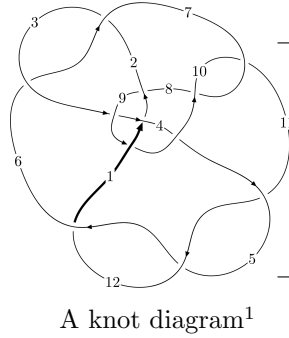
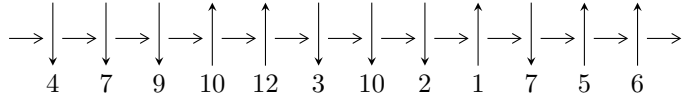


12n₀₈₅₂ (K12n₀₈₅₂)



Linearized knot diagram



Solving Sequence

$$1,4 \xrightarrow{c_1} 2,9 \xrightarrow{c_9} 10 \xrightarrow{c_4} 5 \xrightarrow{c_3} 3 \xrightarrow{c_8} 8 \xrightarrow{c_7} 7 \xrightarrow{c_{10}} 11 \xrightarrow{c_6} 6 \xrightarrow{c_{12}} 12 \rightsquigarrow c_2, c_5, c_{11}$$

Ideals for irreducible components² of X_{par}

$$I_1^u = \langle 3.07370 \times 10^{309} u^{88} + 7.02933 \times 10^{309} u^{87} + \dots + 4.88148 \times 10^{305} b - 4.73335 \times 10^{310}, \\ - 5.19770 \times 10^{310} u^{88} - 1.16472 \times 10^{311} u^{87} + \dots + 9.12837 \times 10^{307} a + 6.31502 \times 10^{311}, \\ u^{89} + 3u^{88} + \dots - 128u - 11 \rangle$$

$$I_2^u = \langle 5.39113 \times 10^{24} u^{26} - 2.77278 \times 10^{25} u^{25} + \dots + 3.88238 \times 10^{24} b + 3.65850 \times 10^{25}, \\ 3.40177 \times 10^{25} u^{26} - 1.13953 \times 10^{26} u^{25} + \dots + 3.88238 \times 10^{24} a + 4.53762 \times 10^{25}, u^{27} - 4u^{26} + \dots + 7u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 116 representations.

¹The image of knot diagram is generated by the software “**Draw programme**” developed by Andrew Bartholomew(<http://www.layer8.co.uk/maths/draw/index.htm#Running-draw>), where we modified some parts for our purpose(<https://github.com/CATsTAILs/LinksPainter>).

²All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

$$\mathbf{I. } I_1^u = \langle 3.07 \times 10^{309} u^{88} + 7.03 \times 10^{309} u^{87} + \dots + 4.88 \times 10^{305} b - 4.73 \times 10^{310}, -5.20 \times 10^{310} u^{88} - 1.16 \times 10^{311} u^{87} + \dots + 9.13 \times 10^{307} a + 6.32 \times 10^{311}, u^{89} + 3u^{88} + \dots - 128u - 11 \rangle$$

(i) Arc colorings

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

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

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

$$a_9 = \begin{pmatrix} 569.400u^{88} + 1275.94u^{87} + \dots - 76010.6u - 6918.01 \\ -6296.66u^{88} - 14400.0u^{87} + \dots + 992607.u + 96965.4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -5727.26u^{88} - 13124.0u^{87} + \dots + 916597.u + 90047.4 \\ -6296.66u^{88} - 14400.0u^{87} + \dots + 992607.u + 96965.4 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 9085.14u^{88} + 21847.1u^{87} + \dots - 1.67677 \times 10^6 u - 168656. \\ 3271.85u^{88} + 7597.71u^{87} + \dots - 544620.u - 53820.5 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 5108.21u^{88} + 12633.7u^{87} + \dots - 1.02025 \times 10^6 u - 103895. \\ 705.083u^{88} + 1615.68u^{87} + \dots - 111892.u - 10941.3 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -6026.68u^{88} - 13826.0u^{87} + \dots + 965663.u + 94802.3 \\ -9614.20u^{88} - 22011.9u^{87} + \dots + 1.51990 \times 10^6 u + 148515. \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -3942.79u^{88} - 9158.68u^{87} + \dots + 643604.u + 62940.5 \\ -12173.0u^{88} - 28391.4u^{87} + \dots + 2.03504 \times 10^6 u + 200771. \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -20489.4u^{88} - 47720.8u^{87} + \dots + 3.42997 \times 10^6 u + 339274. \\ -9470.05u^{88} - 21709.7u^{87} + \dots + 1.49822 \times 10^6 u + 146332. \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 7371.14u^{88} + 18256.7u^{87} + \dots - 1.50139 \times 10^6 u - 154005. \\ -3644.14u^{88} - 8508.11u^{87} + \dots + 609864.u + 60134.4 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -21862.8u^{88} - 52168.9u^{87} + \dots + 3.95274 \times 10^6 u + 396541. \\ -3836.25u^{88} - 8831.88u^{87} + \dots + 618854.u + 60764.8 \end{pmatrix}$$

