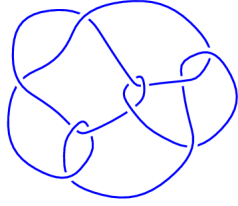
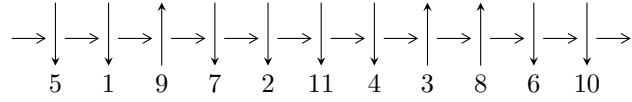


11a₁₃₄ (K11a₁₃₄)

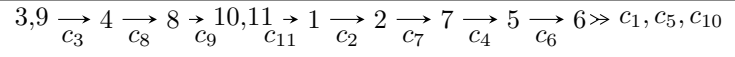


1

Arc Sequences



Solving Sequence



Representation Ideals

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

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

$$I_2^u = \langle a^{40} - 9a^{39} + \dots - 2a - 1, 2.56842 \times 10^{153}b + 5.68414 \times 10^{152}a^{39} + \dots + 1.61438 \times 10^{153}a - 8.94055 \times 10^{15} \\ 2.56842 \times 10^{153}u + 4.49248 \times 10^{152}a^{39} + \dots + 1.03106 \times 10^{154}a + 6.29512 \times 10^{153} \rangle$$

$$I_3^u = \langle u^{28} - 3u^{27} + \dots - 6u + 2, u^{27} - 2u^{26} + \dots + b - 1, 3u^{27} - 7u^{26} + \dots + 2a - 6 \rangle$$

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

There are 4 irreducible components with 73 representations.

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

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

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ -u^3 + u \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -\frac{1}{2}u^3 - u^2 + 2 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{2}u^3 - u^2 + 3 \\ -1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^3 \\ u^3 - u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^3 - u^2 + 2 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^3 - u^2 + 2 \\ -1 \end{pmatrix}$$

(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 |
|-----------------------------|---------------------------------------|-----------------------|
| $u = -1.098684 - 0.455090I$ | | |
| $a = 0.67820 - 1.77689I$ | $-0.82247 + 3.66386I$ | $-8.00000 - 4.00000I$ |
| $b = -1.45509 + 1.09868I$ | | |
| $u = -1.098684 + 0.455090I$ | | |
| $a = 0.67820 + 1.77689I$ | $-0.82247 - 3.66386I$ | $-8.00000 + 4.00000I$ |
| $b = -1.45509 - 1.09868I$ | | |
| $u = 1.098684 - 0.455090I$ | | |
| $a = 1.321797 + 0.223113I$ | $-0.82247 - 3.66386I$ | $-8.00000 + 4.00000I$ |
| $b = -0.544910 + 1.098684I$ | | |
| $u = 1.098684 + 0.455090I$ | | |
| $a = 1.321797 - 0.223113I$ | $-0.82247 + 3.66386I$ | $-8.00000 - 4.00000I$ |
| $b = -0.544910 - 1.098684I$ | | |

$$\text{II. } I_2^u = \langle a^{40} - 9a^{39} + \dots - 2a - 1, 2.57 \times 10^{153}b + 5.68 \times 10^{152}a^{39} + \dots + 1.61 \times 10^{153}a - 8.94 \times 10^{152}, 2.57 \times 10^{153}u + 4.49 \times 10^{152}a^{39} + \dots + 1.03 \times 10^{154}a + 6.30 \times 10^{153} \rangle$$

