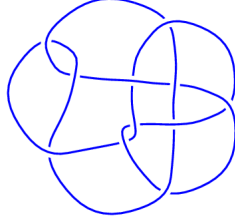
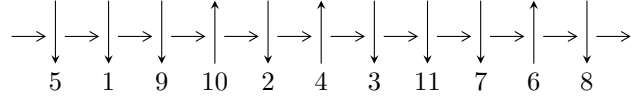


11a₁₀₁ (K11a₁₀₁)

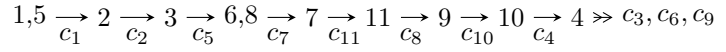


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = \bigcap_{i=1}^3 I_i^u$$

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

$$I_2^u = \langle u^{18} + 2u^{17} + \dots + 2u + 1, -u^{17} - 4u^{16} + \dots + b - 4, -10u^{17} - 12u^{16} + \dots + a - 10 \rangle$$

$$I_3^u = \langle u^{105} - 3u^{104} + \dots + 26u - 21, \\ -5.86190 \times 10^{189}u^{104} + 3.24426 \times 10^{190}u^{103} + \dots + 1.28496 \times 10^{191}b + 2.04597 \times 10^{191}, \\ -9.93421 \times 10^{190}u^{104} - 1.87948 \times 10^{191}u^{103} + \dots + 5.39685 \times 10^{192}a - 1.98703 \times 10^{193} \rangle$$

There are 3 irreducible components with 127 representations.

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

$$\text{I. } I_1^u = \langle a^4 + 2a^3 + 2a^2 + a + 1, u - 1, -a^2 + b - a \rangle$$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} a \\ a^2 + a \end{pmatrix}$$

$$a_7 = \begin{pmatrix} a \\ a^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -a^3 - a^2 + 1 \\ a^2 + a + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -a^3 - 2a^2 - a \\ a^2 + a + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -a^3 - 2a^2 - a \\ a^2 + a + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} a^3 + 2a^2 + 2a \\ -a \end{pmatrix}$$

$$a_4 = \begin{pmatrix} a^3 + 2a^2 + 2a \\ -a \end{pmatrix}$$

(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
$u = 1.00000$ $a = -1.070696 - 0.758745I$ $b = -0.500000 + 0.866025I$	$-1.64493 + 2.02988I$	$-4.92268 - 2.50966I$
$u = 1.00000$ $a = -1.070696 + 0.758745I$ $b = -0.500000 - 0.866025I$	$-1.64493 - 2.02988I$	$-4.92268 + 2.50966I$
$u = 1.00000$ $a = 0.070696 - 0.758745I$ $b = -0.500000 - 0.866025I$	$-1.64493 - 2.02988I$	$-10.57732 + 1.82047I$
$u = 1.00000$ $a = 0.070696 + 0.758745I$ $b = -0.500000 + 0.866025I$	$-1.64493 + 2.02988I$	$-10.57732 - 1.82047I$

$$\langle u^{18} + 2u^{17} + \dots + 2u + 1, -u^{17} - 4u^{16} + \dots + b - 4, -10u^{17} - 12u^{16} + \dots + a - 10 \rangle$$

II. $I_2^u =$

(i) Arc colorings

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

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

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

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

$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 10u^{17} + 12u^{16} + \dots + 12u + 10 \\ u^{17} + 4u^{16} + \dots + 2u + 4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 9u^{17} + 10u^{16} + \dots + 11u + 7 \\ 2u^{17} + 5u^{16} + \dots + 4u + 5 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^{17} - u^{16} + \dots - 4u + 1 \\ -u^{17} + 2u^{16} + \dots + u + 2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 11u^{17} + 11u^{16} + \dots + 14u + 8 \\ 5u^{16} + 2u^{15} + \dots + 2u + 4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 2u^{17} + 3u^{16} + \dots + u + 4 \\ -3u^{17} - u^{16} + \dots - 3u + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 4u^{16} + u^{15} + \dots + u + 5 \\ -7u^{17} - 9u^{16} + \dots - 10u - 7 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 4u^{16} + u^{15} + \dots + u + 5 \\ -7u^{17} - 9u^{16} + \dots - 10u - 7 \end{pmatrix}$$

