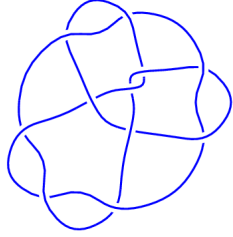
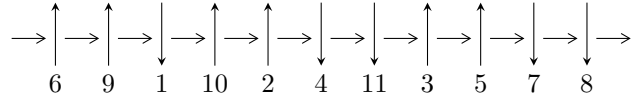


11a<sub>279</sub> (K11a<sub>279</sub>)

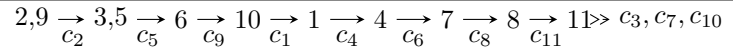


1

**Arc Sequences**



**Solving Sequence**



**Representation Ideals**

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

$$I_1^u = \langle a^{36} + 7a^{34} + \dots + 302a + 59, 2.37368 \times 10^{66}u - 1.38470 \times 10^{66}a^{35} + \dots + 4.29414 \times 10^{68}a + 6.82182 \times 10^{70} \\ 8.20495 \times 10^{75}b - 3.45363 \times 10^{75}a^{35} + \dots + 1.48913 \times 10^{78}a + 2.41760 \times 10^{77} \rangle$$

$$I_2^u = \langle u^{14} - u^{13} + 5u^{12} - 4u^{11} + 9u^{10} - 7u^9 + 9u^8 - 7u^7 + 8u^6 - u^5 + 7u^4 + 4u^3 + 5u^2 + 2u + 1, \\ -u^{13} + u^{12} - 4u^{11} + 3u^{10} - 5u^9 + 3u^8 - 3u^7 + u^6 - 2u^5 - 3u^4 - u^3 - 4u^2 + b - 2u - 1, \\ u^{13} - 2u^{12} + 6u^{11} - 8u^{10} + 12u^9 - 12u^8 + 12u^7 - 10u^6 + 9u^5 - 3u^4 + 4u^3 + 3u^2 + a + u \rangle$$

$$I_3^u = \langle u^{23} + 14u^{22} + \dots + 608u + 64, -9u^{22} - 120u^{21} + \dots + 32b + 192, 3u^{22} + 51u^{21} + \dots + 32a + 1632 \rangle$$

There are 3 irreducible components with 73 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>”

I.

$$I_1^u = \langle a^{36} + 7a^{34} + \dots + 302a + 59, 2.37 \times 10^{66}u - 1.38 \times 10^{66}a^{35} + \dots + 4.29 \times 10^{68}a + 6.82 \times 10^{67}, 8.20 \times 10^{75}b - 3.45 \times 10^{75}a^{35} + \dots + 1.49 \times 10^{78}a + 2.42 \times 10^{77} \rangle$$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} a \\ 0.420920a^{35} + 0.498535a^{34} + \dots - 181.492a - 29.4651 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.498535a^{35} - 0.393055a^{34} + \dots + 156.583a + 25.8343 \\ -1.21532a^{35} - 0.629655a^{34} + \dots + 258.943a + 40.1700 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ 0.583356a^{35} + 0.475088a^{34} + \dots - 180.907a - 28.7395 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.583356a^{35} + 0.475088a^{34} + \dots - 180.907a - 28.7395 \\ 0.583356a^{35} + 0.475088a^{34} + \dots - 180.907a - 28.7395 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ 0.213941a^{35} + 0.242131a^{34} + \dots - 90.8653a - 14.5251 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.253221a^{35} + 0.206980a^{34} + \dots - 77.7810a - 13.1541 \\ 0.253221a^{35} + 0.206980a^{34} + \dots - 77.7810a - 14.1541 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.590535a^{35} - 0.438380a^{34} + \dots + 177.895a + 28.0302 \\ -1.31929a^{35} - 0.777675a^{34} + \dots + 327.531a + 49.7952 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.835042a^{35} - 0.186881a^{34} + \dots + 100.069a + 11.0844 \\ -1.96393a^{35} - 0.0997710a^{34} + \dots + 117.518a + 0.930769 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.208735a^{35} + 0.839523a^{34} + \dots - 224.703a - 42.2385 \\ 0.0708835a^{35} + 1.84567a^{34} + \dots - 490.033a - 98.4023 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0930527a^{35} + 0.111244a^{34} + \dots - 43.1259a - 7.52703 \\ 0.149376a^{35} + 0.220378a^{34} + \dots - 101.916a - 16.0227 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0930527a^{35} + 0.111244a^{34} + \dots - 43.1259a - 7.52703 \\ 0.149376a^{35} + 0.220378a^{34} + \dots - 101.916a - 16.0227 \end{pmatrix}$$

