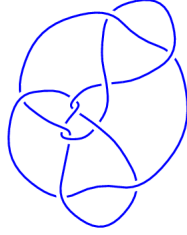
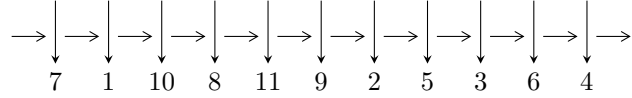


11a₂₄₄ (K11a₂₄₄)

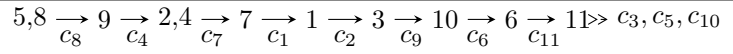


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = \bigcap_{i=1}^5 I_i^u$$

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

$$I_2^u = \langle 9u^2 - 6u - 49, 49a - 9u + 6, 5b + 3u - 1 \rangle$$

$$I_3^u = \langle 16u^4 + 48u^3 + 56u^2 + 36u + 13, 4u^2 + 2b + 4u + 1, 24u^3 + 20u^2 + 13a + 6u + 15 \rangle$$

$$I_4^u = \langle u^{48} - 17u^{47} + \dots - 42378u + 1579, \\ 9.55771 \times 10^{265}u^{47} - 1.56839 \times 10^{267}u^{46} + \dots + 2.28088 \times 10^{267}b - 1.85650 \times 10^{269}, \\ 2.83360 \times 10^{269}u^{47} - 4.82411 \times 10^{270}u^{46} + \dots + 3.60150 \times 10^{270}a - 2.50250 \times 10^{273} \rangle$$

$$I_5^u = \langle 16u^{32} - 648u^{30} + \dots + 12726u + 9909, \\ 9.22643 \times 10^{108}u^{31} - 9.46859 \times 10^{108}u^{30} + \dots + 8.16195 \times 10^{109}b + 5.68911 \times 10^{111}, \\ - 3.84186 \times 10^{112}u^{31} + 3.99671 \times 10^{112}u^{30} + \dots + 2.69589 \times 10^{113}a - 2.33316 \times 10^{115} \rangle$$

There are 5 irreducible components with 87 representations.

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

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

(i) Arc colorings

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

$$a_8 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_7 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

(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
$u = 1.00000$		
$a = -1.00000$	-3.28987	-12.0000
$b = 0$		

$$\text{II. } I_2^u = \langle 9u^2 - 6u - 49, 49a - 9u + 6, 5b + 3u - 1 \rangle$$

(i) Arc colorings

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

$$a_8 = \begin{pmatrix} \frac{9}{49}u - \frac{6}{49} \\ -\frac{3}{5}u + \frac{1}{5} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{9}{49}u - \frac{6}{49} \\ \frac{2}{5}u + \frac{1}{5} \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} \frac{9}{49}u - \frac{6}{49} \\ \frac{2}{5}u + \frac{1}{5} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{102}{245}u + \frac{19}{245} \\ -\frac{3}{5}u + \frac{1}{5} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{9}{245}u - \frac{92}{245} \\ -2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{18}{245}u + \frac{429}{245} \\ 4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{27}{245}u - \frac{459}{245} \\ \frac{2}{5}u - \frac{19}{5} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{18}{49}u + \frac{12}{49} \\ -\frac{2}{5}u + \frac{31}{45} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{9}{245}u - \frac{153}{245} \\ \frac{1}{15}u - \frac{106}{45} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{9}{245}u - \frac{153}{245} \\ \frac{1}{15}u - \frac{106}{45} \end{pmatrix}$$

(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
$u = -2.02369$ $a = -0.494147$ $b = 1.41421$	-8.22467	-20.0000
$u = 2.69036$ $a = 0.371698$ $b = -1.41421$	-8.22467	-20.0000

$$\text{III. } I_3^u = (16u^4 + 48u^3 + 56u^2 + 36u + 13, 4u^2 + 2b + 4u + 1, 24u^3 + 20u^2 + 13a + 6u + 15)$$