(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
$u = -1.058499 - 0.470398I$ $a = -0.325723 + 0.619881I$ $b = 0.095630 + 0.511385I$	$-1.16935 - 7.23800I$	$-7.01755 + 11.25029I$
$u = -1.058499 + 0.470398I$ $a = -0.325723 - 0.619881I$ $b = 0.095630 - 0.511385I$	$-1.16935 + 7.23800I$	$-7.01755 - 11.25029I$
$u = -1.034500 - 0.678208I$ $a = -1.39724 + 1.64751I$ $b = -0.45509 - 1.38511I$	$3.72776 - 8.87878I$	$-1.84390 + 7.64771I$
$u = -1.034500 + 0.678208I$ $a = -1.39724 - 1.64751I$ $b = -0.45509 + 1.38511I$	$3.72776 + 8.87878I$	$-1.84390 - 7.64771I$
$u = -0.866037 - 0.622834I$ $a = 0.511124 + 1.090213I$ $b = -1.48733 + 0.08783I$	$-1.41709 - 2.44188I$	$5.08235 + 4.37378I$
$u = -0.866037 + 0.622834I$ $a = 0.511124 - 1.090213I$ $b = -1.48733 - 0.08783I$	$-1.41709 + 2.44188I$	$5.08235 - 4.37378I$
$u = -0.663344 - 0.366591I$ $a = 0.57381 - 2.59156I$ $b = 0.234163 - 0.558499I$	$0.33317 + 3.63726I$	$-8.91882 - 3.24390I$
$u = -0.663344 + 0.366591I$ $a = 0.57381 + 2.59156I$ $b = 0.234163 + 0.558499I$	$0.33317 - 3.63726I$	$-8.91882 + 3.24390I$
$u = -0.621434 - 0.693802I$ $a = 0.42128 - 2.04009I$ $b = -0.27976 + 1.42569I$	$4.97290 + 3.51801I$	$0.06010 - 3.45707I$
$u = -0.621434 + 0.693802I$ $a = 0.42128 + 2.04009I$ $b = -0.27976 - 1.42569I$	$4.97290 - 3.51801I$	$0.06010 + 3.45707I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.361361 - 0.532422I$ $a = -0.447856 - 0.920402I$ $b = -0.050374 + 1.315621I$	$4.34573 + 4.19547I$	$2.04350 - 7.15132I$
$u = 0.361361 + 0.532422I$ $a = -0.447856 + 0.920402I$ $b = -0.050374 - 1.315621I$	$4.34573 - 4.19547I$	$2.04350 + 7.15132I$
$u = 0.631710 - 0.902435I$ $a = 0.34312 + 2.01414I$ $b = 0.157524 - 0.820252I$	$2.00612 + 4.90356I$	$3.85332 - 8.49862I$
$u = 0.631710 + 0.902435I$ $a = 0.34312 - 2.01414I$ $b = 0.157524 + 0.820252I$	$2.00612 - 4.90356I$	$3.85332 + 8.49862I$
$u = 0.867195 - 0.330617I$ $a = -0.196161 - 1.071474I$ $b = -1.035837 + 0.187211I$	$-3.15340 + 1.42820I$	$-13.04256 + 1.16995I$
$u = 0.867195 + 0.330617I$ $a = -0.196161 + 1.071474I$ $b = -1.035837 - 0.187211I$	$-3.15340 - 1.42820I$	$-13.04256 - 1.16995I$
$u = 1.383548 - 0.265753I$ $a = -0.482355 - 0.445640I$ $b = -0.178928 + 0.850199I$	$-1.42117 + 1.04333I$	$-13.21645 - 1.56037I$
$u = 1.383548 + 0.265753I$ $a = -0.482355 + 0.445640I$ $b = -0.178928 - 0.850199I$	$-1.42117 - 1.04333I$	$-13.21645 + 1.56037I$

$$\text{III. } I_3^u = \langle u^{105} - 3u^{104} + \dots + 26u - 21, -5.86 \times 10^{189}u^{104} + 3.24 \times 10^{190}u^{103} + \dots + 1.28 \times 10^{191}b + 2.05 \times 10^{191}, -9.93 \times 10^{190}u^{104} - 1.88 \times 10^{191}u^{103} + \dots + 5.40 \times 10^{192}a - 1.99 \times 10^{193} \rangle$$