(ii) Obstruction class = -1

$$\mathbf{(iii) Cusp Shapes} = 66908.2u^{88} + 158354.u^{87} + \dots - 1.16675 \times 10^7 u - 1.15911 \times 10^6$$

(iv) u-Polynomials at the component

| Crossings | u-Polynomials at each crossing |
|-----------------------|--|
| c_1 | $u^{89} - 3u^{88} + \dots - 128u + 11$ |
| c_2, c_6 | $u^{89} - u^{88} + \dots - 2324u + 244$ |
| c_3 | $u^{89} + u^{88} + \dots - 35u + 1$ |
| c_4 | $u^{89} - u^{88} + \dots - 24352u + 16832$ |
| c_5, c_{11}, c_{12} | $u^{89} - 40u^{87} + \dots - 525u - 299$ |
| c_7, c_{10} | $u^{89} + 12u^{88} + \dots - 33668u - 16181$ |
| c_8 | $u^{89} - u^{88} + \dots - 126958u - 15503$ |
| c_9 | $u^{89} - 5u^{88} + \dots - 25u - 1$ |

(v) Riley Polynomials at the component

| Crossings | Riley Polynomials at each crossing |
|-----------------------|--|
| c_1 | $y^{89} - 17y^{88} + \dots + 4372y - 121$ |
| c_2, c_6 | $y^{89} + 37y^{88} + \dots + 79336y - 59536$ |
| c_3 | $y^{89} - 5y^{88} + \dots + 207y - 1$ |
| c_4 | $y^{89} + 33y^{88} + \dots - 15159981568y - 283316224$ |
| c_5, c_{11}, c_{12} | $y^{89} - 80y^{88} + \dots - 4317613y - 89401$ |
| c_7, c_{10} | $y^{89} - 70y^{88} + \dots + 4270382884y - 261824761$ |
| c_8 | $y^{89} - 29y^{88} + \dots - 1482160124y - 240343009$ |
| c_9 | $y^{89} + 5y^{88} + \dots + 231y - 1$ |

