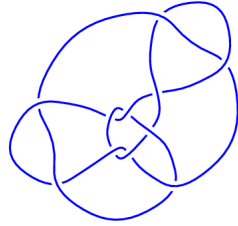
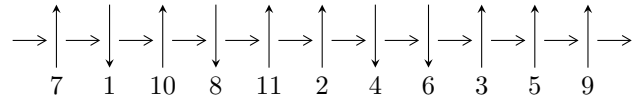


11a₂₁₇ (K11a₂₁₇)

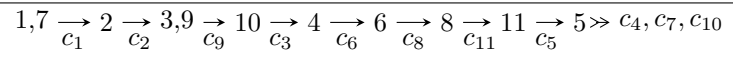


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = \bigcap_{i=1}^2 I_i^u$$

$$I_1^u = \langle u^{19} + 6u^{17} + \dots + 2u - 1, -u^{18} + u^{17} + \dots + b - 1, 2u^{18} - 3u^{17} + \dots + a + 7 \rangle$$

$$I_2^u = \langle u^{88} + u^{87} + \dots - 15u - 9, 1.17366 \times 10^{130}u^{87} - 2.47035 \times 10^{130}u^{86} + \dots + 1.30550 \times 10^{131}b + 1.73562 \times 10^{131}a - 1.20844 \times 10^{131}u^{87} - 1.95249 \times 10^{131}u^{86} + \dots + 3.91650 \times 10^{131}a + 2.77458 \times 10^{132} \rangle$$

There are 2 irreducible components with 107 representations.

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

$$I_1^u = \langle u^{19} + 6u^{17} + \dots + 2u - 1, -u^{18} + u^{17} + \dots + b - 1, 2u^{18} - 3u^{17} + \dots + a + 7 \rangle$$

I.

(i) Arc colorings

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

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_9 = \begin{pmatrix} -2u^{18} + 3u^{17} + \dots + 16u - 7 \\ u^{18} - u^{17} + \dots + 4u^2 + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2u^{18} + 2u^{17} + \dots + 13u - 5 \\ u^{18} - u^{17} + \dots - 2u + 2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 3u^{18} + 16u^{16} + \dots - 5u + 2 \\ u^{18} + u^{17} + \dots - u^2 - 1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -2u^{18} + 3u^{17} + \dots + 13u - 6 \\ u^{18} + 5u^{16} + \dots - 2u^2 + 3u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2u^{18} + u^{17} + \dots + 5u - 5 \\ -u^{18} - u^{17} + \dots + 5u^2 + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 4u^{18} + u^{17} + \dots - 4u^2 - 4 \\ -u^{18} - 2u^{17} + \dots - 2u + 2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 4u^{18} + u^{17} + \dots - 4u^2 - 4 \\ -u^{18} - 2u^{17} + \dots - 2u + 2 \end{pmatrix}$$

(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 |
|---|---------------------------------------|-----------------------|
| $u = -0.769769 - 0.810412I$ $a = -0.639951 + 0.518424I$ $b = 0.811253 - 0.714824I$ | $3.17953 - 1.36019I$ | $3.92371 + 4.81231I$ |
| $u = -0.769769 + 0.810412I$ $a = -0.639951 - 0.518424I$ $b = 0.811253 + 0.714824I$ | $3.17953 + 1.36019I$ | $3.92371 - 4.81231I$ |
| $u = -0.706602 - 0.910457I$ $a = -1.67700 + 0.51030I$ $b = 0.753084 + 1.044951I$ | $2.86959 + 6.94689I$ | $4.90485 - 11.31459I$ |
| $u = -0.706602 + 0.910457I$ $a = -1.67700 - 0.51030I$ $b = 0.753084 - 1.044951I$ | $2.86959 - 6.94689I$ | $4.90485 + 11.31459I$ |
| $u = -0.300339 - 1.028097I$ $a = -0.710824 - 0.912612I$ $b = -0.164956 + 1.062829I$ | $-0.80374 + 5.96566I$ | $2.56814 - 7.23829I$ |
| $u = -0.300339 + 1.028097I$ $a = -0.710824 + 0.912612I$ $b = -0.164956 - 1.062829I$ | $-0.80374 - 5.96566I$ | $2.56814 + 7.23829I$ |
| $u = -0.273008 - 0.799953I$ $a = 2.28416 - 0.16634I$ $b = 0.142356 - 1.370337I$ | $0.06532 - 3.52454I$ | $1.23723 + 4.17495I$ |
| $u = -0.273008 + 0.799953I$ $a = 2.28416 + 0.16634I$ $b = 0.142356 + 1.370337I$ | $0.06532 + 3.52454I$ | $1.23723 - 4.17495I$ |
| $u = -0.029408 - 1.410933I$ $a = 0.338962 - 0.132093I$ $b = 0.319721 + 0.077815I$ | $-4.90569 - 0.94743I$ | $-3.91857 - 6.41242I$ |
| $u = -0.029408 + 1.410933I$ $a = 0.338962 + 0.132093I$ $b = 0.319721 - 0.077815I$ | $-4.90569 + 0.94743I$ | $-3.91857 + 6.41242I$ |