(i) Arc colorings

$$\begin{aligned} a_3 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 0 \\ -0.174912a^{39} + 1.88536a^{38} + \dots - 4.01438a - 2.45097 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 1 \\ 0.536115a^{39} - 5.00871a^{38} + \dots - 3.32734a + 1.40837 \end{pmatrix} \\ a_8 &= \begin{pmatrix} 0.174912a^{39} - 1.88536a^{38} + \dots + 4.01438a + 2.45097 \\ -0.174912a^{39} + 1.88536a^{38} + \dots - 4.01438a - 2.45097 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 0.178485a^{39} - 1.59177a^{38} + \dots + 0.372625a - 0.184216 \\ -0.353397a^{39} + 3.47713a^{38} + \dots - 4.38701a - 2.26675 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} a \\ -0.221308a^{39} + 1.88152a^{38} + \dots - 0.628550a + 0.348095 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -0.132736a^{39} + 0.934568a^{38} + \dots + 2.47156a + 2.15721 \\ 0.907809a^{39} - 8.07880a^{38} + \dots - 9.24070a - 2.37180 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.751553a^{39} + 6.69415a^{38} + \dots + 6.10928a + 1.83212 \\ 2.25983a^{39} - 20.6683a^{38} + \dots - 23.3297a - 0.793511 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -0.178485a^{39} + 1.59177a^{38} + \dots - 0.372625a + 0.184216 \\ -0.144594a^{39} + 1.68123a^{38} + \dots - 8.20813a - 3.32677 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -0.481583a^{39} + 4.19555a^{38} + \dots + 5.92573a + 2.55571 \\ -1.11233a^{39} + 9.77014a^{38} + \dots + 13.1687a + 2.86275 \end{pmatrix} \\ a_6 &= \begin{pmatrix} -a \\ -0.0376343a^{39} + 0.264746a^{38} + \dots - 3.10915a - 0.188020 \end{pmatrix} \\ a_6 &= \begin{pmatrix} -a \\ -0.0376343a^{39} + 0.264746a^{38} + \dots - 3.10915a - 0.188020 \end{pmatrix} \end{aligned}$$

