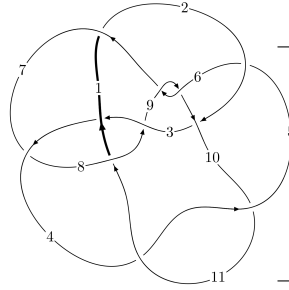
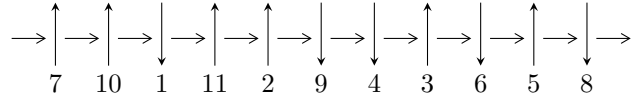


11a₂₈₅ (K11a₂₈₅)



A knot diagram¹

Linearized knot diagram



Solving Sequence

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

Ideals for irreducible components² of X_{par}

$$I_1^u = \langle -16908464923u^{31} + 270944948124u^{30} + \dots + 32177743216b + 515902532096, \\ 8847487859u^{31} - 158877780023u^{30} + \dots + 32177743216a - 2308582971600, \\ u^{32} - 16u^{31} + \dots - 928u + 64 \rangle$$

$$I_2^u = \langle -3064433897u^{10}a^5 + 2605872u^{10}a^4 + \dots - 83413469a - 386189933, \\ u^{10}a^4 - 2u^{10}a^3 + \dots + 17a + 26, \\ u^{11} + 3u^{10} + 8u^9 + 13u^8 + 18u^7 + 20u^6 + 18u^5 + 15u^4 + 9u^3 + 5u^2 + 2u + 1 \rangle$$

$$I_3^u = \langle 66u^{17} - 107u^{16} + \dots + 241b + 1451, -1781u^{17} + 8120u^{16} + \dots + 1205a - 4294, \\ u^{18} - 5u^{17} + \dots - 16u + 5 \rangle$$

* 3 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.

$$\mathbf{I. } I_1^u = \langle -1.69 \times 10^{10} u^{31} + 2.71 \times 10^{11} u^{30} + \dots + 3.22 \times 10^{10} b + 5.16 \times 10^{11}, 8.85 \times 10^9 u^{31} - 1.59 \times 10^{11} u^{30} + \dots + 3.22 \times 10^{10} a - 2.31 \times 10^{12}, u^{32} - 16u^{31} + \dots - 928u + 64 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_6 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_7 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.274957u^{31} + 4.93751u^{30} + \dots - 868.606u + 71.7447 \\ 0.525471u^{31} - 8.42026u^{30} + \dots + 288.189u - 16.0329 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -u \\ u \end{pmatrix} \\ a_3 &= \begin{pmatrix} -0.287683u^{31} + 4.19788u^{30} + \dots - 397.002u + 38.1146 \\ 0.538197u^{31} - 7.68064u^{30} + \dots - 183.415u + 17.5972 \end{pmatrix} \\ a_1 &= \begin{pmatrix} 0.130093u^{31} - 1.36022u^{30} + \dots - 639.751u + 53.3330 \\ -0.139506u^{31} + 1.15527u^{30} + \dots + 432.165u - 27.7501 \end{pmatrix} \\ a_5 &= \begin{pmatrix} 0.138364u^{31} - 2.12418u^{30} + \dots - 252.671u + 29.4083 \\ -0.0517974u^{31} + 0.687312u^{30} + \dots + 103.202u - 5.54028 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 0.0893083u^{31} - 0.542520u^{30} + \dots - 689.705u + 59.6116 \\ 0.785648u^{31} - 12.8126u^{30} + \dots + 866.867u - 59.3123 \end{pmatrix} \\ a_4 &= \begin{pmatrix} -0.586797u^{31} + 9.44317u^{30} + \dots - 913.295u + 78.7017 \\ 1.17594u^{31} - 17.7691u^{30} + \dots + 35.8365u + 6.83868 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -0.364711u^{31} + 5.33393u^{30} + \dots + 228.342u - 24.1741 \\ 0.367792u^{31} - 5.49811u^{30} + \dots + 78.9380u - 7.54925 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -0.364711u^{31} + 5.33393u^{30} + \dots + 228.342u - 24.1741 \\ 0.367792u^{31} - 5.49811u^{30} + \dots + 78.9380u - 7.54925 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes

$$= \frac{30004216785}{8044435804} u^{31} - \frac{117366210032}{2011108951} u^{30} + \dots + \frac{6780572708835}{2011108951} u - \frac{518436882606}{2011108951}$$

(iv) u-Polynomials at the component

| Crossings | u-Polynomials at each crossing |
|---------------|---|
| c_1, c_8 | $u^{32} + 7u^{30} + \dots + 9u + 7$ |
| c_2, c_5 | $u^{32} - 3u^{30} + \dots + 2u + 1$ |
| c_3 | $u^{32} - 24u^{31} + \dots - 32u + 8$ |
| c_4, c_{10} | $u^{32} - 22u^{31} + \dots - 31744u + 2048$ |
| c_6, c_9 | $u^{32} - 16u^{31} + \dots - 928u + 64$ |
| c_7, c_{11} | $u^{32} + 2u^{31} + \dots + u + 1$ |

(v) Riley Polynomials at the component

| Crossings | Riley Polynomials at each crossing |
|---------------|---|
| c_1, c_8 | $y^{32} + 14y^{31} + \dots + 255y + 49$ |
| c_2, c_5 | $y^{32} - 6y^{31} + \dots - 4y + 1$ |
| c_3 | $y^{32} - 6y^{31} + \dots - 1952y + 64$ |
| c_4, c_{10} | $y^{32} + 18y^{31} + \dots - 13631488y + 4194304$ |
| c_6, c_9 | $y^{32} + 20y^{31} + \dots - 26112y + 4096$ |
| c_7, c_{11} | $y^{32} - 2y^{31} + \dots + 7y + 1$ |