| Solution to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|------------------------|
| $u = 0.181011 - 0.621059I$ $a = -1.96932 - 1.56059I$ $b = 0.890170 - 0.697260I$ | $-0.988482 + 0.416067I$ | $1.322447 - 0.053453I$ |
| $u = 0.181011 + 0.621059I$ $a = -1.96932 + 1.56059I$ $b = 0.890170 + 0.697260I$ | $-0.988482 - 0.416067I$ | $1.322447 + 0.053453I$ |
| $u = 0.448828 - 1.089752I$ $a = -0.38006 - 1.45167I$ $b = 1.72088 + 0.46919I$ | $-3.15207 - 3.62872I$ | $-4.99993 + 0.96458I$ |
| $u = 0.448828 + 1.089752I$ $a = -0.38006 + 1.45167I$ $b = 1.72088 - 0.46919I$ | $-3.15207 + 3.62872I$ | $-4.99993 - 0.96458I$ |
| $u = 0.549531$ $a = -2.17935$ $b = 1.13686$ | -0.464251 | 1.57296 |
| $u = 0.562434 - 0.668186I$ $a = 1.08875 - 1.00323I$ $b = -0.926740 - 0.221997I$ | $6.76547 - 0.96312I$ | $8.25509 - 3.80362I$ |
| $u = 0.562434 + 0.668186I$ $a = 1.08875 + 1.00323I$ $b = -0.926740 + 0.221997I$ | $6.76547 + 0.96312I$ | $8.25509 + 3.80362I$ |
| $u = 0.612086 - 1.067955I$ $a = 0.254962 + 1.118405I$ $b = -0.614195 + 0.372988I$ | $5.42685 - 3.75788I$ | $2.42054 + 2.81140I$ |
| $u = 0.612086 + 1.067955I$ $a = 0.254962 - 1.118405I$ $b = -0.614195 - 0.372988I$ | $5.42685 + 3.75788I$ | $2.42054 - 2.81140I$ |

$$\text{II. } I_2^u = \langle u^{88} + u^{87} + \dots - 15u - 9, 1.17 \times 10^{130}u^{87} - 2.47 \times 10^{130}u^{86} + \dots + 1.31 \times 10^{131}b + 1.74 \times 10^{131}, -1.21 \times 10^{131}u^{87} - 1.95 \times 10^{131}u^{86} + \dots + 3.92 \times 10^{131}a + 2.77 \times 10^{132} \rangle$$

