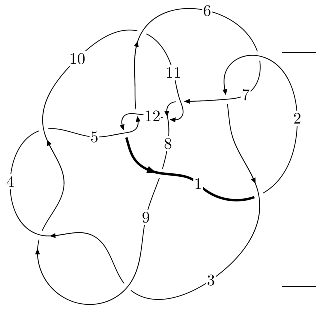
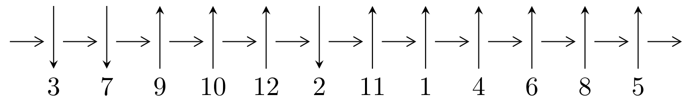
$12a_{0589}$ ($K12a_{0589}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -7.11582 \times 10^{221} u^{99} - 8.63174 \times 10^{221} u^{98} + \cdots + 1.62343 \times 10^{221} b - 3.59350 \times 10^{222}, \\
& -4.74270 \times 10^{224} u^{99} - 5.73839 \times 10^{224} u^{98} + \cdots + 3.73389 \times 10^{222} a - 2.20342 \times 10^{225}, \\
& u^{100} + u^{99} + \cdots + 14u - 1 \rangle \\
I_2^u = \langle & u^3 + b,\ -u^3 + 2u^2 + 3a + 2u - 1,\ u^4 - u^2 + 1 \rangle \\
I_3^u = \langle & u^3 + b,\ -u^3 - u^2 + 3a + 2u - 1,\ u^4 - u^2 + 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 108 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. $\boldsymbol{I_1^u = \langle -7.12 \times 10^{221} u^{99} - 8.63 \times 10^{221} u^{98} + \cdots + 1.62 \times 10^{221} b - 3.59 \times 10^{222},\ -4.74 \times 10^{224} u^{99} - 5.74 \times 10^{224} u^{98} + \cdots + 3.73 \times 10^{222} a - 2.20 \times 10^{225},\ u^{100} + u^{99} + \cdots + 14u - 1 \rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 127.018u^{99} + 153.684u^{98} + \cdots - 5600.34u + 590.115 \\ 4.38320u^{99} + 5.31698u^{98} + \cdots - 199.270u + 22.1353 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 133.223u^{99} + 161.070u^{98} + \cdots - 5878.58u + 619.701 \\ 4.83883u^{99} + 5.87137u^{98} + \cdots - 222.047u + 24.6627 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 508.169u^{99} + 596.373u^{98} + \cdots - 24295.6u + 2806.67 \\ 7.84464u^{99} + 8.68358u^{98} + \cdots - 428.049u + 56.5824 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 122.634u^{99} + 148.367u^{98} + \cdots - 5401.07u + 567.979 \\ 4.38320u^{99} + 5.31698u^{98} + \cdots - 199.270u + 22.1353 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 55.7325u^{99} + 63.3082u^{98} + \cdots - 2893.42u + 361.738 \\ 0.770246u^{99} + 1.01289u^{98} + \cdots - 36.2687u + 5.09196 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 621.926u^{99} + 735.391u^{98} + \cdots - 29150.1u + 3301.04 \\ 12.8285u^{99} + 14.6903u^{98} + \cdots - 658.830u + 81.8685 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -96.2686u^{99} - 119.321u^{98} + \cdots + 3938.19u - 382.399 \\ -6.04319u^{99} - 7.28700u^{98} + \cdots + 275.012u - 29.1983 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4.33253u^{99} - 12.0749u^{98} + \cdots - 581.309u + 160.926$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{100} + 35u^{99} + \cdots + 5314u + 169$
c_2, c_6	$u^{100} - 3u^{99} + \cdots - 20u + 13$
c_3, c_4, c_9	$u^{100} - u^{99} + \cdots - 14u - 1$
c_5, c_{12}	$u^{100} - 3u^{99} + \cdots - 128u + 52$
c_7, c_{11}	$u^{100} - 5u^{99} + \cdots + 22u - 1$
c_8	$529(529u^{100} + 2323u^{99} + \cdots - 5.59128 \times 10^7 u - 3.11681 \times 10^7)$
c_{10}	$529(529u^{100} + 3841u^{99} + \cdots + 8995520u - 970300)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{100} + 65y^{99} + \cdots - 6927358y + 28561$
c_2, c_6	$y^{100} - 35y^{99} + \cdots - 5314y + 169$
c_3, c_4, c_9	$y^{100} - 95y^{99} + \cdots - 58y + 1$
c_5, c_{12}	$y^{100} + 53y^{99} + \cdots - 89080y + 2704$
c_7, c_{11}	$y^{100} - 55y^{99} + \cdots - 82y + 1$
c_8	$279841(279841y^{100} - 5042957y^{99} + \cdots - 6.77314 \times 10^{16}y + 9.71451 \times 10^{14})$
c_{10}	279841 $\cdot (279841y^{100} - 18269015y^{99} + \cdots - 953537733200y + 941482090000)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.494564 + 0.868297I$ $a = 0.957136 - 0.711585I$ $b = 0.595137 + 1.233490I$	$1.56718 + 13.70260I$	0
$u = 0.494564 - 0.868297I$ $a = 0.957136 + 0.711585I$ $b = 0.595137 - 1.233490I$	$1.56718 - 13.70260I$	0
