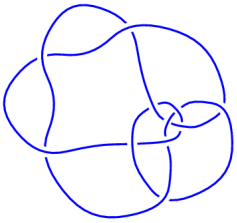
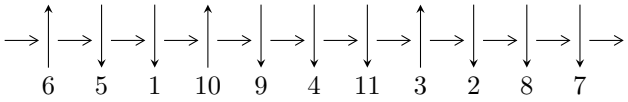
$11a_{349}$ $(K11a_{349})$



[1]

Arc Sequences



Solving Sequence

$$2,5 \underset{c_2}{\rightarrow} 3,9 \underset{c_5}{\rightarrow} 6 \underset{c_9}{\rightarrow} 10 \underset{c_1}{\rightarrow} 1 \underset{c_4}{\rightarrow} 4 \underset{c_6}{\rightarrow} 7 \underset{c_8}{\rightarrow} 8 \underset{c_{11}}{\rightarrow} 11 \gg c_3, c_7, c_{10}$$

Representation Ideals

$$I = \bigcap_{i=1}^{3} I_i^u \bigcap I_1^v$$

$I_1^u = \langle u^{16} - 9u^{15} + \cdots - 3u + 1,\ -1660u^{15} + 14724u^{14} + \cdots + 1403b + 4911,$
$-4911u^{15} + 42539u^{14} + \cdots + 1403a + 11007\rangle$

$I_2^u = \langle u^{31} + 22u^{30} + \cdots + 419u + 73,$
$-1.70752 \times 10^{18}u^{30} - 3.61522 \times 10^{19}u^{29} + \cdots + 8.35359 \times 10^{17}b - 7.35363 \times 10^{19},$
$-7.35363 \times 10^{19}u^{30} - 1.49315 \times 10^{21}u^{29} + \cdots + 6.09812 \times 10^{19}a + 9.49853 \times 10^{20}\rangle$

$I_3^u = \langle b^{60} - b^{59} + \cdots + 6b + 1,\ 8.21920 \times 10^{177}u + 1.49138 \times 10^{177}b^{59} + \cdots + 3.25877 \times 10^{178}b - 3.34450 \times 10^{177},$
$-1.34099 \times 10^{181}b^{59} + 3.67498 \times 10^{181}b^{58} + \cdots + 2.11644 \times 10^{181}a - 2.59697 \times 10^{180}\rangle$

$I_1^v = \langle v - 1,\ b^2 + b + 1,\ a\rangle$

There are 4 irreducible components with 109 representations.

[1] The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

I. $I_1^u = \langle u^{16} - 9u^{15} + \cdots - 3u + 1,\ -1660u^{15} + 14724u^{14} + \cdots + 1403b + 4911,\ -4911u^{15} + 42539u^{14} + \cdots + 1403a + 11007 \rangle$

