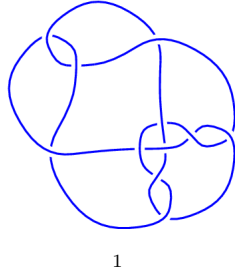
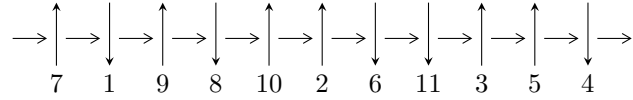


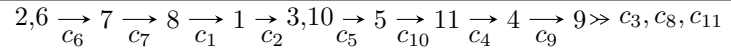
11a₂₂₈ (K11a₂₂₈)



Arc Sequences



Solving Sequence



Representation Ideals

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

$$I_1^u = \langle a^{54} + 2a^{53} + \dots - 270a + 167,$$

$$1.10808 \times 10^{139}u - 6.88561 \times 10^{138}a^{53} + \dots + 2.34656 \times 10^{141}a - 9.72046 \times 10^{140},$$

$$4.17446 \times 10^{143}b + 6.12290 \times 10^{143}a^{53} + \dots - 2.05207 \times 10^{146}a + 8.42523 \times 10^{145} \rangle$$

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

$$u^{10} + 2u^8 + 4u^6 + u^5 + 5u^4 + u^3 + 3u^2 + a + u + 2,$$

$$-u^{13} - 2u^{11} - 4u^9 - 2u^8 - 4u^7 - 3u^6 - 2u^5 - 4u^4 - u^3 - 3u^2 + b + u - 1 \rangle$$

$$I_3^u = \langle u^{26} - 7u^{25} + \dots - 12u + 8, -33u^{25} + 151u^{24} + \dots + 4b - 116, 35u^{25} - 275u^{24} + \dots + 8a - 460 \rangle$$

There are 3 irreducible components with 94 representations.

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

$$\mathbf{I. } I_1^u = \langle a^{54} + 2a^{53} + \dots - 270a + 167, 1.11 \times 10^{139}u - 6.89 \times 10^{138}a^{53} + \dots + 2.35 \times 10^{141}a - 9.72 \times 10^{140}, 4.17 \times 10^{143}b + 6.12 \times 10^{143}a^{53} + \dots - 2.05 \times 10^{146}a + 8.43 \times 10^{145} \rangle$$

(i) Arc colorings

$$\begin{aligned} a_2 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_6 &= \begin{pmatrix} 0 \\ 0.621401a^{53} + 0.508019a^{52} + \dots - 211.769a + 87.7235 \end{pmatrix} \\ a_7 &= \begin{pmatrix} 0.621401a^{53} + 0.508019a^{52} + \dots - 211.769a + 87.7235 \\ 0.621401a^{53} + 0.508019a^{52} + \dots - 211.769a + 87.7235 \end{pmatrix} \\ a_8 &= \begin{pmatrix} 0.621401a^{53} + 0.508019a^{52} + \dots - 211.769a + 87.7235 \\ 0.915037a^{53} + 0.740818a^{52} + \dots - 315.528a + 128.221 \end{pmatrix} \\ a_1 &= \begin{pmatrix} 0.817649a^{53} + 0.648741a^{52} + \dots - 274.500a + 113.040 \\ 0.817649a^{53} + 0.648741a^{52} + \dots - 274.500a + 112.040 \end{pmatrix} \\ a_3 &= \begin{pmatrix} 0.224707a^{53} + 0.165094a^{52} + \dots - 70.3956a + 30.1156 \\ -0.592942a^{53} - 0.483647a^{52} + \dots + 204.105a - 82.9246 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} a \\ -1.46675a^{53} - 1.16561a^{52} + \dots + 491.576a - 201.828 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -0.871565a^{53} - 0.709069a^{52} + \dots + 302.165a - 122.709 \\ -1.90664a^{53} - 1.52382a^{52} + \dots + 653.623a - 265.156 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -1.43045a^{53} - 1.14038a^{52} + \dots + 486.653a - 198.482 \\ -2.18811a^{53} - 1.72991a^{52} + \dots + 733.634a - 300.772 \end{pmatrix} \\ a_4 &= \begin{pmatrix} -0.425905a^{53} - 0.346371a^{52} + \dots + 143.284a - 59.7572 \\ -0.862611a^{53} - 0.686212a^{52} + \dots + 296.443a - 119.682 \end{pmatrix} \\ a_9 &= \begin{pmatrix} -0.238704a^{53} - 0.195385a^{52} + \dots + 88.1936a - 33.8952 \\ -1.84191a^{53} - 1.46096a^{52} + \dots + 622.789a - 253.754 \end{pmatrix} \\ a_9 &= \begin{pmatrix} -0.238704a^{53} - 0.195385a^{52} + \dots + 88.1936a - 33.8952 \\ -1.84191a^{53} - 1.46096a^{52} + \dots + 622.789a - 253.754 \end{pmatrix} \end{aligned}$$