(vi) Complex Volumes and Cusp Shapes

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-----------------------|
| $u = -0.069081 + 0.991260I$ $a = -1.59237 - 0.40807I$ $b = 0.981760 - 0.539794I$ | $2.80061 + 0.23375I$ | $8.56360 + 0.I$ |
| $u = -0.069081 - 0.991260I$ $a = -1.59237 + 0.40807I$ $b = 0.981760 + 0.539794I$ | $2.80061 - 0.23375I$ | $8.56360 + 0.I$ |
| $u = 0.963662 + 0.325614I$ $a = -0.260995 + 0.288100I$ $b = -0.701262 - 0.982261I$ | $-7.41499 + 4.16698I$ | $-7.97108 - 5.36120I$ |
| $u = 0.963662 - 0.325614I$ $a = -0.260995 - 0.288100I$ $b = -0.701262 + 0.982261I$ | $-7.41499 - 4.16698I$ | $-7.97108 + 5.36120I$ |
| $u = -0.011548 + 0.974177I$ $a = 2.17659 + 0.12878I$ $b = -1.12385 + 1.01238I$ | $-1.44736 - 2.80022I$ | $2.50557 + 2.98682I$ |
| $u = -0.011548 - 0.974177I$ $a = 2.17659 - 0.12878I$ $b = -1.12385 - 1.01238I$ | $-1.44736 + 2.80022I$ | $2.50557 - 2.98682I$ |
| $u = -0.390961 + 1.072250I$ $a = 0.784641 + 0.086239I$ $b = -0.460785 + 0.225412I$ | $0.01128 + 2.43267I$ | 0 |
| $u = -0.390961 - 1.072250I$ $a = 0.784641 - 0.086239I$ $b = -0.460785 - 0.225412I$ | $0.01128 - 2.43267I$ | 0 |
| $u = 1.162110 + 0.060966I$ $a = -0.050223 - 0.185144I$ $b = 0.697927 + 1.083640I$ | $-8.5372 + 12.2214I$ | 0 |
| $u = 1.162110 - 0.060966I$ $a = -0.050223 + 0.185144I$ $b = 0.697927 - 1.083640I$ | $-8.5372 - 12.2214I$ | 0 |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|----------------------|
| $u = 0.293991 + 1.175380I$ $a = -1.58096 - 0.16342I$ $b = 1.089410 - 0.886387I$ | $4.59065 - 3.34198I$ | 0 |
| $u = 0.293991 - 1.175380I$ $a = -1.58096 + 0.16342I$ $b = 1.089410 + 0.886387I$ | $4.59065 + 3.34198I$ | 0 |
| $u = -0.017338 + 0.774002I$ $a = 0.181918 + 1.187670I$ $b = -0.631219 - 0.362074I$ | $-1.67497 + 2.82103I$ | $2.81601 - 3.13394I$ |
| $u = -0.017338 - 0.774002I$ $a = 0.181918 - 1.187670I$ $b = -0.631219 + 0.362074I$ | $-1.67497 - 2.82103I$ | $2.81601 + 3.13394I$ |
| $u = 0.689766 + 1.084060I$ $a = -0.976191 - 0.334653I$ $b = 1.023330 - 0.579332I$ | $0.94528 - 2.67893I$ | 0 |
| $u = 0.689766 - 1.084060I$ $a = -0.976191 + 0.334653I$ $b = 1.023330 + 0.579332I$ | $0.94528 + 2.67893I$ | 0 |
| $u = 0.568936 + 1.193230I$ $a = 1.59592 - 0.00124I$ $b = -1.16760 + 1.18399I$ | $-4.66339 - 9.68262I$ | 0 |
| $u = 0.568936 - 1.193230I$ $a = 1.59592 + 0.00124I$ $b = -1.16760 - 1.18399I$ | $-4.66339 + 9.68262I$ | 0 |
| $u = 0.215422 + 1.325080I$ $a = 1.087280 + 0.231048I$ $b = -0.856658 + 0.452941I$ | $5.14597 + 1.67947I$ | 0 |
| $u = 0.215422 - 1.325080I$ $a = 1.087280 - 0.231048I$ $b = -0.856658 - 0.452941I$ | $5.14597 - 1.67947I$ | 0 |

| Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|----------------------|
| $u = 1.380870 + 0.268452I$ $a = 0.081994 + 0.203286I$ $b = -0.477164 - 0.458499I$ | $-1.75461 + 5.81807I$ | 0 |
| $u = 1.380870 - 0.268452I$ $a = 0.081994 - 0.203286I$ $b = -0.477164 + 0.458499I$ | $-1.75461 - 5.81807I$ | 0 |
| $u = 0.58508 + 1.34607I$ $a = -1.62335 + 0.16272I$ $b = 1.17347 - 1.23003I$ | $-4.5311 - 18.3328I$ | 0 |
| $u = 0.58508 - 1.34607I$ $a = -1.62335 - 0.16272I$ $b = 1.17347 + 1.23003I$ | $-4.5311 + 18.3328I$ | 0 |
| $u = 0.63966 + 1.32722I$ $a = 1.276940 + 0.097523I$ $b = -1.102100 + 0.817123I$ | $1.78578 - 12.54500I$ | 0 |
| $u = 0.63966 - 1.32722I$ $a = 1.276940 - 0.097523I$ $b = -1.102100 - 0.817123I$ | $1.78578 + 12.54500I$ | 0 |
| $u = 0.91660 + 1.20168I$ $a = -0.567740 - 0.360034I$ $b = 0.833279 - 0.130849I$ | $0.68711 - 4.21425I$ | 0 |
| $u = 0.91660 - 1.20168I$ $a = -0.567740 + 0.360034I$ $b = 0.833279 + 0.130849I$ | $0.68711 + 4.21425I$ | 0 |
| $u = 0.326786 + 0.069422I$ $a = 0.97596 - 1.03690I$ $b = 0.615647 - 0.339196I$ | $1.110970 - 0.707958I$ | $6.93245 + 3.29648I$ |
| $u = 0.326786 - 0.069422I$ $a = 0.97596 + 1.03690I$ $b = 0.615647 + 0.339196I$ | $1.110970 + 0.707958I$ | $6.93245 - 3.29648I$ |

| | Solutions to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|-------|------------------------|---------------------------------------|------------|
| $u =$ | $0.74605 + 1.70600I$ | $-3.50340 + 5.56191I$ | 0 |
| $a =$ | $0.115579 - 0.368848I$ | | |
| $b =$ | $0.105807 + 0.403642I$ | | |
| $u =$ | $0.74605 - 1.70600I$ | $-3.50340 - 5.56191I$ | 0 |
| $a =$ | $0.115579 + 0.368848I$ | | |
| $b =$ | $0.105807 - 0.403642I$ | | |

$$\text{II. } I_2^u = \langle -3.06 \times 10^9 a^5 u^{10} + 2.61 \times 10^6 a^4 u^{10} + \dots - 8.34 \times 10^7 a - 3.86 \times 10^8, u^{10} a^4 - 2u^{10} a^3 + \dots + 17a + 26, u^{11} + 3u^{10} + \dots + 2u + 1 \rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ 15.4325a^5 u^{10} - 0.0131231a^4 u^{10} + \dots + 0.420069a + 1.94485 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 18.7665a^5 u^{10} - 0.397589a^4 u^{10} + \dots + 1.28801a - 0.233448 \\ -3.33405a^5 u^{10} + 0.384466a^4 u^{10} + \dots + 0.132055a + 2.17830 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -15.4325a^5 u^{10} + 0.0131231a^4 u^{10} + \dots + 0.579931a - 1.94485 \\ -3.33405a^5 u^{10} + 0.384466a^4 u^{10} + \dots + 0.132055a + 2.17830 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -9.34723a^5 u^{10} - 4.17923a^4 u^{10} + \dots - 1.73376a + 3.01241 \\ -11.6963a^5 u^{10} - 5.05510a^4 u^{10} + \dots + 0.553825a - 1.80148 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 27.6580a^5 u^{10} + 14.2554a^4 u^{10} + \dots - 0.232159a - 1.97655 \\ -11.2026a^5 u^{10} - 4.82036a^4 u^{10} + \dots - 1.18924a + 2.53573 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 10.1325a^5 u^{10} - 0.446147a^4 u^{10} + \dots + 0.381091a + 2.69045 \\ -5.54424a^5 u^{10} + 0.245395a^4 u^{10} + \dots + 2.22025a - 2.46057 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -77.2129a^5 u^{10} - 33.1153a^4 u^{10} + \dots - 0.660872a - 0.00581236 \\ 24.7170a^5 u^{10} + 10.4299a^4 u^{10} + \dots + 0.680370a + 0.715387 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -77.2129a^5 u^{10} - 33.1153a^4 u^{10} + \dots - 0.660872a - 0.00581236 \\ 24.7170a^5 u^{10} + 10.4299a^4 u^{10} + \dots + 0.680370a + 0.715387 \end{pmatrix}$$

(ii) Obstruction class = -1

$$\text{(iii) Cusp Shapes} = \frac{4036276680}{198570719} u^{10} a^5 - \frac{180111700}{198570719} u^{10} a^4 + \dots + \frac{284371904}{198570719} a - \frac{303474202}{198570719}$$

(iv) u-Polynomials at the component

| Crossings | u-Polynomials at each crossing |
|---------------|--|
| c_1, c_8 | $u^{66} + u^{65} + \dots + 345266u + 66193$ |
| c_2, c_5 | $u^{66} - u^{65} + \dots + 30u + 1$ |
| c_3 | $(u^{11} + 5u^{10} + 12u^9 + 15u^8 + 8u^7 - 4u^6 - 8u^5 - 3u^4 + 3u^3 + 3u^2 - 1)^6$ |
| c_4, c_{10} | $(u^3 + u^2 + 2u + 1)^{22}$ |
| c_6, c_9 | $(u^{11} + 3u^{10} + \dots + 2u + 1)^6$ |
| c_7, c_{11} | $u^{66} + 3u^{65} + \dots + 2656u + 691$ |

(v) Riley Polynomials at the component

| Crossings | Riley Polynomials at each crossing |
|---------------|--|
| c_1, c_8 | $y^{66} + 27y^{65} + \dots + 109594377816y + 4381513249$ |
| c_2, c_5 | $y^{66} + 15y^{65} + \dots - 104y + 1$ |
| c_3 | $(y^{11} - y^{10} + \dots + 6y - 1)^6$ |
| c_4, c_{10} | $(y^3 + 3y^2 + 2y - 1)^{22}$ |
| c_6, c_9 | $(y^{11} + 7y^{10} + \dots - 6y - 1)^6$ |
| c_7, c_{11} | $y^{66} - 25y^{65} + \dots - 19619480y + 477481$ |