(i) Arc colorings

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

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

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

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

$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0184074u^{104} + 0.0348256u^{103} + \dots - 3.82299u + 3.68184 \\ 0.0456192u^{104} - 0.252478u^{103} + \dots + 11.7933u - 1.59224 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0754639u^{104} - 0.151948u^{103} + \dots + 4.47496u + 3.26401 \\ 0.0217419u^{104} - 0.195594u^{103} + \dots + 13.2792u - 2.22961 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.106302u^{104} - 0.0726312u^{103} + \dots - 18.1193u + 6.55450 \\ -0.0367543u^{104} - 0.0382608u^{103} + \dots + 0.133832u + 0.505694 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0375876u^{104} + 0.0739669u^{103} + \dots + 2.09040u + 2.16319 \\ -0.123383u^{104} + 0.240256u^{103} + \dots - 8.75520u + 3.25940 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.00776219u^{104} + 0.0887609u^{103} + \dots - 15.0253u + 5.17372 \\ -0.0721333u^{104} + 0.148940u^{103} + \dots - 1.53959u - 0.932304 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0513625u^{104} + 0.118285u^{103} + \dots + 16.1435u - 2.45451 \\ 0.00759574u^{104} + 0.0691986u^{103} + \dots - 13.0165u + 3.52395 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0513625u^{104} + 0.118285u^{103} + \dots + 16.1435u - 2.45451 \\ 0.00759574u^{104} + 0.0691986u^{103} + \dots - 13.0165u + 3.52395 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.311491 - 0.202186I$		
$a = 0.579840 - 0.214833I$	$-2.04022 - 10.35477I$	$-6.23587 + 9.24375I$
$b = 0.474299 + 1.083499I$		
$u = -1.311491 + 0.202186I$		
$a = 0.579840 + 0.214833I$	$-2.04022 + 10.35477I$	$-6.23587 - 9.24375I$
$b = 0.474299 - 1.083499I$		
$u = -1.136439 - 0.740786I$		
$a = 1.25852 - 1.35712I$	$5.39646 - 9.93649I$	$1.15223 + 9.50202I$
$b = 0.497698 + 1.232557I$		
$u = -1.136439 + 0.740786I$		
$a = 1.25852 + 1.35712I$	$5.39646 + 9.93649I$	$1.15223 - 9.50202I$
$b = 0.497698 - 1.232557I$		
$u = -1.117764 - 0.756995I$		
$a = -1.00207 + 1.37454I$	$5.83122 - 9.23477I$	$1.68037 + 8.59455I$
$b = -0.32630 - 1.39265I$		
$u = -1.117764 + 0.756995I$		
$a = -1.00207 - 1.37454I$	$5.83122 + 9.23477I$	$1.68037 - 8.59455I$
$b = -0.32630 + 1.39265I$		
$u = -1.101408 - 0.522783I$		
$a = -0.303133 - 0.595211I$	$-1.08423 - 6.56298I$	$-4.98624 + 0.10909I$
$b = 0.184844 - 0.573566I$		
$u = -1.101408 + 0.522783I$		
$a = -0.303133 + 0.595211I$	$-1.08423 + 6.56298I$	$-4.98624 - 0.10909I$
$b = 0.184844 + 0.573566I$		
$u = -1.091686 - 0.038289I$		
$a = 0.778221 + 0.609668I$	$-4.05808 - 5.63577I$	$-10.52579 + 4.17750I$
$b = 0.793651 - 0.444672I$		
$u = -1.091686 + 0.038289I$		
$a = 0.778221 - 0.609668I$	$-4.05808 + 5.63577I$	$-10.52579 - 4.17750I$
$b = 0.793651 + 0.444672I$		

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.048929 - 0.643496I$ $a = -1.30143 + 1.45853I$ $b = -0.65511 - 1.45873I$	$2.28544 - 9.63826I$	$-7.81652 + 11.21242I$
$u = -1.048929 + 0.643496I$ $a = -1.30143 - 1.45853I$ $b = -0.65511 + 1.45873I$	$2.28544 + 9.63826I$	$-7.81652 - 11.21242I$
$u = -1.015238 - 0.661398I$ $a = 0.201760 - 0.488347I$ $b = 0.809497 - 0.102022I$	$2.01213 - 5.10232I$	$-2.36280 + 6.09962I$
$u = -1.015238 + 0.661398I$ $a = 0.201760 + 0.488347I$ $b = 0.809497 + 0.102022I$	$2.01213 + 5.10232I$	$-2.36280 - 6.09962I$
$u = -0.996356 - 0.112850I$ $a = -0.754266 + 0.000581I$ $b = -0.663792 - 1.031298I$	$-2.38432 - 4.04449I$	$-10.9911 + 9.5055I$
$u = -0.996356 + 0.112850I$ $a = -0.754266 - 0.000581I$ $b = -0.663792 + 1.031298I$	$-2.38432 + 4.04449I$	$-10.9911 - 9.5055I$
$u = -0.982163 - 0.730546I$ $a = 1.50146 - 1.08061I$ $b = 0.100432 + 1.001599I$	$4.50787 - 3.31342I$	$1.39482 + 2.36889I$
$u = -0.982163 + 0.730546I$ $a = 1.50146 + 1.08061I$ $b = 0.100432 - 1.001599I$	$4.50787 + 3.31342I$	$1.39482 - 2.36889I$
$u = -0.975859 - 0.621747I$ $a = 1.13351 - 2.50633I$ $b = 0.197170 + 1.088224I$	$0.59498 - 8.39732I$	$-4.72892 + 9.26214I$
$u = -0.975859 + 0.621747I$ $a = 1.13351 + 2.50633I$ $b = 0.197170 - 1.088224I$	$0.59498 + 8.39732I$	$-4.72892 - 9.26214I$