(i) Arc colorings

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

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_9 = \begin{pmatrix} 0.308550u^{87} + 0.498528u^{86} + \dots + 7.54550u - 7.08434 \\ -0.0899012u^{87} + 0.189226u^{86} + \dots - 2.55127u - 1.32947 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.386032u^{87} - 0.283155u^{86} + \dots + 12.0176u - 0.729770 \\ -0.256563u^{87} + 0.494342u^{86} + \dots - 0.570209u - 4.79156 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.317057u^{87} - 0.164745u^{86} + \dots - 15.3332u + 2.84818 \\ -0.127635u^{87} + 0.423062u^{86} + \dots + 4.82042u - 0.610035 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -0.244942u^{87} - 0.153358u^{86} + \dots + 12.6279u - 2.44254 \\ -0.265588u^{87} + 0.498825u^{86} + \dots - 1.17630u - 5.08573 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.728320u^{87} - 0.445892u^{86} + \dots + 23.4775u + 5.97101 \\ 0.299986u^{87} + 0.213630u^{86} + \dots - 6.17882u - 4.63479 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.566401u^{87} + 0.182126u^{86} + \dots + 13.2863u + 1.44734 \\ 0.921798u^{87} + 0.106995u^{86} + \dots - 9.79027u - 4.16570 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.566401u^{87} + 0.182126u^{86} + \dots + 13.2863u + 1.44734 \\ 0.921798u^{87} + 0.106995u^{86} + \dots - 9.79027u - 4.16570 \end{pmatrix}$$