(i) Arc colorings

$$\begin{aligned} a_5 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_8 &= \begin{pmatrix} -1.84615u^3 - 1.53846u^2 - 0.461538u - 1.15385 \\ -2u^2 - 2u - \frac{1}{2} \end{pmatrix} \\ a_9 &= \begin{pmatrix} -1.84615u^3 - 1.53846u^2 - 0.461538u - 1.15385 \\ -6u^3 - 13u^2 - \frac{19}{2}u - \frac{15}{4} \end{pmatrix} \\ a_2 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 1.23077u^3 + 3.69231u^2 + 4.30769u + 2.76923 \\ -4u^3 - 8u^2 - 6u - 4 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -1.84615u^3 - 3.53846u^2 - 2.46154u - 1.65385 \\ -2u^2 - 2u - \frac{1}{2} \end{pmatrix} \\ a_1 &= \begin{pmatrix} -0.923077u^3 - 2.76923u^2 - 2.23077u - 0.0769231 \\ 4u^3 + 8u^2 + 7u + 3 \end{pmatrix} \\ a_3 &= \begin{pmatrix} 1.23077u^3 + 3.69231u^2 + 4.30769u + 2.76923 \\ -4u^3 - 8u^2 - 7u - 4 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 0 \\ -6u^3 - 11u^2 - \frac{15}{2}u - \frac{13}{4} \end{pmatrix} \\ a_6 &= \begin{pmatrix} -1.23077u^3 - 3.69231u^2 - 4.30769u - 2.76923 \\ 2u^3 + \frac{7}{2}u^2 + 4u + \frac{19}{8} \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 1.84615u^3 + 1.53846u^2 + 0.461538u + 1.15385 \\ -u^3 + \frac{5}{4}u + \frac{1}{2} \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 1.84615u^3 + 1.53846u^2 + 0.461538u + 1.15385 \\ -u^3 + \frac{5}{4}u + \frac{1}{2} \end{pmatrix} \end{aligned}$$

(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
$u = -1.183013 - 0.183013I$	$3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$a = 0.127712 + 0.825542I$		
$b = -0.866025 - 0.500000I$		
$u = -1.183013 + 0.183013I$	$3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$a = 0.127712 - 0.825542I$		
$b = -0.866025 + 0.500000I$		
$u = -0.316987 - 0.683013I$	$3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$a = -1.204635 - 0.559073I$		
$b = 0.866025 + 0.500000I$		
$u = -0.316987 + 0.683013I$	$3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$a = -1.204635 + 0.559073I$		
$b = 0.866025 - 0.500000I$		

$$\text{IV. } I_4^u = \langle u^{48} - 17u^{47} + \dots - 42378u + 1579, 9.56 \times 10^{265}u^{47} - 1.57 \times 10^{267}u^{46} + \dots + 2.28 \times 10^{267}b - 1.86 \times 10^{269}, 2.83 \times 10^{269}u^{47} - 4.82 \times 10^{270}u^{46} + \dots + 3.60 \times 10^{270}a - 2.50 \times 10^{273} \rangle$$