(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
$u = 0.628449 + 0.875112I$ $a = -1.38472 - 1.11642I$ $b = -0.10383 - 1.95066I$	$-5.43132 + 2.45442I$	$-8.69159 - 2.91298I$
$u = 0.628449 - 0.875112I$ $a = -1.38472 + 1.11642I$ $b = -0.10383 + 1.95066I$	$-5.43132 - 2.45442I$	$-8.69159 + 2.91298I$
$u = 0.140343 + 0.966856I$ $a = -1.314151 - 0.110383I$ $b = -1.44082 - 1.57083I$	$-7.83169 + 2.09337I$	$-11.53450 - 4.16283I$
$u = 0.140343 - 0.966856I$ $a = -1.314151 + 0.110383I$ $b = -1.44082 + 1.57083I$	$-7.83169 - 2.09337I$	$-11.53450 + 4.16283I$
$u = -0.728966 - 0.986295I$ $a = -1.290501 - 0.070999I$ $b = -1.62359 - 2.34673I$	$-2.45013 + 7.08493I$	$-5.44271 - 5.91335I$
$u = -0.728966 + 0.986295I$ $a = -1.290501 + 0.070999I$ $b = -1.62359 + 2.34673I$	$-2.45013 - 7.08493I$	$-5.44271 + 5.91335I$
$u = 0.140343 - 0.966856I$ $a = -1.214481 - 0.104310I$ $b = -2.30378 + 0.11219I$	$-3.69411 - 4.92150I$	$-5.00524 + 7.14228I$
$u = 0.140343 + 0.966856I$ $a = -1.214481 + 0.104310I$ $b = -2.30378 - 0.11219I$	$-3.69411 + 4.92150I$	$-5.00524 - 7.14228I$
$u = 0.628449 - 0.875112I$ $a = -1.200633 - 0.009315I$ $b = -2.07358 + 1.93558I$	$-1.29373 - 5.28254I$	$-2.16232 + 5.89242I$
$u = 0.628449 + 0.875112I$ $a = -1.200633 + 0.009315I$ $b = -2.07358 - 1.93558I$	$-1.29373 + 5.28254I$	$-2.16232 - 5.89242I$

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.512358$ $a = -1.179400 - 0.170585I$ $b = -0.381478 + 0.736396I$	$-0.71223 - 2.82812I$	$4.16210 + 2.97945I$
$u = 0.512358$ $a = -1.179400 + 0.170585I$ $b = -0.381478 - 0.736396I$	$-0.71223 + 2.82812I$	$4.16210 - 2.97945I$
$u = -0.728966 - 0.986295I$ $a = -0.865945 - 0.349347I$ $b = -1.28020 - 1.09402I$	$1.68745 + 4.25680I$	$1.08656 - 2.93390I$
$u = -0.728966 + 0.986295I$ $a = -0.865945 + 0.349347I$ $b = -1.28020 + 1.09402I$	$1.68745 - 4.25680I$	$1.08656 + 2.93390I$
$u = -0.796005 - 0.733148I$ $a = -0.858529 - 0.047831I$ $b = -0.950246 - 0.946573I$	$2.46068 + 1.49195I$	$2.79385 - 2.27770I$
$u = -0.796005 + 0.733148I$ $a = -0.858529 + 0.047831I$ $b = -0.950246 + 0.946573I$	$2.46068 - 1.49195I$	$2.79385 + 2.27770I$
$u = -0.728966 + 0.986295I$ $a = -0.586442 - 0.954432I$ $b = -2.04999 + 0.46419I$	$1.68745 - 9.91305I$	$1.08656 + 8.89280I$
$u = -0.728966 - 0.986295I$ $a = -0.586442 + 0.954432I$ $b = -2.04999 - 0.46419I$	$1.68745 + 9.91305I$	$1.08656 - 8.89280I$
$u = 0.512358$ $a = -0.45930 - 2.45889I$ $b = 0.152975 - 1.073497I$	-4.84981	-2.36716
$u = 0.512358$ $a = -0.45930 + 2.45889I$ $b = 0.152975 + 1.073497I$	-4.84981	-2.36716