(vi) Complex Volumes and Cusp Shapes

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|------------------------|
| $u = 0.253759 + 0.946686I$ $a = 0.665253 + 0.858657I$ $b = -0.283695 + 1.126660I$ | $-4.53141 - 2.38817I$ | $-3.94579 + 6.03333I$ |
| $u = 0.253759 + 0.946686I$ $a = 0.400243 + 0.809909I$ $b = -0.50925 - 1.57544I$ | $-0.39383 - 5.21629I$ | $2.58348 + 9.01278I$ |
| $u = 0.253759 + 0.946686I$ $a = -2.38419 + 0.38315I$ $b = 0.697054 - 0.297456I$ | $-0.39383 - 5.21629I$ | $2.58348 + 9.01278I$ |
| $u = 0.253759 + 0.946686I$ $a = -1.41166 - 2.08569I$ $b = 1.62854 + 2.14254I$ | $-4.53141 - 8.04441I$ | $-3.94579 + 11.99222I$ |
| $u = 0.253759 + 0.946686I$ $a = 2.81803 - 0.28780I$ $b = -1.78265 + 0.86501I$ | $-4.53141 - 2.38817I$ | $-3.94579 + 6.03333I$ |
| $u = 0.253759 + 0.946686I$ $a = 2.54048 - 1.25869I$ $b = 0.001211 + 0.219744I$ | $-4.53141 - 8.04441I$ | $-3.94579 + 11.99222I$ |
| $u = 0.253759 - 0.946686I$ $a = 0.665253 - 0.858657I$ $b = -0.283695 - 1.126660I$ | $-4.53141 + 2.38817I$ | $-3.94579 - 6.03333I$ |
| $u = 0.253759 - 0.946686I$ $a = 0.400243 - 0.809909I$ $b = -0.50925 + 1.57544I$ | $-0.39383 + 5.21629I$ | $2.58348 - 9.01278I$ |
| $u = 0.253759 - 0.946686I$ $a = -2.38419 - 0.38315I$ $b = 0.697054 + 0.297456I$ | $-0.39383 + 5.21629I$ | $2.58348 - 9.01278I$ |
| $u = 0.253759 - 0.946686I$ $a = -1.41166 + 2.08569I$ $b = 1.62854 - 2.14254I$ | $-4.53141 + 8.04441I$ | $-3.94579 - 11.99222I$ |

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|------------------------|
| $u = 0.253759 - 0.946686I$ $a = 2.81803 + 0.28780I$ $b = -1.78265 - 0.86501I$ | $-4.53141 + 2.38817I$ | $-3.94579 - 6.03333I$ |
| $u = 0.253759 - 0.946686I$ $a = 2.54048 + 1.25869I$ $b = 0.001211 - 0.219744I$ | $-4.53141 + 8.04441I$ | $-3.94579 - 11.99222I$ |
| $u = -1.10821$ $a = -0.326400 + 0.336410I$ $b = 0.74092 - 1.23654I$ | $-7.04782 - 2.82812I$ | $-15.7711 + 2.9794I$ |
| $u = -1.10821$ $a = -0.326400 - 0.336410I$ $b = 0.74092 + 1.23654I$ | $-7.04782 + 2.82812I$ | $-15.7711 - 2.9794I$ |
| $u = -1.10821$ $a = 0.230392 + 0.070664I$ $b = -0.121109 - 0.723675I$ | -2.91024 | $-9.24183 + 0.I$ |
| $u = -1.10821$ $a = 0.230392 - 0.070664I$ $b = -0.121109 + 0.723675I$ | -2.91024 | $-9.24183 + 0.I$ |
| $u = -1.10821$ $a = -0.209195 + 0.118260I$ $b = -0.459379 + 0.997538I$ | $-7.04782 - 2.82812I$ | $-15.7711 + 2.9794I$ |
| $u = -1.10821$ $a = -0.209195 - 0.118260I$ $b = -0.459379 - 0.997538I$ | $-7.04782 + 2.82812I$ | $-15.7711 - 2.9794I$ |
| $u = -0.572881 + 0.536287I$ $a = -0.178622 - 0.995404I$ $b = -0.391403 - 1.054420I$ | $-5.09306 + 5.07591I$ | $-7.14557 - 8.04304I$ |
| $u = -0.572881 + 0.536287I$ $a = 1.097050 - 0.676541I$ $b = -0.663433 - 0.206361I$ | $-0.95548 + 2.24779I$ | $-0.61631 - 5.06360I$ |

