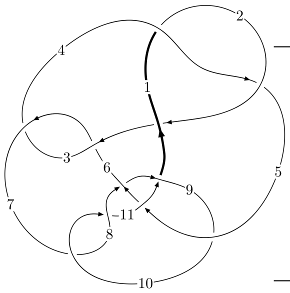
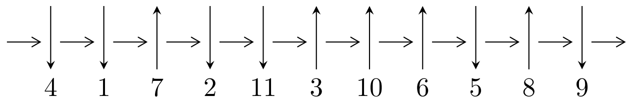
# $11a_{24}$ ($K11a_{24}$)




A knot diagram[1]

**Linearized knot diagam**




**Solving Sequence**

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

**Ideals for irreducible components[2]of $X_{\mathbf{par}}$**

$$I_1^u = \langle 1.30067 \times 10^{214} u^{83} - 4.91022 \times 10^{214} u^{82} + \cdots + 8.55509 \times 10^{215} b - 2.17725 \times 10^{215},$$
$$8.45896 \times 10^{215} u^{83} + 3.25448 \times 10^{216} u^{82} + \cdots + 8.55509 \times 10^{215} a - 2.49116 \times 10^{216},\ u^{84} + 2u^{83} + \cdots + 14u$$
$$I_2^u = \langle u^3 + u^2 + b - 1,\ -u^5 - u^4 + u^2 + a + u + 1,\ u^6 + u^5 - u^4 - 2u^3 + u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 90 representations.

[1]The 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`).

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

**I.** $\boldsymbol{I_1^u = \langle 1.30 \times 10^{214} u^{83} - 4.91 \times 10^{214} u^{82} + \cdots + 8.56 \times 10^{215} b - 2.18 \times 10^{215},\ 8.46 \times 10^{215} u^{83} + 3.25 \times 10^{216} u^{82} + \cdots + 8.56 \times 10^{215} a - 2.49 \times 10^{216},\ u^{84} + 2u^{83} + \cdots + 14u + 1 \rangle}$

**(i) Arc colorings**

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.988763u^{83} - 3.80414u^{82} + \cdots - 6.80025u + 2.91191 \\ -0.0152035u^{83} + 0.0573954u^{82} + \cdots - 3.42563u + 0.254498 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -1.04577u^{83} - 4.16450u^{82} + \cdots - 4.88381u + 2.99155 \\ 0.0467883u^{83} + 0.218798u^{82} + \cdots - 1.83625u + 0.421194 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1.24732u^{83} - 2.76350u^{82} + \cdots - 86.8323u - 7.08081 \\ -0.169313u^{83} - 0.538520u^{82} + \cdots - 6.89260u - 0.832713 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.41797u^{83} - 4.43349u^{82} + \cdots + 16.8513u + 4.89152 \\ 0.467127u^{83} + 0.263584u^{82} + \cdots + 3.80614u + 0.383121 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.407084u^{83} - 1.47948u^{82} + \cdots - 4.70101u + 1.83199 \\ u^3 - u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.94358u^{83} - 6.48012u^{82} + \cdots - 41.4182u + 1.42713 \\ -0.0634831u^{83} - 0.0744360u^{82} + \cdots - 5.93872u + 0.0614765 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.41663u^{83} - 3.30202u^{82} + \cdots - 93.7249u - 7.91353 \\ -0.169313u^{83} - 0.538520u^{82} + \cdots - 6.89260u - 0.832713 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.41663u^{83} - 3.30202u^{82} + \cdots - 93.7249u - 7.91353 \\ -0.169313u^{83} - 0.538520u^{82} + \cdots - 6.89260u - 0.832713 \end{pmatrix}$$