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.796005 - 0.733148I$ $a = -0.331060 - 0.890024I$ $b = 0.321478 - 0.058873I$	$2.46068 + 1.49195I$	$2.79385 - 2.27770I$
$u = -0.796005 + 0.733148I$ $a = -0.331060 + 0.890024I$ $b = 0.321478 + 0.058873I$	$2.46068 - 1.49195I$	$2.79385 + 2.27770I$
$u = -0.796005 - 0.733148I$ $a = -0.222163 - 1.314818I$ $b = 1.82584 - 0.68025I$	$-1.67691 - 1.33617I$	$-3.73542 + 0.70175I$
$u = -0.796005 + 0.733148I$ $a = -0.222163 + 1.314818I$ $b = 1.82584 + 0.68025I$	$-1.67691 + 1.33617I$	$-3.73542 - 0.70175I$
$u = 0.628449 + 0.875112I$ $a = -0.163196 - 1.172604I$ $b = 1.86521 + 0.10132I$	$-1.293733 - 0.373705I$	$-2.16232 + 0.06647I$
$u = 0.628449 - 0.875112I$ $a = -0.163196 + 1.172604I$ $b = 1.86521 - 0.10132I$	$-1.293733 + 0.373705I$	$-2.16232 - 0.06647I$
$u = -0.728966 - 0.986295I$ $a = -0.014782 - 0.709075I$ $b = 0.890510 - 0.066901I$	$1.68745 + 4.25680I$	$1.08656 - 2.93390I$
$u = -0.728966 + 0.986295I$ $a = -0.014782 + 0.709075I$ $b = 0.890510 + 0.066901I$	$1.68745 - 4.25680I$	$1.08656 + 2.93390I$
$u = 0.140343 - 0.966856I$ $a = 0.027334 - 0.207767I$ $b = 0.739662 + 0.886951I$	$-3.69411 + 0.73475I$	$-5.00524 + 1.18338I$
$u = 0.140343 + 0.966856I$ $a = 0.027334 + 0.207767I$ $b = 0.739662 - 0.886951I$	$-3.69411 - 0.73475I$	$-5.00524 - 1.18338I$

Solution to I_1^μ	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.140343 + 0.966856I$		
$a = 0.424808 - 1.080842I$	$-3.69411 + 4.92150I$	$-5.00524 - 7.14228I$
$b = 0.028884 + 0.152671I$		
$u = 0.140343 - 0.966856I$		
$a = 0.424808 + 1.080842I$	$-3.69411 - 4.92150I$	$-5.00524 + 7.14228I$
$b = 0.028884 - 0.152671I$		
$u = 0.628449 - 0.875112I$		
$a = 0.434284 - 0.510400I$	$-1.29373 - 5.28254I$	$-2.16232 + 5.89242I$
$b = -0.994219 + 0.960447I$		
$u = 0.628449 + 0.875112I$		
$a = 0.434284 + 0.510400I$	$-1.29373 + 5.28254I$	$-2.16232 - 5.89242I$
$b = -0.994219 - 0.960447I$		
$u = -0.796005 + 0.733148I$		
$a = 0.440757 - 1.163637I$	$2.46068 + 4.16429I$	$2.79385 - 3.68120I$
$b = -0.938346 + 0.120728I$		
$u = -0.796005 - 0.733148I$		
$a = 0.440757 + 1.163637I$	$2.46068 - 4.16429I$	$2.79385 + 3.68120I$
$b = -0.938346 - 0.120728I$		
$u = -0.796005 + 0.733148I$		
$a = 0.537157 - 0.744394I$	$-1.67691 + 1.33617I$	$-3.73542 - 0.70175I$
$b = -1.44299 - 0.34314I$		
$u = -0.796005 - 0.733148I$		
$a = 0.537157 + 0.744394I$	$-1.67691 - 1.33617I$	$-3.73542 + 0.70175I$
$b = -1.44299 + 0.34314I$		
$u = 0.628449 - 0.875112I$		
$a = 0.722621 - 0.434744I$	$-1.293733 + 0.373705I$	$-2.16232 - 0.06647I$
$b = 1.96877 - 1.65908I$		
$u = 0.628449 + 0.875112I$		
$a = 0.722621 + 0.434744I$	$-1.293733 - 0.373705I$	$-2.16232 + 0.06647I$
$b = 1.96877 + 1.65908I$		