(i) Arc colorings

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

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

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

$$a_9 = \begin{pmatrix} 3.50036u^{15} - 30.3200u^{14} + \cdots + 8.40984u - 7.84533 \\ 1.18318u^{15} - 10.4947u^{14} + \cdots + 2.65574u - 3.50036 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 5.81041u^{15} - 48.7448u^{14} + \cdots + 10.9672u - 10.2837 \\ 3.54882u^{15} - 29.8439u^{14} + \cdots + 8.14754u - 5.81041 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 2.31718u^{15} - 19.8254u^{14} + \cdots + 5.75410u - 4.34498 \\ 1.18318u^{15} - 10.4947u^{14} + \cdots + 2.65574u - 3.50036 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -11.5189u^{15} + 96.9615u^{14} + \cdots - 25.7213u + 19.8026 \\ -4.61297u^{15} + 39.4490u^{14} + \cdots - 10.9180u + 7.97006 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.808268u^{15} - 6.82466u^{14} + \cdots + 1.50820u - 2.21169 \\ 1.45331u^{15} - 12.0763u^{14} + \cdots + 3.31148u - 2.26158 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 5.08838u^{15} - 42.3671u^{14} + \cdots + 10.6393u - 9.64220 \\ 2.71703u^{15} - 22.8974u^{14} + \cdots + 4.59016u - 3.80684 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2.47113u^{15} - 21.0777u^{14} + \cdots + 5.80328u - 5.52815 \\ 1.55880u^{15} - 13.8047u^{14} + \cdots + 3.62295u - 3.47969 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1.77762u^{15} + 15.3022u^{14} + \cdots - 1.26230u + 3.51319 \\ -0.697790u^{15} + 5.61582u^{14} + \cdots - 1.45902u + 1.15895 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1.77762u^{15} + 15.3022u^{14} + \cdots - 1.26230u + 3.51319 \\ -0.697790u^{15} + 5.61582u^{14} + \cdots - 1.45902u + 1.15895 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.585848-0.091112I$ $a=\ 1.18994+0.81797I$ $b=-0.622598-0.587627I$	$4.36105+7.99836I$	$-2.22876-4.36122I$
$u=-0.585848+0.091112I$ $a=\ 1.18994-0.81797I$ $b=-0.622598+0.587627I$	$4.36105-7.99836I$	$-2.22876+4.36122I$
$u=-0.277470-0.451695I$ $a=-1.30022+0.65409I$ $b=\ 0.656220+0.405813I$	$-2.01872+4.33323I$	$-6.23875-5.22511I$
$u=-0.277470+0.451695I$ $a=-1.30022-0.65409I$ $b=\ 0.656220-0.405813I$	$-2.01872-4.33323I$	$-6.23875+5.22511I$
$u=\ 0.506458-0.631165I$ $a=\ 1.64842+0.48074I$ $b=\ 1.138283-0.796948I$	$5.13996+4.97309I$	$-0.40575-9.40850I$
$u=\ 0.506458+0.631165I$ $a=\ 1.64842-0.48074I$ $b=\ 1.138283+0.796948I$	$5.13996-4.97309I$	$-0.40575+9.40850I$
$u=\ 0.612008-0.029832I$ $a=-1.89006-0.24977I$ $b=-1.164183-0.096478I$	$-2.50830+0.01138I$	$-21.2199-7.8586I$
$u=\ 0.612008+0.029832I$ $a=-1.89006+0.24977I$ $b=-1.164183+0.096478I$	$-2.50830-0.01138I$	$-21.2199+7.8586I$
$u=\ 0.74501-1.71403I$ $a=-0.118772-0.238129I$ $b=-0.496646+0.026171I$	$-1.31298+1.09614I$	$-16.2051-0.8717I$
$u=\ 0.74501+1.71403I$ $a=-0.118772+0.238129I$ $b=-0.496646-0.026171I$	$-1.31298-1.09614I$	$-16.2051+0.8717I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.014645 - 0.944939I$ $a = -0.995120 - 0.086724I$ $b = -1.091642 + 0.852334I$	$-2.45018 + 5.54449I$	$-4.59390 - 4.01193I$
$u = 1.014645 + 0.944939I$ $a = -0.995120 + 0.086724I$ $b = -1.091642 - 0.852334I$	$-2.45018 - 5.54449I$	$-4.59390 + 4.01193I$
$u = 1.09504 - 1.17564I$ $a = 0.852426 + 0.172150I$ $b = 1.135825 - 0.813635I$	$1.66646 + 6.43037I$	$-4.55872 - 3.61803I$
$u = 1.09504 + 1.17564I$ $a = 0.852426 - 0.172150I$ $b = 1.135825 + 0.813635I$	$1.66646 - 6.43037I$	$-4.55872 + 3.61803I$
$u = 1.39016 - 0.66554I$ $a = 0.613386 + 0.138285I$ $b = 0.944742 - 0.215994I$	$0.41258 + 2.25313I$	$-9.04909 - 3.10995I$
$u = 1.39016 + 0.66554I$ $a = 0.613386 - 0.138285I$ $b = 0.944742 + 0.215994I$	$0.41258 - 2.25313I$	$-9.04909 + 3.10995I$

II. $I_2^u = \langle u^{31} + 22u^{30} + \cdots + 419u + 73,\ -1.71 \times 10^{18} u^{30} - 3.62 \times 10^{19} u^{29} + \cdots + 8.35 \times 10^{17} b - 7.35 \times 10^{19},\ -7.35 \times 10^{19} u^{30} - 1.49 \times 10^{21} u^{29} + \cdots + 6.10 \times 10^{19} a + 9.50 \times 10^{20} \rangle$