**(ii) Obstruction class** $= -1$

**(iii) Cusp Shapes** $= 3.48179u^{83} + 6.91671u^{82} + \cdots - 1.21890u - 4.16059$

**(iv) u-Polynomials at the component**

| Crossings | u-Polynomials at each crossing |
|---|---|
| $c_1, c_4$ | $u^{84} - 7u^{83} + \cdots - 3u + 1$ |
| $c_2$ | $u^{84} + 41u^{83} + \cdots - 157u + 1$ |
| $c_3, c_6$ | $u^{84} - u^{83} + \cdots - 320u + 64$ |
| $c_5$ | $u^{84} - 6u^{83} + \cdots - 2u + 1$ |
| $c_7, c_{10}$ | $u^{84} + 2u^{83} + \cdots + 14u + 1$ |
| $c_8$ | $u^{84} + 6u^{83} + \cdots - 1166u - 101$ |
| $c_9$ | $u^{84} + 2u^{83} + \cdots - 418u + 367$ |
| $c_{11}$ | $u^{84} - 14u^{83} + \cdots - 2u + 1$ |

**(v) Riley Polynomials at the component**

| Crossings | Riley Polynomials at each crossing |
|---|---|
| $c_1, c_4$ | $y^{84} - 41y^{83} + \cdots + 157y + 1$ |
| $c_2$ | $y^{84} + 11y^{83} + \cdots - 14895y + 1$ |
| $c_3, c_6$ | $y^{84} - 39y^{83} + \cdots - 61440y + 4096$ |
| $c_5$ | $y^{84} + 14y^{83} + \cdots + 6y + 1$ |
| $c_7, c_{10}$ | $y^{84} - 54y^{83} + \cdots - 14y + 1$ |
| $c_8$ | $y^{84} - 82y^{83} + \cdots - 878594y + 10201$ |
| $c_9$ | $y^{84} - 66y^{83} + \cdots + 5678926y + 134689$ |
| $c_{11}$ | $y^{84} - 6y^{83} + \cdots - 14y + 1$ |

