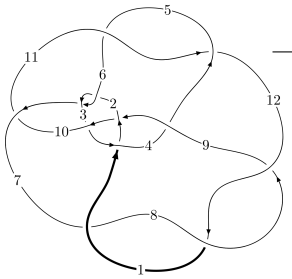
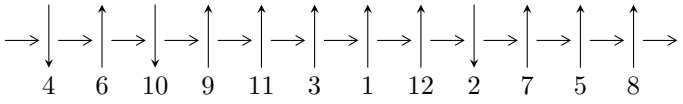
## $12a_{0957}$ $(K12a_{0957})$




A knot diagram[1]

**Linearized knot diagam**




**Solving Sequence**

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

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

$$\begin{aligned} I_1^u = \langle & 6.01890 \times 10^{431} u^{131} + 1.67690 \times 10^{432} u^{130} + \cdots + 1.63556 \times 10^{431} b - 3.45096 \times 10^{434}, \\ & 2.77517 \times 10^{434} u^{131} + 7.86280 \times 10^{434} u^{130} + \cdots + 3.95805 \times 10^{433} a - 1.57625 \times 10^{437}, \\ & u^{132} + 2u^{131} + \cdots - 110u + 484 \rangle \\ I_2^u = \langle & -479758582336010 u^{30} - 1107917736884359 u^{29} + \cdots + 2241847239778 b + 2757014414903866, \\ & - 371686622838711 u^{30} - 869706396241666 u^{29} + \cdots + 2241847239778 a + 2086493761025877, \\ & u^{31} + 3u^{30} + \cdots - 18u - 4 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 163 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.** $\boldsymbol{I_1^u = \langle 6.02 \times 10^{431} u^{131} + 1.68 \times 10^{432} u^{130} + \cdots + 1.64 \times 10^{431} b - 3.45 \times 10^{434},\ 2.78 \times 10^{434} u^{131} + 7.86 \times 10^{434} u^{130} + \cdots + 3.96 \times 10^{433} a - 1.58 \times 10^{437},\ u^{132} + 2u^{131} + \cdots - 110u + 484 \rangle}$

**(i) Arc colorings**

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

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -7.01147u^{131} - 19.8654u^{130} + \cdots + 3685.03u + 3982.40 \\ -3.68003u^{131} - 10.2528u^{130} + \cdots + 1843.90u + 2109.96 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -2.03352u^{131} - 6.90245u^{130} + \cdots - 18.6657u + 556.179 \\ -0.450600u^{131} - 1.95947u^{130} + \cdots - 634.313u - 176.903 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 3.32732u^{131} + 14.7189u^{130} + \cdots + 4001.59u + 1097.20 \\ 0.428259u^{131} + 1.23170u^{130} + \cdots - 81.7935u - 202.244 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -3.33144u^{131} - 9.61255u^{130} + \cdots + 1841.13u + 1872.44 \\ -3.68003u^{131} - 10.2528u^{130} + \cdots + 1843.90u + 2109.96 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1.62545u^{131} - 4.95251u^{130} + \cdots + 818.930u + 842.032 \\ -0.304230u^{131} - 0.850231u^{130} + \cdots + 163.230u + 174.466 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 51.7438u^{131} + 153.988u^{130} + \cdots - 20436.0u - 25629.4 \\ -0.942105u^{131} - 2.64416u^{130} + \cdots + 481.774u + 533.851 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -5.61696u^{131} - 15.5581u^{130} + \cdots + 3561.67u + 3459.46 \\ -1.96769u^{131} - 5.37684u^{130} + \cdots + 1078.36u + 1188.19 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -85.5423u^{131} - 248.486u^{130} + \cdots + 39558.0u + 45553.8 \\ -1.25261u^{131} - 3.59742u^{130} + \cdots + 593.297u + 683.193 \end{pmatrix}$$

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

**(iii) Cusp Shapes** $= 164.847u^{131} + 466.596u^{130} + \cdots - 94982.5u - 96460.8$

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

| Crossings | u-Polynomials at each crossing |
|---|---|
| $c_1$ | $u^{132} - 5u^{131} + \cdots + 319u - 1$ |
| $c_2, c_6$ | $u^{132} + 2u^{131} + \cdots - 110u + 484$ |
| $c_3$ | $u^{132} - u^{131} + \cdots - 150284u - 19367$ |
| $c_4$ | $u^{132} + 3u^{131} + \cdots + 1603714647u - 570362249$ |
| $c_5, c_{11}$ | $u^{132} - u^{131} + \cdots - 3944517u - 299011$ |
| $c_7, c_8, c_{12}$ | $u^{132} + 68u^{130} + \cdots + 19u + 1$ |
| $c_9$ | $u^{132} - 2u^{131} + \cdots + 11993u - 4467$ |
| $c_{10}$ | $u^{132} + u^{131} + \cdots - 5047u + 321$ |

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

| Crossings | Riley Polynomials at each crossing |
|---|---|
| $c_1$ | $y^{132} - 9y^{131} + \cdots - 100571y + 1$ |
| $c_2, c_6$ | $y^{132} - 72y^{131} + \cdots - 2771868y + 234256$ |
| $c_3$ | $y^{132} + 23y^{131} + \cdots + 8515836038y + 375080689$ |
| $c_4$ | $y^{132} + 59y^{131} + \cdots + 3.67 \times 10^{18}y + 3.25 \times 10^{17}$ |
| $c_5, c_{11}$ | $y^{132} + 109y^{131} + \cdots + 89028169385y + 89407578121$ |
| $c_7, c_8, c_{12}$ | $y^{132} + 136y^{131} + \cdots - 145y + 1$ |
| $c_9$ | $y^{132} + 14y^{131} + \cdots - 1024697647y + 19954089$ |
| $c_{10}$ | $y^{132} + 7y^{131} + \cdots + 22512797y + 103041$ |