(i) Arc colorings

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

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

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

$$a_9 = \begin{pmatrix} 1.20588u^{30} + 24.4854u^{29} + \cdots + 32.8298u - 15.5762 \\ 2.04406u^{30} + 43.2775u^{29} + \cdots + 520.842u + 88.0296 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.64467u^{30} + 35.2470u^{29} + \cdots + 611.888u + 120.234 \\ 0.935768u^{30} + 20.6699u^{29} + \cdots + 569.882u + 120.061 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.838173u^{30} - 18.7921u^{29} + \cdots - 488.012u - 103.606 \\ 2.04406u^{30} + 43.2775u^{29} + \cdots + 520.842u + 88.0296 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.559052u^{30} - 10.2367u^{29} + \cdots + 589.516u + 164.858 \\ -1.97942u^{30} - 42.8258u^{29} + \cdots - 670.127u - 109.122 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.309872u^{30} - 7.15352u^{29} + \cdots - 253.850u - 51.5764 \\ 1.01877u^{30} + 21.7306u^{29} + \cdots + 297.856u + 51.7498 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2.82157u^{30} + 60.5465u^{29} + \cdots + 1040.68u + 198.602 \\ 1.23261u^{30} + 27.3553u^{29} + \cdots + 779.276u + 164.445 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.853632u^{30} + 18.6541u^{29} + \cdots + 280.419u + 45.6105 \\ -1.17923u^{30} - 24.4436u^{29} + \cdots - 257.180u - 52.0008 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0824085u^{30} - 2.88475u^{29} + \cdots - 370.141u - 83.8047 \\ 0.785818u^{30} + 16.1152u^{29} + \cdots + 31.6055u - 5.33419 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0824085u^{30} - 2.88475u^{29} + \cdots - 370.141u - 83.8047 \\ 0.785818u^{30} + 16.1152u^{29} + \cdots + 31.6055u - 5.33419 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.52460-1.20211I$ $a=-0.222003+0.328487I$ $b=-0.733345+0.233938I$	$2.96780+8.97601I$	$-8.11438-9.57361I$
$u=-1.52460+1.20211I$ $a=-0.222003-0.328487I$ $b=-0.733345-0.233938I$	$2.96780-8.97601I$	$-8.11438+9.57361I$
$u=-1.34859-1.15323I$ $a=\ \ 0.551241+0.152540I$ $b=\ \ 0.567481+0.841422I$	$6.87874-9.56615I$	$0.51099+9.26674I$
$u=-1.34859+1.15323I$ $a=\ \ 0.551241-0.152540I$ $b=\ \ 0.567481-0.841422I$	$6.87874+9.56615I$	$0.51099-9.26674I$
$u=-1.25724-0.83229I$ $a=-0.630136-0.290382I$ $b=-0.550547-0.889533I$	$1.08264-5.12278I$	$-0.41195+8.68112I$
$u=-1.25724+0.83229I$ $a=-0.630136+0.290382I$ $b=-0.550547+0.889533I$	$1.08264+5.12278I$	$-0.41195-8.68112I$
$u=-1.16971-1.39376I$ $a=\ \ 0.106108-0.339223I$ $b=\ \ 0.596910-0.248902I$	$-2.64536+5.39096I$	$-12.5250-11.7577I$
$u=-1.16971+1.39376I$ $a=\ \ 0.106108+0.339223I$ $b=\ \ 0.596910+0.248902I$	$-2.64536-5.39096I$	$-12.5250+11.7577I$
$u=-1.13177-0.99864I$ $a=\ \ 1.043556+0.003953I$ $b=\ \ 1.17712+1.04661I$	$-3.36735-13.70176I$	$-6.58812+9.58074I$
$u=-1.13177+0.99864I$ $a=\ \ 1.043556-0.003953I$ $b=\ \ 1.17712-1.04661I$	$-3.36735+13.70176I$	$-6.58812-9.58074I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.130015-0.161760I$ $a=\ \ 0.750441+0.579865I$ $b=\ \ 0.754211+0.776647I$	$3.76674-0.82301I$	$-0.218415+1.040987I$
$u=-1.130015+0.161760I$ $a=\ \ 0.750441-0.579865I$ $b=\ \ 0.754211-0.776647I$	$3.76674+0.82301I$	$-0.218415-1.040987I$
$u=-1.12954-1.12465I$ $a=-1.000934+0.056208I$ $b=-1.19381-1.06221I$	$3.1915-17.9314I$	$-3.16006+9.23620I$
$u=-1.12954+1.12465I$ $a=-1.000934-0.056208I$ $b=-1.19381+1.06221I$	$3.1915+17.9314I$	$-3.16006-9.23620I$
$u=-1.064041-0.828977I$ $a=-1.150523-0.084263I$ $b=-1.15435-1.04342I$	$-2.87005-8.08181I$	$-6.17763+7.71756I$
$u=-1.064041+0.828977I$ $a=-1.150523+0.084263I$ $b=-1.15435+1.04342I$	$-2.87005+8.08181I$	$-6.17763-7.71756I$
$u=-0.666738-0.682520I$ $a=\ \ 1.55772-0.11561I$ $b=\ \ 1.11749+0.98609I$	$5.63925-4.20521I$	$4.34937+3.28388I$
$u=-0.666738+0.682520I$ $a=\ \ 1.55772+0.11561I$ $b=\ \ 1.11749-0.98609I$	$5.63925+4.20521I$	$4.34937-3.28388I$
$u=-0.647843-0.736519I$ $a=\ \ 1.007612+0.155721I$ $b=\ \ 0.538083+0.843008I$	$2.96693-0.69018I$	$2.10294+0.24214I$
$u=-0.647843+0.736519I$ $a=\ \ 1.007612-0.155721I$ $b=\ \ 0.538083-0.843008I$	$2.96693+0.69018I$	$2.10294-0.24214I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.567564$ $a=-2.33981$ $b=-1.32799$	-2.36361	35.4316
$u=-0.513758-1.124433I$ $a=-0.853218+0.069574I$ $b=-0.516579-0.923642I$	$9.90733+1.39993I$	$3.28630+0.15418I$
$u=-0.513758+1.124433I$ $a=-0.853218-0.069574I$ $b=-0.516579+0.923642I$	$9.90733-1.39993I$	$3.28630-0.15418I$
$u=-0.23622-1.57587I$ $a=\ \ 0.158557+0.256011I$ $b=-0.365986+0.310339I$	$-0.90699+1.43155I$	$-3.87159-9.73821I$
$u=-0.23622+1.57587I$ $a=\ \ 0.158557-0.256011I$ $b=-0.365986-0.310339I$	$-0.90699-1.43155I$	$-3.87159+9.73821I$
$u=\ \ 0.312934-0.546829I$ $a=-1.25323+0.66954I$ $b=\ \ 0.026054-0.894824I$	$5.49366+2.37184I$	$1.50786-3.80430I$
$u=\ \ 0.312934+0.546829I$ $a=-1.25323-0.66954I$ $b=\ \ 0.026054+0.894824I$	$5.49366-2.37184I$	$1.50786+3.80430I$
$u=\ \ 0.323415-0.178568I$ $a=\ \ 0.19735-3.16687I$ $b=\ \ 0.501678+1.059455I$	$4.82828-1.90483I$	$-0.00233+3.30183I$
$u=\ \ 0.323415+0.178568I$ $a=\ \ 0.19735+3.16687I$ $b=\ \ 0.501678-1.059455I$	$4.82828+1.90483I$	$-0.00233-3.30183I$
$u=\ \ 0.467476-0.592633I$ $a=\ \ 0.578606-0.286976I$ $b=-0.100413+0.477055I$	$-0.38522+1.41061I$	$-2.90382-5.08297I$
Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\ \ 0.467476+0.592633I$ $a=\ \ 0.578606+0.286976I$ $b=-0.100413-0.477055I$	$-0.38522-1.41061I$	$-2.90382+5.08297I$