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|-----------------------|
| $u = -0.572881 + 0.536287I$ $a = -1.198410 + 0.589737I$ $b = -0.430728 + 0.376103I$ | $-5.09306 - 0.58034I$ | $-7.14557 - 2.08415I$ |
| $u = -0.572881 + 0.536287I$ $a = 0.31292 + 1.45222I$ $b = 0.41533 - 1.42699I$ | $-5.09306 - 0.58034I$ | $-7.14557 - 2.08415I$ |
| $u = -0.572881 + 0.536287I$ $a = 0.212405 + 0.031411I$ $b = 0.225077 + 0.738341I$ | $-0.95548 + 2.24779I$ | $-0.61631 - 5.06360I$ |
| $u = -0.572881 + 0.536287I$ $a = -1.98001 + 0.45319I$ $b = 1.42585 + 0.86861I$ | $-5.09306 + 5.07591I$ | $-7.14557 - 8.04304I$ |
| $u = -0.572881 - 0.536287I$ $a = -0.178622 + 0.995404I$ $b = -0.391403 + 1.054420I$ | $-5.09306 - 5.07591I$ | $-7.14557 + 8.04304I$ |
| $u = -0.572881 - 0.536287I$ $a = 1.097050 + 0.676541I$ $b = -0.663433 + 0.206361I$ | $-0.95548 - 2.24779I$ | $-0.61631 + 5.06360I$ |
| $u = -0.572881 - 0.536287I$ $a = -1.198410 - 0.589737I$ $b = -0.430728 - 0.376103I$ | $-5.09306 + 0.58034I$ | $-7.14557 + 2.08415I$ |
| $u = -0.572881 - 0.536287I$ $a = 0.31292 - 1.45222I$ $b = 0.41533 + 1.42699I$ | $-5.09306 + 0.58034I$ | $-7.14557 + 2.08415I$ |
| $u = -0.572881 - 0.536287I$ $a = 0.212405 - 0.031411I$ $b = 0.225077 - 0.738341I$ | $-0.95548 - 2.24779I$ | $-0.61631 + 5.06360I$ |
| $u = -0.572881 - 0.536287I$ $a = -1.98001 - 0.45319I$ $b = 1.42585 - 0.86861I$ | $-5.09306 - 5.07591I$ | $-7.14557 + 8.04304I$ |

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-----------------------|
| $u = -0.290349 + 1.272230I$ $a = 1.001860 + 0.001395I$ $b = -1.018330 + 0.058723I$ | $-0.03833 + 2.17262I$ | $4.33084 - 3.24807I$ |
| $u = -0.290349 + 1.272230I$ $a = 0.289202 + 0.789207I$ $b = -0.0716992 - 0.0384158I$ | $-0.03833 + 2.17262I$ | $4.33084 - 3.24807I$ |
| $u = -0.290349 + 1.272230I$ $a = 1.178120 - 0.545316I$ $b = -0.654660 - 0.523893I$ | $4.09925 + 5.00074I$ | $10.86010 - 6.22751I$ |
| $u = -0.290349 + 1.272230I$ $a = -1.48808 - 0.39798I$ $b = 1.20830 + 0.97641I$ | $4.09925 + 5.00074I$ | $10.86010 - 6.22751I$ |
| $u = -0.290349 + 1.272230I$ $a = 1.53917 + 0.91664I$ $b = -1.18366 - 1.77329I$ | $-0.03833 + 7.82886I$ | $4.33084 - 9.20696I$ |
| $u = -0.290349 + 1.272230I$ $a = -2.10966 + 0.48565I$ $b = 0.986642 + 0.701021I$ | $-0.03833 + 7.82886I$ | $4.33084 - 9.20696I$ |
| $u = -0.290349 - 1.272230I$ $a = 1.001860 - 0.001395I$ $b = -1.018330 - 0.058723I$ | $-0.03833 - 2.17262I$ | $4.33084 + 3.24807I$ |
| $u = -0.290349 - 1.272230I$ $a = 0.289202 - 0.789207I$ $b = -0.0716992 + 0.0384158I$ | $-0.03833 - 2.17262I$ | $4.33084 + 3.24807I$ |
| $u = -0.290349 - 1.272230I$ $a = 1.178120 + 0.545316I$ $b = -0.654660 + 0.523893I$ | $4.09925 - 5.00074I$ | $10.86010 + 6.22751I$ |
| $u = -0.290349 - 1.272230I$ $a = -1.48808 + 0.39798I$ $b = 1.20830 - 0.97641I$ | $4.09925 - 5.00074I$ | $10.86010 + 6.22751I$ |

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---------------------------------------|-------------------------|
| $u = -0.290349 - 1.272230I$ $a = 1.53917 - 0.91664I$ $b = -1.18366 + 1.77329I$ | $-0.03833 - 7.82886I$ | $4.33084 + 9.20696I$ |
| $u = -0.290349 - 1.272230I$ $a = -2.10966 - 0.48565I$ $b = 0.986642 - 0.701021I$ | $-0.03833 - 7.82886I$ | $4.33084 + 9.20696I$ |
| $u = 0.234018 + 0.605151I$ $a = -0.239136 + 0.416643I$ $b = 0.439230 + 0.995032I$ | $-1.33438 + 2.70441I$ | $-0.448108 + 0.083327I$ |
| $u = 0.234018 + 0.605151I$ $a = 0.06031 + 1.80790I$ $b = -0.74955 - 1.66176I$ | $-5.47196 - 0.12371I$ | $-6.97737 + 3.06277I$ |
| $u = 0.234018 + 0.605151I$ $a = 0.68960 - 1.93675I$ $b = -0.069788 - 1.004720I$ | $-5.47196 + 5.53253I$ | $-6.97737 - 2.89612I$ |
| $u = 0.234018 + 0.605151I$ $a = 2.48198 - 0.52970I$ $b = -0.807451 + 0.451445I$ | $-1.33438 + 2.70441I$ | $-0.448108 + 0.083327I$ |
| $u = 0.234018 + 0.605151I$ $a = -2.55575 + 0.53661I$ $b = -0.249729 - 0.382896I$ | $-5.47196 - 0.12371I$ | $-6.97737 + 3.06277I$ |
| $u = 0.234018 + 0.605151I$ $a = -3.40816 - 0.14493I$ $b = 1.92508 - 0.31327I$ | $-5.47196 + 5.53253I$ | $-6.97737 - 2.89612I$ |
| $u = 0.234018 - 0.605151I$ $a = -0.239136 - 0.416643I$ $b = 0.439230 - 0.995032I$ | $-1.33438 - 2.70441I$ | $-0.448108 - 0.083327I$ |
| $u = 0.234018 - 0.605151I$ $a = 0.06031 - 1.80790I$ $b = -0.74955 + 1.66176I$ | $-5.47196 + 0.12371I$ | $-6.97737 - 3.06277I$ |