(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 |
|--|---------------------------------------|-----------------------|
| $u = -0.954150 - 0.504375I$ $a = 1.27641 - 0.78432I$ $b = -1.41629 + 0.70913I$ | $6.30173 - 11.20678I$ | $7.14379 + 5.74414I$ |
| $u = -0.954150 + 0.504375I$ $a = 1.27641 + 0.78432I$ $b = -1.41629 - 0.70913I$ | $6.30173 + 11.20678I$ | $7.14379 - 5.74414I$ |
| $u = -0.864107 - 0.670402I$ $a = -0.795663 + 0.661817I$ $b = 1.117808 - 0.571773I$ | $3.99640 - 0.52623I$ | $7.63226 - 0.55265I$ |
| $u = -0.864107 + 0.670402I$ $a = -0.795663 - 0.661817I$ $b = 1.117808 + 0.571773I$ | $3.99640 + 0.52623I$ | $7.63226 + 0.55265I$ |
| $u = -0.825409 - 0.389965I$ $a = 0.744459 + 0.263975I$ $b = -1.099570 + 0.053538I$ | $8.37441 + 1.00046I$ | $11.77868 + 0.61417I$ |
| $u = -0.825409 + 0.389965I$ $a = 0.744459 - 0.263975I$ $b = -1.099570 - 0.053538I$ | $8.37441 - 1.00046I$ | $11.77868 - 0.61417I$ |
| $u = -0.743273 - 0.736993I$ $a = -0.943024 + 0.750996I$ $b = 1.073517 - 0.651963I$ | $3.60538 - 0.57994I$ | $9.28515 - 2.16318I$ |
| $u = -0.743273 + 0.736993I$ $a = -0.943024 - 0.750996I$ $b = 1.073517 + 0.651963I$ | $3.60538 + 0.57994I$ | $9.28515 + 2.16318I$ |
| $u = -0.737322$ $a = 2.19967$ $b = -1.48738$ | 0.805893 | 8.65374 |
| $u = -0.699704 - 1.136127I$ $a = 1.52044 - 0.94432I$ $b = -1.47465 - 0.92567I$ | $4.3565 + 17.2462I$ | $4.80393 - 9.55844I$ |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-----------------------|
| $u = -0.699704 + 1.136127I$ $a = 1.52044 + 0.94432I$ $b = -1.47465 + 0.92567I$ | $4.3565 - 17.2462I$ | $4.80393 + 9.55844I$ |
| $u = -0.699347 - 0.964380I$ $a = -1.65613 + 0.72307I$ $b = 1.011393 + 0.874674I$ | $2.91455 + 6.08125I$ | $5.36639 - 3.03339I$ |
| $u = -0.699347 + 0.964380I$ $a = -1.65613 - 0.72307I$ $b = 1.011393 - 0.874674I$ | $2.91455 - 6.08125I$ | $5.36639 + 3.03339I$ |
| $u = -0.697556 - 1.017656I$ $a = -1.40280 + 0.71129I$ $b = 1.08357 + 0.92479I$ | $2.90972 + 6.30768I$ | $5.19224 - 4.92036I$ |
| $u = -0.697556 + 1.017656I$ $a = -1.40280 - 0.71129I$ $b = 1.08357 - 0.92479I$ | $2.90972 - 6.30768I$ | $5.19224 + 4.92036I$ |
| $u = -0.672994 - 0.730216I$ $a = -1.10735 + 1.07414I$ $b = 0.991137 - 0.532051I$ | $3.40131 - 0.63657I$ | $8.39886 - 0.08397I$ |
| $u = -0.672994 + 0.730216I$ $a = -1.10735 - 1.07414I$ $b = 0.991137 + 0.532051I$ | $3.40131 + 0.63657I$ | $8.39886 + 0.08397I$ |
| $u = -0.652582 - 0.904482I$ $a = -1.87179 + 0.49715I$ $b = 1.140727 + 0.831300I$ | $2.89016 + 5.77549I$ | $7.27706 - 5.57456I$ |
| $u = -0.652582 + 0.904482I$ $a = -1.87179 - 0.49715I$ $b = 1.140727 - 0.831300I$ | $2.89016 - 5.77549I$ | $7.27706 + 5.57456I$ |
| $u = -0.628107 - 0.256489I$ $a = 1.34336 - 0.46833I$ $b = -0.423109 + 0.347668I$ | $-2.03705 - 1.14331I$ | $-0.66173 + 1.29864I$ |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-----------------------|
| $u = -0.628107 + 0.256489I$ $a = 1.34336 + 0.46833I$ $b = -0.423109 - 0.347668I$ | $-2.03705 + 1.14331I$ | $-0.66173 - 1.29864I$ |
| $u = -0.619798 - 1.190133I$ $a = 0.321227 - 0.830580I$ $b = -0.831881 - 0.388008I$ | $5.93694 + 4.42882I$ | $8.31773 - 8.85486I$ |
| $u = -0.619798 + 1.190133I$ $a = 0.321227 + 0.830580I$ $b = -0.831881 + 0.388008I$ | $5.93694 - 4.42882I$ | $8.31773 + 8.85486I$ |
| $u = -0.570950 - 0.920505I$ $a = 0.35854 - 1.78146I$ $b = -0.648133 - 0.346156I$ | $6.17225 + 2.81909I$ | $7.78995 - 0.82921I$ |
| $u = -0.570950 + 0.920505I$ $a = 0.35854 + 1.78146I$ $b = -0.648133 + 0.346156I$ | $6.17225 - 2.81909I$ | $7.78995 + 0.82921I$ |
| $u = -0.558781 - 0.949859I$ $a = -1.159031 - 0.427247I$ $b = -0.19983 + 2.03307I$ | $0.64622 + 7.81246I$ | $3.25330 - 9.91253I$ |
| $u = -0.558781 + 0.949859I$ $a = -1.159031 + 0.427247I$ $b = -0.19983 - 2.03307I$ | $0.64622 - 7.81246I$ | $3.25330 + 9.91253I$ |