III.

$$\boldsymbol{I_3^u = \langle b^{60}-b^{59}+\cdots+6b+1,\ 8.22\times10^{177}u+1.49\times10^{177}b^{59}+\cdots+3.26\times10^{178}b-3.34\times10^{177},\ -1.34\times10^{181}b^{59}+3.67\times10^{181}b^{58}+\cdots+2.12\times10^{181}a-2.60\times10^{180}\rangle}$$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix}0\\-0.181451b^{59}+0.764912b^{58}+\cdots-3.96483b+0.406913\end{pmatrix}$$

$$a_3 = \begin{pmatrix}1\\-2.26325b^{59}+3.63938b^{58}+\cdots-19.0758b-4.18376\end{pmatrix}$$

$$a_9 = \begin{pmatrix}0.633604b^{59}-1.73639b^{58}+\cdots+2.68695b+0.122704\\b\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-0.411321b^{59}+1.62162b^{58}+\cdots+13.3411b+4.09818\\-1.47080b^{59}+2.37327b^{58}+\cdots-11.9632b-1.80540\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}0.633604b^{59}-1.73639b^{58}+\cdots+1.68695b+0.122704\\b\end{pmatrix}$$

$$a_1 = \begin{pmatrix}4.87836b^{59}-6.54681b^{58}+\cdots+35.9162b+9.52700\\-1.47080b^{59}+2.37327b^{58}+\cdots-11.9632b-2.80540\end{pmatrix}$$