(i) Arc colorings

$$\begin{aligned} a_5 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_8 &= \begin{pmatrix} -0.0786782u^{47} + 1.33947u^{46} + \dots - 16071.1u + 694.847 \\ -0.0419037u^{47} + 0.687624u^{46} + \dots - 2305.23u + 81.3943 \end{pmatrix} \\ a_9 &= \begin{pmatrix} -0.0786782u^{47} + 1.33947u^{46} + \dots - 16071.1u + 694.847 \\ -0.0307258u^{47} + 0.505114u^{46} + \dots - 2098.81u + 78.3321 \end{pmatrix} \\ a_2 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_4 &= \begin{pmatrix} -0.130413u^{47} + 2.12521u^{46} + \dots - 5399.38u + 179.373 \\ 0.0916656u^{47} - 1.50728u^{46} + \dots + 7916.57u - 330.916 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -0.120582u^{47} + 2.02709u^{46} + \dots - 18376.3u + 776.242 \\ -0.0419037u^{47} + 0.687624u^{46} + \dots - 2305.23u + 81.3943 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -0.201797u^{47} + 3.34905u^{46} + \dots - 22474.6u + 937.987 \\ 0.00777616u^{47} - 0.122027u^{46} + \dots + 432.405u - 28.7214 \end{pmatrix} \\ a_3 &= \begin{pmatrix} -0.000633312u^{47} + 0.0107663u^{46} + \dots - 339.443u + 26.8385 \\ 0.0157897u^{47} - 0.259511u^{46} + \dots + 913.045u - 27.1380 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 0.0469742u^{47} - 0.738467u^{46} + \dots - 3938.06u + 211.099 \\ -0.0208726u^{47} + 0.343888u^{46} + \dots - 2215.69u + 100.997 \end{pmatrix} \\ a_6 &= \begin{pmatrix} -0.104370u^{47} + 1.70447u^{46} + \dots - 2048.24u + 4.07904 \\ -0.00828079u^{47} + 0.125855u^{46} + \dots + 1978.64u - 94.7506 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -0.0830288u^{47} + 1.38471u^{46} + \dots - 10250.9u + 415.970 \\ -0.0598668u^{47} + 0.974178u^{46} + \dots - 1911.72u + 52.9354 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -0.0830288u^{47} + 1.38471u^{46} + \dots - 10250.9u + 415.970 \\ -0.0598668u^{47} + 0.974178u^{46} + \dots - 1911.72u + 52.9354 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -2.73340 - 0.20463I$		
$a = 0.453322 - 0.299144I$	$0.58237 + 10.99998I$	$-10.68175 - 8.05284I$
$b = -1.097339 + 0.604979I$		
$u = -2.73340 + 0.20463I$		
$a = 0.453322 + 0.299144I$	$0.58237 - 10.99998I$	$-10.68175 + 8.05284I$
$b = -1.097339 - 0.604979I$		
$u = -2.60021 - 0.36292I$		
$a = -0.442474 + 0.229137I$	$-2.49287 + 6.17959I$	$-13.7852 - 5.0455I$
$b = 1.075008 - 0.585259I$		
$u = -2.60021 + 0.36292I$		
$a = -0.442474 - 0.229137I$	$-2.49287 - 6.17959I$	$-13.7852 + 5.0455I$
$b = 1.075008 + 0.585259I$		
$u = -2.35526 - 0.32891I$		
$a = -0.641726 - 0.002984I$	$-5.72979 + 5.71321I$	$-16.1082 - 7.5036I$
$b = 1.083311 - 0.462291I$		
$u = -2.35526 + 0.32891I$		
$a = -0.641726 + 0.002984I$	$-5.72979 - 5.71321I$	$-16.1082 + 7.5036I$
$b = 1.083311 + 0.462291I$		
$u = -1.98291 - 0.19207I$		
$a = 0.333012 - 0.187090I$	$1.53995 + 2.24524I$	$-8.97303 - 1.89383I$
$b = -1.041775 + 0.614710I$		
$u = -1.98291 + 0.19207I$		
$a = 0.333012 + 0.187090I$	$1.53995 - 2.24524I$	$-8.97303 + 1.89383I$
$b = -1.041775 - 0.614710I$		
$u = -1.62794 - 0.06477I$		
$a = 0.803449 + 0.267427I$	$-6.25412 + 1.34320I$	$-18.0296 - 0.6200I$
$b = -1.062918 + 0.387157I$		
$u = -1.62794 + 0.06477I$		
$a = 0.803449 - 0.267427I$	$-6.25412 - 1.34320I$	$-18.0296 + 0.6200I$
$b = -1.062918 - 0.387157I$		

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.851174 - 0.557752I$ $a = 0.604687 + 0.002820I$ $b = -1.041775 + 0.614710I$	$1.53995 + 2.24524I$	$-8.97303 - 1.89383I$
$u = -0.851174 + 0.557752I$ $a = 0.604687 - 0.002820I$ $b = -1.041775 - 0.614710I$	$1.53995 - 2.24524I$	$-8.97303 + 1.89383I$
$u = -0.15805 - 6.41551I$ $a = 0.007198 - 0.168224I$ $b = 0.803335 - 0.491088I$	$-1.54603 + 2.05721I$	$-7.72702 - 4.01793I$
$u = -0.15805 + 6.41551I$ $a = 0.007198 + 0.168224I$ $b = 0.803335 + 0.491088I$	$-1.54603 - 2.05721I$	$-7.72702 + 4.01793I$
$u = -0.135268 - 0.234521I$ $a = -4.33799 + 2.54912I$ $b = -0.433290 + 0.779547I$	$2.55519 - 5.78082I$	$-7.62473 + 3.72629I$
$u = -0.135268 + 0.234521I$ $a = -4.33799 - 2.54912I$ $b = -0.433290 - 0.779547I$	$2.55519 + 5.78082I$	$-7.62473 - 3.72629I$
$u = -0.034227 - 0.654004I$ $a = -0.923851 + 0.679831I$ $b = -0.527198 + 0.744803I$	$3.07007 + 2.92383I$	$-6.70980 - 3.29300I$
$u = -0.034227 + 0.654004I$ $a = -0.923851 - 0.679831I$ $b = -0.527198 - 0.744803I$	$3.07007 - 2.92383I$	$-6.70980 + 3.29300I$
$u = 0.039372 - 0.342301I$ $a = 0.70944 - 3.09701I$ $b = 0.452781 - 0.717874I$	$-0.655501 - 1.182905I$	$-10.60754 + 0.39910I$
$u = 0.039372 + 0.342301I$ $a = 0.70944 + 3.09701I$ $b = 0.452781 + 0.717874I$	$-0.655501 + 1.182905I$	$-10.60754 - 0.39910I$