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.728966 + 0.986295I$ $a = 0.779741 - 0.370905I$ $b = 1.10362 - 2.43106I$	$-2.45013 - 7.08493I$	$-5.44271 + 5.91335I$
$u = -0.728966 - 0.986295I$ $a = 0.779741 + 0.370905I$ $b = 1.10362 + 2.43106I$	$-2.45013 + 7.08493I$	$-5.44271 - 5.91335I$
$u = 0.512358$ $a = 0.83269 - 1.93656I$ $b = 0.496955 - 0.034588I$	$-0.71223 - 2.82812I$	$4.16210 + 2.97945I$
$u = 0.512358$ $a = 0.83269 + 1.93656I$ $b = 0.496955 + 0.034588I$	$-0.71223 + 2.82812I$	$4.16210 - 2.97945I$
$u = -0.796005 - 0.733148I$ $a = 0.986614 - 0.656383I$ $b = 1.85612 + 0.87170I$	$2.46068 - 4.16429I$	$2.79385 + 3.68120I$
$u = -0.796005 + 0.733148I$ $a = 0.986614 + 0.656383I$ $b = 1.85612 - 0.87170I$	$2.46068 + 4.16429I$	$2.79385 - 3.68120I$
$u = 0.140343 - 0.966856I$ $a = 1.033597 - 0.464262I$ $b = 1.402330 - 0.119702I$	$-3.69411 + 0.73475I$	$-5.00524 + 1.18338I$
$u = 0.140343 + 0.966856I$ $a = 1.033597 + 0.464262I$ $b = 1.402330 + 0.119702I$	$-3.69411 - 0.73475I$	$-5.00524 - 1.18338I$
$u = -0.728966 + 0.986295I$ $a = 1.081608 - 0.330383I$ $b = 2.04716 - 1.68877I$	$1.68745 - 9.91305I$	$1.08656 + 8.89280I$
$u = -0.728966 - 0.986295I$ $a = 1.081608 + 0.330383I$ $b = 2.04716 + 1.68877I$	$1.68745 + 9.91305I$	$1.08656 - 8.89280I$

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.628449 - 0.875112I$		
$a = 1.110603 - 0.827435I$	$-5.43132 - 2.45442I$	$-8.69159 + 2.91298I$
$b = 1.118800 - 0.446260I$		
$u = 0.628449 + 0.875112I$		
$a = 1.110603 + 0.827435I$	$-5.43132 + 2.45442I$	$-8.69159 - 2.91298I$
$b = 1.118800 + 0.446260I$		
$u = 0.140343 + 0.966856I$		
$a = 1.67349 - 0.29300I$	$-7.83169 + 2.09337I$	$-11.53450 - 4.16283I$
$b = 1.264755 + 0.608069I$		
$u = 0.140343 - 0.966856I$		
$a = 1.67349 + 0.29300I$	$-7.83169 - 2.09337I$	$-11.53450 + 4.16283I$
$b = 1.264755 - 0.608069I$		

II.

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

(i) Arc colorings

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

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

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

$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

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

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

$$a_5 = \begin{pmatrix} u^{13} + 2u^{11} + 4u^9 + u^8 + 4u^7 + u^6 + 2u^5 + u^4 - u^2 - 2u \\ u^{13} - u^{12} + \dots + u - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^{13} - u^{12} + \dots - u - 2 \\ -u^{13} + u^{12} + \dots - 2u + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{13} + u^{12} + \dots - 2u + 1 \\ u^{13} - u^{12} + 2u^{11} - 3u^{10} + 4u^9 - 6u^8 + 4u^7 - 9u^6 + 2u^5 - 9u^4 - 7u^2 - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{10} - 2u^8 - 4u^6 - u^5 - 5u^4 - u^3 - 3u^2 - 2 \\ -u^{11} - 2u^9 + u^8 - 5u^7 + u^6 - 6u^5 + 2u^4 - 4u^3 + 2u^2 - 2u + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{10} - 2u^8 - 4u^6 - u^5 - 5u^4 - u^3 - 3u^2 - 2 \\ -u^{11} - 2u^9 + u^8 - 5u^7 + u^6 - 6u^5 + 2u^4 - 4u^3 + 2u^2 - 2u + 1 \end{pmatrix}$$