(vi) Complex Volumes and Cusp Shapes

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|------------|
| $u = -0.993067 + 0.127078I$ $a = 0.200540 + 0.455929I$ $b = -0.33540 - 1.39904I$ | $3.20078 - 1.20884I$ | 0 |
| $u = -0.993067 - 0.127078I$ $a = 0.200540 - 0.455929I$ $b = -0.33540 + 1.39904I$ | $3.20078 + 1.20884I$ | 0 |
| $u = 0.764241 + 0.676726I$ $a = -0.947281 - 0.895205I$ $b = 0.340493 - 0.833126I$ | $-0.57886 - 1.51432I$ | 0 |
| $u = 0.764241 - 0.676726I$ $a = -0.947281 + 0.895205I$ $b = 0.340493 + 0.833126I$ | $-0.57886 + 1.51432I$ | 0 |
| $u = -0.760022 + 0.609380I$ $a = -1.39086 + 0.41043I$ $b = 0.928173 + 1.010740I$ | $1.56089 + 4.86458I$ | 0 |
| $u = -0.760022 - 0.609380I$ $a = -1.39086 - 0.41043I$ $b = 0.928173 - 1.010740I$ | $1.56089 - 4.86458I$ | 0 |
| $u = 0.689207 + 0.762844I$ $a = -0.728813 + 0.323818I$ $b = 1.097610 - 0.099960I$ | $-0.45328 - 4.13288I$ | 0 |
| $u = 0.689207 - 0.762844I$ $a = -0.728813 - 0.323818I$ $b = 1.097610 + 0.099960I$ | $-0.45328 + 4.13288I$ | 0 |
| $u = 1.005520 + 0.290922I$ $a = 0.818301 - 0.419258I$ $b = -0.017694 - 0.228854I$ | $-2.29896 - 0.81375I$ | 0 |
| $u = 1.005520 - 0.290922I$ $a = 0.818301 + 0.419258I$ $b = -0.017694 + 0.228854I$ | $-2.29896 + 0.81375I$ | 0 |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|------------|
| $u = 0.683719 + 0.823293I$ $a = -0.798187 + 0.260059I$ $b = 0.779052 - 0.834217I$ | $0.04254 - 3.77924I$ | 0 |
| $u = 0.683719 - 0.823293I$ $a = -0.798187 - 0.260059I$ $b = 0.779052 + 0.834217I$ | $0.04254 + 3.77924I$ | 0 |
| $u = 0.898322 + 0.057751I$ $a = -1.47888 - 0.45299I$ $b = -0.394720 - 0.110803I$ | $4.30044 + 0.66708I$ | 0 |
| $u = 0.898322 - 0.057751I$ $a = -1.47888 + 0.45299I$ $b = -0.394720 + 0.110803I$ | $4.30044 - 0.66708I$ | 0 |
| $u = 0.669022 + 0.568571I$ $a = 1.55704 - 0.05911I$ $b = -1.49947 + 0.46973I$ | $5.72482 - 2.22060I$ | 0 |
| $u = 0.669022 - 0.568571I$ $a = 1.55704 + 0.05911I$ $b = -1.49947 - 0.46973I$ | $5.72482 + 2.22060I$ | 0 |
| $u = -0.902065 + 0.669900I$ $a = 1.382100 - 0.221188I$ $b = -1.14788 - 0.96298I$ | $5.44061 + 8.85234I$ | 0 |
| $u = -0.902065 - 0.669900I$ $a = 1.382100 + 0.221188I$ $b = -1.14788 + 0.96298I$ | $5.44061 - 8.85234I$ | 0 |
| $u = 0.995812 + 0.570446I$ $a = -0.155902 + 0.043006I$ $b = 0.301459 + 0.908339I$ | $-1.22561 - 3.72621I$ | 0 |
| $u = 0.995812 - 0.570446I$ $a = -0.155902 - 0.043006I$ $b = 0.301459 - 0.908339I$ | $-1.22561 + 3.72621I$ | 0 |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|------------|
| $u = 0.705441 + 0.470348I$ $a = 0.980226 - 0.082282I$ $b = -0.273554 + 0.437450I$ | $-1.23728 - 0.76406I$ | 0 |
| $u = 0.705441 - 0.470348I$ $a = 0.980226 + 0.082282I$ $b = -0.273554 - 0.437450I$ | $-1.23728 + 0.76406I$ | 0 |
| $u = 0.684498 + 0.448987I$ $a = -0.19969 + 2.02237I$ $b = -0.360630 + 0.502464I$ | $-3.27660 - 4.26157I$ | 0 |
| $u = 0.684498 - 0.448987I$ $a = -0.19969 - 2.02237I$ $b = -0.360630 - 0.502464I$ | $-3.27660 + 4.26157I$ | 0 |
| $u = -0.552981 + 1.083490I$ $a = -1.42961 - 0.56881I$ $b = 0.560860 + 0.860648I$ | $6.74974 + 6.19688I$ | 0 |
| $u = -0.552981 - 1.083490I$ $a = -1.42961 + 0.56881I$ $b = 0.560860 - 0.860648I$ | $6.74974 - 6.19688I$ | 0 |
| $u = -0.450193 + 0.633301I$ $a = -0.478689 + 0.401501I$ $b = 0.734409 + 0.456658I$ | $1.29822 + 1.05454I$ | 0 |
| $u = -0.450193 - 0.633301I$ $a = -0.478689 - 0.401501I$ $b = 0.734409 - 0.456658I$ | $1.29822 - 1.05454I$ | 0 |
| $u = -0.743607 + 0.209729I$ $a = 0.31095 + 2.56899I$ $b = 0.236058 + 0.953099I$ | $1.43846 - 5.32495I$ | 0 |