(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
$u = 0.569840$ $a = -1.335125 - 0.449241I$ $b = -0.452212 - 1.219504I$	$-7.51693 + 4.59213I$	$-1.56163 - 3.20482I$
$u = 0.569840$ $a = -1.335125 + 0.449241I$ $b = -0.452212 + 1.219504I$	$-7.51693 - 4.59213I$	$-1.56163 + 3.20482I$
$u = 0.215080 - 1.307141I$ $a = -1.288687 - 0.281241I$ $b = -0.282279 + 1.316266I$	$-8.69778 - 2.82812I$	$-12.92653 + 2.97945I$
$u = 0.215080 + 1.307141I$ $a = -1.288687 + 0.281241I$ $b = -0.282279 - 1.316266I$	$-8.69778 + 2.82812I$	$-12.92653 - 2.97945I$
$u = 0.215080 - 1.307141I$ $a = -1.060189 - 0.041801I$ $b = -1.59209 + 0.56138I$	$-11.65451 - 7.42025I$	$-8.09089 + 6.18427I$
$u = 0.215080 + 1.307141I$ $a = -1.060189 + 0.041801I$ $b = -1.59209 - 0.56138I$	$-11.65451 + 7.42025I$	$-8.09089 - 6.18427I$
$u = 0.215080 + 1.307141I$ $a = -0.998893 - 0.097031I$ $b = -0.85420 - 1.97699I$	$-15.6190 + 2.8281I$	$-11.77925 - 2.97945I$
$u = 0.215080 - 1.307141I$ $a = -0.998893 + 0.097031I$ $b = -0.85420 + 1.97699I$	$-15.6190 - 2.8281I$	$-11.77925 + 2.97945I$
$u = 0.215080 + 1.307141I$ $a = -0.998748 - 0.222277I$ $b = -0.721935 - 0.166749I$	$-4.99869 + 0.85571I$	$-4.08548 + 0.70533I$
$u = 0.215080 - 1.307141I$ $a = -0.998748 + 0.222277I$ $b = -0.721935 + 0.166749I$	$-4.99869 - 0.85571I$	$-4.08548 - 0.70533I$

Solution to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.569840$ $a = -0.57838 - 2.53338I$ $b = 0.32959 - 1.44362I$	-11.4814	-5.24999
$u = 0.569840$ $a = -0.57838 + 2.53338I$ $b = 0.32959 + 1.44362I$	-11.4814	-5.24999
$u = 0.569840$ $a = -0.44266 - 1.66424I$ $b = -0.357048 - 0.016495I$	$-0.86110 + 1.97241I$	$2.44379 - 3.68478I$
$u = 0.569840$ $a = -0.44266 + 1.66424I$ $b = -0.357048 + 0.016495I$	$-0.86110 - 1.97241I$	$2.44379 + 3.68478I$
$u = 0.215080 - 1.307141I$ $a = -0.408679 - 0.849234I$ $b = -0.156657 + 1.331285I$	$-4.99869 - 4.80053I$	$-4.08548 + 6.66423I$
$u = 0.215080 + 1.307141I$ $a = -0.408679 + 0.849234I$ $b = -0.156657 - 1.331285I$	$-4.99869 + 4.80053I$	$-4.08548 - 6.66423I$
$u = 0.215080 - 1.307141I$ $a = -0.140031 - 0.133633I$ $b = 0.38723 + 1.57874I$	$-11.65451 + 1.76400I$	$-8.09089 - 0.22537I$
$u = 0.215080 + 1.307141I$ $a = -0.140031 + 0.133633I$ $b = 0.38723 - 1.57874I$	$-11.65451 - 1.76400I$	$-8.09089 + 0.22537I$
$u = 0.215080 + 1.307141I$ $a = 0.212686 - 0.517305I$ $b = -0.075737 + 1.353312I$	$-4.99869 + 0.85571I$	$-4.08548 + 0.70533I$
$u = 0.215080 - 1.307141I$ $a = 0.212686 + 0.517305I$ $b = -0.075737 - 1.353312I$	$-4.99869 - 0.85571I$	$-4.08548 - 0.70533I$