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.968752 - 0.584437I$ $a = -0.700178 + 0.530675I$ $b = -0.885614 - 0.568414I$	$-0.24099 - 5.32174I$	$-7.69436 + 7.28662I$
$u = -0.968752 + 0.584437I$ $a = -0.700178 - 0.530675I$ $b = -0.885614 + 0.568414I$	$-0.24099 + 5.32174I$	$-7.69436 - 7.28662I$
$u = -0.904124 - 0.143933I$ $a = -1.137733 + 0.581704I$ $b = -0.997296 - 0.489711I$	$-4.17184 - 1.85108I$	$-18.8401 + 3.3391I$
$u = -0.904124 + 0.143933I$ $a = -1.137733 - 0.581704I$ $b = -0.997296 + 0.489711I$	$-4.17184 + 1.85108I$	$-18.8401 - 3.3391I$
$u = -0.887449 - 0.774416I$ $a = 1.00120 - 1.53589I$ $b = 0.661868 + 1.121825I$	$5.35733 - 5.02068I$	$1.45936 + 4.92888I$
$u = -0.887449 + 0.774416I$ $a = 1.00120 + 1.53589I$ $b = 0.661868 - 1.121825I$	$5.35733 + 5.02068I$	$1.45936 - 4.92888I$
$u = -0.873349 - 0.559236I$ $a = 0.241965 + 1.018145I$ $b = -1.50507 + 0.13441I$	$-2.19508 - 2.22433I$	$-11.14019 + 2.75923I$
$u = -0.873349 + 0.559236I$ $a = 0.241965 - 1.018145I$ $b = -1.50507 - 0.13441I$	$-2.19508 + 2.22433I$	$-11.14019 - 2.75923I$
$u = -0.867026 - 0.127583I$ $a = -0.40021 + 1.59881I$ $b = -0.077948 + 1.079961I$	$2.21304 + 3.42010I$	$-2.80081 - 4.39941I$
$u = -0.867026 + 0.127583I$ $a = -0.40021 - 1.59881I$ $b = -0.077948 - 1.079961I$	$2.21304 - 3.42010I$	$-2.80081 + 4.39941I$

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.843437 - 0.793529I$ $a = -0.409882 + 0.975452I$ $b = 0.519206 - 1.191495I$	$5.49450 - 0.84862I$	$1.09269 + 1.40883I$
$u = -0.843437 + 0.793529I$ $a = -0.409882 - 0.975452I$ $b = 0.519206 + 1.191495I$	$5.49450 + 0.84862I$	$1.09269 - 1.40883I$
$u = -0.746082 - 0.554107I$ $a = -0.106561 + 0.269895I$ $b = -0.791032 + 0.852363I$	$0.515363 + 0.751368I$	$-5.61901 - 0.82338I$
$u = -0.746082 + 0.554107I$ $a = -0.106561 - 0.269895I$ $b = -0.791032 - 0.852363I$	$0.515363 - 0.751368I$	$-5.61901 + 0.82338I$
$u = -0.717574 - 0.787844I$ $a = 0.24779 + 1.49492I$ $b = 0.008686 - 1.151722I$	$5.29707 - 2.41276I$	$2.90521 + 2.59378I$
$u = -0.717574 + 0.787844I$ $a = 0.24779 - 1.49492I$ $b = 0.008686 + 1.151722I$	$5.29707 + 2.41276I$	$2.90521 - 2.59378I$
$u = -0.712742 - 0.615251I$ $a = -1.35301 + 3.08293I$ $b = 0.045643 - 0.959720I$	$1.43043 + 3.49947I$	$-1.23927 - 2.67908I$
$u = -0.712742 + 0.615251I$ $a = -1.35301 - 3.08293I$ $b = 0.045643 + 0.959720I$	$1.43043 - 3.49947I$	$-1.23927 + 2.67908I$
$u = -0.639186 - 0.731369I$ $a = 0.049200 - 0.306897I$ $b = 0.691929 - 0.143673I$	$3.14263 - 0.23766I$	$0.135168 - 0.285149I$
$u = -0.639186 + 0.731369I$ $a = 0.049200 + 0.306897I$ $b = 0.691929 + 0.143673I$	$3.14263 + 0.23766I$	$0.135168 + 0.285149I$