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-------------------------|
| $u = 0.234018 - 0.605151I$ $a = 0.68960 + 1.93675I$ $b = -0.069788 + 1.004720I$ | $-5.47196 - 5.53253I$ | $-6.97737 + 2.89612I$ |
| $u = 0.234018 - 0.605151I$ $a = 2.48198 + 0.52970I$ $b = -0.807451 - 0.451445I$ | $-1.33438 - 2.70441I$ | $-0.448108 - 0.083327I$ |
| $u = 0.234018 - 0.605151I$ $a = -2.55575 - 0.53661I$ $b = -0.249729 + 0.382896I$ | $-5.47196 + 0.12371I$ | $-6.97737 - 3.06277I$ |
| $u = 0.234018 - 0.605151I$ $a = -3.40816 + 0.14493I$ $b = 1.92508 + 0.31327I$ | $-5.47196 - 5.53253I$ | $-6.97737 + 2.89612I$ |
| $u = -0.57044 + 1.34258I$ $a = -0.907349 - 0.181245I$ $b = 0.714414 + 0.937746I$ | $1.22875 + 5.92443I$ | $-0.15094 - 10.02355I$ |
| $u = -0.57044 + 1.34258I$ $a = 0.292115 + 0.758984I$ $b = -0.042421 - 0.880536I$ | $-2.90883 + 3.09630I$ | $-6.68021 - 7.04410I$ |
| $u = -0.57044 + 1.34258I$ $a = 1.231120 + 0.121507I$ $b = -0.84877 - 1.26334I$ | $-2.90883 + 8.75255I$ | $-6.6802 - 13.0030I$ |
| $u = -0.57044 + 1.34258I$ $a = 1.305750 - 0.011564I$ $b = -0.905606 - 0.690569I$ | $1.22875 + 5.92443I$ | $-0.15094 - 10.02355I$ |
| $u = -0.57044 + 1.34258I$ $a = -0.564946 - 0.141760I$ $b = 0.020758 + 0.404573I$ | $-2.90883 + 3.09630I$ | $-6.68021 - 7.04410I$ |
| $u = -0.57044 + 1.34258I$ $a = -1.88445 - 0.29051I$ $b = 1.31490 + 1.16469I$ | $-2.90883 + 8.75255I$ | $-6.6802 - 13.0030I$ |

| Solutions to I_2^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|------------------------|
| $u = -0.57044 - 1.34258I$ $a = -0.907349 + 0.181245I$ $b = 0.714414 - 0.937746I$ | $1.22875 - 5.92443I$ | $-0.15094 + 10.02355I$ |
| $u = -0.57044 - 1.34258I$ $a = 0.292115 - 0.758984I$ $b = -0.042421 + 0.880536I$ | $-2.90883 - 3.09630I$ | $-6.68021 + 7.04410I$ |
| $u = -0.57044 - 1.34258I$ $a = 1.231120 - 0.121507I$ $b = -0.84877 + 1.26334I$ | $-2.90883 - 8.75255I$ | $-6.6802 + 13.0030I$ |
| $u = -0.57044 - 1.34258I$ $a = 1.305750 + 0.011564I$ $b = -0.905606 + 0.690569I$ | $1.22875 - 5.92443I$ | $-0.15094 + 10.02355I$ |
| $u = -0.57044 - 1.34258I$ $a = -0.564946 + 0.141760I$ $b = 0.020758 - 0.404573I$ | $-2.90883 - 3.09630I$ | $-6.68021 + 7.04410I$ |
| $u = -0.57044 - 1.34258I$ $a = -1.88445 + 0.29051I$ $b = 1.31490 - 1.16469I$ | $-2.90883 - 8.75255I$ | $-6.6802 + 13.0030I$ |