Solution to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.569840$ $a = 0.27365 - 2.20343I$ $b = -0.155939 - 1.255602I$	-4.56020	-6.39727
$u = 0.569840$ $a = 0.27365 + 2.20343I$ $b = -0.155939 + 1.255602I$	-4.56020	-6.39727
$u = 0.215080 + 1.307141I$ $a = 0.613282 - 1.117082I$ $b = 0.282665 + 1.376826I$	$-11.65451 + 7.42025I$	$-8.09089 - 6.18427I$
$u = 0.215080 - 1.307141I$ $a = 0.613282 + 1.117082I$ $b = 0.282665 - 1.376826I$	$-11.65451 - 7.42025I$	$-8.09089 + 6.18427I$
$u = 0.569840$ $a = 0.626575 - 0.028947I$ $b = 0.252245 - 0.948350I$	$-0.86110 - 1.97241I$	$2.44379 + 3.68478I$
$u = 0.569840$ $a = 0.626575 + 0.028947I$ $b = 0.252245 + 0.948350I$	$-0.86110 + 1.97241I$	$2.44379 - 3.68478I$
$u = 0.569840$ $a = 0.79358 - 2.14008I$ $b = 0.760808 - 0.255995I$	$-7.51693 - 4.59213I$	$-1.56163 + 3.20482I$
$u = 0.569840$ $a = 0.79358 + 2.14008I$ $b = 0.760808 + 0.255995I$	$-7.51693 + 4.59213I$	$-1.56163 - 3.20482I$
$u = 0.215080 - 1.307141I$ $a = 1.010824 - 0.046476I$ $b = 1.197967 - 0.351548I$	$-4.99869 - 4.80053I$	$-4.08548 + 6.66423I$
$u = 0.215080 + 1.307141I$ $a = 1.010824 + 0.046476I$ $b = 1.197967 + 0.351548I$	$-4.99869 + 4.80053I$	$-4.08548 - 6.66423I$

Solution to $I_1^\mu$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307141I$		
$a = 1.015033 - 0.048935I$	$-8.69778 + 2.82812I$	$-12.92653 - 2.97945I$
$b = 0.64479 + 1.62401I$		
$u = 0.215080 - 1.307141I$		
$a = 1.015033 + 0.048935I$	$-8.69778 - 2.82812I$	$-12.92653 + 2.97945I$
$b = 0.64479 - 1.62401I$		
$u = 0.215080 - 1.307141I$		
$a = 1.128486 - 0.481926I$	$-11.65451 + 1.76400I$	$-8.09089 - 0.22537I$
$b = 0.204795 - 0.154299I$		
$u = 0.215080 + 1.307141I$		
$a = 1.128486 + 0.481926I$	$-11.65451 - 1.76400I$	$-8.09089 + 0.22537I$
$b = 0.204795 + 0.154299I$		
$u = 0.215080 + 1.307141I$		
$a = 1.57727 - 0.39396I$	$-15.6190 + 2.8281I$	$-11.77925 - 2.97945I$
$b = 0.088008 + 1.326564I$		
$u = 0.215080 - 1.307141I$		
$a = 1.57727 + 0.39396I$	$-15.6190 - 2.8281I$	$-11.77925 + 2.97945I$
$b = 0.088008 - 1.326564I$		