(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
$u = -0.726429 - 0.738003I$ $a = 0.151093 + 0.941117I$ $b = -1.83878 - 0.13470I$	$-0.01062 - 1.94202I$	$2.00932 + 3.37456I$
$u = -0.726429 + 0.738003I$ $a = 0.151093 - 0.941117I$ $b = -1.83878 + 0.13470I$	$-0.01062 + 1.94202I$	$2.00932 - 3.37456I$
$u = -0.693530 - 0.982336I$ $a = 0.902501 + 0.035568I$ $b = 1.73560 + 2.02019I$	$-0.76823 + 7.39185I$	$-0.21938 - 7.80771I$
$u = -0.693530 + 0.982336I$ $a = 0.902501 - 0.035568I$ $b = 1.73560 - 2.02019I$	$-0.76823 - 7.39185I$	$-0.21938 + 7.80771I$
$u = -0.212692 - 0.537116I$ $a = -1.279203 + 0.196512I$ $b = 0.654616 + 0.932349I$	$-2.17837 + 3.22050I$	$-4.21411 - 3.89687I$
$u = -0.212692 + 0.537116I$ $a = -1.279203 - 0.196512I$ $b = 0.654616 - 0.932349I$	$-2.17837 - 3.22050I$	$-4.21411 + 3.89687I$
$u = -0.164460 - 1.120838I$ $a = -0.715222 - 0.335611I$ $b = -1.45613 + 0.22747I$	$-4.52958 - 1.45474I$	$-11.85219 + 6.68999I$
$u = -0.164460 + 1.120838I$ $a = -0.715222 + 0.335611I$ $b = -1.45613 - 0.22747I$	$-4.52958 + 1.45474I$	$-11.85219 - 6.68999I$
$u = 0.252602 - 0.846708I$ $a = -1.61416 + 0.35808I$ $b = -0.89627 + 1.28692I$	$-6.98963 - 1.12261I$	$-6.65272 - 1.37335I$
$u = 0.252602 + 0.846708I$ $a = -1.61416 - 0.35808I$ $b = -0.89627 - 1.28692I$	$-6.98963 + 1.12261I$	$-6.65272 + 1.37335I$

	Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.653577 - 0.866508I$		
$a =$	$1.21986 - 0.97097I$	$-4.68531 - 2.54104I$	$4.65327 + 4.19412I$
$b =$	$0.601785 - 1.169989I$		
$u =$	$0.653577 + 0.866508I$		
$a =$	$1.21986 + 0.97097I$	$-4.68531 + 2.54104I$	$4.65327 - 4.19412I$
$b =$	$0.601785 + 1.169989I$		
$u =$	$0.890932 - 0.918447I$		
$a =$	$0.335121 - 0.286182I$	$4.35733 - 3.27992I$	$8.77581 + 1.72593I$
$b =$	$0.199184 - 0.319388I$		
$u =$	$0.890932 + 0.918447I$		
$a =$	$0.335121 + 0.286182I$	$4.35733 + 3.27992I$	$8.77581 - 1.72593I$
$b =$	$0.199184 + 0.319388I$		

$$\text{III. } I_3^u = \langle u^{26} - 7u^{25} + \dots - 12u + 8, -33u^{25} + 151u^{24} + \dots + 4b - 116, 35u^{25} - 275u^{24} + \dots + 8a - 460 \rangle$$

(i) Arc colorings

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

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

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

$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} -4.37500u^{25} + 34.3750u^{24} + \dots - 44.7500u + 57.5000 \\ \frac{33}{4}u^{25} - \frac{151}{4}u^{24} + \dots + 29u + 29 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{37}{8}u^{25} + \frac{209}{8}u^{24} + \dots - \frac{115}{2}u + 7 \\ -\frac{35}{4}u^{25} + \frac{235}{4}u^{24} + \dots - \frac{141}{2}u + 63 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{41}{8}u^{25} + \frac{335}{8}u^{24} + \dots - \frac{117}{2}u + 84 \\ 6u^{25} - \frac{53}{2}u^{24} + \dots + \frac{47}{2}u + 41 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{9}{8}u^{25} + \frac{61}{8}u^{24} + \dots - \frac{59}{2}u + 1 \\ -\frac{1}{4}u^{25} + \frac{13}{4}u^{24} + \dots - \frac{25}{2}u + 9 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 3.37500u^{25} - 28.8750u^{24} + \dots + 42.2500u - 67.5000 \\ -\frac{15}{4}u^{25} + \frac{69}{4}u^{24} + \dots - 15u - 27 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 3.37500u^{25} - 28.8750u^{24} + \dots + 42.2500u - 67.5000 \\ -\frac{15}{4}u^{25} + \frac{69}{4}u^{24} + \dots - 15u - 27 \end{pmatrix}$$