(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 |
|---|---------------------------------------|------------------------|
| $u = -1.205802 + 0.505812I$ $a = -2.85802 - 1.46758I$ $b = 2.80405 - 0.84386I$ | $6.73027 - 9.64430I$ | $-0.34532 + 6.20543I$ |
| $u = -1.205802 - 0.505812I$ $a = -2.85802 + 1.46758I$ $b = 2.80405 + 0.84386I$ | $6.73027 + 9.64430I$ | $-0.34532 - 6.20543I$ |
| $u = 1.224932 - 0.393654I$ $a = -2.37555 - 1.74916I$ $b = 2.50584 - 0.16801I$ | $7.52808 + 0.63661I$ | $0.960350 + 0.169887I$ |
| $u = 1.224932 + 0.393654I$ $a = -2.37555 + 1.74916I$ $b = 2.50584 + 0.16801I$ | $7.52808 - 0.63661I$ | $0.960350 - 0.169887I$ |
| $u = 0.774874 + 0.460321I$ $a = -1.94599 - 1.32349I$ $b = 0.142168 + 0.858312I$ | $-4.54605 + 1.94645I$ | $-10.94680 - 4.81876I$ |
| $u = 0.774874 - 0.460321I$ $a = -1.94599 + 1.32349I$ $b = 0.142168 - 0.858312I$ | $-4.54605 - 1.94645I$ | $-10.94680 + 4.81876I$ |
| $u = -1.170971 - 0.421653I$ $a = -0.401531 - 0.735272I$ $b = -0.45421 + 1.34023I$ | $1.14846 + 2.14390I$ | $-2.54408 - 0.24308I$ |
| $u = -1.170971 + 0.421653I$ $a = -0.401531 + 0.735272I$ $b = -0.45421 - 1.34023I$ | $1.14846 - 2.14390I$ | $-2.54408 + 0.24308I$ |
| $u = -0.912041 - 0.514968I$ $a = -0.376566 - 0.684782I$ $b = -0.686174 + 0.336740I$ | $-0.30488 + 4.84109I$ | $-4.36837 - 6.37981I$ |
| $u = -0.912041 + 0.514968I$ $a = -0.376566 + 0.684782I$ $b = -0.686174 - 0.336740I$ | $-0.30488 - 4.84109I$ | $-4.36837 + 6.37981I$ |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|------------------------|
| $u = -0.733657$ $a = -0.230773$ $b = -1.47873$ | -2.31303 | -1.06121 |
| $u = 0.092790 + 0.716473I$ $a = -0.112410 - 0.158068I$ $b = -2.30986 + 1.17447I$ | $-2.37392 - 1.80448I$ | $-7.17537 + 3.70058I$ |
| $u = 0.092790 - 0.716473I$ $a = -0.112410 + 0.158068I$ $b = -2.30986 - 1.17447I$ | $-2.37392 + 1.80448I$ | $-7.17537 - 3.70058I$ |
| $u = 0.092790 - 0.716473I$ $a = -0.101729 - 1.229235I$ $b = 0.154418 - 0.826519I$ | $-2.37392 + 1.80448I$ | $-7.17537 - 3.70058I$ |
| $u = 0.092790 + 0.716473I$ $a = -0.101729 + 1.229235I$ $b = 0.154418 + 0.826519I$ | $-2.37392 - 1.80448I$ | $-7.17537 + 3.70058I$ |
| $u = 0.774874 - 0.460321I$ $a = -0.067359 - 0.340951I$ $b = -0.63361 + 1.47494I$ | $-4.54605 - 1.94645I$ | $-10.94680 + 4.81876I$ |
| $u = 0.774874 + 0.460321I$ $a = -0.067359 + 0.340951I$ $b = -0.63361 - 1.47494I$ | $-4.54605 + 1.94645I$ | $-10.94680 - 4.81876I$ |
| $u = -0.113113 + 0.821783I$ $a = -0.053180 - 0.336014I$ $b = -1.39065 + 0.27912I$ | $3.49387 + 4.79919I$ | $-3.30190 - 3.09464I$ |
| $u = -0.113113 - 0.821783I$ $a = -0.053180 + 0.336014I$ $b = -1.39065 - 0.27912I$ | $3.49387 - 4.79919I$ | $-3.30190 + 3.09464I$ |
| $u = -0.529602 - 0.535861I$ $a = 0.096722 - 0.545352I$ $b = -0.616510 - 0.291093I$ | $-1.34713 - 0.58469I$ | $-6.79795 + 0.00910I$ |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|-----------------------------|---------------------------------------|-----------------------|
| $u = -0.529602 + 0.535861I$ | | |
| $a = 0.096722 + 0.545352I$ | $-1.34713 + 0.58469I$ | $-6.79795 - 0.00910I$ |
| $b = -0.616510 + 0.291093I$ | | |
| $u = -0.912041 - 0.514968I$ | | |
| $a = 0.115179 - 0.552687I$ | $-0.30488 + 4.84109I$ | $-4.36837 - 6.37981I$ |
| $b = 0.294331 + 0.866484I$ | | |
| $u = -0.912041 + 0.514968I$ | | |
| $a = 0.115179 + 0.552687I$ | $-0.30488 - 4.84109I$ | $-4.36837 + 6.37981I$ |
| $b = 0.294331 - 0.866484I$ | | |
| $u = -0.113113 + 0.821783I$ | | |
| $a = 0.178349 - 0.198297I$ | $3.49387 + 4.79919I$ | $-3.30190 - 3.09464I$ |
| $b = 2.31356 + 0.53738I$ | | |
| $u = -0.113113 - 0.821783I$ | | |
| $a = 0.178349 + 0.198297I$ | $3.49387 - 4.79919I$ | $-3.30190 + 3.09464I$ |
| $b = 2.31356 - 0.53738I$ | | |
| $u = 1.174856 - 0.481002I$ | | |
| $a = 0.399661 - 0.784013I$ | $0.72067 - 6.27316I$ | $-3.89985 + 6.54347I$ |
| $b = 0.63216 + 1.30454I$ | | |
| $u = 1.174856 + 0.481002I$ | | |
| $a = 0.399661 + 0.784013I$ | $0.72067 + 6.27316I$ | $-3.89985 - 6.54347I$ |
| $b = 0.63216 - 1.30454I$ | | |
| $u = 1.06181$ | | |
| $a = 0.611216 - 0.241257I$ | 3.24334 | 1.89977 |
| $b = -0.039806 + 0.803469I$ | | |
| $u = 1.06181$ | | |
| $a = 0.611216 + 0.241257I$ | 3.24334 | 1.89977 |
| $b = -0.039806 - 0.803469I$ | | |
| $u = -0.529602 + 0.535861I$ | | |
| $a = 1.034116 - 0.417869I$ | $-1.34713 + 0.58469I$ | $-6.79795 - 0.00910I$ |
| $b = -0.287591 + 0.295909I$ | | |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|------------------------|
| $u = -0.529602 - 0.535861I$ $a = 1.034116 + 0.417869I$ $b = -0.287591 - 0.295909I$ | $-1.34713 - 0.58469I$ | $-6.79795 + 0.00910I$ |
| $u = -1.205802 - 0.505812I$ $a = 1.16295 - 1.62336I$ $b = -1.55264 + 0.04516I$ | $6.73027 + 9.64430I$ | $-0.34532 - 6.20543I$ |
| $u = -1.205802 + 0.505812I$ $a = 1.16295 + 1.62336I$ $b = -1.55264 - 0.04516I$ | $6.73027 - 9.64430I$ | $-0.34532 + 6.20543I$ |
| $u = 1.224932 + 0.393654I$ $a = 1.99737 - 0.23404I$ $b = -1.59984 - 0.59256I$ | $7.52808 - 0.63661I$ | $0.960350 - 0.169887I$ |
| $u = 1.224932 - 0.393654I$ $a = 1.99737 + 0.23404I$ $b = -1.59984 + 0.59256I$ | $7.52808 + 0.63661I$ | $0.960350 + 0.169887I$ |
| $u = -1.170971 - 0.421653I$ $a = 2.15438 - 2.89328I$ $b = -2.72493 + 0.53367I$ | $1.14846 + 2.14390I$ | $-2.54408 - 0.24308I$ |
| $u = -1.170971 + 0.421653I$ $a = 2.15438 + 2.89328I$ $b = -2.72493 - 0.53367I$ | $1.14846 - 2.14390I$ | $-2.54408 + 0.24308I$ |
| $u = -0.733657$ $a = 2.75348$ $b = -0.948664$ | -2.31303 | -1.06121 |
| $u = 1.174856 + 0.481002I$ $a = 3.78104 - 0.94627I$ $b = -2.83700 - 1.55715I$ | $0.72067 + 6.27316I$ | $-3.89985 - 6.54347I$ |
| $u = 1.174856 - 0.481002I$ $a = 3.78104 + 0.94627I$ $b = -2.83700 + 1.55715I$ | $0.72067 - 6.27316I$ | $-3.89985 + 6.54347I$ |