$$a_4 = \begin{pmatrix}2.65784b^{59}-2.47623b^{58}+\cdots+32.6572b+9.10626\\-1.96126b^{59}+3.25441b^{58}+\cdots-15.2825b-2.38886\end{pmatrix}$$

$$a_7 = \begin{pmatrix}6.13963b^{59}-9.57449b^{58}+\cdots+38.8281b+6.70897\\2.17144b^{59}-2.82796b^{58}+\cdots+15.3949b+4.47316\end{pmatrix}$$

$$a_8 = \begin{pmatrix}1.97913b^{59}-4.15128b^{58}+\cdots+13.5427b+1.38881\\2.41588b^{59}-3.15110b^{58}+\cdots+23.6027b+5.66772\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.492742b^{59}-0.276894b^{58}+\cdots-23.9863b-4.86332\\-2.54732b^{59}+4.44645b^{58}+\cdots-13.6387b-2.50540\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.492742b^{59}-0.276894b^{58}+\cdots-23.9863b-4.86332\\-2.54732b^{59}+4.44645b^{58}+\cdots-13.6387b-2.50540\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.256035 + 0.955234I$ $a = -1.060789 + 0.065356I$ $b = -1.56919 - 0.77076I$	$6.67569 - 7.50666I$	$2.29813 + 8.85191I$
$u = 0.256035 - 0.955234I$ $a = -1.060789 - 0.065356I$ $b = -1.56919 + 0.77076I$	$6.67569 + 7.50666I$	$2.29813 - 8.85191I$
$u = -0.528574 - 0.124771I$ $a = -1.53693 + 0.12871I$ $b = -1.38922 - 0.98850I$	$-2.77564 - 0.69273I$	$-17.6934 + 4.7563I$
$u = -0.528574 + 0.124771I$ $a = -1.53693 - 0.12871I$ $b = -1.38922 + 0.98850I$	$-2.77564 + 0.69273I$	$-17.6934 - 4.7563I$
$u = -0.572235 + 0.339394I$ $a = -0.856998 - 0.096051I$ $b = -1.32618 - 1.60510I$	$3.91480 + 8.87745I$	$-7.0055 - 13.7386I$
$u = -0.572235 - 0.339394I$ $a = -0.856998 + 0.096051I$ $b = -1.32618 + 1.60510I$	$3.91480 - 8.87745I$	$-7.0055 + 13.7386I$
$u = 1.04922 + 1.23105I$ $a = -0.938982 + 0.014190I$ $b = -1.27574 - 0.63969I$	$1.67680 - 7.62538I$	$-5.33049 + 11.25756I$
$u = 1.04922 - 1.23105I$ $a = -0.938982 - 0.014190I$ $b = -1.27574 + 0.63969I$	$1.67680 + 7.62538I$	$-5.33049 - 11.25756I$
$u = 1.08317 + 1.03057I$ $a = -0.856338 + 0.196838I$ $b = -1.11752 - 1.01612I$	$-3.07391 - 5.95948I$	$-15.7157 + 11.4516I$
$u = 1.08317 - 1.03057I$ $a = -0.856338 - 0.196838I$ $b = -1.11752 + 1.01612I$	$-3.07391 + 5.95948I$	$-15.7157 - 11.4516I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.808970$ $a = -0.647525 - 0.270062I$ $b = -1.08979 - 1.19875I$	$-2.66135 - 2.02988I$	$-15.2719 + 3.4641I$
$u = \quad 0.808970$ $a = -0.647525 + 0.270062I$ $b = -1.08979 + 1.19875I$	$-2.66135 + 2.02988I$	$-15.2719 - 3.4641I$
$u = \quad 1.220872 + 0.708449I$ $a = -1.153493 - 0.183828I$ $b = -0.942229 - 0.464017I$	$0.17890 - 4.56727I$	$-8.44510 + 5.18626I$
$u = \quad 1.220872 - 0.708449I$ $a = -1.153493 + 0.183828I$ $b = -0.942229 + 0.464017I$	$0.17890 + 4.56727I$	$-8.44510 - 5.18626I$
$u = \quad 1.08317 + 1.03057I$ $a = -0.382232 + 0.206113I$ $b = -0.933230 - 0.008422I$	$-3.07391 - 1.89972I$	$-15.7157 + 4.5234I$
$u = \quad 1.08317 - 1.03057I$ $a = -0.382232 - 0.206113I$ $b = -0.933230 + 0.008422I$	$-3.07391 + 1.89972I$	$-15.7157 - 4.5234I$