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

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u=-0.884816+0.474905I$<br>$a=\ 1.66252-0.11441I$<br>$b=\ 0.650392-0.231643I$ | $-3.27259-2.47976I$ | 0 |
| $u=-0.884816-0.474905I$<br>$a=\ 1.66252+0.11441I$<br>$b=\ 0.650392+0.231643I$ | $-3.27259+2.47976I$ | 0 |
| $u=\ 0.915765+0.340582I$<br>$a=-2.80388-1.06421I$<br>$b=-1.58944-1.35988I$ | $-9.50542-4.87494I$ | 0 |
| $u=\ 0.915765-0.340582I$<br>$a=-2.80388+1.06421I$<br>$b=-1.58944+1.35988I$ | $-9.50542+4.87494I$ | 0 |
| $u=-0.942190+0.424662I$<br>$a=-2.01410+0.52332I$<br>$b=-0.487234+0.684826I$ | $-3.41617-6.49521I$ | 0 |
| $u=-0.942190-0.424662I$<br>$a=-2.01410-0.52332I$<br>$b=-0.487234-0.684826I$ | $-3.41617+6.49521I$ | 0 |
| $u=-0.386658+0.884802I$<br>$a=-0.045284+0.449711I$<br>$b=\ 0.756898+0.730603I$ | $-3.48885+1.37931I$ | 0 |
| $u=-0.386658-0.884802I$<br>$a=-0.045284-0.449711I$<br>$b=\ 0.756898-0.730603I$ | $-3.48885-1.37931I$ | 0 |
| $u=-0.967695+0.409732I$<br>$a=\ 2.12999-0.80994I$<br>$b=\ 0.296010-0.830334I$ | $-9.89787-9.67184I$ | 0 |
| $u=-0.967695-0.409732I$<br>$a=\ 2.12999+0.80994I$<br>$b=\ 0.296010+0.830334I$ | $-9.89787+9.67184I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u=-0.789295+0.515215I$<br>$a=-1.19236-1.38844I$<br>$b=-1.32264-1.05992I$ | $-8.63511-2.84252I$ | 0 |
| $u=-0.789295-0.515215I$<br>$a=-1.19236+1.38844I$<br>$b=-1.32264+1.05992I$ | $-8.63511+2.84252I$ | 0 |
| $u=0.938691+0.059442I$<br>$a=4.15791+3.69908I$<br>$b=0.191248-0.131579I$ | $-5.07473+0.16829I$ | 0 |
| $u=0.938691-0.059442I$<br>$a=4.15791-3.69908I$<br>$b=0.191248+0.131579I$ | $-5.07473-0.16829I$ | 0 |
| $u=0.989571+0.388105I$<br>$a=1.45147-0.41211I$<br>$b=1.06468+1.35709I$ | $-1.11664+5.62858I$ | 0 |
| $u=0.989571-0.388105I$<br>$a=1.45147+0.41211I$<br>$b=1.06468-1.35709I$ | $-1.11664-5.62858I$ | 0 |
| $u=-0.775797+0.512353I$<br>$a=1.35566+0.77126I$<br>$b=1.056800+0.533841I$ | $-3.35318-2.09628I$ | 0 |
| $u=-0.775797-0.512353I$<br>$a=1.35566-0.77126I$<br>$b=1.056800-0.533841I$ | $-3.35318+2.09628I$ | 0 |
| $u=0.246759+0.895153I$<br>$a=0.086715+0.519405I$<br>$b=-0.290111-0.018909I$ | $-1.15474+1.23049I$ | 0 |
| $u=0.246759-0.895153I$<br>$a=0.086715-0.519405I$<br>$b=-0.290111+0.018909I$ | $-1.15474-1.23049I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.908416 + 0.190893I$<br>$a = -1.70213 - 0.54652I$<br>$b = -0.970588 + 0.555808I$ | $-0.983366 + 0.894266I$ | 0 |
| $u = 0.908416 - 0.190893I$<br>$a = -1.70213 + 0.54652I$<br>$b = -0.970588 - 0.555808I$ | $-0.983366 - 0.894266I$ | 0 |
| $u = 0.008635 + 0.928101I$<br>$a = -0.144296 + 0.342857I$<br>$b = -1.009900 - 0.536885I$ | $-5.60921 + 7.00889I$ | 0 |
| $u = 0.008635 - 0.928101I$<br>$a = -0.144296 - 0.342857I$<br>$b = -1.009900 + 0.536885I$ | $-5.60921 - 7.00889I$ | 0 |
| $u = 0.883314 + 0.281049I$<br>$a = 2.58613 + 0.89656I$<br>$b = 1.31484 + 0.80921I$ | $-2.53291 - 2.22174I$ | 0 |
| $u = 0.883314 - 0.281049I$<br>$a = 2.58613 - 0.89656I$<br>$b = 1.31484 - 0.80921I$ | $-2.53291 + 2.22174I$ | 0 |
| $u = -1.055710 + 0.263342I$<br>$a = 2.01783 + 0.09373I$<br>$b = 1.53656 - 0.78293I$ | $-0.85765 - 5.45781I$ | 0 |
| $u = -1.055710 - 0.263342I$<br>$a = 2.01783 - 0.09373I$<br>$b = 1.53656 + 0.78293I$ | $-0.85765 + 5.45781I$ | 0 |
| $u = 0.866590 + 0.210032I$<br>$a = 0.71853 - 1.34233I$<br>$b = 0.93448 - 2.06252I$ | $-2.74406 + 4.51032I$ | 0 |
| $u = 0.866590 - 0.210032I$<br>$a = 0.71853 + 1.34233I$<br>$b = 0.93448 + 2.06252I$ | $-2.74406 - 4.51032I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.013820 + 0.888222I$<br>$a = -0.049782 - 0.384372I$<br>$b = 0.773005 + 0.387860I$ | $0.32452 + 4.34292I$ | 0 |
| $u = 0.013820 - 0.888222I$<br>$a = -0.049782 + 0.384372I$<br>$b = 0.773005 - 0.387860I$ | $0.32452 - 4.34292I$ | 0 |
| $u = 1.095560 + 0.190155I$<br>$a = -1.54685 + 0.71390I$<br>$b = -0.224526 - 0.518265I$ | $-3.99476 + 0.29972I$ | 0 |
| $u = 1.095560 - 0.190155I$<br>$a = -1.54685 - 0.71390I$<br>$b = -0.224526 + 0.518265I$ | $-3.99476 - 0.29972I$ | 0 |