**(vi) Complex Volumes and Cusp Shapes**

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.997274 + 0.064037I$<br>$a = -1.81059 - 1.67983I$<br>$b = -0.108509 + 0.553528I$ | $-0.170119 + 1.192110I$ | 0 |
| $u = 0.997274 - 0.064037I$<br>$a = -1.81059 + 1.67983I$<br>$b = -0.108509 - 0.553528I$ | $-0.170119 - 1.192110I$ | 0 |
| $u = -0.102288 + 0.984625I$<br>$a = -0.16025 - 1.96694I$<br>$b = 0.29383 + 3.01137I$ | $-3.75795 + 2.95090I$ | 0 |
| $u = -0.102288 - 0.984625I$<br>$a = -0.16025 + 1.96694I$<br>$b = 0.29383 - 3.01137I$ | $-3.75795 - 2.95090I$ | 0 |
| $u = -0.664606 + 0.732185I$<br>$a = -0.123840 + 0.343728I$<br>$b = 0.763633 + 0.462053I$ | $-3.09506 + 1.90596I$ | 0 |
| $u = -0.664606 - 0.732185I$<br>$a = -0.123840 - 0.343728I$<br>$b = 0.763633 - 0.462053I$ | $-3.09506 - 1.90596I$ | 0 |
| $u = -0.863087 + 0.537497I$<br>$a = 0.371639 - 0.064568I$<br>$b = 0.655881 - 0.397465I$ | $-2.46714 - 6.77503I$ | 0 |
| $u = -0.863087 - 0.537497I$<br>$a = 0.371639 + 0.064568I$<br>$b = 0.655881 + 0.397465I$ | $-2.46714 + 6.77503I$ | 0 |
| $u = -0.949424 + 0.157182I$<br>$a = -0.074074 + 0.452890I$<br>$b = 0.331741 + 1.326920I$ | $-0.71473 - 2.85212I$ | 0 |
| $u = -0.949424 - 0.157182I$<br>$a = -0.074074 - 0.452890I$<br>$b = 0.331741 - 1.326920I$ | $-0.71473 + 2.85212I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 1.016320 + 0.211690I$<br>$a = 0.675398 + 0.703466I$<br>$b = -0.047691 + 0.460046I$ | $1.89935 + 0.79593I$ | $0$ |
| $u = 1.016320 - 0.211690I$<br>$a = 0.675398 - 0.703466I$<br>$b = -0.047691 - 0.460046I$ | $1.89935 - 0.79593I$ | $0$ |
| $u = -1.018820 + 0.211435I$<br>$a = -0.112800 + 0.423033I$<br>$b = -0.549106 + 0.960886I$ | $1.52052 - 3.66155I$ | $0$ |
| $u = -1.018820 - 0.211435I$<br>$a = -0.112800 - 0.423033I$<br>$b = -0.549106 - 0.960886I$ | $1.52052 + 3.66155I$ | $0$ |
| $u = -0.059119 + 1.083010I$<br>$a = 0.054493 - 0.690871I$<br>$b = -1.11124 + 1.07233I$ | $-3.10217 + 5.44544I$ | $0$ |
| $u = -0.059119 - 1.083010I$<br>$a = 0.054493 + 0.690871I$<br>$b = -1.11124 - 1.07233I$ | $-3.10217 - 5.44544I$ | $0$ |
| $u = 1.082570 + 0.076456I$<br>$a = -3.41552 + 1.14018I$<br>$b = 0.248058 - 0.161656I$ | $3.90317 + 1.17062I$ | $0$ |
| $u = 1.082570 - 0.076456I$<br>$a = -3.41552 - 1.14018I$<br>$b = 0.248058 + 0.161656I$ | $3.90317 - 1.17062I$ | $0$ |
| $u = 0.911327 + 0.012256I$<br>$a = 2.26398 - 4.32538I$<br>$b = -0.798363 + 0.238635I$ | $-0.506438 - 0.641182I$ | $14.9092 + 0.I$ |