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.592273 - 1.001823I$		
$a = 0.40109 - 1.55763I$	$7.47132 + 2.85952I$	$4.08033 - 2.95237I$
$b = -0.179100 + 1.346318I$		
$u = -0.592273 + 1.001823I$		
$a = 0.40109 + 1.55763I$	$7.47132 - 2.85952I$	$4.08033 + 2.95237I$
$b = -0.179100 - 1.346318I$		
$u = -0.556771 - 1.007563I$		
$a = -0.07814 + 1.44514I$	$7.20552 + 3.60295I$	$4.74992 - 3.62957I$
$b = 0.371110 - 1.241102I$		
$u = -0.556771 + 1.007563I$		
$a = -0.07814 - 1.44514I$	$7.20552 - 3.60295I$	$4.74992 + 3.62957I$
$b = 0.371110 + 1.241102I$		
$u = -0.523544 - 0.702765I$		
$a = 0.69115 - 1.53730I$	$3.78630 + 4.41777I$	$-4.17830 - 6.18089I$
$b = -0.45129 + 1.46814I$		
$u = -0.523544 + 0.702765I$		
$a = 0.69115 + 1.53730I$	$3.78630 - 4.41777I$	$-4.17830 + 6.18089I$
$b = -0.45129 - 1.46814I$		
$u = -0.394234 - 0.067762I$		
$a = 1.30258 - 1.27803I$	$3.75692 + 3.86041I$	$-9.69028 - 2.00461I$
$b = -0.16126 + 1.43661I$		
$u = -0.394234 + 0.067762I$		
$a = 1.30258 + 1.27803I$	$3.75692 - 3.86041I$	$-9.69028 + 2.00461I$
$b = -0.16126 - 1.43661I$		
$u = -0.247645 - 0.673285I$		
$a = 0.329154 - 0.092322I$	$1.31308 + 2.02353I$	$-1.45876 + 0.03065I$
$b = 0.232356 + 0.603903I$		
$u = -0.247645 + 0.673285I$		
$a = 0.329154 + 0.092322I$	$1.31308 - 2.02353I$	$-1.45876 - 0.03065I$
$b = 0.232356 - 0.603903I$		

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.039444 - 0.557659I$	$0.90741 + 2.03803I$	$-2.19325 - 4.21221I$
$a = 0.991976 - 0.968484I$		
$b = -0.205599 + 0.907238I$		
$u = 0.039444 + 0.557659I$	$0.90741 - 2.03803I$	$-2.19325 + 4.21221I$
$a = 0.991976 + 0.968484I$		
$b = -0.205599 - 0.907238I$		
$u = 0.203779 - 0.335462I$	$-1.40825 + 0.47122I$	$-8.26224 - 1.56845I$
$a = 1.65509 - 0.07138I$		
$b = -0.659402 + 0.044946I$		
$u = 0.203779 + 0.335462I$	$-1.40825 - 0.47122I$	$-8.26224 + 1.56845I$
$a = 1.65509 + 0.07138I$		
$b = -0.659402 - 0.044946I$		
$u = 0.237807 - 1.211570I$	$3.78005 + 5.81600I$	$-0.68075 - 11.07440I$
$a = -0.019047 + 1.255930I$		
$b = 0.186131 - 1.098202I$		
$u = 0.237807 + 1.211570I$	$3.78005 - 5.81600I$	$-0.68075 + 11.07440I$
$a = -0.019047 - 1.255930I$		
$b = 0.186131 + 1.098202I$		
$u = 0.266843 - 0.324688I$	$0.56603 + 4.69971I$	$-5.71567 - 9.51983I$
$a = 2.45970 - 2.39117I$		
$b = 0.412521 - 0.477500I$		
$u = 0.266843 + 0.324688I$	$0.56603 - 4.69971I$	$-5.71567 + 9.51983I$
$a = 2.45970 + 2.39117I$		
$b = 0.412521 + 0.477500I$		
$u = 0.607933 - 0.981916I$	$6.05536 - 12.20238I$	$-1.09211 + 6.35868I$
$a = -0.37768 - 1.50010I$		
$b = 0.53317 + 1.35907I$		
$u = 0.607933 + 0.981916I$	$6.05536 + 12.20238I$	$-1.09211 - 6.35868I$
$a = -0.37768 + 1.50010I$		
$b = 0.53317 - 1.35907I$		