III.

$$I_3^u = \langle u^{28} - 3u^{27} + \dots - 6u + 2, u^{27} - 2u^{26} + \dots + b - 1, 3u^{27} - 7u^{26} + \dots + 2a - 6 \rangle$$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{3}{2}u^{27} + \frac{7}{2}u^{26} + \dots - 7u + 3 \\ -u^{27} + 2u^{26} + \dots - 3u + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{5}{2}u^{27} + \frac{11}{2}u^{26} + \dots - 11u + 5 \\ -u^{27} + 2u^{26} + \dots - 4u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{3}{2}u^{27} - \frac{7}{2}u^{26} + \dots + 7u - 2 \\ u^{27} - 2u^{26} + \dots + 4u - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^6 - u^4 + 1 \\ -u^8 + 2u^6 - 2u^4 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{3}{2}u^{27} - \frac{7}{2}u^{26} + \dots + 7u - 3 \\ -u^{27} + 3u^{26} + \dots - 6u + 3 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{3}{2}u^{27} - \frac{7}{2}u^{26} + \dots + 7u - 3 \\ -u^{27} + 3u^{26} + \dots - 6u + 3 \end{pmatrix}$$

(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 |
|-----------------------------|---------------------------------------|-----------------------|
| $u = -1.228580 - 0.361628I$ | | |
| $a = 2.62768 - 1.51215I$ | $5.53046 - 6.50130I$ | $-1.52112 + 3.99395I$ |
| $b = -2.58879 - 0.31537I$ | | |
| $u = -1.228580 + 0.361628I$ | | |
| $a = 2.62768 + 1.51215I$ | $5.53046 + 6.50130I$ | $-1.52112 - 3.99395I$ |
| $b = -2.58879 + 0.31537I$ | | |
| $u = -1.223332 - 0.431243I$ | | |
| $a = -2.33970 + 0.42210I$ | $8.56164 + 5.19775I$ | $1.77174 - 5.54191I$ |
| $b = 1.92502 + 0.80574I$ | | |
| $u = -1.223332 + 0.431243I$ | | |
| $a = -2.33970 - 0.42210I$ | $8.56164 - 5.19775I$ | $1.77174 + 5.54191I$ |
| $b = 1.92502 - 0.80574I$ | | |
| $u = -1.099793 - 0.120657I$ | | |
| $a = -0.532724 - 0.401103I$ | $2.55286 + 5.06128I$ | $-0.17487 - 6.03485I$ |
| $b = -0.005640 + 1.109385I$ | | |
| $u = -1.099793 + 0.120657I$ | | |
| $a = -0.532724 + 0.401103I$ | $2.55286 - 5.06128I$ | $-0.17487 + 6.03485I$ |
| $b = -0.005640 - 1.109385I$ | | |
| $u = -1.050727 - 0.482260I$ | | |
| $a = -0.140252 - 0.915626I$ | $0.63188 + 4.55606I$ | $-2.14668 - 8.40653I$ |
| $b = -0.342807 + 0.836676I$ | | |
| $u = -1.050727 + 0.482260I$ | | |
| $a = -0.140252 + 0.915626I$ | $0.63188 - 4.55606I$ | $-2.14668 + 8.40653I$ |
| $b = -0.342807 - 0.836676I$ | | |
| $u = -0.406338 - 0.510758I$ | | |
| $a = 0.582815 - 0.122303I$ | $-1.214540 - 0.443734I$ | $-7.11648 + 2.03107I$ |
| $b = -0.427395 - 0.311632I$ | | |
| $u = -0.406338 + 0.510758I$ | | |
| $a = 0.582815 + 0.122303I$ | $-1.214540 + 0.443734I$ | $-7.11648 - 2.03107I$ |
| $b = -0.427395 + 0.311632I$ | | |