| $u = -0.743607 - 0.209729I$ $a = 0.31095 - 2.56899I$ $b = 0.236058 - 0.953099I$ | $1.43846 + 5.32495I$ | 0 |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|------------|
| $u = -0.501394 + 0.585172I$ $a = 2.05602 - 0.82578I$ $b = -0.736196 - 0.962460I$ | $6.03500 + 1.36427I$ | 0 |
| $u = -0.501394 - 0.585172I$ $a = 2.05602 + 0.82578I$ $b = -0.736196 + 0.962460I$ | $6.03500 - 1.36427I$ | 0 |
| $u = 0.670311 + 0.380079I$ $a = 0.999831 - 0.186322I$ $b = -1.63239 - 0.59106I$ | $-3.33787 + 1.07323I$ | 0 |
| $u = 0.670311 - 0.380079I$ $a = 0.999831 + 0.186322I$ $b = -1.63239 + 0.59106I$ | $-3.33787 - 1.07323I$ | 0 |
| $u = -0.767264$ $a = -1.97006$ $b = 0.928015$ | -4.39996 | 0 |
| $u = -0.572087 + 0.457673I$ $a = -0.839051 + 0.284723I$ $b = 1.69990 - 1.54093I$ | $2.29718 + 7.94648I$ | 0 |
| $u = -0.572087 - 0.457673I$ $a = -0.839051 - 0.284723I$ $b = 1.69990 + 1.54093I$ | $2.29718 - 7.94648I$ | 0 |
| $u = -0.932679 + 0.881057I$ $a = -1.105010 + 0.476206I$ $b = 0.968417 + 0.207288I$ | $9.26732 + 3.26395I$ | 0 |
| $u = -0.932679 - 0.881057I$ $a = -1.105010 - 0.476206I$ $b = 0.968417 - 0.207288I$ | $9.26732 - 3.26395I$ | 0 |
| $u = 0.708618 + 0.099564I$ $a = -1.371210 + 0.072508I$ $b = 1.76000 + 0.96153I$ | $1.07016 + 5.85705I$ | 0 |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|------------|
| $u = 0.708618 - 0.099564I$ $a = -1.371210 - 0.072508I$ $b = 1.76000 - 0.96153I$ | $1.07016 - 5.85705I$ | 0 |
| $u = 0.604944 + 1.134220I$ $a = 0.701078 - 0.313258I$ $b = -1.25751 + 1.36163I$ | $8.06380 - 5.92574I$ | 0 |
| $u = 0.604944 - 1.134220I$ $a = 0.701078 + 0.313258I$ $b = -1.25751 - 1.36163I$ | $8.06380 + 5.92574I$ | 0 |
| $u = -0.803682 + 1.013040I$ $a = 1.159370 + 0.058891I$ $b = -0.659826 - 0.594923I$ | $3.75873 + 4.16261I$ | 0 |
| $u = -0.803682 - 1.013040I$ $a = 1.159370 - 0.058891I$ $b = -0.659826 + 0.594923I$ | $3.75873 - 4.16261I$ | 0 |
| $u = -0.680676 + 0.139986I$ $a = -1.03899 - 1.91698I$ $b = 0.055904 - 0.875204I$ | $-4.56973 - 1.77199I$ | 0 |
| $u = -0.680676 - 0.139986I$ $a = -1.03899 + 1.91698I$ $b = 0.055904 + 0.875204I$ | $-4.56973 + 1.77199I$ | 0 |
| $u = -0.674606 + 0.006235I$ $a = 0.434040 + 0.302717I$ $b = 0.358213 - 0.830103I$ | $1.09369 - 1.53017I$ | 0 |
| $u = -0.674606 - 0.006235I$ $a = 0.434040 - 0.302717I$ $b = 0.358213 + 0.830103I$ | $1.09369 + 1.53017I$ | 0 |
| $u = 0.568383 + 0.358844I$ $a = 1.02786 - 3.41911I$ $b = 0.469023 - 0.398181I$ | $1.82604 - 7.70258I$ | 0 |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|-----------------------------|---------------------------------------|------------|
| $u = 0.568383 - 0.358844I$ | | |
| $a = 1.02786 + 3.41911I$ | $1.82604 + 7.70258I$ | 0 |
| $b = 0.469023 + 0.398181I$ | | |
| $u = -0.656994 + 0.114545I$ | | |
| $a = 0.196690 + 0.824596I$ | $-3.92764 + 3.06811I$ | 0 |
| $b = -0.02354 + 1.55734I$ | | |
| $u = -0.656994 - 0.114545I$ | | |
| $a = 0.196690 - 0.824596I$ | $-3.92764 - 3.06811I$ | 0 |
| $b = -0.02354 - 1.55734I$ | | |
| $u = -0.959202 + 0.973290I$ | | |
| $a = 0.630885 - 0.361979I$ | $10.28100 + 3.55115I$ | 0 |
| $b = -1.39767 - 0.66471I$ | | |
| $u = -0.959202 - 0.973290I$ | | |
| $a = 0.630885 + 0.361979I$ | $10.28100 - 3.55115I$ | 0 |
| $b = -1.39767 + 0.66471I$ | | |
| $u = 0.354566 + 0.522064I$ | | |
| $a = -1.69747 + 0.60020I$ | $1.79991 - 2.57496I$ | 0 |
| $b = 1.117580 - 0.802866I$ | | |
| $u = 0.354566 - 0.522064I$ | | |
| $a = -1.69747 - 0.60020I$ | $1.79991 + 2.57496I$ | 0 |
| $b = 1.117580 + 0.802866I$ | | |
| $u = -0.579721 + 0.197706I$ | | |
| $a = 0.646250 + 0.200700I$ | $-4.14081 + 3.12659I$ | 0 |
| $b = -0.90475 + 1.75982I$ | | |
| $u = -0.579721 - 0.197706I$ | | |
| $a = 0.646250 - 0.200700I$ | $-4.14081 - 3.12659I$ | 0 |