| $u = -0.550712 - 1.074732I$ $a = 1.29204 - 0.62612I$ $b = -0.877930 - 0.444608I$ | $-4.17850 + 5.69977I$ | $-2.78773 - 5.64838I$ |
| $u = -0.550712 + 1.074732I$ $a = 1.29204 + 0.62612I$ $b = -0.877930 + 0.444608I$ | $-4.17850 - 5.69977I$ | $-2.78773 + 5.64838I$ |
| $u = -0.532741 - 0.803423I$ $a = 1.41185 + 0.72781I$ $b = -0.993775 + 0.272407I$ | $6.59048 + 1.60100I$ | $5.07994 - 6.99877I$ |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-----------------------|
| $u = -0.532741 + 0.803423I$ $a = 1.41185 - 0.72781I$ $b = -0.993775 - 0.272407I$ | $6.59048 - 1.60100I$ | $5.07994 + 6.99877I$ |
| $u = -0.521304 - 0.736352I$ $a = 1.41976 + 0.43169I$ $b = 0.29104 - 1.85754I$ | $1.35988 - 3.41417I$ | $6.68348 + 3.62461I$ |
| $u = -0.521304 + 0.736352I$ $a = 1.41976 - 0.43169I$ $b = 0.29104 + 1.85754I$ | $1.35988 + 3.41417I$ | $6.68348 - 3.62461I$ |
| $u = -0.418001 - 1.139751I$ $a = 0.30516 - 1.43036I$ $b = -1.74406 + 0.38088I$ | $-2.54284 + 4.00372I$ | $5.22023 - 5.83857I$ |
| $u = -0.418001 + 1.139751I$ $a = 0.30516 + 1.43036I$ $b = -1.74406 - 0.38088I$ | $-2.54284 - 4.00372I$ | $5.22023 + 5.83857I$ |
| $u = -0.288083 - 0.930672I$ $a = 2.01211 - 0.27156I$ $b = -0.75665 - 1.25554I$ | $-0.95666 - 2.66976I$ | $-0.98053 + 1.57732I$ |
| $u = -0.288083 + 0.930672I$ $a = 2.01211 + 0.27156I$ $b = -0.75665 + 1.25554I$ | $-0.95666 + 2.66976I$ | $-0.98053 - 1.57732I$ |
| $u = -0.235896 - 1.191593I$ $a = 0.047892 + 0.136256I$ $b = -0.292908 + 0.768153I$ | $-6.26061 + 1.83587I$ | $-5.86386 - 2.18855I$ |
| $u = -0.235896 + 1.191593I$ $a = 0.047892 - 0.136256I$ $b = -0.292908 - 0.768153I$ | $-6.26061 - 1.83587I$ | $-5.86386 + 2.18855I$ |
| $u = -0.124814 - 0.274497I$ $a = -3.46331 - 3.55911I$ $b = 0.199334 + 0.805485I$ | $0.79049 + 4.65679I$ | $5.10183 - 7.14957I$ |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|-----------------------------|---------------------------------------|-----------------------|
| $u = -0.124814 + 0.274497I$ | | |
| $a = -3.46331 + 3.55911I$ | $0.79049 - 4.65679I$ | $5.10183 + 7.14957I$ |
| $b = 0.199334 - 0.805485I$ | | |
| $u = 0.008092 - 0.764905I$ | | |
| $a = 1.14418 - 1.17371I$ | $-1.42460 - 1.54545I$ | $-1.14589 + 4.93438I$ |
| $b = 0.210534 - 0.328300I$ | | |
| $u = 0.008092 + 0.764905I$ | | |
| $a = 1.14418 + 1.17371I$ | $-1.42460 + 1.54545I$ | $-1.14589 - 4.93438I$ |
| $b = 0.210534 + 0.328300I$ | | |
| $u = 0.020883 - 1.113766I$ | | |
| $a = -0.786207 + 0.139160I$ | $3.07957 + 2.82800I$ | $5.46919 - 3.00897I$ |
| $b = -0.892118 - 0.756600I$ | | |
| $u = 0.020883 + 1.113766I$ | | |
| $a = -0.786207 - 0.139160I$ | $3.07957 - 2.82800I$ | $5.46919 + 3.00897I$ |
| $b = -0.892118 + 0.756600I$ | | |
| $u = 0.024501 - 1.333543I$ | | |
| $a = -0.231763 + 0.033800I$ | $-0.68113 - 8.56435I$ | $2.72309 + 7.32318I$ |
| $b = -0.900322 + 0.607173I$ | | |
| $u = 0.024501 + 1.333543I$ | | |
| $a = -0.231763 - 0.033800I$ | $-0.68113 + 8.56435I$ | $2.72309 - 7.32318I$ |
| $b = -0.900322 - 0.607173I$ | | |
| $u = 0.068391 - 0.882123I$ | | |
| $a = 0.289943 - 0.967539I$ | $-1.62956 - 1.49672I$ | $-2.18266 + 4.73494I$ |
| $b = 0.361809 - 0.714360I$ | | |
| $u = 0.068391 + 0.882123I$ | | |
| $a = 0.289943 + 0.967539I$ | $-1.62956 + 1.49672I$ | $-2.18266 - 4.73494I$ |
| $b = 0.361809 + 0.714360I$ | | |
| $u = 0.09795 - 1.48857I$ | | |
| $a = 0.198655 - 0.067322I$ | $-4.69267 + 1.22369I$ | $10.6991 - 11.5124I$ |
| $b = 0.552268 + 0.131033I$ | | |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|-----------------------|
| $u = 0.09795 + 1.48857I$ $a = 0.198655 + 0.067322I$ $b = 0.552268 - 0.131033I$ | $-4.69267 - 1.22369I$ | $10.6991 + 11.5124I$ |
| $u = 0.157375 - 1.064389I$ $a = -0.001733 + 0.538652I$ $b = 0.730790 + 0.971384I$ | $-3.08031 + 3.58796I$ | $-1.92784 - 2.31740I$ |