| $u = 0.911327 - 0.012256I$<br>$a = 2.26398 + 4.32538I$<br>$b = -0.798363 - 0.238635I$ | $-0.506438 + 0.641182I$ | $14.9092 + 0.I$ |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 1.079110 + 0.152121I$<br>$a = 2.69645 - 1.48029I$<br>$b = -0.222009 + 0.307833I$ | $2.03656 + 6.17754I$ | $0$ |
| $u = 1.079110 - 0.152121I$<br>$a = 2.69645 + 1.48029I$<br>$b = -0.222009 - 0.307833I$ | $2.03656 - 6.17754I$ | $0$ |
| $u = 0.453075 + 0.998389I$<br>$a = -0.39643 + 1.40161I$<br>$b = -0.93881 - 1.91477I$ | $3.23379 + 3.44018I$ | $0$ |
| $u = 0.453075 - 0.998389I$<br>$a = -0.39643 - 1.40161I$<br>$b = -0.93881 + 1.91477I$ | $3.23379 - 3.44018I$ | $0$ |
| $u = -0.437239 + 1.006900I$<br>$a = 0.042406 - 0.448835I$<br>$b = -1.137930 + 0.255603I$ | $-3.77732 - 0.83071I$ | $0$ |
| $u = -0.437239 - 1.006900I$<br>$a = 0.042406 + 0.448835I$<br>$b = -1.137930 - 0.255603I$ | $-3.77732 + 0.83071I$ | $0$ |
| $u = -1.102510 + 0.205014I$<br>$a = 1.050110 + 0.276781I$<br>$b = -0.982351 - 0.112643I$ | $4.58405 - 3.81524I$ | $0$ |
| $u = -1.102510 - 0.205014I$<br>$a = 1.050110 - 0.276781I$<br>$b = -0.982351 + 0.112643I$ | $4.58405 + 3.81524I$ | $0$ |
| $u = -0.869525 + 0.090739I$<br>$a = -0.215754 + 1.105480I$<br>$b = 1.26313 + 0.82270I$ | $-1.87887 - 1.58264I$ | $-12.5915 + 7.5531I$ |
| $u = -0.869525 - 0.090739I$<br>$a = -0.215754 - 1.105480I$<br>$b = 1.26313 - 0.82270I$ | $-1.87887 + 1.58264I$ | $-12.5915 - 7.5531I$ |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = -1.116610 + 0.326840I$<br>$a = -1.124930 - 0.288206I$<br>$b = 0.860409 + 0.470013I$ | $2.02563 - 9.85203I$ | $0$ |
| $u = -1.116610 - 0.326840I$<br>$a = -1.124930 + 0.288206I$<br>$b = 0.860409 - 0.470013I$ | $2.02563 + 9.85203I$ | $0$ |
| $u = -0.825783$<br>$a = -0.898341$<br>$b = 1.69707$ | $-2.21927$ | $-13.1200$ |
| $u = 0.019790 + 1.184810I$<br>$a = 0.09744 + 1.58758I$<br>$b = -0.74986 - 2.86475I$ | $1.35757 + 6.09736I$ | $0$ |
| $u = 0.019790 - 1.184810I$<br>$a = 0.09744 - 1.58758I$<br>$b = -0.74986 + 2.86475I$ | $1.35757 - 6.09736I$ | $0$ |
| $u = 0.760656 + 0.267559I$<br>$a = -1.60985 - 0.17899I$<br>$b = -0.171440 + 0.438489I$ | $1.30476 - 4.74367I$ | $0.87707 + 10.18383I$ |
| $u = 0.760656 - 0.267559I$<br>$a = -1.60985 + 0.17899I$<br>$b = -0.171440 - 0.438489I$ | $1.30476 + 4.74367I$ | $0.87707 - 10.18383I$ |
| $u = 0.753131 + 0.965934I$<br>$a = 0.474949 - 1.156420I$<br>$b = 1.32505 + 1.38024I$ | $2.30506 - 1.39249I$ | $0$ |
| $u = 0.753131 - 0.965934I$<br>$a = 0.474949 + 1.156420I$<br>$b = 1.32505 - 1.38024I$ | $2.30506 + 1.39249I$ | $0$ |
| $u = -0.058016 + 0.768540I$<br>$a = 0.315104 + 0.734938I$<br>$b = 0.518190 - 0.960123I$ | $-1.24805 + 1.52698I$ | $-2.33035 - 1.80956I$ |