| $b = -0.90475 - 1.75982I$ | | |
| $u = -0.247717 + 0.536375I$ | | |
| $a = 0.69213 - 1.98581I$ | $6.36140 - 4.27453I$ | 0 |
| $b = -0.691359 + 0.853223I$ | | |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|------------|
| $u = -0.247717 - 0.536375I$ $a = 0.69213 + 1.98581I$ $b = -0.691359 - 0.853223I$ | $6.36140 + 4.27453I$ | 0 |
| $u = -0.575286$ $a = 4.34625$ $b = -0.0626997$ | -3.56473 | -23.9990 |
| $u = -1.17929 + 0.89101I$ $a = -0.822428 + 0.145424I$ $b = 1.15916 + 0.99640I$ | $-1.24110 + 5.87258I$ | 0 |
| $u = -1.17929 - 0.89101I$ $a = -0.822428 - 0.145424I$ $b = 1.15916 - 0.99640I$ | $-1.24110 - 5.87258I$ | 0 |
| $u = 0.24869 + 1.46137I$ $a = -0.453006 - 0.032139I$ $b = 0.673115 + 0.230690I$ | $1.42043 + 1.69576I$ | 0 |
| $u = 0.24869 - 1.46137I$ $a = -0.453006 + 0.032139I$ $b = 0.673115 - 0.230690I$ | $1.42043 - 1.69576I$ | 0 |
| $u = 1.20458 + 0.89965I$ $a = -1.003570 - 0.249439I$ $b = 0.933751 - 0.927723I$ | $-0.82254 - 9.48836I$ | 0 |
| $u = 1.20458 - 0.89965I$ $a = -1.003570 + 0.249439I$ $b = 0.933751 + 0.927723I$ | $-0.82254 + 9.48836I$ | 0 |
| $u = 1.17338 + 0.96189I$ $a = -0.864496 + 0.237008I$ $b = 0.61188 - 1.29209I$ | $-2.32543 - 2.20605I$ | 0 |
| $u = 1.17338 - 0.96189I$ $a = -0.864496 - 0.237008I$ $b = 0.61188 + 1.29209I$ | $-2.32543 + 2.20605I$ | 0 |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|----------------------|
| $u = -1.19863 + 0.94740I$ $a = 0.967686 - 0.088945I$ $b = -1.12242 - 1.12580I$ | $-3.70513 + 12.22050I$ | 0 |
| $u = -1.19863 - 0.94740I$ $a = 0.967686 + 0.088945I$ $b = -1.12242 + 1.12580I$ | $-3.70513 - 12.22050I$ | 0 |
| $u = -1.18143 + 0.97516I$ $a = -1.098600 + 0.099827I$ $b = 1.14372 + 1.21653I$ | $1.8734 + 17.6191I$ | 0 |
| $u = -1.18143 - 0.97516I$ $a = -1.098600 - 0.099827I$ $b = 1.14372 - 1.21653I$ | $1.8734 - 17.6191I$ | 0 |
| $u = 1.22128 + 0.94280I$ $a = 0.898932 + 0.015878I$ $b = -0.762082 + 1.059560I$ | $-5.54989 - 5.71430I$ | 0 |
| $u = 1.22128 - 0.94280I$ $a = 0.898932 - 0.015878I$ $b = -0.762082 - 1.059560I$ | $-5.54989 + 5.71430I$ | 0 |
| $u = 1.10608 + 1.18820I$ $a = 0.588583 - 0.496668I$ $b = -0.111755 + 1.185780I$ | $-1.62538 - 6.04479I$ | 0 |
| $u = 1.10608 - 1.18820I$ $a = 0.588583 + 0.496668I$ $b = -0.111755 - 1.185780I$ | $-1.62538 + 6.04479I$ | 0 |
| $u = -0.265884 + 0.228074I$ $a = -0.85791 - 3.46146I$ $b = -0.516657 + 0.923079I$ | $6.37814 - 4.29762I$ | $3.61480 + 3.37878I$ |
| $u = -0.265884 - 0.228074I$ $a = -0.85791 + 3.46146I$ $b = -0.516657 - 0.923079I$ | $6.37814 + 4.29762I$ | $3.61480 - 3.37878I$ |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|------------|
| $u = -0.90761 + 1.42077I$ $a = -0.196182 + 0.526398I$ $b = 0.771036 - 0.622129I$ | $3.07856 - 9.40229I$ | 0 |
| $u = -0.90761 - 1.42077I$ $a = -0.196182 - 0.526398I$ $b = 0.771036 + 0.622129I$ | $3.07856 + 9.40229I$ | 0 |
| $u = -0.77315 + 1.64287I$ $a = 0.180370 - 0.341990I$ $b = -0.608103 + 0.326480I$ | $-2.07969 - 3.93898I$ | 0 |
| $u = -0.77315 - 1.64287I$ $a = 0.180370 + 0.341990I$ $b = -0.608103 - 0.326480I$ | $-2.07969 + 3.93898I$ | 0 |
| $u = 1.35398 + 1.26485I$ $a = -0.324543 + 0.203787I$ $b = 0.169257 - 0.795886I$ | $-4.44420 - 3.24591I$ | 0 |
| $u = 1.35398 - 1.26485I$ $a = -0.324543 - 0.203787I$ $b = 0.169257 + 0.795886I$ | $-4.44420 + 3.24591I$ | 0 |
| $u = -1.83965 + 1.07623I$ $a = 0.225655 - 0.085679I$ $b = -0.128138 - 0.114270I$ | $1.04604 + 3.20264I$ | 0 |
| $u = -1.83965 - 1.07623I$ $a = 0.225655 + 0.085679I$ $b = -0.128138 + 0.114270I$ | $1.04604 - 3.20264I$ | 0 |
| $u = 2.43404$ $a = -0.0335479$ $b = -0.439982$ | 2.94626 | 0 |