| $u = 0.157375 + 1.064389I$ $a = -0.001733 - 0.538652I$ $b = 0.730790 - 0.971384I$ | $-3.08031 - 3.58796I$ | $-1.92784 + 2.31740I$ |
| $u = 0.396189$ $a = -0.357439$ $b = 0.603577$ | 0.888455 | 11.7577 |
| $u = 0.418994 - 0.851230I$ $a = -1.92662 - 0.69990I$ $b = 1.49127 - 0.27379I$ | $-1.16615 - 0.99172I$ | $1.12131 + 4.43962I$ |
| $u = 0.418994 + 0.851230I$ $a = -1.92662 + 0.69990I$ $b = 1.49127 + 0.27379I$ | $-1.16615 + 0.99172I$ | $1.12131 - 4.43962I$ |
| $u = 0.424583 - 0.989136I$ $a = -0.85380 - 1.41030I$ $b = 1.229642 - 0.518489I$ | $-1.60218 - 2.32473I$ | $0.92722 + 2.16726I$ |
| $u = 0.424583 + 0.989136I$ $a = -0.85380 + 1.41030I$ $b = 1.229642 + 0.518489I$ | $-1.60218 + 2.32473I$ | $0.92722 - 2.16726I$ |
| $u = 0.452174 - 1.105957I$ $a = 0.538003 - 0.865414I$ $b = 0.776965 + 0.935888I$ | $-1.27582 - 4.49844I$ | $2.70860 + 2.74584I$ |
| $u = 0.452174 + 1.105957I$ $a = 0.538003 + 0.865414I$ $b = 0.776965 - 0.935888I$ | $-1.27582 + 4.49844I$ | $2.70860 - 2.74584I$ |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|----------------------|
| $u = 0.525827 - 0.813502I$ $a = -1.17367 - 0.85281I$ $b = 0.498338 - 1.251821I$ | $-0.090444 - 1.045917I$ | $2.78656 + 3.65409I$ |
| $u = 0.525827 + 0.813502I$ $a = -1.17367 + 0.85281I$ $b = 0.498338 + 1.251821I$ | $-0.090444 + 1.045917I$ | $2.78656 - 3.65409I$ |
| $u = 0.539664 - 0.896196I$ $a = -0.042642 - 0.542138I$ $b = 1.06395 + 1.25945I$ | $-0.37079 - 3.25945I$ | $2.22481 + 3.20776I$ |
| $u = 0.539664 + 0.896196I$ $a = -0.042642 + 0.542138I$ $b = 1.06395 - 1.25945I$ | $-0.37079 + 3.25945I$ | $2.22481 - 3.20776I$ |
| $u = 0.549677 - 0.855702I$ $a = 1.280459 + 0.488061I$ $b = -0.644430 + 0.292848I$ | $0.34598 - 2.20232I$ | $2.36125 + 3.21360I$ |
| $u = 0.549677 + 0.855702I$ $a = 1.280459 - 0.488061I$ $b = -0.644430 - 0.292848I$ | $0.34598 + 2.20232I$ | $2.36125 - 3.21360I$ |
| $u = 0.603081 - 0.191254I$ $a = -1.061455 + 0.858322I$ $b = 0.699506 - 0.668876I$ | $1.312401 + 0.427135I$ | $7.68860 - 0.03322I$ |
| $u = 0.603081 + 0.191254I$ $a = -1.061455 - 0.858322I$ $b = 0.699506 + 0.668876I$ | $1.312401 - 0.427135I$ | $7.68860 + 0.03322I$ |
| $u = 0.603972 - 1.028596I$ $a = -2.00103 - 0.72468I$ $b = 1.041578 - 0.628310I$ | $-0.23970 - 9.99743I$ | $3.22834 + 9.09967I$ |
| $u = 0.603972 + 1.028596I$ $a = -2.00103 + 0.72468I$ $b = 1.041578 + 0.628310I$ | $-0.23970 + 9.99743I$ | $3.22834 - 9.09967I$ |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|----------------------|
| $u = 0.617819 - 0.541637I$ $a = -1.94871 - 1.12700I$ $b = 0.745025 + 0.523421I$ | $1.17276 + 5.12018I$ | $5.98234 - 4.87453I$ |
| $u = 0.617819 + 0.541637I$ $a = -1.94871 + 1.12700I$ $b = 0.745025 - 0.523421I$ | $1.17276 - 5.12018I$ | $5.98234 + 4.87453I$ |
| $u = 0.655494 - 1.088189I$ $a = 1.60130 + 1.13359I$ $b = -1.73234 + 0.92925I$ | $7.17217 - 10.01928I$ | $7.20832 + 7.44112I$ |
| $u = 0.655494 + 1.088189I$ $a = 1.60130 - 1.13359I$ $b = -1.73234 - 0.92925I$ | $7.17217 + 10.01928I$ | $7.20832 - 7.44112I$ |
| $u = 0.702911 - 1.150829I$ $a = -1.147343 - 0.666605I$ $b = 1.10356 - 0.88760I$ | $0.29144 - 10.89834I$ | $2.26604 + 8.03376I$ |
| $u = 0.702911 + 1.150829I$ $a = -1.147343 + 0.666605I$ $b = 1.10356 + 0.88760I$ | $0.29144 + 10.89834I$ | $2.26604 - 8.03376I$ |
| $u = 0.711121 - 0.909996I$ $a = 1.12820 + 1.52674I$ $b = -0.681383 + 0.228321I$ | $4.78905 - 6.64535I$ | $8.75073 + 7.16776I$ |
| $u = 0.711121 + 0.909996I$ $a = 1.12820 - 1.52674I$ $b = -0.681383 - 0.228321I$ | $4.78905 + 6.64535I$ | $8.75073 - 7.16776I$ |
| $u = 0.748244 - 0.800032I$ $a = 1.42273 - 0.31582I$ $b = -0.926866 - 0.143704I$ | $5.12945 + 1.10437I$ | $8.93126 - 1.09679I$ |
| $u = 0.748244 + 0.800032I$ $a = 1.42273 + 0.31582I$ $b = -0.926866 + 0.143704I$ | $5.12945 - 1.10437I$ | $8.93126 + 1.09679I$ |