| Solutions to $I_1^u$ | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = -0.058016 - 0.768540I$<br>$a = 0.315104 - 0.734938I$<br>$b = 0.518190 + 0.960123I$ | $-1.24805 - 1.52698I$ | $-2.33035 + 1.80956I$ |
| $u = -0.068869 + 1.265220I$<br>$a = -0.22787 - 1.51980I$<br>$b = 0.81020 + 3.04589I$ | $-1.04730 + 11.43990I$ | 0 |
| $u = -0.068869 - 1.265220I$<br>$a = -0.22787 + 1.51980I$<br>$b = 0.81020 - 3.04589I$ | $-1.04730 - 11.43990I$ | 0 |
| $u = 1.185150 + 0.478372I$<br>$a = -2.83251 + 0.12958I$<br>$b = -0.11437 - 3.23192I$ | $0.55551 + 1.40163I$ | 0 |
| $u = 1.185150 - 0.478372I$<br>$a = -2.83251 - 0.12958I$<br>$b = -0.11437 + 3.23192I$ | $0.55551 - 1.40163I$ | 0 |
| $u = -1.120340 + 0.633983I$<br>$a = -0.107831 - 0.145857I$<br>$b = -0.478833 - 0.286891I$ | $-1.61526 - 4.99229I$ | 0 |
| $u = -1.120340 - 0.633983I$<br>$a = -0.107831 + 0.145857I$<br>$b = -0.478833 + 0.286891I$ | $-1.61526 + 4.99229I$ | 0 |
| $u = -1.313920 + 0.221045I$<br>$a = 1.40367 - 0.49380I$<br>$b = -0.39515 - 1.46173I$ | $8.69358 - 1.42500I$ | 0 |
| $u = -1.313920 - 0.221045I$<br>$a = 1.40367 + 0.49380I$<br>$b = -0.39515 + 1.46173I$ | $8.69358 + 1.42500I$ | 0 |
| $u = -1.269980 + 0.456591I$<br>$a = 0.019552 + 0.257799I$<br>$b = 0.197110 + 0.903459I$ | $2.49717 - 6.15202I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = -1.269980 - 0.456591I$<br>$a = 0.019552 - 0.257799I$<br>$b = 0.197110 - 0.903459I$ | $2.49717 + 6.15202I$ | 0 |
| $u = -1.287330 + 0.518358I$<br>$a = 2.19968 + 0.03083I$<br>$b = 0.07851 - 2.92753I$ | $-0.05021 - 8.32055I$ | 0 |
| $u = -1.287330 - 0.518358I$<br>$a = 2.19968 - 0.03083I$<br>$b = 0.07851 + 2.92753I$ | $-0.05021 + 8.32055I$ | 0 |
| $u = -1.359920 + 0.328154I$<br>$a = -1.59384 + 0.34412I$<br>$b = 0.13897 + 1.87600I$ | $8.89963 - 7.63957I$ | 0 |
| $u = -1.359920 - 0.328154I$<br>$a = -1.59384 - 0.34412I$<br>$b = 0.13897 - 1.87600I$ | $8.89963 + 7.63957I$ | 0 |
| $u = 1.372270 + 0.321304I$<br>$a = -0.513421 + 1.100380I$<br>$b = -1.12473 + 0.93046I$ | $2.02169 - 0.07920I$ | 0 |
| $u = 1.372270 - 0.321304I$<br>$a = -0.513421 - 1.100380I$<br>$b = -1.12473 - 0.93046I$ | $2.02169 + 0.07920I$ | 0 |
| $u = 1.27275 + 0.62263I$<br>$a = 0.488260 - 0.932888I$<br>$b = 1.53439 - 0.11482I$ | $1.46677 + 3.41872I$ | 0 |
| $u = 1.27275 - 0.62263I$<br>$a = 0.488260 + 0.932888I$<br>$b = 1.53439 + 0.11482I$ | $1.46677 - 3.41872I$ | 0 |
| $u = -1.32371 + 0.54168I$<br>$a = -0.055111 - 0.254827I$<br>$b = -0.432725 - 0.905285I$ | $0.85835 - 11.16100I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u=-1.32371-0.54168I$<br>$a=-0.055111+0.254827I$<br>$b=-0.432725+0.905285I$ | $0.85835+11.16100I$ | $0$ |
| $u=0.533566+0.191258I$<br>$a=2.11026-0.02097I$<br>$b=0.015738-0.400573I$ | $2.75270-0.12135I$ | $4.31662+2.02203I$ |