II.

$$I_2^u = \langle 5.39 \times 10^{24} u^{26} - 2.77 \times 10^{25} u^{25} + \dots + 3.88 \times 10^{24} b + 3.66 \times 10^{25}, 3.40 \times 10^{25} u^{26} - 1.14 \times 10^{26} u^{25} + \dots + 3.88 \times 10^{24} a + 4.54 \times 10^{25}, u^{27} - 4u^{26} + \dots + 7u - 1 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_1 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_2 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_9 &= \begin{pmatrix} -8.76207u^{26} + 29.3514u^{25} + \dots + 73.7899u - 11.6877 \\ -1.38862u^{26} + 7.14196u^{25} + \dots + 42.0599u - 9.42336 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -10.1507u^{26} + 36.4934u^{25} + \dots + 115.850u - 21.1111 \\ -1.38862u^{26} + 7.14196u^{25} + \dots + 42.0599u - 9.42336 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -12.5325u^{26} + 44.9631u^{25} + \dots + 128.300u - 26.6534 \\ -0.114043u^{26} - 0.203824u^{25} + \dots - 3.57314u - 0.593413 \end{pmatrix} \\ a_3 &= \begin{pmatrix} -15.7987u^{26} + 56.8992u^{25} + \dots + 160.856u - 29.0392 \\ 3.38026u^{26} - 11.7322u^{25} + \dots - 26.9829u + 2.97912 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -7.21332u^{26} + 25.6911u^{25} + \dots + 84.7338u - 15.4142 \\ 0.439720u^{26} + 0.799103u^{25} + \dots + 25.8657u - 6.88864 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -3.37998u^{26} + 7.21263u^{25} + \dots - 28.8269u + 11.4562 \\ -7.03919u^{26} + 24.7846u^{25} + \dots + 63.5218u - 10.6411 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 18.6704u^{26} - 62.0850u^{25} + \dots - 124.273u + 15.3936 \\ 2.94467u^{26} - 9.73923u^{25} + \dots - 19.1662u + 2.85454 \end{pmatrix} \\ a_6 &= \begin{pmatrix} 11.2303u^{26} - 41.4445u^{25} + \dots - 125.663u + 22.5582 \\ -5.24731u^{26} + 17.4835u^{25} + \dots + 40.6679u - 5.38480 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} 15.0114u^{26} - 53.8860u^{25} + \dots - 132.594u + 24.3751 \\ -6.43257u^{26} + 22.5753u^{25} + \dots + 60.6466u - 9.14643 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = 1

$$\begin{aligned} \text{(iii) Cusp Shapes} &= \frac{148831938566104030557876077}{3882376926472859185268325} u^{26} - \frac{531726001109607055112961716}{3882376926472859185268325} u^{25} + \\ &\dots - \frac{489596660522591318342393429}{1294125642157619728422775} u + \frac{269672116835321490369564187}{3882376926472859185268325} \end{aligned}$$

(iv) u-Polynomials at the component

| Crossings | u-Polynomials at each crossing |
|------------------|--|
| c_1 | $u^{27} - 4u^{26} + \dots + 7u - 1$ |
| c_2 | $u^{27} + 2u^{26} + \dots + 2u - 1$ |
| c_3 | $u^{27} - 3u^{25} + \dots + 3u^2 + 1$ |
| c_4 | $u^{27} + 4u^{25} + \dots - 80u + 100$ |
| c_5 | $u^{27} - u^{26} + \dots + 10u - 3$ |
| c_6 | $u^{27} - 2u^{26} + \dots + 2u + 1$ |
| c_7 | $u^{27} - 13u^{26} + \dots + 7u - 1$ |
| c_8 | $u^{27} - 5u^{25} + \dots + 5u - 75$ |
| c_9 | $u^{27} - 2u^{26} + \dots - 9u^2 + 1$ |
| c_{10} | $u^{27} + 13u^{26} + \dots + 7u + 1$ |
| c_{11}, c_{12} | $u^{27} + u^{26} + \dots + 10u + 3$ |

(v) Riley Polynomials at the component

| Crossings | Riley Polynomials at each crossing |
|-----------------------|--|
| c_1 | $y^{27} - 6y^{26} + \dots + 3y - 1$ |
| c_2, c_6 | $y^{27} + 12y^{26} + \dots + 8y^2 - 1$ |
| c_3 | $y^{27} - 6y^{26} + \dots - 6y - 1$ |
| c_4 | $y^{27} + 8y^{26} + \dots - 119800y - 10000$ |
| c_5, c_{11}, c_{12} | $y^{27} - 29y^{26} + \dots + 94y - 9$ |
| c_7, c_{10} | $y^{27} - 19y^{26} + \dots - 17y - 1$ |
| c_8 | $y^{27} - 10y^{26} + \dots + 55075y - 5625$ |
| c_9 | $y^{27} + 4y^{26} + \dots + 18y - 1$ |