| Solution to I_3^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-----------------------|
| $u = 0.045051 - 0.816095I$ $a = 0.091775 + 0.288319I$ $b = 1.61963 - 0.44250I$ | $4.78070 - 0.80383I$ | $-1.62038 + 2.30991I$ |
| $u = 0.045051 + 0.816095I$ $a = 0.091775 - 0.288319I$ $b = 1.61963 + 0.44250I$ | $4.78070 + 0.80383I$ | $-1.62038 - 2.30991I$ |
| $u = 0.158971 - 0.833066I$ $a = -0.205793 + 0.177423I$ $b = -2.47433 - 0.44294I$ | $1.27438 + 10.50480I$ | $-6.28570 - 6.88896I$ |
| $u = 0.158971 + 0.833066I$ $a = -0.205793 - 0.177423I$ $b = -2.47433 + 0.44294I$ | $1.27438 - 10.50480I$ | $-6.28570 + 6.88896I$ |
| $u = 0.362452 - 0.684626I$ $a = -0.227109 - 0.919448I$ $b = 0.557642 - 0.629249I$ | $-1.97520 - 3.04297I$ | $-7.88705 + 5.30670I$ |
| $u = 0.362452 + 0.684626I$ $a = -0.227109 + 0.919448I$ $b = 0.557642 + 0.629249I$ | $-1.97520 + 3.04297I$ | $-7.88705 - 5.30670I$ |
| $u = 0.644981 - 0.626187I$ $a = -0.911471 + 1.005799I$ $b = 0.009834 - 0.225347I$ | $-3.15613 + 4.86238I$ | $-9.07167 - 4.07725I$ |
| $u = 0.644981 + 0.626187I$ $a = -0.911471 - 1.005799I$ $b = 0.009834 + 0.225347I$ | $-3.15613 - 4.86238I$ | $-9.07167 + 4.07725I$ |
| $u = 0.879043 - 0.588894I$ $a = -0.243334 - 0.488622I$ $b = -0.603717 + 0.647101I$ | $-2.48501 - 9.60327I$ | $-7.71691 + 9.77284I$ |
| $u = 0.879043 + 0.588894I$ $a = -0.243334 + 0.488622I$ $b = -0.603717 - 0.647101I$ | $-2.48501 + 9.60327I$ | $-7.71691 - 9.77284I$ |

| Solution to I_3^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-----------------------|
| $u = 0.921184 - 0.300728I$ $a = 0.574043 - 0.355199I$ $b = 0.236346 + 0.064535I$ | $1.56197 - 1.13269I$ | $1.72628 + 0.97911I$ |
| $u = 0.921184 + 0.300728I$ $a = 0.574043 + 0.355199I$ $b = 0.236346 - 0.064535I$ | $1.56197 + 1.13269I$ | $1.72628 - 0.97911I$ |
| $u = 1.083613 - 0.529736I$ $a = 0.374964 - 0.825613I$ $b = 0.720684 + 0.934181I$ | $0.11867 - 1.62470I$ | $-4.25246 - 1.50082I$ |
| $u = 1.083613 + 0.529736I$ $a = 0.374964 + 0.825613I$ $b = 0.720684 - 0.934181I$ | $0.11867 + 1.62470I$ | $-4.25246 + 1.50082I$ |
| $u = 1.200185 - 0.525957I$ $a = 2.75831 + 1.83675I$ $b = -2.96661 + 0.68785I$ | $4.3694 - 15.4841I$ | $-3.32553 + 9.90334I$ |
| $u = 1.200185 + 0.525957I$ $a = 2.75831 - 1.83675I$ $b = -2.96661 - 0.68785I$ | $4.3694 + 15.4841I$ | $-3.32553 - 9.90334I$ |
| $u = 1.213290 - 0.476726I$ $a = -1.40920 - 1.79103I$ $b = 1.84013 + 0.08274I$ | $8.23527 - 3.85685I$ | $1.62083 + 1.19155I$ |
| $u = 1.213290 + 0.476726I$ $a = -1.40920 + 1.79103I$ $b = 1.84013 - 0.08274I$ | $8.23527 + 3.85685I$ | $1.62083 - 1.19155I$ |