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.202412 - 0.060826I$ $a = -3.58067 + 1.44675I$ $b = -0.981563 - 0.214317I$	$-5.03285 - 0.40841I$	$-17.8720 + 0.7556I$
$u = 0.202412 + 0.060826I$ $a = -3.58067 - 1.44675I$ $b = -0.981563 + 0.214317I$	$-5.03285 + 0.40841I$	$-17.8720 - 0.7556I$
$u = 0.219473 - 0.112544I$ $a = 3.86124 - 0.23623I$ $b = -0.527198 + 0.744803I$	$3.07007 + 2.92383I$	$-6.70980 - 3.29300I$
$u = 0.219473 + 0.112544I$ $a = 3.86124 + 0.23623I$ $b = -0.527198 - 0.744803I$	$3.07007 - 2.92383I$	$-6.70980 + 3.29300I$
$u = 0.411982 - 0.326679I$ $a = -0.97999 + 1.29089I$ $b = 1.075008 - 0.585259I$	$-2.49287 + 6.17959I$	$-13.7852 - 5.0455I$
$u = 0.411982 + 0.326679I$ $a = -0.97999 - 1.29089I$ $b = 1.075008 + 0.585259I$	$-2.49287 - 6.17959I$	$-13.7852 + 5.0455I$
$u = 0.559378 - 0.908127I$ $a = 0.818785 - 0.756414I$ $b = -1.097339 + 0.604979I$	$0.58237 + 10.99998I$	$-10.68175 - 8.05284I$
$u = 0.559378 + 0.908127I$ $a = 0.818785 + 0.756414I$ $b = -1.097339 - 0.604979I$	$0.58237 - 10.99998I$	$-10.68175 + 8.05284I$
$u = 0.581283 - 0.268078I$ $a = -0.629457 + 0.731851I$ $b = 0.452781 - 0.717874I$	$-0.655501 - 1.182905I$	$-10.60754 + 0.39910I$
$u = 0.581283 + 0.268078I$ $a = -0.629457 - 0.731851I$ $b = 0.452781 + 0.717874I$	$-0.655501 + 1.182905I$	$-10.60754 - 0.39910I$

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.649711 - 0.027521I$ $a = -1.99447 - 0.39060I$ $b = 0.143789 + 0.548880I$	$-3.23391 + 1.77225I$	$-11.98912 - 4.04184I$
$u = 0.649711 + 0.027521I$ $a = -1.99447 + 0.39060I$ $b = 0.143789 - 0.548880I$	$-3.23391 - 1.77225I$	$-11.98912 + 4.04184I$
$u = 0.656827 - 0.072040I$ $a = 0.58732 - 1.49253I$ $b = -0.433290 + 0.779547I$	$2.55519 - 5.78082I$	$-7.62473 + 3.72629I$
$u = 0.656827 + 0.072040I$ $a = 0.58732 + 1.49253I$ $b = -0.433290 - 0.779547I$	$2.55519 + 5.78082I$	$-7.62473 - 3.72629I$
$u = 0.710426 - 0.708104I$ $a = -0.548355 + 0.649995I$ $b = 1.085856 - 0.107562I$	$-2.54173 - 3.77265I$	$-13.8919 + 3.4911I$
$u = 0.710426 + 0.708104I$ $a = -0.548355 - 0.649995I$ $b = 1.085856 + 0.107562I$	$-2.54173 + 3.77265I$	$-13.8919 - 3.4911I$
$u = 0.853465 - 0.206594I$ $a = 0.950630 + 0.813749I$ $b = 0.143789 - 0.548880I$	$-3.23391 - 1.77225I$	$-11.98912 + 4.04184I$
$u = 0.853465 + 0.206594I$ $a = 0.950630 - 0.813749I$ $b = 0.143789 + 0.548880I$	$-3.23391 + 1.77225I$	$-11.98912 - 4.04184I$
$u = 2.17513 - 0.57279I$ $a = -0.360747 - 0.444642I$ $b = 1.083311 + 0.462291I$	$-5.72979 - 5.71321I$	$-16.1082 + 7.5036I$
$u = 2.17513 + 0.57279I$ $a = -0.360747 + 0.444642I$ $b = 1.083311 - 0.462291I$	$-5.72979 + 5.71321I$	$-16.1082 - 7.5036I$