**II.**

$$I_2^u = \langle u^{14} - u^{13} + \dots + 2u + 1, -u^{13} + u^{12} + \dots + b - 1, u^{13} - 2u^{12} + \dots + a + u \rangle$$

**(i) Arc colorings**

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

$$a_9 = \begin{pmatrix} -u^{13} + 2u^{12} + \dots - 3u^2 - u \\ u^{13} - u^{12} + \dots + 2u + 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{13} + 2u^{12} + \dots - 3u + 1 \\ u^{13} - u^{12} + \dots + 2u + 1 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} -u^{13} + 2u^{12} + \dots - 3u^2 - u \\ u^{13} + 3u^{11} + u^{10} + u^9 + 3u^8 - 3u^7 + 5u^6 - 2u^5 + 9u^4 + u^3 + 7u^2 + 3u + 2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^{13} + 2u^{12} + \dots - u^2 - 3u \\ u^{13} + 3u^{11} + u^{10} + 2u^9 + u^8 + u^6 + u^5 + 6u^4 + 5u^3 + 5u^2 + 4u + 2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 3u^{13} - 4u^{12} + \dots + 5u - 1 \\ -2u^{12} + u^{11} + \dots - 7u - 4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -3u^{13} + 3u^{12} + \dots - 6u - 2 \\ u^{12} - u^{11} + \dots + 3u + 2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2u^{13} - 2u^{12} + \dots + 9u + 2 \\ -u^{13} + u^{12} - 3u^{11} + 2u^{10} - 2u^9 + u^8 - u^7 - u^6 - u^5 - 3u^4 - 2u - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2u^{13} - 2u^{12} + \dots + 9u + 2 \\ -u^{13} + u^{12} - 3u^{11} + 2u^{10} - 2u^9 + u^8 - u^7 - u^6 - u^5 - 3u^4 - 2u - 1 \end{pmatrix}$$

**(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
$u = -0.572150 - 0.847463I$		
$a = -0.244000 - 0.217189I$	$-1.38673 + 2.23365I$	$-1.78196 - 2.13694I$
$b = -0.044454 + 0.331046I$		
$u = -0.572150 + 0.847463I$		
$a = -0.244000 + 0.217189I$	$-1.38673 - 2.23365I$	$-1.78196 + 2.13694I$
$b = -0.044454 - 0.331046I$		
$u = -0.451954 - 0.381882I$		
$a = -0.969739 - 0.786427I$	$-1.91266 + 2.33379I$	$-7.27584 - 5.70217I$
$b = 0.137955 + 0.725755I$		
$u = -0.451954 + 0.381882I$		
$a = -0.969739 + 0.786427I$	$-1.91266 - 2.33379I$	$-7.27584 + 5.70217I$
$b = 0.137955 - 0.725755I$		
$u = -0.164270 - 0.655714I$		
$a = 1.38275 - 0.46544I$	$-9.15749 + 4.88700I$	$-8.41454 - 3.92217I$
$b = -0.532340 - 0.830231I$		
$u = -0.164270 + 0.655714I$		
$a = 1.38275 + 0.46544I$	$-9.15749 - 4.88700I$	$-8.41454 + 3.92217I$
$b = -0.532340 + 0.830231I$		
$u = 0.061164 - 1.342706I$		
$a = 0.978202 + 0.426126I$	$-12.27323 - 4.41428I$	$-8.90552 + 3.48503I$
$b = 0.63199 - 1.28737I$		
$u = 0.061164 + 1.342706I$		
$a = 0.978202 - 0.426126I$	$-12.27323 + 4.41428I$	$-8.90552 - 3.48503I$
$b = 0.63199 + 1.28737I$		
$u = 0.256862 - 1.332483I$		
$a = -1.061632 - 0.107429I$	$-7.84036 - 2.64248I$	$-1.77475 + 0.54497I$
$b = -0.41584 + 1.38701I$		
$u = 0.256862 + 1.332483I$		
$a = -1.061632 + 0.107429I$	$-7.84036 + 2.64248I$	$-1.77475 - 0.54497I$
$b = -0.41584 - 1.38701I$		