| $u = 1.059130 + 0.375973I$<br>$a = -1.166780 + 0.693723I$<br>$b = -0.997325 - 0.841214I$ | $3.18035 + 2.90322I$ | 0 |
| $u = 1.059130 - 0.375973I$<br>$a = -1.166780 - 0.693723I$<br>$b = -0.997325 + 0.841214I$ | $3.18035 - 2.90322I$ | 0 |
| $u = -0.724711 + 0.487676I$<br>$a = -2.08125 - 0.81701I$<br>$b = -1.57151 - 0.05639I$ | $-8.81589 - 1.30826I$ | 0 |
| $u = -0.724711 - 0.487676I$<br>$a = -2.08125 + 0.81701I$<br>$b = -1.57151 + 0.05639I$ | $-8.81589 + 1.30826I$ | 0 |
| $u = -1.132960 + 0.135239I$<br>$a = -1.49657 + 0.19781I$<br>$b = -1.29493 + 0.87121I$ | $4.49382 - 1.59161I$ | 0 |
| $u = -1.132960 - 0.135239I$<br>$a = -1.49657 - 0.19781I$<br>$b = -1.29493 - 0.87121I$ | $4.49382 + 1.59161I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.851977$<br>$a = -3.75966$<br>$b = -0.269385$ | $-0.410229$ | 0 |
| $u = 1.097330 + 0.351337I$<br>$a = -0.284882 - 0.826418I$<br>$b = 0.564404 - 0.176494I$ | $-2.48106 - 0.05788I$ | 0 |
| $u = 1.097330 - 0.351337I$<br>$a = -0.284882 + 0.826418I$<br>$b = 0.564404 + 0.176494I$ | $-2.48106 + 0.05788I$ | 0 |
| $u = 0.247341 + 1.128890I$<br>$a = 0.116446 + 0.457801I$<br>$b = -0.866422 + 0.994465I$ | $-11.1165 - 12.7107I$ | 0 |
| $u = 0.247341 - 1.128890I$<br>$a = 0.116446 - 0.457801I$<br>$b = -0.866422 - 0.994465I$ | $-11.1165 + 12.7107I$ | 0 |
| $u = -0.803523 + 0.833951I$<br>$a = 0.440111 + 0.803172I$<br>$b = 1.193060 + 0.417998I$ | $-3.01450 + 1.23639I$ | 0 |
| $u = -0.803523 - 0.833951I$<br>$a = 0.440111 - 0.803172I$<br>$b = 1.193060 - 0.417998I$ | $-3.01450 - 1.23639I$ | 0 |
| $u = 1.127780 + 0.271409I$<br>$a = 1.028370 - 0.542660I$<br>$b = 0.496725 + 0.498862I$ | $1.75805 + 1.07231I$ | 0 |
| $u = 1.127780 - 0.271409I$<br>$a = 1.028370 + 0.542660I$<br>$b = 0.496725 - 0.498862I$ | $1.75805 - 1.07231I$ | 0 |
| $u = -1.103060 + 0.367632I$<br>$a = 0.573973 - 0.933648I$<br>$b = 0.17795 - 1.57989I$ | $-5.07414 - 5.28950I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u=-1.103060-0.367632I$<br>$a=\ \ 0.573973+0.933648I$<br>$b=\ \ 0.17795+1.57989I$ | $-5.07414+5.28950I$ | 0 |
| $u=-1.015100+0.573103I$<br>$a=-0.964303+0.590903I$<br>$b=-0.0171108+0.0735246I$ | $-8.63379+1.07483I$ | 0 |
| $u=-1.015100-0.573103I$<br>$a=-0.964303-0.590903I$<br>$b=-0.0171108-0.0735246I$ | $-8.63379-1.07483I$ | 0 |
| $u=\ \ 0.787789+0.210688I$<br>$a=-0.05832+2.35922I$<br>$b=-0.61444+2.74989I$ | $-10.14810+7.50183I$ | 0 |
| $u=\ \ 0.787789-0.210688I$<br>$a=-0.05832-2.35922I$<br>$b=-0.61444-2.74989I$ | $-10.14810-7.50183I$ | 0 |
| $u=\ \ 1.128850+0.404643I$<br>$a=\ \ 0.93270-1.09980I$<br>$b=\ \ 1.194680+0.318888I$ | $-0.445813+1.114960I$ | 0 |
| $u=\ \ 1.128850-0.404643I$<br>$a=\ \ 0.93270+1.09980I$<br>$b=\ \ 1.194680-0.318888I$ | $-0.445813-1.114960I$ | 0 |
| $u=\ \ 0.282513+1.169350I$<br>$a=-0.116569-0.443418I$<br>$b=\ \ 0.770994-0.837968I$ | $-4.14351-8.21803I$ | 0 |
| $u=\ \ 0.282513-1.169350I$<br>$a=-0.116569+0.443418I$<br>$b=\ \ 0.770994+0.837968I$ | $-4.14351+8.21803I$ | 0 |
| $u=\ \ 1.138750+0.399109I$<br>$a=-0.378575+0.658815I$<br>$b=-0.722084-0.146977I$ | $2.77717+1.00054I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 1.138750 - 0.399109I$<br>$a = -0.378575 - 0.658815I$<br>$b = -0.722084 + 0.146977I$ | $2.77717 - 1.00054I$ | 0 |
| $u = -0.526152 + 0.576468I$<br>$a = 0.558429 + 0.122035I$<br>$b = 0.045335 + 1.035590I$ | $-4.20850 - 1.73518I$ | 0 |
| $u = -0.526152 - 0.576468I$<br>$a = 0.558429 - 0.122035I$<br>$b = 0.045335 - 1.035590I$ | $-4.20850 + 1.73518I$ | 0 |
| $u = -1.126290 + 0.537145I$<br>$a = 1.84916 + 0.33181I$<br>$b = 1.61023 - 0.93755I$ | $-1.29258 - 6.51091I$ | 0 |
| $u = -1.126290 - 0.537145I$<br>$a = 1.84916 - 0.33181I$<br>$b = 1.61023 + 0.93755I$ | $-1.29258 + 6.51091I$ | 0 |
| $u = -0.164749 + 0.733190I$<br>$a = 0.643439 - 0.216613I$<br>$b = -0.601698 - 1.000480I$ | $-0.90911 + 2.58269I$ | 0 |
| $u = -0.164749 - 0.733190I$<br>$a = 0.643439 + 0.216613I$<br>$b = -0.601698 + 1.000480I$ | $-0.90911 - 2.58269I$ | 0 |