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 2.22909 - 0.60843I$	$-2.54173 + 3.77265I$	$-13.8919 - 3.4911I$
$a = -0.577089 + 0.016862I$		
$b = 1.085856 + 0.107562I$		
$u = 2.22909 + 0.60843I$	$-2.54173 - 3.77265I$	$-13.8919 + 3.4911I$
$a = -0.577089 - 0.016862I$		
$b = 1.085856 - 0.107562I$		
$u = 2.65423 - 0.19753I$	$-5.03285 - 0.40841I$	$-17.8720 + 0.7556I$
$a = 0.485375 + 0.034008I$		
$b = -0.981563 - 0.214317I$		
$u = 2.65423 + 0.19753I$	$-5.03285 + 0.40841I$	$-17.8720 - 0.7556I$
$a = 0.485375 - 0.034008I$		
$b = -0.981563 + 0.214317I$		
$u = 2.75718 - 0.65901I$	$-6.25412 - 1.34320I$	$-18.0296 + 0.6200I$
$a = 0.409844 + 0.268256I$		
$b = -1.062918 - 0.387157I$		
$u = 2.75718 + 0.65901I$	$-6.25412 + 1.34320I$	$-18.0296 - 0.6200I$
$a = 0.409844 - 0.268256I$		
$b = -1.062918 + 0.387157I$		
$u = 6.27848 - 1.50376I$	$-1.54603 + 2.05721I$	$-7.72702 - 4.01793I$
$a = 0.1362766 + 0.0271004I$		
$b = 0.803335 - 0.491088I$		
$u = 6.27848 + 1.50376I$	$-1.54603 - 2.05721I$	$-7.72702 + 4.01793I$
$a = 0.1362766 - 0.0271004I$		
$b = 0.803335 + 0.491088I$		

$$\mathbf{V. } I_5^u = \langle 16u^{32} - 648u^{30} + \dots + 12726u + 9909, 9.23 \times 10^{108}u^{31} - 9.47 \times 10^{108}u^{30} + \dots + 8.16 \times 10^{109}b + 5.69 \times 10^{111}, -3.84 \times 10^{112}u^{31} + 4.00 \times 10^{112}u^{30} + \dots + 2.70 \times 10^{113}a - 2.33 \times 10^{115} \rangle$$

