 - 0.251801I$ $b = 0.951214 - 0.612896I$	$-5.61738 + 1.76997I$	$-6.58185 - 1.55968I$
$u = 0.101263 + 1.224451I$ $a = 0.181918 + 0.251801I$ $b = 0.951214 + 0.612896I$	$-5.61738 - 1.76997I$	$-6.58185 + 1.55968I$
$u = 0.315698 - 0.896805I$ $a = -1.45162 + 1.48737I$ $b = -0.32515 - 1.42399I$	$-2.17019 + 1.69704I$	$-6.69422 - 3.84304I$
$u = 0.315698 + 0.896805I$ $a = -1.45162 - 1.48737I$ $b = -0.32515 + 1.42399I$	$-2.17019 - 1.69704I$	$-6.69422 + 3.84304I$
$u = 0.371567 - 0.059094I$ $a = -1.19223 + 2.37644I$ $b = 0.615185 - 0.695884I$	$-1.12648 + 1.44226I$	$-2.47190 - 3.48786I$
$u = 0.371567 + 0.059094I$ $a = -1.19223 - 2.37644I$ $b = 0.615185 + 0.695884I$	$-1.12648 - 1.44226I$	$-2.47190 + 3.48786I$

Solution to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.390240 - 0.977451I$ $a = -0.501632 - 0.844876I$ $b = 1.48160 - 0.62599I$	$-3.46714 - 1.26448I$	$-10.24310 + 1.49533I$
$u = 0.390240 + 0.977451I$ $a = -0.501632 + 0.844876I$ $b = 1.48160 + 0.62599I$	$-3.46714 + 1.26448I$	$-10.24310 - 1.49533I$
$u = 0.441150 - 0.556001I$ $a = -0.17690 + 1.98634I$ $b = -1.197798 - 0.446539I$	$0.60255 + 2.94954I$	$1.13612 - 5.37680I$
$u = 0.441150 + 0.556001I$ $a = -0.17690 - 1.98634I$ $b = -1.197798 + 0.446539I$	$0.60255 - 2.94954I$	$1.13612 + 5.37680I$
$u = 0.454209 - 0.992717I$ $a = 1.22227 - 1.77245I$ $b = 0.82446 + 1.51029I$	$-3.06399 - 4.68595I$	$-8.49449 + 8.00357I$
$u = 0.454209 + 0.992717I$ $a = 1.22227 + 1.77245I$ $b = 0.82446 - 1.51029I$	$-3.06399 + 4.68595I$	$-8.49449 - 8.00357I$
$u = 0.534615 - 0.993631I$ $a = 0.981680 + 0.342244I$ $b = -1.43627 + 1.06184I$	$-0.67245 - 7.17988I$	$-2.47305 + 11.09561I$
$u = 0.534615 + 0.993631I$ $a = 0.981680 - 0.342244I$ $b = -1.43627 - 1.06184I$	$-0.67245 + 7.17988I$	$-2.47305 - 11.09561I$
$u = 0.629982 - 1.117778I$ $a = 0.82665 - 1.63191I$ $b = 1.03048 + 1.17975I$	$-2.06994 - 9.79621I$	$-2.50765 + 6.28548I$
$u = 0.629982 + 1.117778I$ $a = 0.82665 + 1.63191I$ $b = 1.03048 - 1.17975I$	$-2.06994 + 9.79621I$	$-2.50765 - 6.28548I$

Solution to $I_1^\mu$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.646221 - 1.007930I$ $a = -0.74834 + 1.79345I$ $b = -1.15124 - 1.22103I$	$4.44668 - 7.08217I$	$4.03427 + 7.44469I$
$u = 0.646221 + 1.007930I$ $a = -0.74834 - 1.79345I$ $b = -1.15124 + 1.22103I$	$4.44668 + 7.08217I$	$4.03427 - 7.44469I$
$u = 0.670825 - 1.138626I$ $a = -0.78106 + 1.59555I$ $b = -1.04012 - 1.14248I$	$-15.6466I$	$9.78406I$
$u = 0.670825 + 1.138626I$ $a = -0.78106 - 1.59555I$ $b = -1.04012 + 1.14248I$	$15.6466I$	$-9.78406I$
$u = 0.751604 - 0.620367I$ $a = 1.05383 - 0.97843I$ $b = -0.82619 + 1.20498I$	$5.61738 + 1.76997I$	$6.58185 - 1.55968I$
$u = 0.751604 + 0.620367I$ $a = 1.05383 + 0.97843I$ $b = -0.82619 - 1.20498I$	$5.61738 - 1.76997I$	$6.58185 + 1.55968I$
$u = 0.836943 - 0.423224I$ $a = -0.84471 + 1.21006I$ $b = 0.821793 - 1.069406I$	$4.34036I$	$-2.49570I$
$u = 0.836943 + 0.423224I$ $a = -0.84471 - 1.21006I$ $b = 0.821793 + 1.069406I$	$-4.34036I$	$2.49570I$
$u = 0.926795 - 0.461408I$ $a = 0.759144 - 1.122891I$ $b = -0.865732 + 1.077365I$	$2.06994 + 9.79621I$	$2.50765 - 6.28548I$
$u = 0.926795 + 0.461408I$ $a = 0.759144 + 1.122891I$ $b = -0.865732 - 1.077365I$	$2.06994 - 9.79621I$	$2.50765 + 6.28548I$

## II. u-Polynomials

Crossings	u-Polynomials at each crossings
$c_1, c_4, c_5$ $c_8$	$(u^{50} + u^{49} + \cdots + 5u + 1)$
$c_2, c_9$	$(u^{50} + 21u^{49} + \cdots + 5u + 1)$
$c_3, c_{10}$	$(u^{50} + 5u^{49} + \cdots + u + 1)$
$c_6, c_7$	$(u^{50} + u^{49} + \cdots - 17u + 1)$



### III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
$c_1, c_4, c_5$ $c_8$	$(y^{50} + 21y^{49} + \dots + 5y + 1)$
$c_2, c_9$	$(y^{50} + 17y^{49} + \dots - 71y + 1)$
$c_3, c_{10}$	$(y^{50} + 5y^{49} + \dots + 5y + 1)$
$c_6, c_7$	$(y^{50} + 49y^{49} + \dots - 11y + 1)$