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621034 - 0.773307I$ $a = -0.410716 + 0.805404I$ $b = 1.131973 + 0.010819I$	$1.74977 - 6.39892I$	$-2.89117 + 4.47025I$
$u = 0.621034 + 0.773307I$ $a = -0.410716 - 0.805404I$ $b = 1.131973 - 0.010819I$	$1.74977 + 6.39892I$	$-2.89117 - 4.47025I$
$u = 0.702742 - 0.794345I$ $a = 0.77380 + 1.75107I$ $b = -0.47650 - 1.40660I$	$3.70990 - 3.71060I$	$-6.32837 + 5.99697I$
$u = 0.702742 + 0.794345I$ $a = 0.77380 - 1.75107I$ $b = -0.47650 + 1.40660I$	$3.70990 + 3.71060I$	$-6.32837 - 5.99697I$
$u = 0.704644 - 0.717723I$ $a = -0.45849 - 1.34634I$ $b = -0.315659 + 0.133734I$	$1.23630 + 4.64058I$	$-5.69263 - 4.89456I$
$u = 0.704644 + 0.717723I$ $a = -0.45849 + 1.34634I$ $b = -0.315659 - 0.133734I$	$1.23630 - 4.64058I$	$-5.69263 + 4.89456I$
$u = 0.709328$ $a = 1.19069$ $b = -0.164470$	-1.21866	-8.07922
$u = 0.739990 - 0.531797I$ $a = -0.61736 - 2.52001I$ $b = -0.320667 + 1.080816I$	$0.43413 + 3.31458I$	$-4.35930 - 5.25207I$
$u = 0.739990 + 0.531797I$ $a = -0.61736 + 2.52001I$ $b = -0.320667 - 1.080816I$	$0.43413 - 3.31458I$	$-4.35930 + 5.25207I$
$u = 0.739994 - 0.674362I$ $a = -0.00363 + 1.98612I$ $b = -0.319451 - 1.371434I$	$6.01729 - 2.93762I$	$4.31813 + 0.78076I$

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.739994 + 0.674362I$ $a = -0.00363 - 1.98612I$ $b = -0.319451 + 1.371434I$	$6.01729 + 2.93762I$	$4.31813 - 0.78076I$
$u = 0.828894 - 0.953806I$ $a = -0.38958 - 1.50653I$ $b = -0.267682 + 0.788116I$	$1.42823 + 4.82513I$	$-11.04960 - 7.72511I$
$u = 0.828894 + 0.953806I$ $a = -0.38958 + 1.50653I$ $b = -0.267682 - 0.788116I$	$1.42823 - 4.82513I$	$-11.04960 + 7.72511I$
$u = 0.842087 - 0.691910I$ $a = -0.77060 - 1.47914I$ $b = 0.32251 + 1.60831I$	$6.64218 + 5.69412I$	$0.47033 - 7.13310I$
$u = 0.842087 + 0.691910I$ $a = -0.77060 + 1.47914I$ $b = 0.32251 - 1.60831I$	$6.64218 - 5.69412I$	$0.47033 + 7.13310I$
$u = 0.871499 - 0.695856I$ $a = 1.42749 + 1.69493I$ $b = 0.45738 - 1.46954I$	$6.55301 - 0.36358I$	$0.653234 + 0.215861I$
$u = 0.871499 + 0.695856I$ $a = 1.42749 - 1.69493I$ $b = 0.45738 + 1.46954I$	$6.55301 + 0.36358I$	$0.653234 - 0.215861I$
$u = 0.872372 - 0.624977I$ $a = 0.647622 - 1.115111I$ $b = -1.43569 - 0.11086I$	$-1.77580 + 2.44321I$	$-19.3850 - 3.9533I$
$u = 0.872372 + 0.624977I$ $a = 0.647622 + 1.115111I$ $b = -1.43569 + 0.11086I$	$-1.77580 - 2.44321I$	$-19.3850 + 3.9533I$
$u = 0.936806 - 0.674442I$ $a = 0.411966 + 0.245905I$ $b = -0.703893 - 0.390935I$	$0.603292 + 0.732253I$	$-6.19937 + 1.65336I$