$u = -0.528574 - 0.124771I$ $a = -2.90766 - 1.18376I$ $b = -0.828439 - 0.123729I$	$-2.77564 - 0.69273I$	$-17.6934 + 4.7563I$
$u = -0.528574 + 0.124771I$ $a = -2.90766 + 1.18376I$ $b = -0.828439 + 0.123729I$	$-2.77564 + 0.69273I$	$-17.6934 - 4.7563I$
$u = \quad 1.220872 + 0.708449I$ $a = -0.452570 + 0.625360I$ $b = -0.663249 - 0.136757I$	$0.178899 - 0.507500I$	$-8.44510 - 1.74195I$
$u = \quad 1.220872 - 0.708449I$ $a = -0.452570 - 0.625360I$ $b = -0.663249 + 0.136757I$	$0.178899 + 0.507500I$	$-8.44510 + 1.74195I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.04922 + 1.23105I$ $a = -0.544542 + 0.436854I$ $b = -0.538415 - 0.226196I$	$1.67680 - 3.56562I$	$-5.33049 + 4.32935I$
$u = 1.04922 - 1.23105I$ $a = -0.544542 - 0.436854I$ $b = -0.538415 + 0.226196I$	$1.67680 + 3.56562I$	$-5.33049 - 4.32935I$
$u = 0.587025 + 0.697265I$ $a = -1.85981 + 0.55878I$ $b = -0.524542 - 0.712266I$	$-0.33116 - 5.42660I$	$-2.47200 + 11.66083I$
$u = 0.587025 - 0.697265I$ $a = -1.85981 - 0.55878I$ $b = -0.524542 + 0.712266I$	$-0.33116 + 5.42660I$	$-2.47200 - 11.66083I$
$u = -0.572235 - 0.339394I$ $a = -0.48375 + 3.09188I$ $b = -0.523003 - 0.235896I$	$3.91480 - 8.87745I$	$-7.0055 + 13.7386I$
$u = -0.572235 + 0.339394I$ $a = -0.48375 - 3.09188I$ $b = -0.523003 + 0.235896I$	$3.91480 + 8.87745I$	$-7.0055 - 13.7386I$
$u = 0.587025 + 0.697265I$ $a = 0.748925 + 0.538661I$ $b = -0.192235 - 0.118483I$	$-0.331160 - 1.366831I$	$-2.47200 + 4.73263I$
$u = 0.587025 - 0.697265I$ $a = 0.748925 - 0.538661I$ $b = -0.192235 + 0.118483I$	$-0.331160 + 1.366831I$	$-2.47200 - 4.73263I$
$u = 0.587025 + 0.697265I$ $a = 0.235275 - 0.077622I$ $b = -0.064048 - 0.838407I$	$-0.331160 - 1.366831I$	$-2.47200 + 4.73263I$
$u = 0.587025 - 0.697265I$ $a = 0.235275 + 0.077622I$ $b = -0.064048 + 0.838407I$	$-0.331160 + 1.366831I$	$-2.47200 - 4.73263I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.256035 + 0.955234I$ $a = -1.314666 + 0.451440I$ $b = 0.045301 - 0.183456I$	$6.67569 - 3.44689I$	$2.29813 + 1.92370I$
$u = 0.256035 - 0.955234I$ $a = -1.314666 - 0.451440I$ $b = 0.045301 + 0.183456I$	$6.67569 + 3.44689I$	$2.29813 - 1.92370I$
$u = 0.256035 - 0.955234I$ $a = 1.16359 + 1.33084I$ $b = 0.334029 - 0.996569I$	$6.67569 + 7.50666I$	$2.29813 - 8.85191I$
$u = 0.256035 + 0.955234I$ $a = 1.16359 - 1.33084I$ $b = 0.334029 + 0.996569I$	$6.67569 - 7.50666I$	$2.29813 + 8.85191I$
$u = 0.808970$ $a = 1.34713 - 1.48182I$ $b = 0.523828 - 0.218472I$	$-2.66135 + 2.02988I$	$-15.2719 - 3.4641I$
$u = 0.808970$ $a = 1.34713 + 1.48182I$ $b = 0.523828 + 0.218472I$	$-2.66135 - 2.02988I$	$-15.2719 + 3.4641I$
$u = -0.528574 + 0.124771I$ $a = 2.01177 + 3.23936I$ $b = 0.604498 - 0.096799I$	$-2.77564 + 4.75250I$	$-17.6934 - 11.6845I$
$u = -0.528574 - 0.124771I$ $a = 2.01177 - 3.23936I$ $b = 0.604498 + 0.096799I$	$-2.77564 - 4.75250I$	$-17.6934 + 11.6845I$