(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
$u = -0.881347 - 0.183622I$		
$a = 0.701314 + 1.204707I$	$-3.96770 + 6.65430I$	$-0.65787 - 6.33935I$
$b = 0.358175 + 0.811995I$		
$u = -0.881347 + 0.183622I$		
$a = 0.701314 - 1.204707I$	$-3.96770 - 6.65430I$	$-0.65787 + 6.33935I$
$b = 0.358175 - 0.811995I$		
$u = -0.473220 - 0.303991I$		
$a = -1.093758 - 0.185026I$	$0.898620 + 0.817519I$	$6.81953 - 4.33053I$
$b = -0.456329 - 0.304759I$		
$u = -0.473220 + 0.303991I$		
$a = -1.093758 + 0.185026I$	$0.898620 - 0.817519I$	$6.81953 + 4.33053I$
$b = -0.456329 + 0.304759I$		
$u = -0.439531 - 1.186274I$		
$a = 0.827912 + 0.502769I$	$-7.23748 - 1.85191I$	$-5.27925 + 3.38649I$
$b = 0.567458 + 0.847837I$		
$u = -0.439531 + 1.186274I$		
$a = 0.827912 - 0.502769I$	$-7.23748 + 1.85191I$	$-5.27925 - 3.38649I$
$b = 0.567458 - 0.847837I$		
$u = -0.297455 - 0.831482I$		
$a = 0.109500 - 0.567036I$	$-0.64079 + 1.97179I$	$1.39932 - 4.26013I$
$b = 0.411102 - 0.326500I$		
$u = -0.297455 + 0.831482I$		
$a = 0.109500 + 0.567036I$	$-0.64079 - 1.97179I$	$1.39932 + 4.26013I$
$b = 0.411102 + 0.326500I$		
$u = -0.201343 - 1.171454I$		
$a = -1.188994 + 0.177677I$	$-8.67640 + 10.06982I$	$-5.88892 - 7.31379I$
$b = -1.35352 - 0.53286I$		
$u = -0.201343 + 1.171454I$		
$a = -1.188994 - 0.177677I$	$-8.67640 - 10.06982I$	$-5.88892 + 7.31379I$
$b = -1.35352 + 0.53286I$		

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.093471 - 1.199342I$ $a = 0.678464 - 0.252626I$ $b = 1.169478 + 0.179711I$	$-4.09225 + 1.31670I$	$5.84188 - 2.64117I$
$u = 0.093471 + 1.199342I$ $a = 0.678464 + 0.252626I$ $b = 1.169478 - 0.179711I$	$-4.09225 - 1.31670I$	$5.84188 + 2.64117I$
$u = 0.698499 - 1.080437I$ $a = -0.865609 + 0.084169I$ $b = -1.75614 + 1.31755I$	$0.31911 - 8.88087I$	$0.68625 + 10.27634I$
$u = 0.698499 + 1.080437I$ $a = -0.865609 - 0.084169I$ $b = -1.75614 - 1.31755I$	$0.31911 + 8.88087I$	$0.68625 - 10.27634I$
$u = 0.749005 - 1.057383I$ $a = 1.164967 - 0.210163I$ $b = 1.82777 - 2.03723I$	$-2.3566 - 16.8090I$	$-1.24843 + 9.63879I$
$u = 0.749005 + 1.057383I$ $a = 1.164967 + 0.210163I$ $b = 1.82777 + 2.03723I$	$-2.3566 + 16.8090I$	$-1.24843 - 9.63879I$
$u = 0.781122 - 0.922042I$ $a = -0.412921 - 0.568632I$ $b = -1.54039 + 0.18192I$	$5.58632 - 5.07870I$	$6.80297 + 4.99584I$
$u = 0.781122 + 0.922042I$ $a = -0.412921 + 0.568632I$ $b = -1.54039 - 0.18192I$	$5.58632 + 5.07870I$	$6.80297 - 4.99584I$
$u = 0.800652 - 0.839278I$ $a = 0.616721 + 0.444308I$ $b = 1.13048 - 0.91620I$	$5.83701 - 0.85262I$	$7.15266 + 0.82662I$
$u = 0.800652 + 0.839278I$ $a = 0.616721 - 0.444308I$ $b = 1.13048 + 0.91620I$	$5.83701 + 0.85262I$	$7.15266 - 0.82662I$