| $u=0.533566-0.191258I$<br>$a=2.11026+0.02097I$<br>$b=0.015738+0.400573I$ | $2.75270+0.12135I$ | $4.31662-2.02203I$ |
| $u=-1.37591+0.55145I$<br>$a=-1.85420-0.20688I$<br>$b=-0.46756+2.62832I$ | $5.73608-12.12140I$ | $0$ |
| $u=-1.37591-0.55145I$<br>$a=-1.85420+0.20688I$<br>$b=-0.46756-2.62832I$ | $5.73608+12.12140I$ | $0$ |
| $u=-1.37982+0.60344I$<br>$a=1.81821+0.36696I$<br>$b=0.65074-2.69787I$ | $3.1034-17.9006I$ | $0$ |
| $u=-1.37982-0.60344I$<br>$a=1.81821-0.36696I$<br>$b=0.65074+2.69787I$ | $3.1034+17.9006I$ | $0$ |
| $u=-0.133149+0.453460I$<br>$a=-0.79716+2.36462I$<br>$b=0.538862-0.115588I$ | $-0.73011+6.65250I$ | $-2.66432-3.51460I$ |
| $u=-0.133149-0.453460I$<br>$a=-0.79716-2.36462I$<br>$b=0.538862+0.115588I$ | $-0.73011-6.65250I$ | $-2.66432+3.51460I$ |
| $u=1.41107+0.70362I$<br>$a=1.64088-0.08554I$<br>$b=0.22225+3.33896I$ | $5.99281+3.52843I$ | $0$ |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 1.41107 - 0.70362I$<br>$a = 1.64088 + 0.08554I$<br>$b = 0.22225 - 3.33896I$ | $5.99281 - 3.52843I$ | $0$ |
| $u = 1.36356 + 0.82563I$<br>$a = -1.50074 + 0.27918I$<br>$b = -0.07330 - 3.39650I$ | $4.05037 + 8.85752I$ | $0$ |
| $u = 1.36356 - 0.82563I$<br>$a = -1.50074 - 0.27918I$<br>$b = -0.07330 + 3.39650I$ | $4.05037 - 8.85752I$ | $0$ |
| $u = 1.58214 + 0.40524I$<br>$a = 1.51705 + 0.56885I$<br>$b = 0.64537 + 3.02218I$ | $6.53306 + 0.44104I$ | $0$ |
| $u = 1.58214 - 0.40524I$<br>$a = 1.51705 - 0.56885I$<br>$b = 0.64537 - 3.02218I$ | $6.53306 - 0.44104I$ | $0$ |
| $u = 0.049986 + 0.360419I$<br>$a = 1.69770 + 1.17273I$<br>$b = -0.038801 - 0.987614I$ | $-0.95967 + 1.37657I$ | $-3.31883 - 4.67522I$ |
| $u = 0.049986 - 0.360419I$<br>$a = 1.69770 - 1.17273I$<br>$b = -0.038801 + 0.987614I$ | $-0.95967 - 1.37657I$ | $-3.31883 + 4.67522I$ |
| $u = 1.66970 + 0.27894I$<br>$a = -1.30329 - 0.71487I$<br>$b = -0.93162 - 2.84030I$ | $5.01931 - 4.78307I$ | $0$ |
| $u = 1.66970 - 0.27894I$<br>$a = -1.30329 + 0.71487I$<br>$b = -0.93162 + 2.84030I$ | $5.01931 + 4.78307I$ | $0$ |
| $u = 0.013745 + 0.300945I$<br>$a = 1.91747 - 2.87096I$<br>$b = -0.416432 - 0.110948I$ | $1.66501 + 1.71486I$ | $1.361742 - 0.047755I$ |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.013745 - 0.300945I$<br>$a = 1.91747 + 2.87096I$<br>$b = -0.416432 + 0.110948I$ | $1.66501 - 1.71486I$ | $1.361742 + 0.047755I$ |
| $u = -0.234317$<br>$a = 1.53674$<br>$b = 1.46885$ | $-2.49567$ | $-2.13160$ |
| $u = -0.122932 + 0.103046I$<br>$a = 5.15612 - 0.93081I$<br>$b = 0.615821 - 0.504298I$ | $-2.25525 + 1.15492I$ | $-4.97585 - 0.17312I$ |
| $u = -0.122932 - 0.103046I$<br>$a = 5.15612 + 0.93081I$<br>$b = 0.615821 + 0.504298I$ | $-2.25525 - 1.15492I$ | $-4.97585 + 0.17312I$ |