| Solution to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|-----------------------------|---------------------------------------|----------------------|
| $u = 0.782309 - 1.124415I$ | | |
| $a = 0.659480 + 0.750725I$ | $4.85892 - 0.75021I$ | $7.24105 - 0.32913I$ |
| $b = -0.859534 + 0.291051I$ | | |
| $u = 0.782309 + 1.124415I$ | | |
| $a = 0.659480 - 0.750725I$ | $4.85892 + 0.75021I$ | $7.24105 + 0.32913I$ |
| $b = -0.859534 - 0.291051I$ | | |
| $u = 0.828880 - 0.513872I$ | | |
| $a = 1.43498 + 1.02467I$ | $8.90367 + 4.46822I$ | $9.93176 - 2.41041I$ |
| $b = -1.62216 - 0.64715I$ | | |
| $u = 0.828880 + 0.513872I$ | | |
| $a = 1.43498 - 1.02467I$ | $8.90367 - 4.46822I$ | $9.93176 + 2.41041I$ |
| $b = -1.62216 + 0.64715I$ | | |
| $u = 0.987316 - 0.473726I$ | | |
| $a = -0.821517 - 0.527676I$ | $2.36912 + 4.77643I$ | $5.52433 - 4.74023I$ |
| $b = 1.091215 + 0.562324I$ | | |
| $u = 0.987316 + 0.473726I$ | | |
| $a = -0.821517 + 0.527676I$ | $2.36912 - 4.77643I$ | $5.52433 + 4.74023I$ |
| $b = 1.091215 - 0.562324I$ | | |
| $u = 0.999619 - 0.565212I$ | | |
| $a = 0.889970 - 0.066196I$ | $6.55539 - 5.69360I$ | $8.74582 + 5.57593I$ |
| $b = -1.045116 - 0.006616I$ | | |
| $u = 0.999619 + 0.565212I$ | | |
| $a = 0.889970 + 0.066196I$ | $6.55539 + 5.69360I$ | $8.74582 - 5.57593I$ |
| $b = -1.045116 + 0.006616I$ | | |