(vi) Complex Volumes and Cusp Shapes

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-----------------------|
| $u = -0.547523 + 0.823439I$ $a = 1.98498 + 0.46447I$ $b = -0.568114 - 0.792380I$ | $7.35535 + 5.55662I$ | $7.22798 - 4.72119I$ |
| $u = -0.547523 - 0.823439I$ $a = 1.98498 - 0.46447I$ $b = -0.568114 + 0.792380I$ | $7.35535 - 5.55662I$ | $7.22798 + 4.72119I$ |
| $u = 0.558730 + 0.743089I$ $a = -0.446274 - 0.447526I$ $b = -0.272415 - 0.678077I$ | $-3.25720 - 3.00505I$ | $-3.64590 + 3.71727I$ |
| $u = 0.558730 - 0.743089I$ $a = -0.446274 + 0.447526I$ $b = -0.272415 + 0.678077I$ | $-3.25720 + 3.00505I$ | $-3.64590 - 3.71727I$ |
| $u = 0.571603 + 0.997750I$ $a = 0.813411 - 0.295399I$ $b = -1.33111 + 1.39928I$ | $8.38765 - 5.67920I$ | $10.77839 + 1.13895I$ |
| $u = 0.571603 - 0.997750I$ $a = 0.813411 + 0.295399I$ $b = -1.33111 - 1.39928I$ | $8.38765 + 5.67920I$ | $10.77839 - 1.13895I$ |
| $u = -0.808508$ $a = 1.90792$ $b = -0.430021$ | -4.92392 | -15.5230 |
| $u = -0.739109 + 0.990322I$ $a = -1.220960 - 0.056243I$ $b = 0.774219 + 0.662020I$ | $4.11233 + 4.35125I$ | $9.30059 - 8.14463I$ |
| $u = -0.739109 - 0.990322I$ $a = -1.220960 + 0.056243I$ $b = 0.774219 - 0.662020I$ | $4.11233 - 4.35125I$ | $9.30059 + 8.14463I$ |
| $u = 0.517527 + 0.554493I$ $a = -1.341990 + 0.149845I$ $b = 1.19968 - 1.00152I$ | $1.62559 - 3.06994I$ | $0.69172 + 10.64768I$ |

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|------------------------|
| $u = 0.517527 - 0.554493I$ $a = -1.341990 - 0.149845I$ $b = 1.19968 + 1.00152I$ | $1.62559 + 3.06994I$ | $0.69172 - 10.64768I$ |
| $u = 0.586532 + 0.173716I$ $a = -0.154346 - 0.794401I$ $b = -0.12170 - 1.70950I$ | $-3.79869 - 3.23469I$ | $12.4388 + 17.0282I$ |
| $u = 0.586532 - 0.173716I$ $a = -0.154346 + 0.794401I$ $b = -0.12170 + 1.70950I$ | $-3.79869 + 3.23469I$ | $12.4388 - 17.0282I$ |
| $u = -0.940393 + 1.054800I$ $a = 0.817965 - 0.341623I$ $b = -1.276650 - 0.517470I$ | $11.41040 + 3.80295I$ | $8.54645 - 3.49194I$ |
| $u = -0.940393 - 1.054800I$ $a = 0.817965 + 0.341623I$ $b = -1.276650 + 0.517470I$ | $11.41040 - 3.80295I$ | $8.54645 + 3.49194I$ |
| $u = 0.464096 + 0.264301I$ $a = 2.69553 + 1.05128I$ $b = -0.910258 + 0.774732I$ | $5.20589 - 0.81907I$ | $0.134746 + 0.467373I$ |
| $u = 0.464096 - 0.264301I$ $a = 2.69553 - 1.05128I$ $b = -0.910258 - 0.774732I$ | $5.20589 + 0.81907I$ | $0.134746 - 0.467373I$ |
| $u = -0.516394$ $a = -4.36772$ $b = 0.479113$ | -3.37568 | 19.3460 |
| $u = 0.144226 + 0.422073I$ $a = 1.37408 + 2.14194I$ $b = 1.001730 + 0.269638I$ | $2.08837 - 6.81853I$ | $0.95108 + 4.03401I$ |
| $u = 0.144226 - 0.422073I$ $a = 1.37408 - 2.14194I$ $b = 1.001730 - 0.269638I$ | $2.08837 + 6.81853I$ | $0.95108 - 4.03401I$ |