| $u = 1.208830 + 0.326446I$<br>$a = 2.08876 + 0.89815I$<br>$b = 1.85882 + 1.43889I$ | $-6.31828 + 8.77435I$ | 0 |
| $u = 1.208830 - 0.326446I$<br>$a = 2.08876 - 0.89815I$<br>$b = 1.85882 - 1.43889I$ | $-6.31828 - 8.77435I$ | 0 |
| $u = -0.179678 + 0.722554I$<br>$a = -0.929904 + 0.391490I$<br>$b = 0.60150 + 1.35100I$ | $-6.22703 + 3.42085I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u=-0.179678-0.722554I$<br>$a=-0.929904-0.391490I$<br>$b=\ \ 0.60150-1.35100I$ | $-6.22703-3.42085I$ | 0 |
| $u=-1.157780+0.499932I$<br>$a=\ \ 2.05361-0.46284I$<br>$b=\ \ 1.50176-1.67005I$ | $-3.39124-8.01755I$ | 0 |
| $u=-1.157780-0.499932I$<br>$a=\ \ 2.05361+0.46284I$<br>$b=\ \ 1.50176+1.67005I$ | $-3.39124+8.01755I$ | 0 |
| $u=-1.020200+0.752092I$<br>$a=-1.030420-0.695273I$<br>$b=-1.400400+0.146934I$ | $1.07326-3.01270I$ | 0 |
| $u=-1.020200-0.752092I$<br>$a=-1.030420+0.695273I$<br>$b=-1.400400-0.146934I$ | $1.07326+3.01270I$ | 0 |
| $u=-1.166740+0.501144I$<br>$a=-1.84066+0.18303I$<br>$b=-1.40640+1.36274I$ | $2.00072-7.20882I$ | 0 |
| $u=-1.166740-0.501144I$<br>$a=-1.84066-0.18303I$<br>$b=-1.40640-1.36274I$ | $2.00072+7.20882I$ | 0 |
| $u=-1.268970+0.048065I$<br>$a=\ \ 0.499876+0.218152I$<br>$b=\ \ 0.522206+0.829263I$ | $3.21693-3.39726I$ | 0 |
| $u=-1.268970-0.048065I$<br>$a=\ \ 0.499876-0.218152I$<br>$b=\ \ 0.522206-0.829263I$ | $3.21693+3.39726I$ | 0 |
| $u=\ \ 0.274668+1.257710I$<br>$a=\ \ 0.116896+0.411868I$<br>$b=-0.561626+0.711698I$ | $-4.51046-2.07669I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.274668 - 1.257710I$<br>$a = 0.116896 - 0.411868I$<br>$b = -0.561626 - 0.711698I$ | $-4.51046 + 2.07669I$ | 0 |
| $u = 0.589575 + 0.386588I$<br>$a = -1.57748 - 0.89380I$<br>$b = 0.455789 - 0.714399I$ | $-2.32018 - 2.26770I$ | 0 |
| $u = 0.589575 - 0.386588I$<br>$a = -1.57748 + 0.89380I$<br>$b = 0.455789 + 0.714399I$ | $-2.32018 + 2.26770I$ | 0 |
| $u = -0.550035 + 0.436106I$<br>$a = -0.103224 + 0.164424I$<br>$b = -0.188068 - 1.347500I$ | $-4.53992 + 2.81085I$ | 0 |
| $u = -0.550035 - 0.436106I$<br>$a = -0.103224 - 0.164424I$<br>$b = -0.188068 + 1.347500I$ | $-4.53992 - 2.81085I$ | 0 |
| $u = -0.323208 + 0.619235I$<br>$a = -0.887634 - 0.224841I$<br>$b = 0.342063 - 1.105550I$ | $-10.47340 - 5.69331I$ | 0 |
| $u = -0.323208 - 0.619235I$<br>$a = -0.887634 + 0.224841I$<br>$b = 0.342063 + 1.105550I$ | $-10.47340 + 5.69331I$ | 0 |
| $u = -1.238340 + 0.440198I$<br>$a = -0.898733 - 0.063698I$<br>$b = -0.711498 + 0.948497I$ | $2.94539 - 5.54607I$ | 0 |
| $u = -1.238340 - 0.440198I$<br>$a = -0.898733 + 0.063698I$<br>$b = -0.711498 - 0.948497I$ | $2.94539 + 5.54607I$ | 0 |
| $u = 0.144776 + 1.326740I$<br>$a = -0.162276 - 0.360508I$<br>$b = 0.150959 - 0.753969I$ | $-12.87830 + 2.12922I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.144776 - 1.326740I$<br>$a = -0.162276 + 0.360508I$<br>$b = 0.150959 + 0.753969I$ | $-12.87830 - 2.12922I$ | 0 |
| $u = -1.250160 + 0.474407I$<br>$a = 1.263590 + 0.359909I$<br>$b = 1.010330 - 0.836469I$ | $4.11592 - 9.15779I$ | 0 |
| $u = -1.250160 - 0.474407I$<br>$a = 1.263590 - 0.359909I$<br>$b = 1.010330 + 0.836469I$ | $4.11592 + 9.15779I$ | 0 |
| $u = -0.546041 + 0.360490I$<br>$a = -0.095680 - 0.643072I$<br>$b = 0.13621 + 1.50477I$ | $-11.16580 + 6.20485I$ | 0 |
| $u = -0.546041 - 0.360490I$<br>$a = -0.095680 + 0.643072I$<br>$b = 0.13621 - 1.50477I$ | $-11.16580 - 6.20485I$ | 0 |
| $u = -1.266490 + 0.484120I$<br>$a = -1.50902 - 0.46555I$<br>$b = -1.15695 + 0.81499I$ | $-1.73795 - 11.98760I$ | 0 |
| $u = -1.266490 - 0.484120I$<br>$a = -1.50902 + 0.46555I$<br>$b = -1.15695 - 0.81499I$ | $-1.73795 + 11.98760I$ | 0 |
| $u = -1.190310 + 0.667724I$<br>$a = 1.360860 + 0.257878I$<br>$b = 1.235540 - 0.643906I$ | $-1.32829 - 7.15022I$ | 0 |
| $u = -1.190310 - 0.667724I$<br>$a = 1.360860 - 0.257878I$<br>$b = 1.235540 + 0.643906I$ | $-1.32829 + 7.15022I$ | 0 |