(i) Arc colorings

$$\begin{aligned} a_5 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_8 &= \begin{pmatrix} 0.142508u^{31} - 0.148252u^{30} + \dots + 21.3857u + 86.5450 \\ -0.113042u^{31} + 0.116009u^{30} + \dots - 16.5831u - 69.7028 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 0.142508u^{31} - 0.148252u^{30} + \dots + 21.3857u + 86.5450 \\ 0.0441704u^{31} - 0.0523541u^{30} + \dots + 13.0758u + 22.1114 \end{pmatrix} \\ a_2 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 0.206444u^{31} - 0.223822u^{30} + \dots + 44.0737u + 117.020 \\ -0.179505u^{31} + 0.192525u^{30} + \dots - 39.6159u - 101.807 \end{pmatrix} \\ a_7 &= \begin{pmatrix} 0.0294657u^{31} - 0.0322430u^{30} + \dots + 4.80251u + 16.8422 \\ -0.113042u^{31} + 0.116009u^{30} + \dots - 16.5831u - 69.7028 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -0.0267444u^{31} + 0.0326673u^{30} + \dots - 5.24241u - 12.2228 \\ 0.137643u^{31} - 0.146838u^{30} + \dots + 33.8442u + 76.9113 \end{pmatrix} \\ a_3 &= \begin{pmatrix} 0.212298u^{31} - 0.209491u^{30} + \dots + 37.5216u + 134.087 \\ 0.0881380u^{31} - 0.0847550u^{30} + \dots + 11.5930u + 58.4093 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 0.164522u^{31} - 0.147937u^{30} + \dots + 16.8572u + 112.447 \\ 0.198267u^{31} - 0.211514u^{30} + \dots + 40.4578u + 114.894 \end{pmatrix} \\ a_6 &= \begin{pmatrix} -0.116241u^{31} + 0.105455u^{30} + \dots - 16.5543u - 78.2607 \\ -0.100202u^{31} + 0.108914u^{30} + \dots - 20.8226u - 56.4755 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -0.0139045u^{31} - 0.000689774u^{30} + \dots + 7.23733u - 17.2280 \\ -0.0614751u^{31} + 0.0785368u^{30} + \dots - 15.4718u - 29.1653 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -0.0139045u^{31} - 0.000689774u^{30} + \dots + 7.23733u - 17.2280 \\ -0.0614751u^{31} + 0.0785368u^{30} + \dots - 15.4718u - 29.1653 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -2.54744 - 0.30253I$		
$a = 0.501998 + 0.120243I$	$-6.39323 - 8.37491I$	$-16.6922 + 6.0879I$
$b = -1.306845 + 0.131029I$		
$u = -2.54744 + 0.30253I$		
$a = 0.501998 - 0.120243I$	$-6.39323 + 8.37491I$	$-16.6922 - 6.0879I$
$b = -1.306845 - 0.131029I$		
$u = -2.41991 - 0.14250I$		
$a = -0.455629 - 0.073865I$	$-9.14170 - 1.02273I$	$-18.9526 + 6.3910I$
$b = 1.41867 - 0.24121I$		
$u = -2.41991 + 0.14250I$		
$a = -0.455629 + 0.073865I$	$-9.14170 + 1.02273I$	$-18.9526 - 6.3910I$
$b = 1.41867 + 0.24121I$		
$u = -1.111080 - 0.469474I$		
$a = 0.252207 - 0.201113I$	$1.44688 + 2.10542I$	$-10.64510 - 3.10426I$
$b = -0.933718 + 0.587499I$		
$u = -1.111080 + 0.469474I$		
$a = 0.252207 + 0.201113I$	$1.44688 - 2.10542I$	$-10.64510 + 3.10426I$
$b = -0.933718 - 0.587499I$		
$u = -1.101253 - 0.016655I$		
$a = -0.523363 - 0.977728I$	$4.73730 - 0.53503I$	$-5.59189 - 1.15953I$
$b = 0.562218 + 0.550407I$		
$u = -1.101253 + 0.016655I$		
$a = -0.523363 + 0.977728I$	$4.73730 + 0.53503I$	$-5.59189 + 1.15953I$
$b = 0.562218 - 0.550407I$		
$u = -1.050566 - 0.732295I$		
$a = 0.649659 + 0.795676I$	$2.29463 - 1.59601I$	$-17.2362 - 0.3937I$
$b = -0.918085 - 0.398951I$		
$u = -1.050566 + 0.732295I$		
$a = 0.649659 - 0.795676I$	$2.29463 + 1.59601I$	$-17.2362 + 0.3937I$
$b = -0.918085 + 0.398951I$		

Solution to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.973266 - 0.077014I$ $a = -1.023124 - 0.434651I$ $b = 0.731732 + 0.862326I$	$1.70241 - 7.23076I$	$-10.37930 + 9.14942I$
$u = -0.973266 + 0.077014I$ $a = -1.023124 + 0.434651I$ $b = 0.731732 - 0.862326I$	$1.70241 + 7.23076I$	$-10.37930 - 9.14942I$
$u = -0.705131 - 0.080549I$ $a = 0.107791 - 0.755837I$ $b = -0.834841 + 0.580283I$	$1.38354 + 2.30080I$	$-9.19830 - 4.85013I$
$u = -0.705131 + 0.080549I$ $a = 0.107791 + 0.755837I$ $b = -0.834841 - 0.580283I$	$1.38354 - 2.30080I$	$-9.19830 + 4.85013I$
$u = -0.365342 - 1.030988I$ $a = -0.972816 - 0.824702I$ $b = 1.006601 + 0.533679I$	$3.40906 - 3.86825I$	$-10.66165 + 7.93865I$
$u = -0.365342 + 1.030988I$ $a = -0.972816 + 0.824702I$ $b = 1.006601 - 0.533679I$	$3.40906 + 3.86825I$	$-10.66165 - 7.93865I$
$u = -0.157961 - 0.729880I$ $a = 0.570056 + 0.997817I$ $b = 0.141823 + 0.619251I$	$3.55297 + 1.35902I$	$-6.22009 - 3.91725I$
$u = -0.157961 + 0.729880I$ $a = 0.570056 - 0.997817I$ $b = 0.141823 - 0.619251I$	$3.55297 - 1.35902I$	$-6.22009 + 3.91725I$
$u = 0.049352 - 0.675726I$ $a = -0.77638 - 1.61374I$ $b = -0.296469 - 0.970335I$	$-3.38197 + 5.23032I$	$-13.5291 - 4.8406I$
$u = 0.049352 + 0.675726I$ $a = -0.77638 + 1.61374I$ $b = -0.296469 + 0.970335I$	$-3.38197 - 5.23032I$	$-13.5291 + 4.8406I$