Solution to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.315269 - 1.116357I$	$-14.1430 - 1.3793I$	$-8.26367 + 0.38542I$
$a = 1.363553 - 0.173099I$		
$b = 0.23665 - 1.57678I$		
$u = 0.315269 + 1.116357I$	$-14.1430 + 1.3793I$	$-8.26367 - 0.38542I$
$a = 1.363553 + 0.173099I$		
$b = 0.23665 + 1.57678I$		
$u = 1.055079 - 0.471485I$	$-4.27946 - 2.06111I$	$-5.58371 + 2.18778I$
$a = -0.449135 + 0.975456I$		
$b = -0.013960 + 1.240945I$		
$u = 1.055079 + 0.471485I$	$-4.27946 + 2.06111I$	$-5.58371 - 2.18778I$
$a = -0.449135 - 0.975456I$		
$b = -0.013960 - 1.240945I$		

$$\text{III. } I_3^u = \langle u^{23} + 14u^{22} + \dots + 608u + 64, -9u^{22} - 120u^{21} + \dots + 32b + 192, 3u^{22} + 51u^{21} + \dots + 32a + 1632 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_2 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_9 &= \begin{pmatrix} -\frac{3}{32}u^{22} - \frac{51}{32}u^{21} + \dots - \frac{777}{2}u - 51 \\ \frac{9}{32}u^{22} + \frac{15}{4}u^{21} + \dots - 6u - 6 \end{pmatrix} \\ a_3 &= \begin{pmatrix} -\frac{31}{64}u^{22} - \frac{51}{8}u^{21} + \dots - \frac{1175}{4}u - 34 \\ -\frac{13}{32}u^{22} - \frac{21}{4}u^{21} + \dots - \frac{519}{2}u - 31 \end{pmatrix} \\ a_5 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_6 &= \begin{pmatrix} u \\ u \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -\frac{3}{32}u^{22} - \frac{51}{32}u^{21} + \dots - \frac{777}{2}u - 51 \\ \frac{3}{32}u^{22} + u^{21} + \dots - 183u - 24 \end{pmatrix} \\ a_1 &= \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix} \\ a_4 &= \begin{pmatrix} \frac{31}{64}u^{22} + \frac{51}{8}u^{21} + \dots + \frac{1175}{4}u + 35 \\ -\frac{1}{32}u^{22} - \frac{1}{4}u^{21} + \dots + \frac{89}{2}u + 5 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -0.0937500u^{22} - 0.906250u^{21} + \dots + 122.500u + 16.5000 \\ -\frac{15}{32}u^{22} - \frac{97}{16}u^{21} + \dots - \frac{319}{2}u - 18 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -\frac{45}{64}u^{22} - \frac{147}{16}u^{21} + \dots - 522u - \frac{129}{2} \\ -\frac{15}{32}u^{22} - \frac{93}{16}u^{21} + \dots - 186u - 27 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -\frac{9}{16}u^{22} - \frac{229}{32}u^{21} + \dots - 396u - \frac{99}{2} \\ -\frac{25}{32}u^{22} - 10u^{21} + \dots - \frac{757}{2}u - 48 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -\frac{9}{16}u^{22} - \frac{229}{32}u^{21} + \dots - 396u - \frac{99}{2} \\ -\frac{25}{32}u^{22} - 10u^{21} + \dots - \frac{757}{2}u - 48 \end{pmatrix} \end{aligned}$$