$u = 1.08317 - 1.03057I$ $a = 0.456098 + 0.426172I$ $b = 0.626434 - 0.170660I$	$-3.07391 + 1.89972I$	$-15.7157 - 4.5234I$
$u = 1.08317 + 1.03057I$ $a = 0.456098 - 0.426172I$ $b = 0.626434 + 0.170660I$	$-3.07391 - 1.89972I$	$-15.7157 + 4.5234I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.256035 - 0.955234I$ $a = 0.167321 - 0.092272I$ $b = 0.767831 - 1.140230I$	$6.67569 + 3.44689I$	$2.29813 - 1.92370I$
$u = 0.256035 + 0.955234I$ $a = 0.167321 + 0.092272I$ $b = 0.767831 + 1.140230I$	$6.67569 - 3.44689I$	$2.29813 + 1.92370I$
$u = -0.572235 + 0.339394I$ $a = 1.66800 + 1.02706I$ $b = 0.807289 - 0.938452I$	$3.91480 + 4.81769I$	$-7.00546 - 6.81035I$
$u = -0.572235 - 0.339394I$ $a = 1.66800 - 1.02706I$ $b = 0.807289 + 0.938452I$	$3.91480 - 4.81769I$	$-7.00546 + 6.81035I$
$u = 1.220872 + 0.708449I$ $a = 0.455036 - 0.152033I$ $b = 0.995566 - 0.442861I$	$0.178899 - 0.507500I$	$-8.44510 - 1.74195I$
$u = 1.220872 - 0.708449I$ $a = 0.455036 + 0.152033I$ $b = 0.995566 + 0.442861I$	$0.178899 + 0.507500I$	$-8.44510 + 1.74195I$
$u = 1.04922 - 1.23105I$ $a = 0.812591 + 0.343730I$ $b = 1.00267 - 1.14105I$	$1.67680 + 7.62538I$	$-5.33049 - 11.25756I$
$u = 1.04922 + 1.23105I$ $a = 0.812591 - 0.343730I$ $b = 1.00267 + 1.14105I$	$1.67680 - 7.62538I$	$-5.33049 + 11.25756I$
$u = 1.04922 - 1.23105I$ $a = 0.322347 + 0.162626I$ $b = 1.109136 - 0.212003I$	$1.67680 + 3.56562I$	$-5.33049 - 4.32935I$
$u = 1.04922 + 1.23105I$ $a = 0.322347 - 0.162626I$ $b = 1.109136 + 0.212003I$	$1.67680 - 3.56562I$	$-5.33049 + 4.32935I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.08317 - 1.03057I$ $a = 1.009982 + 0.022838I$ $b = 1.130415 - 0.669304I$	$-3.07391 + 5.95948I$	$-15.7157 - 11.4516I$
$u = 1.08317 + 1.03057I$ $a = 1.009982 - 0.022838I$ $b = 1.130415 + 0.669304I$	$-3.07391 - 5.95948I$	$-15.7157 + 11.4516I$
$u = 1.220872 - 0.708449I$ $a = 0.742347 + 0.050700I$ $b = 1.27803 - 1.04162I$	$0.17890 + 4.56727I$	$-8.44510 - 5.18626I$
$u = 1.220872 + 0.708449I$ $a = 0.742347 - 0.050700I$ $b = 1.27803 + 1.04162I$	$0.17890 - 4.56727I$	$-8.44510 + 5.18626I$
$u = -0.572235 - 0.339394I$ $a = 1.76320 + 0.59422I$ $b = 1.303068 - 0.021612I$	$3.91480 - 4.81769I$	$-7.00546 + 6.81035I$
$u = -0.572235 + 0.339394I$ $a = 1.76320 - 0.59422I$ $b = 1.303068 + 0.021612I$	$3.91480 + 4.81769I$	$-7.00546 - 6.81035I$
$u = -0.528574 - 0.124771I$ $a = 1.124226 - 0.082244I$ $b = 1.46755 - 1.46123I$	$-2.77564 - 4.75250I$	$-17.6934 + 11.6845I$
$u = -0.528574 + 0.124771I$ $a = 1.124226 + 0.082244I$ $b = 1.46755 + 1.46123I$	$-2.77564 + 4.75250I$	$-17.6934 - 11.6845I$
$u = 0.587025 - 0.697265I$ $a = 0.968440 - 0.063041I$ $b = 1.48137 - 0.96876I$	$-0.33116 + 5.42660I$	$-2.47200 - 11.66083I$
$u = 0.587025 + 0.697265I$ $a = 0.968440 + 0.063041I$ $b = 1.48137 + 0.96876I$	$-0.33116 - 5.42660I$	$-2.47200 + 11.66083I$