Solution to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.180845 - 0.635992I$ $a = 1.39824 + 1.55534I$ $b = 0.382220 + 0.922997I$	$-0.46603 + 11.63549I$	$-10.91066 - 6.70327I$
$u = 0.180845 + 0.635992I$ $a = 1.39824 - 1.55534I$ $b = 0.382220 - 0.922997I$	$-0.46603 - 11.63549I$	$-10.91066 + 6.70327I$
$u = 0.274311$ $a = -1.11539$ $b = 0.436478$	-0.575721	-17.4050
$u = 0.513221 - 0.116027I$ $a = -1.67014 + 0.44157I$ $b = 0.906725 + 0.781768I$	$1.15662 + 1.21443I$	$-10.34690 - 5.00886I$
$u = 0.513221 + 0.116027I$ $a = -1.67014 - 0.44157I$ $b = 0.906725 - 0.781768I$	$1.15662 - 1.21443I$	$-10.34690 + 5.00886I$
$u = 2.24758$ $a = 0.383159$ $b = -1.50439$	-7.60439	-2.56873
$u = 2.62684 - 0.44053I$ $a = -0.366884 + 0.095279I$ $b = 1.211732 - 0.487224I$	$0.43477 + 5.74906I$	$-12.0210 - 8.3466I$
$u = 2.62684 + 0.44053I$ $a = -0.366884 - 0.095279I$ $b = 1.211732 + 0.487224I$	$0.43477 - 5.74906I$	$-12.0210 + 8.3466I$
$u = 2.78838 - 0.10182I$ $a = 0.438534 + 0.189680I$ $b = -1.202935 - 0.625279I$	$-6.13645 - 10.98729I$	$-16.3430 + 7.4849I$
$u = 2.78838 + 0.10182I$ $a = 0.438534 - 0.189680I$ $b = -1.202935 + 0.625279I$	$-6.13645 + 10.98729I$	$-16.3430 - 7.4849I$
Solution to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 3.01236 - 0.23461I$ $a = -0.415709 - 0.243257I$ $b = 1.165123 + 0.639243I$	$-2.8457 - 17.3477I$	$-13.2852 + 10.0205I$
$u = 3.01236 + 0.23461I$ $a = -0.415709 + 0.243257I$ $b = 1.165123 - 0.639243I$	$-2.8457 + 17.3477I$	$-13.2852 - 10.0205I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u)(u^2 - 2)(u^4 - u^2 + 1)(u^{32} + 3u^{31} + \dots - 46u - 10)$ $(u^{48} - 2u^{47} + \dots - 4u^3 + 1)$
c_2	$u(u + 2)^2(u^2 + u + 1)^2$ $(1 - 2u^2 + 2u^3 + 25u^4 + 90u^5 + 249u^6 + 581u^7 + 1158u^8 + 2012u^9 + 3132u^{10} + 4428u^{11} + 5000u^{12} + 5000u^{13} + 4428u^{14} + 3132u^{15} + 2012u^{16} + 581u^{17} + 249u^{18} + 90u^{19} + 25u^{20} + 2u^{21} - 2u^2)$ $(u^{32} + 17u^{31} + \dots + 596u + 100)$
c_3	$(u - 1)^3(u^2 + 1)^2(u^{32} + u^{31} + \dots - 8u - 1)(u^{48} + u^{47} + \dots + 60u + 17)$
c_4	$(u - i)^2(u + i)^2(u + 1)^3(u^{32} + u^{31} + \dots - 8u - 1)$ $(u^{48} + u^{47} + \dots + 60u + 17)$
c_5	$u(u^2 - 2)(u^2 + 1)^2$ $(1 - 2u + 2u^2 - 2u^3 + u^4 + 2u^5 - 3u^6 + 11u^7 - 12u^8 + 14u^9 - 14u^{10} + 2u^{12} - 22u^{13} + 32u^{14} - 22u^{15} + 14u^{16} - 12u^{17} + 11u^{18} - 3u^{19} + 2u^{20} - 2u^3)$ $(u^{32} + 3u^{31} + \dots - 114u - 26)$