(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
$u = -1.49563 - 0.13678I$ $a = -0.137274 - 0.898094I$ $b = -0.082473 - 1.361988I$	$-5.31535 + 3.36271I$	$-7.37506 - 4.35567I$
$u = -1.49563 + 0.13678I$ $a = -0.137274 + 0.898094I$ $b = -0.082473 + 1.361988I$	$-5.31535 - 3.36271I$	$-7.37506 + 4.35567I$
$u = -1.295275 - 0.190417I$ $a = 0.346635 + 1.071397I$ $b = 0.24498 + 1.45376I$	$-13.1794 + 8.0766I$	$-6.59988 - 4.65013I$
$u = -1.295275 + 0.190417I$ $a = 0.346635 - 1.071397I$ $b = 0.24498 - 1.45376I$	$-13.1794 - 8.0766I$	$-6.59988 + 4.65013I$
$u = -0.805194 - 0.802339I$ $a = -0.515780 - 0.410930I$ $b = -0.085598 - 0.744709I$	$-2.11154 + 2.89602I$	$-5.87366 - 5.40163I$
$u = -0.805194 + 0.802339I$ $a = -0.515780 + 0.410930I$ $b = -0.085598 + 0.744709I$	$-2.11154 - 2.89602I$	$-5.87366 + 5.40163I$
$u = -0.73197 - 1.52057I$ $a = 0.792412 + 0.327154I$ $b = 0.08256 + 1.44439I$	$-17.1859 - 0.6728I$	$-9.48576 + 0.61338I$
$u = -0.73197 + 1.52057I$ $a = 0.792412 - 0.327154I$ $b = 0.08256 - 1.44439I$	$-17.1859 + 0.6728I$	$-9.48576 - 0.61338I$
$u = -0.62139 - 1.61386I$ $a = -0.827590 - 0.152221I$ $b = -0.26859 - 1.43020I$	$-10.27158 + 4.44360I$	$-7.21311 - 2.51122I$
$u = -0.62139 + 1.61386I$ $a = -0.827590 + 0.152221I$ $b = -0.26859 + 1.43020I$	$-10.27158 - 4.44360I$	$-7.21311 + 2.51122I$

Solution to $I_3^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.621232$ $a = -1.35705$ $b = -0.843044$	-3.83839	0.512880
$u = -0.53207 - 1.56105I$ $a = 0.950337 + 0.058467I$ $b = 0.41437 + 1.51463I$	$-10.9998 + 10.3816I$	$-5.93991 - 6.82804I$
$u = -0.53207 + 1.56105I$ $a = 0.950337 - 0.058467I$ $b = 0.41437 - 1.51463I$	$-10.9998 - 10.3816I$	$-5.93991 + 6.82804I$
$u = -0.51657 - 1.50732I$ $a = -1.072289 - 0.044230I$ $b = -0.48724 - 1.63913I$	$-18.6220 + 14.4160I$	$-7.82251 - 6.36300I$
$u = -0.51657 + 1.50732I$ $a = -1.072289 + 0.044230I$ $b = -0.48724 + 1.63913I$	$-18.6220 - 14.4160I$	$-7.82251 + 6.36300I$
$u = -0.429726 - 0.438516I$ $a = 0.900260 - 0.094732I$ $b = 0.428407 + 0.354070I$	$0.762182 + 0.859530I$	$5.83936 - 4.64887I$
$u = -0.429726 + 0.438516I$ $a = 0.900260 + 0.094732I$ $b = 0.428407 - 0.354070I$	$0.762182 - 0.859530I$	$5.83936 + 4.64887I$
$u = -0.411498 - 0.936052I$ $a = -0.212685 + 0.394377I$ $b = -0.456677 - 0.036799I$	$-0.62578 + 2.55105I$	$5.72447 - 4.75724I$
$u = -0.411498 + 0.936052I$ $a = -0.212685 - 0.394377I$ $b = -0.456677 + 0.036799I$	$-0.62578 - 2.55105I$	$5.72447 + 4.75724I$
$u = -0.368116 - 1.090946I$ $a = 0.308273 - 0.671718I$ $b = 0.846288 + 0.089039I$	$-6.91782 + 3.55772I$	$-4.11987 - 3.22917I$