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.837651 - 0.572406I$ $a = -0.053221 + 1.007023I$ $b = 0.902641 - 0.181614I$	$1.84430 + 3.12249I$	$4.20356 - 5.13534I$
$u = 0.837651 + 0.572406I$ $a = -0.053221 - 1.007023I$ $b = 0.902641 + 0.181614I$	$1.84430 - 3.12249I$	$4.20356 + 5.13534I$
$u = 0.899623 - 0.665417I$ $a = 0.248617 - 1.291081I$ $b = -1.354075 - 0.351480I$	$-1.14356 + 10.71297I$	$0.33526 - 5.40937I$
$u = 0.899623 + 0.665417I$ $a = 0.248617 + 1.291081I$ $b = -1.354075 + 0.351480I$	$-1.14356 - 10.71297I$	$0.33526 + 5.40937I$
$u = 0.932872 - 0.931207I$ $a = -0.482992 + 0.426095I$ $b = 0.093357 + 0.974991I$	$3.75978 - 3.40349I$	$-4.66696 + 3.91131I$
$u = 0.932872 + 0.931207I$ $a = -0.482992 - 0.426095I$ $b = 0.093357 - 0.974991I$	$3.75978 + 3.40349I$	$-4.66696 - 3.91131I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(1 + u + 2u^3 - u^4 + 3u^5 - u^6 + 2u^7 - u^8 + u^9)^6(u^{14} + 3u^{12} + \dots + u + 1)$ $(u^{26} + 7u^{25} + \dots + 12u + 8)$
c_2, c_7	$(u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1)^6$ $(u^{14} + 6u^{13} + \dots + 9u + 1)(u^{26} + 9u^{25} + \dots + 48u + 64)$
c_3, c_{10}	$(u^{14} + 7u^{12} + \dots - u + 1)(u^{26} + 8u^{24} + \dots - 2u + 1)$ $(u^{54} + u^{53} + \dots - 2026u + 167)$
c_4, c_{11}	$(u^{14} - u^{13} - 3u^{10} + 3u^9 + u^8 + 2u^6 - 4u^5 - 2u^4 + u^2 + 2u + 1)$ $(u^{26} + u^{25} + \dots + 3u + 1)(u^{54} + 3u^{53} + \dots + 88u + 7)$
c_5, c_9	$(u^{14} + 7u^{12} + \dots + u + 1)(u^{26} + 8u^{24} + \dots - 2u + 1)$ $(u^{54} + u^{53} + \dots - 2026u + 167)$
c_6	$(1 + u + 2u^3 - u^4 + 3u^5 - u^6 + 2u^7 - u^8 + u^9)^6(u^{14} + 3u^{12} + \dots - u + 1)$ $(u^{26} + 7u^{25} + \dots + 12u + 8)$
c_8	$(u^3 - u^2 + 1)^{18}(u^{14} - 6u^{13} + \dots - 4u^2 + 1)$ $(u^{26} + 21u^{25} + \dots + 6912u + 512)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_6	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^6$ $(y^{14} + 6y^{13} + \dots + 9y + 1)(y^{26} + 9y^{25} + \dots + 48y + 64)$
c_2, c_7	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^6$ $(y^{14} + 10y^{13} + \dots + y + 1)(y^{26} + 17y^{25} + \dots + 60160y + 4096)$
c_3, c_5, c_9 c_{10}	$(y^{14} + 14y^{13} + \dots + 13y + 1)(y^{26} + 16y^{25} + \dots - 2y + 1)$ $(y^{54} + 39y^{53} + \dots - 756660y + 27889)$
c_4, c_{11}	$(y^{14} - y^{13} + \dots - 2y + 1)(y^{26} + 9y^{25} + \dots + 19y + 1)$ $(y^{54} - 13y^{53} + \dots - 772y + 49)$
c_8	$(y^3 - y^2 + 2y - 1)^{18}(y^{14} - 4y^{13} + \dots - 8y + 1)$ $(y^{26} - 5y^{25} + \dots + 196608y + 262144)$