| $u = 1.296540 + 0.446713I$<br>$a = 0.974729 - 0.284396I$<br>$b = 0.987903 + 0.232577I$ | $4.26868 + 0.61252I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 1.296540 - 0.446713I$<br>$a = 0.974729 + 0.284396I$<br>$b = 0.987903 - 0.232577I$ | $4.26868 - 0.61252I$ | 0 |
| $u = 1.364210 + 0.170896I$<br>$a = -0.87983 - 1.51138I$<br>$b = -0.81179 - 1.93774I$ | $1.50304 + 3.78464I$ | 0 |
| $u = 1.364210 - 0.170896I$<br>$a = -0.87983 + 1.51138I$<br>$b = -0.81179 + 1.93774I$ | $1.50304 - 3.78464I$ | 0 |
| $u = 0.615040$<br>$a = 1.23931$<br>$b = -0.150084$ | 0.986986 | 12.0140 |
| $u = 1.313880 + 0.471463I$<br>$a = -1.001950 - 0.183902I$<br>$b = -0.964616 - 0.717334I$ | $2.54855 + 4.26966I$ | 0 |
| $u = 1.313880 - 0.471463I$<br>$a = -1.001950 + 0.183902I$<br>$b = -0.964616 + 0.717334I$ | $2.54855 - 4.26966I$ | 0 |
| $u = 1.34776 + 0.47205I$<br>$a = -0.872535 + 0.571039I$<br>$b = -0.959679 + 0.155122I$ | $-1.55609 - 1.83793I$ | 0 |
| $u = 1.34776 - 0.47205I$<br>$a = -0.872535 - 0.571039I$<br>$b = -0.959679 - 0.155122I$ | $-1.55609 + 1.83793I$ | 0 |
| $u = 1.28250 + 0.63254I$<br>$a = -1.66972 - 0.06091I$<br>$b = -1.43305 - 1.21167I$ | $-7.8525 + 18.9295I$ | 0 |
| $u = 1.28250 - 0.63254I$<br>$a = -1.66972 + 0.06091I$<br>$b = -1.43305 + 1.21167I$ | $-7.8525 - 18.9295I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u=-0.230142+0.514693I$<br>$a=-1.80324-0.62819I$<br>$b=-0.525425+0.965595I$ | $-7.51172+1.70362I$ | $-2.52590-0.81074I$ |
| $u=-0.230142-0.514693I$<br>$a=-1.80324+0.62819I$<br>$b=-0.525425-0.965595I$ | $-7.51172-1.70362I$ | $-2.52590+0.81074I$ |
| $u=1.28579+0.64812I$<br>$a=1.49651+0.02872I$<br>$b=1.34336+1.10923I$ | $-0.9374+14.6050I$ | 0 |
| $u=1.28579-0.64812I$<br>$a=1.49651-0.02872I$<br>$b=1.34336-1.10923I$ | $-0.9374-14.6050I$ | 0 |
| $u=-0.019436+0.555259I$<br>$a=-0.747654+0.473871I$<br>$b=0.950790+0.435099I$ | $-3.54507+2.46772I$ | $3.18286-2.50114I$ |
| $u=-0.019436-0.555259I$<br>$a=-0.747654-0.473871I$<br>$b=0.950790-0.435099I$ | $-3.54507-2.46772I$ | $3.18286+2.50114I$ |
| $u=1.31063+0.66241I$<br>$a=-1.275920-0.108001I$<br>$b=-1.17009-1.04443I$ | $-1.15683+8.73043I$ | 0 |
| $u=1.31063-0.66241I$<br>$a=-1.275920+0.108001I$<br>$b=-1.17009+1.04443I$ | $-1.15683-8.73043I$ | 0 |
| $u=-1.31497+0.66175I$<br>$a=-1.341100+0.076982I$<br>$b=-0.975945+0.791344I$ | $-9.10565-9.16843I$ | 0 |
| $u=-1.31497-0.66175I$<br>$a=-1.341100-0.076982I$<br>$b=-0.975945-0.791344I$ | $-9.10565+9.16843I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 1.33416 + 0.62742I$<br>$a = 1.136730 + 0.402348I$<br>$b = 0.92069 + 1.15107I$ | $-9.11709 + 4.43415I$ | 0 |
| $u = 1.33416 - 0.62742I$<br>$a = 1.136730 - 0.402348I$<br>$b = 0.92069 - 1.15107I$ | $-9.11709 - 4.43415I$ | 0 |
| $u = 0.076842 + 0.510785I$<br>$a = 0.480728 + 1.151400I$<br>$b = 0.096934 - 0.406394I$ | $-1.05502 + 1.51906I$ | $1.40195 - 2.73250I$ |
| $u = 0.076842 - 0.510785I$<br>$a = 0.480728 - 1.151400I$<br>$b = 0.096934 + 0.406394I$ | $-1.05502 - 1.51906I$ | $1.40195 + 2.73250I$ |
| $u = -1.53024 + 0.14323I$<br>$a = -0.286910 - 0.613153I$<br>$b = -0.441171 - 0.056653I$ | $-4.65323 + 7.64543I$ | 0 |
| $u = -1.53024 - 0.14323I$<br>$a = -0.286910 + 0.613153I$<br>$b = -0.441171 + 0.056653I$ | $-4.65323 - 7.64543I$ | 0 |
| $u = -1.53807 + 0.01567I$<br>$a = 0.145407 - 0.288526I$<br>$b = 0.174898 + 0.285105I$ | $3.00071 - 3.30970I$ | 0 |
| $u = -1.53807 - 0.01567I$<br>$a = 0.145407 + 0.288526I$<br>$b = 0.174898 - 0.285105I$ | $3.00071 + 3.30970I$ | 0 |
| $u = -0.32651 + 1.52054I$<br>$a = -0.199800 - 0.277196I$<br>$b = -0.350961 - 0.465564I$ | $-12.62660 + 2.18299I$ | 0 |
| $u = -0.32651 - 1.52054I$<br>$a = -0.199800 + 0.277196I$<br>$b = -0.350961 + 0.465564I$ | $-12.62660 - 2.18299I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.215738 + 0.309658I$<br>$a = 1.56090 - 0.10275I$<br>$b = -0.570690 + 0.004455I$ | $1.059320 + 0.231335I$ | $10.25414 - 1.71431I$ |
| $u = 0.215738 - 0.309658I$<br>$a = 1.56090 + 0.10275I$<br>$b = -0.570690 - 0.004455I$ | $1.059320 - 0.231335I$ | $10.25414 + 1.71431I$ |