Solution to $I_3^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.368116 + 1.090946I$		
$a = 0.308273 + 0.671718I$	$-6.91782 - 3.55772I$	$-4.11987 + 3.22917I$
$b = 0.846288 - 0.089039I$		
$u = 0.518049 - 0.634622I$		
$a = -0.353773 + 0.626788I$	$-1.61771 - 1.40406I$	$-4.39049 - 3.86592I$
$b = -0.214502 - 0.549219I$		
$u = 0.518049 + 0.634622I$		
$a = -0.353773 - 0.626788I$	$-1.61771 + 1.40406I$	$-4.39049 + 3.86592I$
$b = -0.214502 + 0.549219I$		

#### IV. u-Polynomials

Crossings	u-Polynomials at each crossings
$c_1$	$(u^3 - u^2 + 2u - 1)^{12}(u^{14} - u^{13} + \dots + 2u + 1)$ $(u^{23} + 14u^{22} + \dots + 608u + 64)$
$c_2, c_9$	$(u^{14} + 8u^{12} + \dots + u + 1)(u^{23} + 12u^{21} + \dots + 2u + 1)$ $(u^{36} + u^{35} + \dots - 62u + 59)$
$c_3, c_6$	$(u^{14} + 2u^{13} + \dots + 5u + 1)(u^{23} + 2u^{22} + \dots - 10u + 1)$ $(u^{36} + 7u^{35} + \dots + 12064u + 1913)$
$c_4, c_8$	$(u^{14} + 8u^{12} + \dots - u + 1)(u^{23} + 12u^{21} + \dots + 2u + 1)$ $(u^{36} + u^{35} + \dots - 62u + 59)$
$c_5$	$(u^3 - u^2 + 2u - 1)^{12}(u^{14} + u^{13} + \dots - 2u + 1)$ $(u^{23} + 14u^{22} + \dots + 608u + 64)$
$c_7$	$(-1 + u + 2u^2 + 2u^3 - 3u^4 - u^5 + u^6)^6(u^{14} + 2u^{13} + \dots + 2u + 1)$ $(u^{23} + 9u^{22} + \dots - 16u + 8)$
$c_{10}, c_{11}$	$(-1 + u + 2u^2 + 2u^3 - 3u^4 - u^5 + u^6)^6(u^{14} - 2u^{13} + \dots - 2u + 1)$ $(u^{23} + 9u^{22} + \dots - 16u + 8)$

## V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
$c_1, c_5$	$(y^3 + 3y^2 + 2y - 1)^{12}(y^{14} + 9y^{13} + \dots + 6y + 1)$ $(y^{23} + 12y^{22} + \dots - 3072y - 4096)$
$c_2, c_4, c_8$ $c_9$	$(y^{14} + 16y^{13} + \dots + 25y + 1)(y^{23} + 24y^{22} + \dots + 2y - 1)$ $(y^{36} + 35y^{35} + \dots - 69452y + 3481)$
$c_3, c_6$	$(y^{14} - 4y^{13} + \dots - 7y + 1)(y^{23} - 16y^{22} + \dots + 58y - 1)$ $(y^{36} - 17y^{35} + \dots - 71361608y + 3659569)$
$c_7, c_{10}, c_{11}$	$(1 - 5y + 6y^2 - 16y^3 + 17y^4 - 7y^5 + y^6)^6(y^{14} - 16y^{13} + \dots + 2y + 1)$ $(y^{23} - 23y^{22} + \dots - 32y - 64)$