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.936806 + 0.674442I$ $a = 0.411966 - 0.245905I$ $b = -0.703893 + 0.390935I$	$0.603292 - 0.732253I$	$-6.19937 - 1.65336I$
$u = 0.953631 - 0.649911I$ $a = -2.07755 - 1.58789I$ $b = -0.390960 + 1.281681I$	$5.35487 + 8.08102I$	$2.17335 - 8.00988I$
$u = 0.953631 + 0.649911I$ $a = -2.07755 + 1.58789I$ $b = -0.390960 - 1.281681I$	$5.35487 - 8.08102I$	$2.17335 + 8.00988I$
$u = 0.955004 - 0.332452I$ $a = -0.334732 - 1.334188I$ $b = -0.943520 + 0.498433I$	$-3.24061 + 2.39399I$	$-15.3198 - 6.6850I$
$u = 0.955004 + 0.332452I$ $a = -0.334732 + 1.334188I$ $b = -0.943520 - 0.498433I$	$-3.24061 - 2.39399I$	$-15.3198 + 6.6850I$
$u = 1.000301 - 0.716440I$ $a = -1.20544 - 1.95779I$ $b = -0.60105 + 1.43750I$	$2.80470 + 9.41027I$	$-8.3968 - 12.4008I$
$u = 1.000301 + 0.716440I$ $a = -1.20544 + 1.95779I$ $b = -0.60105 - 1.43750I$	$2.80470 - 9.41027I$	$-8.3968 + 12.4008I$
$u = 1.023118 - 0.572530I$ $a = 1.05565 + 1.39581I$ $b = 0.087494 - 0.954698I$	$-0.509462 + 1.065737I$	$-5.48749 - 2.28132I$
$u = 1.023118 + 0.572530I$ $a = 1.05565 - 1.39581I$ $b = 0.087494 + 0.954698I$	$-0.509462 - 1.065737I$	$-5.48749 + 2.28132I$
$u = 1.029708 - 0.682335I$ $a = -0.204403 + 0.720463I$ $b = 1.264741 + 0.144159I$	$0.52957 + 11.92175I$	$-4.90244 - 8.89191I$

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.029708 + 0.682335I$ $a = -0.204403 - 0.720463I$ $b = 1.264741 - 0.144159I$	$0.52957 - 11.92175I$	$-4.90244 + 8.89191I$
$u = 1.034222 - 0.263826I$ $a = 0.376217 - 0.538683I$ $b = -0.248610 - 0.058839I$	$-2.22921 + 0.56313I$	$-7.58622 + 2.37348I$
$u = 1.034222 + 0.263826I$ $a = 0.376217 + 0.538683I$ $b = -0.248610 + 0.058839I$	$-2.22921 - 0.56313I$	$-7.58622 - 2.37348I$
$u = 1.062709 - 0.196859I$ $a = 1.223853 - 0.353605I$ $b = 0.466155 + 0.892338I$	$-2.09066 - 2.59250I$	$-10.7584 + 9.9976I$
$u = 1.062709 + 0.196859I$ $a = 1.223853 + 0.353605I$ $b = 0.466155 - 0.892338I$	$-2.09066 + 2.59250I$	$-10.7584 - 9.9976I$
$u = 1.112650 - 0.751251I$ $a = 1.20328 + 1.58693I$ $b = 0.62681 - 1.37577I$	$4.4701 + 18.5210I$	$-3.11693 - 10.19738I$
$u = 1.112650 + 0.751251I$ $a = 1.20328 - 1.58693I$ $b = 0.62681 + 1.37577I$	$4.4701 - 18.5210I$	$-3.11693 + 10.19738I$
$u = 1.142923 - 0.284510I$ $a = 1.045746 - 0.233066I$ $b = 0.329260 - 0.724314I$	$-2.64401 + 1.00097I$	$-12.64923 + 1.09708I$
$u = 1.142923 + 0.284510I$ $a = 1.045746 + 0.233066I$ $b = 0.329260 + 0.724314I$	$-2.64401 - 1.00097I$	$-12.64923 - 1.09708I$
$u = 1.166931 - 0.102460I$ $a = 0.244286 - 0.337232I$ $b = -0.456043 - 1.078417I$	$-1.36269 - 2.57650I$	$-3.92631 + 12.87015I$