**II. $I_2^u = \langle -4.80 \times 10^{14} u^{30} - 1.11 \times 10^{15} u^{29} + \cdots + 2.24 \times 10^{12} b + 2.76 \times 10^{15},\ -3.72 \times 10^{14} u^{30} - 8.70 \times 10^{14} u^{29} + \cdots + 2.24 \times 10^{12} a + 2.09 \times 10^{15},\ u^{31} + 3u^{30} + \cdots - 18u - 4 \rangle$**

**(i) Arc colorings**

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

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 165.795u^{30} + 387.942u^{29} + \cdots - 2812.64u - 930.703 \\ 214.001u^{30} + 494.199u^{29} + \cdots - 3767.72u - 1229.80 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -191.651u^{30} - 452.748u^{29} + \cdots + 3179.22u + 1065.61 \\ -u^{30} - 2u^{29} + \cdots + 15u + 3 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -166.267u^{30} - 407.875u^{29} + \cdots + 2399.61u + 827.059 \\ -170.610u^{30} - 392.051u^{29} + \cdots + 3000.56u + 975.239 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -48.2067u^{30} - 106.257u^{29} + \cdots + 955.074u + 299.093 \\ 214.001u^{30} + 494.199u^{29} + \cdots - 3767.72u - 1229.80 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 92.8593u^{30} + 204.761u^{29} + \cdots - 1867.53u - 591.245 \\ -149.846u^{30} - 347.053u^{29} + \cdots + 2659.17u + 877.272 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 11.0622u^{30} + 78.1211u^{29} + \cdots + 1138.18u + 252.169 \\ 148.833u^{30} + 343.493u^{29} + \cdots - 2644.73u - 867.355 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 42.2821u^{30} + 104.454u^{29} + \cdots - 613.696u - 218.431 \\ 166.209u^{30} + 383.262u^{29} + \cdots - 2930.59u - 955.294 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 93.0508u^{30} + 235.197u^{29} + \cdots - 915.182u - 368.479 \\ -73.7161u^{30} - 173.108u^{29} + \cdots + 1284.67u + 431.416 \end{pmatrix}$$

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

**(iii) Cusp Shapes**

$$= -\frac{307335971617322}{1120923619889}u^{30} - \frac{1661307222141219}{2241847239778}u^{29} + \cdots + \frac{2093335817411432}{1120923619889}u + \frac{1021053253774145}{1120923619889}$$

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

| Crossings | u-Polynomials at each crossing |
|---|---|
| $c_1$ | $u^{31} - 10u^{30} + \cdots - 8u - 1$ |
| $c_2$ | $u^{31} - 3u^{30} + \cdots - 18u + 4$ |
| $c_3$ | $u^{31} - 2u^{30} + \cdots + u + 1$ |
| $c_4$ | $u^{31} - 4u^{28} + \cdots + 2u + 1$ |
| $c_5$ | $u^{31} - 2u^{30} + \cdots + 4u + 1$ |
| $c_6$ | $u^{31} + 3u^{30} + \cdots - 18u - 4$ |
| $c_7, c_8$ | $u^{31} - u^{30} + \cdots + 14u + 1$ |
| $c_9$ | $u^{31} - u^{30} + \cdots - 10u^2 - 1$ |
| $c_{10}$ | $u^{31} + 4u^{30} + \cdots - 2u + 1$ |
| $c_{11}$ | $u^{31} + 2u^{30} + \cdots + 4u - 1$ |
| $c_{12}$ | $u^{31} + u^{30} + \cdots + 14u - 1$ |