$$\text{IV. } I_1^v = \langle v + 1, b + 1, a \rangle$$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

$$a_2 = \begin{pmatrix} 2 \\ -1 \end{pmatrix}$$

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

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

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

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

(ii) Obstruction class = 1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

| Solution to I_1^v | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---------------------|---------------------------------------|------------|
| $v = -1.00000$ | | |
| $a = 0$ | -3.28987 | -12.0000 |
| $b = -1.00000$ | | |

V. u-Polynomials

| Crossings | u-Polynomials at each crossings |
|---------------|---|
| c_1, c_6 | $(u-1)(u+1)^4(u^{28} + u^{27} + \dots - 5u^2 + 1)(u^{40} + u^{39} + \dots - 8u - 5)$ |
| c_2, c_{11} | $(u+1)^5(u^{28} + 11u^{27} + \dots + 10u + 1)(u^{40} + 21u^{39} + \dots + 224u + 25)$ |
| c_3, c_8 | $u(u^4 - 2u^2 + 2)$ $(-1 + 2u - u^2 - u^3 + 3u^4 - 4u^5 + 10u^7 - 9u^8 - 4u^9 + 13u^{10} - 13u^{11} - 2u^{12} + 22u^{13} - 10u^{14})$ $(u^{28} + 3u^{27} + \dots + 6u + 2)$ |
| c_4, c_7 | $u(u^4 + 2u^2 + 2)$ $(1 - 12u + 41u^2 - 59u^3 + 63u^4 - 40u^5 - 8u^6 + 38u^7 - 29u^8 - 20u^9 + 105u^{10} - 173u^{11} + 212u^{12})$ $(u^{28} + 9u^{27} + \dots + 118u + 14)$ |
| c_5, c_{10} | $(u-1)^4(u+1)(u^{28} + u^{27} + \dots - 5u^2 + 1)(u^{40} + u^{39} + \dots - 8u - 5)$ |
| c_9 | $u(u^2 - 2u + 2)^2$ $(1 + 2u - u^2 - 9u^3 - 21u^4 - 12u^5 + 48u^6 + 144u^7 + 151u^8 - 58u^9 - 377u^{10} - 469u^{11} - 132u^{12})$ $(u^{28} + 15u^{27} + \dots + 4u + 4)$ |

VI. Riley Polynomials

| Crossings | Riley Polynomials at each crossings |
|-----------------------------|---|
| c_1, c_5, c_6 c_{10} | $(y - 1)^5(y^{28} - 11y^{27} + \dots - 10y + 1)(y^{40} - 21y^{39} + \dots - 224y + 25)$ |
| c_2, c_{11} | $(y - 1)^5(y^{28} + 21y^{27} + \dots - 6y + 1)(y^{40} - 5y^{39} + \dots + 10824y + 625)$ |
| c_3, c_8 | $y(y^2 - 2y + 2)^2$ $(1 - 2y - y^2 + 9y^3 - 21y^4 + 12y^5 + 48y^6 - 144y^7 + 151y^8 + 58y^9 - 377y^{10} + 469y^{11} - 132y^{12} + \dots - 4y + 4)$ |
| c_4, c_7 | $y(y^2 + 2y + 2)^2$ $(1 - 62y + 391y^2 + 709y^3 - 553y^4 - 772y^5 + 1972y^6 + 3148y^7 + 987y^8 + 106y^9 + 1787y^{10} + \dots + 2092y + 196)$ |
| c_9 | $y(y^2 + 4)^2$ $(1 - 6y - 5y^2 + 105y^3 - 145y^4 - 392y^5 + 740y^6 - 120y^7 + 1595y^8 - 5374y^9 + 2671y^{10} - 405y^{11} + \dots + 112y + 16)$ |