IV. $I_1^v = \langle v-1,\ b^2+b+1,\ a \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ b \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -b-1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -b \\ b \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -b \\ b \end{pmatrix}$$
$$a_4 = \begin{pmatrix} b+2 \\ -b-1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} b \\ -b \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -b \\ b \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -b \\ b \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -b \\ b \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = -0.500000 - 0.866025I$	$-2.02988I$	$3.46410I$
$v = 1.00000$ $a = 0$ $b = -0.500000 + 0.866025I$	$2.02988I$	$-3.46410I$

V. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^2-u+1)(u^2+u+1)^{30}(u^{16}+5u^{14}+\cdots-u+1)$ $(u^{31}-24u^{30}+\cdots-360448u+32768)$
c_2	u^2 $(1-4u^2-4u^3+6u^4+16u^5+6u^6-18u^7-27u^8+42u^{10}+62u^{11}+49u^{12}+24u^{13}+7u^{14}+$ $(u^{16}-9u^{15}+\cdots-3u+1)(u^{31}-22u^{30}+\cdots+419u-73)$
c_3, c_6	$(u^2+u+1)(u^{16}+4u^{15}+\cdots+4u+1)(u^{31}+u^{30}+\cdots+14u+1)$ $(u^{60}+u^{59}+\cdots+12u+7)$
c_4, c_8	$(u^2-u+1)(u^{16}+2u^{14}+\cdots-4u+1)(u^{31}+u^{30}+\cdots-2u-1)$ $(u^{60}+u^{59}+\cdots+19478u+3673)$
c_5, c_9	$(u^2+u+1)(u^{16}+u^{15}+\cdots-2u+1)(u^{31}+u^{29}+\cdots+2u+1)$ $(u^{60}-u^{59}+\cdots+6u+1)$
c_7	u^2 $(1-4u^2-8u^3-2u^4+24u^5+58u^6+94u^7+109u^8+104u^9+78u^{10}+52u^{11}+25u^{12}+12u$ $(u^{16}-4u^{15}+\cdots+2u^2+1)(u^{31}-9u^{30}+\cdots-608u+73)$
c_{10}, c_{11}	u^2 $(1-4u^2-8u^3-2u^4+24u^5+58u^6+94u^7+109u^8+104u^9+78u^{10}+52u^{11}+25u^{12}+12u$ $(u^{16}+4u^{15}+\cdots+2u^2+1)(u^{31}-9u^{30}+\cdots-608u+73)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1	$(y^2+y+1)^{31}(y^{16}+10y^{15}+\cdots-y+1)$ $(y^{31}+10y^{30}+\cdots-2147483648y-1073741824)$
c_2	y^2 $(-1+8y-28y^2+52y^3-62y^4+28y^5-50y^6+26y^7+27y^8+124y^9-34y^{10}+70y^{11}-13y$ $(y^{16}+y^{15}+\cdots-7y+1)(y^{31}+46y^{29}+\cdots+42263y-5329)$
c_3, c_6	$(y^2+y+1)(y^{16}-4y^{15}+\cdots-10y+1)(y^{31}+15y^{30}+\cdots+110y-1)$ $(y^{60}-9y^{59}+\cdots-256y+49)$
c_4	$(y^2+y+1)(y^{16}+4y^{15}+\cdots-4y+1)(y^{31}+7y^{30}+\cdots-40y-1)$ $(y^{60}+15y^{59}+\cdots+261046488y+13490929)$
c_5, c_9	$(y^2+y+1)(y^{16}-9y^{15}+\cdots-14y+1)(y^{31}+2y^{30}+\cdots-6y-1)$ $(y^{60}-21y^{59}+\cdots-228y^2+1)$
c_7, c_{10}, c_{11}	y^2 $(-1+8y-12y^2-68y^3-142y^4+20y^5+494y^6+858y^7+1051y^8+1260y^9+1238y^{10}+834$ $(y^{16}+16y^{15}+\cdots+4y+1)(y^{31}+31y^{30}+\cdots-37092y-5329)$
c_8	$(y^2+y+1)(y^{16}+4y^{15}+\cdots-4y+1)(y^{31}+7y^{30}+\cdots-40y-1)$ $(y^{60}+15y^{59}+\cdots+261046488y+13490929)$