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

| Crossings | Riley Polynomials at each crossing |
|---|---|
| $c_1$ | $y^{31} - 4y^{30} + \cdots + 12y - 1$ |
| $c_2, c_6$ | $y^{31} - 15y^{30} + \cdots + 236y - 16$ |
| $c_3$ | $y^{31} + 198y^{29} + \cdots - 41y - 1$ |
| $c_4$ | $y^{31} + 16y^{29} + \cdots - 14y - 1$ |
| $c_5, c_{11}$ | $y^{31} + 26y^{30} + \cdots - 4y - 1$ |
| $c_7, c_8, c_{12}$ | $y^{31} + 33y^{30} + \cdots + 126y - 1$ |
| $c_9$ | $y^{31} + 27y^{30} + \cdots - 20y - 1$ |
| $c_{10}$ | $y^{31} + 16y^{30} + \cdots - 20y - 1$ |

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

| Solutions to $I_2^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u=-0.057307+0.973230I$<br>$a=\ 0.247039-0.169366I$<br>$b=-0.454732-0.714887I$ | $-1.94780+1.84386I$ | $1.45803-4.59325I$ |
| $u=-0.057307-0.973230I$<br>$a=\ 0.247039+0.169366I$<br>$b=-0.454732+0.714887I$ | $-1.94780-1.84386I$ | $1.45803+4.59325I$ |
| $u=\ 0.898610+0.350512I$<br>$a=\ 1.63164-0.54603I$<br>$b=\ 1.22810+0.90161I$ | $-1.42861+4.54718I$ | $3.68988-1.05273I$ |
| $u=\ 0.898610-0.350512I$<br>$a=\ 1.63164+0.54603I$<br>$b=\ 1.22810-0.90161I$ | $-1.42861-4.54718I$ | $3.68988+1.05273I$ |
| $u=\ 0.903896+0.092574I$<br>$a=-3.25175-2.58359I$<br>$b=-0.085902+0.124290I$ | $-5.11343+0.22000I$ | $-16.4995-30.0570I$ |
| $u=\ 0.903896-0.092574I$<br>$a=-3.25175+2.58359I$<br>$b=-0.085902-0.124290I$ | $-5.11343-0.22000I$ | $-16.4995+30.0570I$ |
| $u=-0.300086+0.831117I$<br>$a=-0.225560-1.008270I$<br>$b=-0.505222-0.530505I$ | $-3.61006-0.33303I$ | $1.48183+0.28332I$ |
| $u=-0.300086-0.831117I$<br>$a=-0.225560+1.008270I$<br>$b=-0.505222+0.530505I$ | $-3.61006+0.33303I$ | $1.48183-0.28332I$ |
| $u=\ 1.063730+0.384256I$<br>$a=-0.907360+0.596203I$<br>$b=-1.003190-0.387794I$ | $3.15471+1.66264I$ | $11.96669-2.85834I$ |
| $u=\ 1.063730-0.384256I$<br>$a=-0.907360-0.596203I$<br>$b=-1.003190+0.387794I$ | $3.15471-1.66264I$ | $11.96669+2.85834I$ |

| Solutions to $I_2^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = \ 0.834586$<br>$a = \ 3.51860$<br>$b = \ 0.247377$ | $-0.429479$ | $-157.470$ |
| $u = \ 1.057770 + 0.581357I$<br>$a = \ 0.358699 - 0.930697I$<br>$b = \ 0.959263 - 0.297410I$ | $-1.003480 - 0.632718I$ | $9.72763 + 0.75640I$ |
| $u = \ 1.057770 - 0.581357I$<br>$a = \ 0.358699 + 0.930697I$<br>$b = \ 0.959263 + 0.297410I$ | $-1.003480 + 0.632718I$ | $9.72763 - 0.75640I$ |
| $u = -1.111060 + 0.506491I$<br>$a = \ 2.00178 + 0.03752I$<br>$b = \ 1.53151 - 1.42067I$ | $-1.11219 - 7.62967I$ | $6.00000 + 10.07351I$ |
| $u = -1.111060 - 0.506491I$<br>$a = \ 2.00178 - 0.03752I$<br>$b = \ 1.53151 + 1.42067I$ | $-1.11219 + 7.62967I$ | $6.00000 - 10.07351I$ |
| $u = -0.389079 + 0.652218I$<br>$a = -0.961979 + 0.621421I$<br>$b = \ 0.760965 + 1.122690I$ | $-3.30951 + 3.11642I$ | $0.69667 - 5.47819I$ |
| $u = -0.389079 - 0.652218I$<br>$a = -0.961979 - 0.621421I$<br>$b = \ 0.760965 - 1.122690I$ | $-3.30951 - 3.11642I$ | $0.69667 + 5.47819I$ |
| $u = -0.691646 + 0.005832I$<br>$a = -1.67697 - 1.53127I$<br>$b = -0.50600 - 2.15250I$ | $-10.05550 - 6.75855I$ | $2.79867 + 2.12113I$ |
| $u = -0.691646 - 0.005832I$<br>$a = -1.67697 + 1.53127I$<br>$b = -0.50600 + 2.15250I$ | $-10.05550 + 6.75855I$ | $2.79867 - 2.12113I$ |
| $u = -1.209820 + 0.504101I$<br>$a = -1.58579 + 0.22788I$<br>$b = -1.23990 + 1.24955I$ | $1.53275 - 6.87011I$ | $2.23968 + 3.95579I$ |