c_6	$(u + 1)(9u^2 + 6u - 1)(16u^4 - 16u^3 + 20u^2 - 8u + 1)$ $(16u^{32} - 32u^{31} + \dots + 20u + 1)(u^{48} + 19u^{47} + \dots - 5852u + 617)$
c_7	$u(u^2 - 2)(u^4 - u^2 + 1)$ $(1 - 2u^3 - u^4 + 6u^5 + u^6 - 13u^7 + 22u^9 - 32u^{11} + 2u^{12} + 42u^{13} - 10u^{14} - 44u^{15} + 19u^{16} + 19u^{17} - 44u^{18} + 10u^{19} - 2u^{20} - 2u^3)$ $(u^{32} + 3u^{31} + \dots - 46u - 10)$
c_8	$(u - 1)^2(u + 1)(u^2 + 1)^2(u^{32} + u^{31} + \dots - 8u - 1)$ $(u^{48} + u^{47} + \dots + 60u + 17)$
c_9	$(u - 1)(u + 1)^2(u^2 + 1)^2(u^{32} + u^{31} + \dots - 8u - 1)$ $(u^{48} + u^{47} + \dots + 60u + 17)$
c_{10}	$(u)(u^2 - 2)(u^2 + 1)^2(u^{32} + 3u^{31} + \dots - 114u - 26)$ $(u^{48} - 2u^{47} + \dots - 4u + 1)$
c_{11}	$(u + 1)(9u^2 + 6u - 1)(16u^4 - 16u^3 + 20u^2 - 8u + 1)$ $(16u^{32} - 32u^{31} + \dots + 20u + 1)(u^{48} + 19u^{47} + \dots - 5852u + 617)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1	$(y)(y-2)^2(y^2-y+1)^2(y^{32}-17y^{31}+\dots-596y+100)$ $(y^{48}-22y^{47}+\dots-4y^2+1)$
c_2	$y(y-4)^2(y^2+y+1)^2$ $(1-4y+54y^2+394y^3+1585y^4+3658y^5+6121y^6+7091y^7+7126y^8+6256y^9+6824y^{10})$ $(y^{32}-y^{31}+\dots-264816y+10000)$
c_3	$(y-1)^3(y+1)^4(y^{32}-11y^{31}+\dots-24y+1)$ $(y^{48}-29y^{47}+\dots-2036y+289)$
c_4	$(y-1)^3(y+1)^4(y^{32}-11y^{31}+\dots-24y+1)$ $(y^{48}-29y^{47}+\dots-2036y+289)$
c_5	$y(y-2)^2(y+1)^4$ $(1-2y^2+2y^3+17y^4+14y^5-55y^6-149y^7-78y^8+300y^9+708y^{10}+504y^{11}-548y^{12}-\dots)$ $(y^{32}+13y^{31}+\dots+8740y+676)$
c_6	$(y-1)(81y^2-54y+1)(256y^4+384y^3+176y^2-24y+1)$ $(256y^{32}+1664y^{31}+\dots-136y+1)$ $(y^{48}-17y^{47}+\dots+4462208y+380689)$
c_7	$y(y-2)^2(y^2-y+1)^2$ $(1-2y^2-2y^3+25y^4-90y^5+249y^6-581y^7+1158y^8-2012y^9+3132y^{10}-4428y^{11}+5616y^{12}-\dots)$ $(y^{32}-17y^{31}+\dots-596y+100)$
c_8	$(y-1)^3(y+1)^4(y^{32}-11y^{31}+\dots-24y+1)$ $(y^{48}-29y^{47}+\dots-2036y+289)$
c_9	$(y-1)^3(y+1)^4(y^{32}-11y^{31}+\dots-24y+1)$ $(y^{48}-29y^{47}+\dots-2036y+289)$
c_{10}	$(y)(y-2)^2(y+1)^4(y^{32}+13y^{31}+\dots+8740y+676)$ $(y^{48}+26y^{47}+\dots-4y^2+1)$
c_{11}	$(y-1)(81y^2-54y+1)(256y^4+384y^3+176y^2-24y+1)$ $(256y^{32}+1664y^{31}+\dots-136y+1)$ $(y^{48}-17y^{47}+\dots+4462206y+380689)$