$$\text{III. } I_3^u = \langle 66u^{17} - 107u^{16} + \dots + 241b + 1451, -1781u^{17} + 8120u^{16} + \dots + 1205a - 4294, u^{18} - 5u^{17} + \dots - 16u + 5 \rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.47801u^{17} - 6.73859u^{16} + \dots + 0.624066u + 3.56349 \\ -0.273859u^{17} + 0.443983u^{16} + \dots + 16.8091u - 6.02075 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 0.552697u^{17} - 2.04149u^{16} + \dots - 9.77842u + 4.93278 \\ 0.651452u^{17} - 4.25311u^{16} + \dots + 27.2116u - 7.39004 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.756017u^{17} - 2.47718u^{16} + \dots - 13.1519u + 6.32697 \\ 0.730290u^{17} - 4.85062u^{16} + \dots + 30.8423u - 9.27801 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.270539u^{17} + 1.00830u^{16} + \dots + 9.03568u - 4.42656 \\ -0.199170u^{17} + 1.14108u^{16} + \dots - 10.5934u + 2.34855 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.824896u^{17} - 3.76763u^{16} + \dots + 12.7992u - 1.34357 \\ -0.190871u^{17} + 0.551867u^{16} + \dots + 6.47303u - 4.16598 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.578423u^{17} + 2.66805u^{16} + \dots - 11.2274u + 1.46224 \\ 0.356846u^{17} - 1.33610u^{16} + \dots + 1.85477u + 1.87552 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.148548u^{17} + 0.746888u^{16} + \dots - 16.3884u + 5.40996 \\ 0.273859u^{17} - 1.44398u^{16} + \dots + 9.19087u - 0.979253 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.148548u^{17} + 0.746888u^{16} + \dots - 16.3884u + 5.40996 \\ 0.273859u^{17} - 1.44398u^{16} + \dots + 9.19087u - 0.979253 \end{pmatrix}$$

(ii) Obstruction class = 1

$$\text{(iii) Cusp Shapes} = -\frac{223}{241}u^{17} + \frac{1132}{241}u^{16} + \dots + \frac{2795}{241}u - \frac{1357}{241}$$

(iv) u-Polynomials at the component

| Crossings | u-Polynomials at each crossing |
|---------------|---------------------------------------|
| c_1, c_8 | $u^{18} + 4u^{16} + \dots + 7u + 1$ |
| c_2, c_5 | $u^{18} + 2u^{16} + \dots - 4u + 1$ |
| c_3 | $u^{18} + 7u^{17} + \dots - 3u^2 + 1$ |
| c_4 | $u^{18} - u^{17} + \dots - 6u + 1$ |
| c_6 | $u^{18} - 5u^{17} + \dots - 16u + 5$ |
| c_7, c_{11} | $u^{18} - 4u^{16} + \dots - u + 1$ |
| c_9 | $u^{18} + 5u^{17} + \dots + 16u + 5$ |
| c_{10} | $u^{18} + u^{17} + \dots + 6u + 1$ |

(v) Riley Polynomials at the component

| Crossings | Riley Polynomials at each crossing |
|---------------|---|
| c_1, c_8 | $y^{18} + 8y^{17} + \dots - 21y + 1$ |
| c_2, c_5 | $y^{18} + 4y^{17} + \dots + 4y + 1$ |
| c_3 | $y^{18} - 5y^{17} + \dots - 6y + 1$ |
| c_4, c_{10} | $y^{18} + 15y^{17} + \dots + 4y + 1$ |
| c_6, c_9 | $y^{18} + 13y^{17} + \dots + 214y + 25$ |
| c_7, c_{11} | $y^{18} - 8y^{17} + \dots + 11y + 1$ |

(vi) Complex Volumes and Cusp Shapes

| Solutions to I_3^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|-----------------------|
| $u = 0.945623 + 0.063125I$ $a = -0.1061120 - 0.0121349I$ $b = -0.614760 - 1.047870I$ | $-6.16858 + 2.75750I$ | $-3.49652 - 2.03527I$ |
| $u = 0.945623 - 0.063125I$ $a = -0.1061120 + 0.0121349I$ $b = -0.614760 + 1.047870I$ | $-6.16858 - 2.75750I$ | $-3.49652 + 2.03527I$ |
| $u = -0.121403 + 0.920479I$ $a = -2.30763 + 0.11393I$ $b = 1.02835 - 1.06240I$ | $-4.26101 + 6.96134I$ | $-0.45344 - 3.31304I$ |
| $u = -0.121403 - 0.920479I$ $a = -2.30763 - 0.11393I$ $b = 1.02835 + 1.06240I$ | $-4.26101 - 6.96134I$ | $-0.45344 + 3.31304I$ |
| $u = 0.703933 + 0.909715I$ $a = -0.493633 + 0.370978I$ $b = -0.034790 - 0.741627I$ | $-3.13660 - 2.04248I$ | $-8.03181 + 1.04501I$ |
| $u = 0.703933 - 0.909715I$ $a = -0.493633 - 0.370978I$ $b = -0.034790 + 0.741627I$ | $-3.13660 + 2.04248I$ | $-8.03181 - 1.04501I$ |
| $u = 0.107214 + 0.769216I$ $a = 2.12565 + 0.27529I$ $b = -0.911622 + 1.079050I$ | $-4.79164 - 1.12477I$ | $-4.07222 + 0.30940I$ |
| $u = 0.107214 - 0.769216I$ $a = 2.12565 - 0.27529I$ $b = -0.911622 - 1.079050I$ | $-4.79164 + 1.12477I$ | $-4.07222 - 0.30940I$ |
| $u = -0.349295 + 0.666891I$ $a = 1.28555 - 0.78686I$ $b = -0.288199 + 0.696637I$ | $-1.10919 + 4.12373I$ | $-1.88941 - 5.48534I$ |
| $u = -0.349295 - 0.666891I$ $a = 1.28555 + 0.78686I$ $b = -0.288199 - 0.696637I$ | $-1.10919 - 4.12373I$ | $-1.88941 + 5.48534I$ |