| Solutions to $I_2^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u=-1.209820-0.504101I$<br>$a=-1.58579-0.22788I$<br>$b=-1.23990-1.24955I$ | $1.53275+6.87011I$ | $2.23968-3.95579I$ |
| $u=-1.270400+0.346913I$<br>$a=\ \ 1.44096-0.92449I$<br>$b=\ \ 0.96722-1.29083I$ | $-7.04927-8.05385I$ | $0.+5.30038I$ |
| $u=-1.270400-0.346913I$<br>$a=\ \ 1.44096+0.92449I$<br>$b=\ \ 0.96722+1.29083I$ | $-7.04927+8.05385I$ | $0.-5.30038I$ |
| $u=\ \ 1.385820+0.214488I$<br>$a=-0.163353+0.147527I$<br>$b=-0.198598-0.530806I$ | $3.46254+2.70014I$ | $0$ |
| $u=\ \ 1.385820-0.214488I$<br>$a=-0.163353-0.147527I$<br>$b=-0.198598+0.530806I$ | $3.46254-2.70014I$ | $0$ |
| $u=-0.568046+0.149149I$<br>$a=\ \ 1.86516+1.82403I$<br>$b=\ \ 0.72455+1.52201I$ | $-3.28222-3.84750I$ | $2.24650+5.01378I$ |
| $u=-0.568046-0.149149I$<br>$a=\ \ 1.86516-1.82403I$<br>$b=\ \ 0.72455-1.52201I$ | $-3.28222+3.84750I$ | $2.24650-5.01378I$ |
| $u=-1.41218+0.17702I$<br>$a=-0.68326+1.32158I$<br>$b=-0.59409+1.70242I$ | $1.32009-3.77713I$ | $-14.5756+0.I$ |
| $u=-1.41218-0.17702I$<br>$a=-0.68326-1.32158I$<br>$b=-0.59409-1.70242I$ | $1.32009+3.77713I$ | $-14.5756+0.I$ |
| $u=-0.21750+1.62235I$<br>$a=\ \ 0.151437+0.311439I$<br>$b=\ \ 0.292335+0.308725I$ | $-12.46670+2.12125I$ | $0$ |

| Solutions to $I_2^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = -0.21750 - 1.62235I$ | | |
| $a = \quad 0.151437 - 0.311439I$ | $-12.46670 - 2.12125I$ | 0 |
| $b = \quad 0.292335 - 0.308725I$ | | |

**III. u-Polynomials**

| Crossings | u-Polynomials at each crossing |
|---|---|
| $c_1$ | $(u^{31}-10u^{30}+\cdots-8u-1)(u^{132}-5u^{131}+\cdots+319u-1)$ |
| $c_2$ | $(u^{31}-3u^{30}+\cdots-18u+4)(u^{132}+2u^{131}+\cdots-110u+484)$ |
| $c_3$ | $(u^{31}-2u^{30}+\cdots+u+1)(u^{132}-u^{131}+\cdots-150284u-19367)$ |
| $c_4$ | $(u^{31}-4u^{28}+\cdots+2u+1)$ $\cdot(u^{132}+3u^{131}+\cdots+1603714647u-570362249)$ |
| $c_5$ | $(u^{31}-2u^{30}+\cdots+4u+1)(u^{132}-u^{131}+\cdots-3944517u-299011)$ |
| $c_6$ | $(u^{31}+3u^{30}+\cdots-18u-4)(u^{132}+2u^{131}+\cdots-110u+484)$ |
| $c_7, c_8$ | $(u^{31}-u^{30}+\cdots+14u+1)(u^{132}+68u^{130}+\cdots+19u+1)$ |
| $c_9$ | $(u^{31}-u^{30}+\cdots-10u^2-1)(u^{132}-2u^{131}+\cdots+11993u-4467)$ |
| $c_{10}$ | $(u^{31}+4u^{30}+\cdots-2u+1)(u^{132}+u^{131}+\cdots-5047u+321)$ |
| $c_{11}$ | $(u^{31}+2u^{30}+\cdots+4u-1)(u^{132}-u^{131}+\cdots-3944517u-299011)$ |
| $c_{12}$ | $(u^{31}+u^{30}+\cdots+14u-1)(u^{132}+68u^{130}+\cdots+19u+1)$ |

**IV. Riley Polynomials**

| Crossings | Riley Polynomials at each crossing |
|---|---|
| $c_1$ | $(y^{31}-4y^{30}+\cdots+12y-1)(y^{132}-9y^{131}+\cdots-100571y+1)$ |
| $c_2, c_6$ | $(y^{31}-15y^{30}+\cdots+236y-16)$ $\cdot(y^{132}-72y^{131}+\cdots-2771868y+234256)$ |
| $c_3$ | $(y^{31}+198y^{29}+\cdots-41y-1)$ $\cdot(y^{132}+23y^{131}+\cdots+8515836038y+375080689)$ |
| $c_4$ | $(y^{31}+16y^{29}+\cdots-14y-1)$ $\cdot(y^{132}+59y^{131}+\cdots+3.67\times10^{18}y+3.25\times10^{17})$ |
| $c_5, c_{11}$ | $(y^{31}+26y^{30}+\cdots-4y-1)$ $\cdot(y^{132}+109y^{131}+\cdots+89028169385y+89407578121)$ |
| $c_7, c_8, c_{12}$ | $(y^{31}+33y^{30}+\cdots+126y-1)(y^{132}+136y^{131}+\cdots-145y+1)$ |
| $c_9$ | $(y^{31}+27y^{30}+\cdots-20y-1)$ $\cdot(y^{132}+14y^{131}+\cdots-1024697647y+19954089)$ |
| $c_{10}$ | $(y^{31}+16y^{30}+\cdots-20y-1)$ $\cdot(y^{132}+7y^{131}+\cdots+22512797y+103041)$ |