III. u-Polynomials

| Crossings | u-Polynomials at each crossings |
|-----------|--|
| c_1 | $(u^{19} + 6u^{17} + \dots + 2u - 1)(u^{88} + u^{87} + \dots - 15u - 9)$ |
| c_2 | $(u^{19} + 12u^{18} + \dots - 8u - 1)(u^{88} + 39u^{87} + \dots + 1917u + 81)$ |
| c_3 | $(u^{19} + u^{18} + \dots - u - 1)(u^{88} + 2u^{87} + \dots + 1806u - 5669)$ |
| c_4 | $(u^{19} + u^{18} + \dots - u - 1)(u^{88} + 2u^{87} + \dots - 4u - 1)$ |
| c_5 | $(u^{19} - 6u^{17} + \dots + 2u - 1)(u^{88} + u^{87} + \dots + 369u + 73)$ |
| c_6 | $(u^{19} + 6u^{17} + \dots + 2u + 1)(u^{88} + u^{87} + \dots - 15u - 9)$ |
| c_7 | $(u^{19} - u^{18} + \dots - u + 1)(u^{88} + 2u^{87} + \dots - 4u - 1)$ |
| c_8 | $(u^{19} + 3u^{18} + \dots - 5u + 1)(u^{88} + 2u^{87} + \dots - 116u - 29)$ |
| c_9 | $(u^{19} - u^{18} + \dots - u + 1)(u^{88} + 2u^{87} + \dots + 1806u - 5669)$ |
| c_{10} | $(u^{19} - 6u^{17} + \dots + 2u + 1)(u^{88} + u^{87} + \dots + 369u + 73)$ |
| c_{11} | $(u^{19} - 7u^{18} + \dots + 7u - 1)(u^{88} + 4u^{87} + \dots - 84596u - 23303)$ |

IV. Riley Polynomials

| Crossings | Riley Polynomials at each crossings |
|------------|--|
| c_1, c_6 | $(y^{19} + 12y^{18} + \dots - 8y - 1)(y^{88} + 39y^{87} + \dots + 1917y + 81)$ |
| c_2 | $(y^{19} - 12y^{17} + \dots + 12y - 1)(y^{88} + 31y^{87} + \dots + 1377y + 6561)$ |
| c_3 | $(y^{19} - 19y^{18} + \dots + 15y - 1)$ $(y^{88} - 68y^{87} + \dots - 295181122y + 32137561)$ |
| c_4 | $(y^{19} - 15y^{18} + \dots + 19y - 1)(y^{88} - 48y^{87} + \dots - 78y + 1)$ |
| c_5 | $(y^{19} - 12y^{18} + \dots + 20y - 1)(y^{88} - 57y^{87} + \dots - 140103y + 5329)$ |
| c_7 | $(y^{19} - 15y^{18} + \dots + 19y - 1)(y^{88} - 48y^{87} + \dots - 78y + 1)$ |
| c_8 | $(y^{19} - 3y^{18} + \dots + 21y - 1)(y^{88} + 8y^{87} + \dots - 160080y + 841)$ |
| c_9 | $(y^{19} - 19y^{18} + \dots + 15y - 1)$ $(y^{88} - 68y^{87} + \dots - 295181122y + 32137561)$ |
| c_{10} | $(y^{19} - 12y^{18} + \dots + 20y - 1)(y^{88} - 57y^{87} + \dots - 140103y + 5329)$ |
| c_{11} | $(y^{19} - 3y^{18} + \dots + 19y - 1)$ $(y^{88} - 32y^{87} + \dots - 13342637414y + 543029809)$ |