| Solutions to I_3^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|--|---------------------------------------|----------------------|
| $u = 0.316716 + 1.263680I$ $a = -1.303310 + 0.140290I$ $b = 0.785901 - 0.891884I$ | $2.98236 - 5.05603I$ | $1.84351 + 6.46293I$ |
| $u = 0.316716 - 1.263680I$ $a = -1.303310 - 0.140290I$ $b = 0.785901 + 0.891884I$ | $2.98236 + 5.05603I$ | $1.84351 - 6.46293I$ |
| $u = -0.444613 + 1.319520I$ $a = -0.199786 - 0.562083I$ $b = 0.318141 + 0.281100I$ | $-3.21225 - 5.29580I$ | $0.74146 + 1.80585I$ |
| $u = -0.444613 - 1.319520I$ $a = -0.199786 + 0.562083I$ $b = 0.318141 - 0.281100I$ | $-3.21225 + 5.29580I$ | $0.74146 - 1.80585I$ |
| $u = 0.521622 + 1.303650I$ $a = 1.58799 - 0.17208I$ $b = -1.07771 + 1.20294I$ | $-2.32494 - 8.08359I$ | $0.75623 + 4.20031I$ |
| $u = 0.521622 - 1.303650I$ $a = 1.58799 + 0.17208I$ $b = -1.07771 - 1.20294I$ | $-2.32494 + 8.08359I$ | $0.75623 - 4.20031I$ |
| $u = 0.82020 + 1.23611I$ $a = -0.688713 - 0.233947I$ $b = 0.794690 - 0.338629I$ | $0.63771 - 3.68071I$ | $0.60220 + 3.30279I$ |
| $u = 0.82020 - 1.23611I$ $a = -0.688713 + 0.233947I$ $b = 0.794690 + 0.338629I$ | $0.63771 + 3.68071I$ | $0.60220 - 3.30279I$ |

IV. u-Polynomials

| Crossings | u-Polynomials at each crossing |
|---------------|---|
| c_1, c_8 | $(u^{18} + 4u^{16} + \dots + 7u + 1)(u^{32} + 7u^{30} + \dots + 9u + 7)$ $\cdot (u^{66} + u^{65} + \dots + 345266u + 66193)$ |
| c_2, c_5 | $(u^{18} + 2u^{16} + \dots - 4u + 1)(u^{32} - 3u^{30} + \dots + 2u + 1)$ $\cdot (u^{66} - u^{65} + \dots + 30u + 1)$ |
| c_3 | $(u^{11} + 5u^{10} + 12u^9 + 15u^8 + 8u^7 - 4u^6 - 8u^5 - 3u^4 + 3u^3 + 3u^2 - 1)^6$ $\cdot (u^{18} + 7u^{17} + \dots - 3u^2 + 1)(u^{32} - 24u^{31} + \dots - 32u + 8)$ |
| c_4 | $((u^3 + u^2 + 2u + 1)^{22})(u^{18} - u^{17} + \dots - 6u + 1)$ $\cdot (u^{32} - 22u^{31} + \dots - 31744u + 2048)$ |
| c_6 | $((u^{11} + 3u^{10} + \dots + 2u + 1)^6)(u^{18} - 5u^{17} + \dots - 16u + 5)$ $\cdot (u^{32} - 16u^{31} + \dots - 928u + 64)$ |
| c_7, c_{11} | $(u^{18} - 4u^{16} + \dots - u + 1)(u^{32} + 2u^{31} + \dots + u + 1)$ $\cdot (u^{66} + 3u^{65} + \dots + 2656u + 691)$ |
| c_9 | $((u^{11} + 3u^{10} + \dots + 2u + 1)^6)(u^{18} + 5u^{17} + \dots + 16u + 5)$ $\cdot (u^{32} - 16u^{31} + \dots - 928u + 64)$ |
| c_{10} | $((u^3 + u^2 + 2u + 1)^{22})(u^{18} + u^{17} + \dots + 6u + 1)$ $\cdot (u^{32} - 22u^{31} + \dots - 31744u + 2048)$ |

V. Riley Polynomials

| Crossings | Riley Polynomials at each crossing |
|---------------|---|
| c_1, c_8 | $(y^{18} + 8y^{17} + \dots - 21y + 1)(y^{32} + 14y^{31} + \dots + 255y + 49)$ $\cdot (y^{66} + 27y^{65} + \dots + 109594377816y + 4381513249)$ |
| c_2, c_5 | $(y^{18} + 4y^{17} + \dots + 4y + 1)(y^{32} - 6y^{31} + \dots - 4y + 1)$ $\cdot (y^{66} + 15y^{65} + \dots - 104y + 1)$ |
| c_3 | $((y^{11} - y^{10} + \dots + 6y - 1)^6)(y^{18} - 5y^{17} + \dots - 6y + 1)$ $\cdot (y^{32} - 6y^{31} + \dots - 1952y + 64)$ |
| c_4, c_{10} | $((y^3 + 3y^2 + 2y - 1)^{22})(y^{18} + 15y^{17} + \dots + 4y + 1)$ $\cdot (y^{32} + 18y^{31} + \dots - 13631488y + 4194304)$ |
| c_6, c_9 | $((y^{11} + 7y^{10} + \dots - 6y - 1)^6)(y^{18} + 13y^{17} + \dots + 214y + 25)$ $\cdot (y^{32} + 20y^{31} + \dots - 26112y + 4096)$ |
| c_7, c_{11} | $(y^{18} - 8y^{17} + \dots + 11y + 1)(y^{32} - 2y^{31} + \dots + 7y + 1)$ $\cdot (y^{66} - 25y^{65} + \dots - 19619480y + 477481)$ |