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.166931 + 0.102460I$	$-1.36269 + 2.57650I$	$-3.92631 - 12.87015I$
$a = 0.244286 + 0.337232I$		
$b = -0.456043 + 1.078417I$		
$u = 1.277389 - 0.256564I$	$-0.99712 + 1.17089I$	$5.11734 - 2.62305I$
$a = 0.752259 + 0.588703I$		
$b = 0.234618 - 0.830546I$		
$u = 1.277389 + 0.256564I$	$-0.99712 - 1.17089I$	$5.11734 + 2.62305I$
$a = 0.752259 - 0.588703I$		
$b = 0.234618 + 0.830546I$		
$u = 1.42240 - 0.27773I$	$-1.052786 + 0.389667I$	$-3.54144 + 3.34432I$
$a = -0.142074 - 0.305204I$		
$b = -0.020374 + 0.935500I$		
$u = 1.42240 + 0.27773I$	$-1.052786 - 0.389667I$	$-3.54144 - 3.34432I$
$a = -0.142074 + 0.305204I$		
$b = -0.020374 - 0.935500I$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^4(u^{18} + 2u^{17} + \dots + 2u + 1)(u^{105} + 3u^{104} + \dots + 26u + 21)$
c_2	$(u+1)^4(u^{18} + 8u^{17} + \dots + 4u + 1)(u^{105} + 41u^{104} + \dots + 9538u + 441)$
c_3	$(u^4 + u^3 - u^2 - u + 1)(u^{18} + 2u^{16} + \dots + 4u^2 + 1)$ $(u^{105} + u^{102} + \dots - 35u - 1)$
c_4	$(u^4 + u^3 - u^2 - u + 1)(u^{18} + 4u^{16} + \dots + 2u^2 + 1)$ $(u^{105} + 2u^{104} + \dots - 373u + 41)$
c_5	$(u+1)^4(u^{18} - 2u^{17} + \dots - 2u + 1)(u^{105} + 3u^{104} + \dots + 26u + 21)$
c_6	$(u^4 + 2u^3 + 2u^2 + u + 1)(u^{18} - u^{16} + \dots + 3u^2 + 1)$ $(u^{105} + 9u^{104} + \dots + 47u + 5)$
c_7	$(u^4 + 2u^3 + 2u^2 + u + 1)(u^{18} - 3u^{16} + \dots + 8u + 1)$ $(u^{105} + 3u^{104} + \dots - 2530373u + 478501)$
c_8	$(u^2 - u + 1)^2(u^{18} - 6u^{17} + \dots - 2u + 1)(u^{105} + 5u^{104} + \dots + 914u + 55)$
c_9	$u^4(u^{18} + 4u^{17} + \dots + 47u + 13)(u^{105} + 9u^{104} + \dots - 328u - 48)$
c_{10}	$(u^2 - u + 1)^2(u^{18} + 2u^{17} + \dots + 2u + 1)(u^{105} + 3u^{104} + \dots + 546u - 59)$
c_{11}	$(u^2 + u + 1)^2(u^{18} + 6u^{17} + \dots + 2u + 1)(u^{105} + 5u^{104} + \dots + 914u + 55)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5	$(y-1)^4(y^{18} - 8y^{17} + \dots - 4y + 1)(y^{105} - 41y^{104} + \dots + 9538y - 441)$
c_2	$(y-1)^4(y^{18} + 4y^{17} + \dots + 16y + 1)$ $(y^{105} + 51y^{104} + \dots - 9048002y - 194481)$
c_3	$(y^4 - 3y^3 + \dots - 3y + 1)(y^{18} + 4y^{17} + \dots + 8y + 1)$ $(y^{105} + 84y^{103} + \dots + 273y - 1)$
c_4	$(y^4 - 3y^3 + \dots - 3y + 1)(y^{18} + 8y^{17} + \dots + 4y + 1)$ $(y^{105} - 12y^{104} + \dots + 97145y - 1681)$
c_6	$(y^4 + 2y^2 + 3y + 1)(y^{18} - 2y^{17} + \dots + 6y + 1)$ $(y^{105} + 5y^{104} + \dots - 251y - 25)$
c_7	$(y^4 + 2y^2 + 3y + 1)(y^{18} - 6y^{17} + \dots - 26y + 1)$ $(y^{105} + 29y^{104} + \dots - 5403864823119y - 228963207001)$
c_8, c_{11}	$(y^2 + y + 1)^2(y^{18} + 8y^{17} + \dots + 16y + 1)$ $(y^{105} + 65y^{104} + \dots + 142616y - 3025)$
c_9	$y^4(y^{18} - 10y^{17} + \dots + 287y + 169)$ $(y^{105} + 5y^{104} + \dots - 54464y - 2304)$
c_{10}	$(y^2 + y + 1)^2(y^{18} - 14y^{17} + \dots + 10y + 1)$ $(y^{105} - 17y^{104} + \dots + 56806y - 3481)$