**II.**

$$\boldsymbol{I_2^u = \langle u^3 + u^2 + b - 1,\ -u^5 - u^4 + u^2 + a + u + 1,\ u^6 + u^5 - u^4 - 2u^3 + u + 1\rangle}$$

**(i) Arc colorings**

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^5 + u^4 - u^2 - u - 1 \\ -u^3 - u^2 + 1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^5 + u^4 - u^2 - u - 1 \\ -u^3 - u^2 + 1 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^3 - u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^5 + u^4 + u^3 - u^2 - u - 1 \\ -u^2 - u + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$

**(ii) Obstruction class** $= 1$

**(iii) Cusp Shapes** $= 3u^5 - u^4 + u^3 + 2u^2 + 3u - 5$

**(iv) u-Polynomials at the component**

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

**(v) Riley Polynomials at the component**

| Crossings | Riley Polynomials at each crossing |
|---|---|
| $c_1, c_2, c_4$ | $(y-1)^6$ |
| $c_3, c_6$ | $y^6$ |
| $c_5, c_8$ | $y^6+y^5+5y^4+6y^2+3y+1$ |
| $c_7, c_9, c_{10}$ $c_{11}$ | $y^6-3y^5+5y^4-4y^3+2y^2-y+1$ |

**(vi) Complex Volumes and Cusp Shapes**

| Solutions to $I_2^u$ | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 1.002190 + 0.295542I$<br>$a = -2.25915 + 1.43225I$<br>$b = -0.66103 - 1.45708I$ | $0.245672 + 0.924305I$ | $0.60470 + 5.55069I$ |
| $u = 1.002190 - 0.295542I$<br>$a = -2.25915 - 1.43225I$<br>$b = -0.66103 + 1.45708I$ | $0.245672 - 0.924305I$ | $0.60470 - 5.55069I$ |
| $u = -0.428243 + 0.664531I$<br>$a = -0.655968 - 0.098281I$<br>$b = 0.769407 + 0.497010I$ | $-3.53554 + 0.92430I$ | $-6.31051 - 0.25702I$ |
| $u = -0.428243 - 0.664531I$<br>$a = -0.655968 + 0.098281I$<br>$b = 0.769407 - 0.497010I$ | $-3.53554 - 0.92430I$ | $-6.31051 + 0.25702I$ |
| $u = -1.073950 + 0.558752I$<br>$a = 0.415113 + 0.381252I$<br>$b = 0.391622 - 0.558752I$ | $-1.64493 - 5.69302I$ | $-0.29418 + 8.33058I$ |
| $u = -1.073950 - 0.558752I$<br>$a = 0.415113 - 0.381252I$<br>$b = 0.391622 + 0.558752I$ | $-1.64493 + 5.69302I$ | $-0.29418 - 8.33058I$ |

## III. u-Polynomials

| Crossings | u-Polynomials at each crossing |
|---|---|
| $c_1$ | $((u-1)^6)(u^{84}-7u^{83}+\cdots-3u+1)$ |
| $c_2$ | $((u+1)^6)(u^{84}+41u^{83}+\cdots-157u+1)$ |
| $c_3, c_6$ | $u^6(u^{84}-u^{83}+\cdots-320u+64)$ |
| $c_4$ | $((u+1)^6)(u^{84}-7u^{83}+\cdots-3u+1)$ |
| $c_5$ | $(u^6-3u^5+5u^4-4u^3+2u^2-u+1)(u^{84}-6u^{83}+\cdots-2u+1)$ |
| $c_7$ | $(u^6-u^5-u^4+2u^3-u+1)(u^{84}+2u^{83}+\cdots+14u+1)$ |
| $c_8$ | $(u^6-3u^5+5u^4-4u^3+2u^2-u+1)(u^{84}+6u^{83}+\cdots-1166u-101)$ |
| $c_9$ | $(u^6-u^5-u^4+2u^3-u+1)(u^{84}+2u^{83}+\cdots-418u+367)$ |
| $c_{10}$ | $(u^6+u^5-u^4-2u^3+u+1)(u^{84}+2u^{83}+\cdots+14u+1)$ |
| $c_{11}$ | $(u^6-u^5-u^4+2u^3-u+1)(u^{84}-14u^{83}+\cdots-2u+1)$ |

**IV. Riley Polynomials**

| Crossings | Riley Polynomials at each crossing |
|---|---|
| $c_1, c_4$ | $((y-1)^6)(y^{84} - 41y^{83} + \cdots + 157y + 1)$ |
| $c_2$ | $((y-1)^6)(y^{84} + 11y^{83} + \cdots - 14895y + 1)$ |
| $c_3, c_6$ | $y^6(y^{84} - 39y^{83} + \cdots - 61440y + 4096)$ |
| $c_5$ | $(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)(y^{84} + 14y^{83} + \cdots + 6y + 1)$ |
| $c_7, c_{10}$ | $(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)(y^{84} - 54y^{83} + \cdots - 14y + 1)$ |
| $c_8$ | $(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)(y^{84} - 82y^{83} + \cdots - 878594y + 10201)$ |
| $c_9$ | $(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)$ $\cdot (y^{84} - 66y^{83} + \cdots + 5678926y + 134689)$ |
| $c_{11}$ | $(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)(y^{84} - 6y^{83} + \cdots - 14y + 1)$ |