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|-----------------------------|---------------------------------------|-----------------|
| $u = 1.22756 + 1.02470I$ | | |
| $a = -0.611307 + 0.188314I$ | $-2.80088 - 3.33974I$ | $0. + 5.34734I$ |
| $b = 0.513222 - 1.069780I$ | | |
| $u = 1.22756 - 1.02470I$ | | |
| $a = -0.611307 - 0.188314I$ | $-2.80088 + 3.33974I$ | $0. - 5.34734I$ |
| $b = 0.513222 + 1.069780I$ | | |
| $u = 1.20709 + 1.15678I$ | | |
| $a = 0.601483 - 0.280831I$ | $-2.41421 - 5.37812I$ | 0 |
| $b = -0.249669 + 0.962999I$ | | |
| $u = 1.20709 - 1.15678I$ | | |
| $a = 0.601483 + 0.280831I$ | $-2.41421 + 5.37812I$ | 0 |
| $b = -0.249669 - 0.962999I$ | | |
| $u = -1.52163 + 1.11118I$ | | |
| $a = -0.207154 + 0.061149I$ | $1.12816 + 3.00008I$ | 0 |
| $b = 0.413538 - 0.209689I$ | | |
| $u = -1.52163 - 1.11118I$ | | |
| $a = -0.207154 - 0.061149I$ | $1.12816 - 3.00008I$ | 0 |
| $b = 0.413538 + 0.209689I$ | | |
| $u = 2.26747$ | | |
| $a = -0.151019$ | 2.85198 | 0 |
| $b = -0.394031$ | | |

III. u-Polynomials

| Crossings | u-Polynomials at each crossing |
|------------------|--|
| c_1 | $(u^{27} - 4u^{26} + \dots + 7u - 1)(u^{89} - 3u^{88} + \dots - 128u + 11)$ |
| c_2 | $(u^{27} + 2u^{26} + \dots + 2u - 1)(u^{89} - u^{88} + \dots - 2324u + 244)$ |
| c_3 | $(u^{27} - 3u^{25} + \dots + 3u^2 + 1)(u^{89} + u^{88} + \dots - 35u + 1)$ |
| c_4 | $(u^{27} + 4u^{25} + \dots - 80u + 100)(u^{89} - u^{88} + \dots - 24352u + 16832)$ |
| c_5 | $(u^{27} - u^{26} + \dots + 10u - 3)(u^{89} - 40u^{87} + \dots - 525u - 299)$ |
| c_6 | $(u^{27} - 2u^{26} + \dots + 2u + 1)(u^{89} - u^{88} + \dots - 2324u + 244)$ |
| c_7 | $(u^{27} - 13u^{26} + \dots + 7u - 1)(u^{89} + 12u^{88} + \dots - 33668u - 16181)$ |
| c_8 | $(u^{27} - 5u^{25} + \dots + 5u - 75)(u^{89} - u^{88} + \dots - 126958u - 15503)$ |
| c_9 | $(u^{27} - 2u^{26} + \dots - 9u^2 + 1)(u^{89} - 5u^{88} + \dots - 25u - 1)$ |
| c_{10} | $(u^{27} + 13u^{26} + \dots + 7u + 1)(u^{89} + 12u^{88} + \dots - 33668u - 16181)$ |
| c_{11}, c_{12} | $(u^{27} + u^{26} + \dots + 10u + 3)(u^{89} - 40u^{87} + \dots - 525u - 299)$ |

IV. Riley Polynomials

| Crossings | Riley Polynomials at each crossing |
|-----------------------|--|
| c_1 | $(y^{27} - 6y^{26} + \dots + 3y - 1)(y^{89} - 17y^{88} + \dots + 4372y - 121)$ |
| c_2, c_6 | $(y^{27} + 12y^{26} + \dots + 8y^2 - 1)(y^{89} + 37y^{88} + \dots + 79336y - 59536)$ |
| c_3 | $(y^{27} - 6y^{26} + \dots - 6y - 1)(y^{89} - 5y^{88} + \dots + 207y - 1)$ |
| c_4 | $(y^{27} + 8y^{26} + \dots - 119800y - 10000)$ $\cdot (y^{89} + 33y^{88} + \dots - 15159981568y - 283316224)$ |
| c_5, c_{11}, c_{12} | $(y^{27} - 29y^{26} + \dots + 94y - 9)(y^{89} - 80y^{88} + \dots - 4317613y - 89401)$ |
| c_7, c_{10} | $(y^{27} - 19y^{26} + \dots - 17y - 1)$ $\cdot (y^{89} - 70y^{88} + \dots + 4270382884y - 261824761)$ |
| c_8 | $(y^{27} - 10y^{26} + \dots + 55075y - 5625)$ $\cdot (y^{89} - 29y^{88} + \dots - 1482160124y - 240343009)$ |
| c_9 | $(y^{27} + 4y^{26} + \dots + 18y - 1)(y^{89} + 5y^{88} + \dots + 231y - 1)$ |