$u = -0.594360 + 0.794669I$ $a = -0.315966 - 0.050179I$ $b = 0.519602 + 1.007160I$	$3.10737 + 2.58864I$	0
$u = -0.594360 - 0.794669I$ $a = -0.315966 + 0.050179I$ $b = 0.519602 - 1.007160I$	$3.10737 - 2.58864I$	0
$u = 0.546169 + 0.879548I$ $a = -0.641283 + 0.597330I$ $b = -0.371361 - 0.967519I$	$-1.19926 + 1.95519I$	0
$u = 0.546169 - 0.879548I$ $a = -0.641283 - 0.597330I$ $b = -0.371361 + 0.967519I$	$-1.19926 - 1.95519I$	0
$u = -0.529573 + 0.783995I$ $a = -0.952631 - 0.685469I$ $b = -0.603749 + 1.220150I$	$2.97162 - 7.84264I$	0
$u = -0.529573 - 0.783995I$ $a = -0.952631 + 0.685469I$ $b = -0.603749 - 1.220150I$	$2.97162 + 7.84264I$	0
$u = -0.435240 + 0.977287I$ $a = 0.608130 + 0.654085I$ $b = 0.430468 - 1.039270I$	$-2.05758 - 7.06500I$	0
$u = -0.435240 - 0.977287I$ $a = 0.608130 - 0.654085I$ $b = 0.430468 + 1.039270I$	$-2.05758 + 7.06500I$	0

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.721353 + 0.811301I$ $a = 0.168237 + 0.016183I$ $b = -0.529096 + 1.067270I$	$2.19181 - 8.06866I$	0
$u = 0.721353 - 0.811301I$ $a = 0.168237 - 0.016183I$ $b = -0.529096 - 1.067270I$	$2.19181 + 8.06866I$	0
$u = 0.787367 + 0.395930I$ $a = 0.003217 + 0.657953I$ $b = -0.347285 + 1.118780I$	$-2.34706 - 2.72684I$	0
$u = 0.787367 - 0.395930I$ $a = 0.003217 - 0.657953I$ $b = -0.347285 - 1.118780I$	$-2.34706 + 2.72684I$	0
$u = -0.559331 + 0.641843I$ $a = 0.395096 + 0.141503I$ $b = 0.990205 + 0.205441I$	$4.69005 - 8.03457I$	0
$u = -0.559331 - 0.641843I$ $a = 0.395096 - 0.141503I$ $b = 0.990205 - 0.205441I$	$4.69005 + 8.03457I$	0
$u = 0.881092 + 0.739200I$ $a = -0.183885 + 0.313689I$ $b = 0.171550 - 0.635394I$	$-0.32711 + 3.86344I$	0
$u = 0.881092 - 0.739200I$ $a = -0.183885 - 0.313689I$ $b = 0.171550 + 0.635394I$	$-0.32711 - 3.86344I$	0
$u = -0.388057 + 0.754681I$ $a = -0.438833 - 1.099830I$ $b = -0.639728 + 0.405220I$	$4.11149 + 3.49119I$	0
$u = -0.388057 - 0.754681I$ $a = -0.438833 + 1.099830I$ $b = -0.639728 - 0.405220I$	$4.11149 - 3.49119I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.220257 + 0.785544I$ $a = 0.174053 - 1.140200I$ $b = 0.598970 + 0.513921I$	$4.54056 + 1.86436I$	0
$u = 0.220257 - 0.785544I$ $a = 0.174053 + 1.140200I$ $b = 0.598970 - 0.513921I$	$4.54056 - 1.86436I$	0
$u = -0.172179 + 0.766268I$ $a = 0.649580 + 0.848586I$ $b = 0.319532 - 1.179920I$	$-5.75809 - 1.64364I$	0
$u = -0.172179 - 0.766268I$ $a = 0.649580 - 0.848586I$ $b = 0.319532 + 1.179920I$	$-5.75809 + 1.64364I$	0
$u = -1.120250 + 0.487086I$ $a = 0.268645 - 0.225715I$ $b = -0.195130 - 1.131990I$	$-2.96999 - 2.86139I$	0
$u = -1.120250 - 0.487086I$ $a = 0.268645 + 0.225715I$ $b = -0.195130 + 1.131990I$	$-2.96999 + 2.86139I$	0
$u = 0.640737 + 0.436206I$ $a = 0.392007 + 0.728401I$ $b = 0.265180 + 0.020545I$	$-0.00920 + 3.88649I$	0
$u = 0.640737 - 0.436206I$ $a = 0.392007 - 0.728401I$ $b = 0.265180 - 0.020545I$	$-0.00920 - 3.88649I$	0
$u = 0.612405 + 0.473798I$ $a = -0.386204 + 0.113587I$ $b = -0.994841 + 0.198747I$	$6.02810 + 2.15602I$	0
$u = 0.612405 - 0.473798I$ $a = -0.386204 - 0.113587I$ $b = -0.994841 - 0.198747I$	$6.02810 - 2.15602I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.985471 + 0.762198I$ $a = 0.128101 + 0.137545I$ $b = -0.306861 - 0.793029I$	$-0.490285 + 0.995813I$	0
$u = -0.985471 - 0.762198I$ $a = 0.128101 - 0.137545I$ $b = -0.306861 + 0.793029I$	$-0.490285 - 0.995813I$	0
$u = 0.297954 + 0.690813I$ $a = 1.047450 - 0.622152I$ $b = 0.577725 + 1.176240I$	$-3.86712 + 6.69392I$	$0. - 7.62154I$
$u = 0.297954 - 0.690813I$ $a = 1.047450 + 0.622152I$ $b = 0.577725 - 1.176240I$	$-3.86712 - 6.69392I$	$0. + 7.62154I$
$u = 0.598781 + 0.454455I$ $a = -1.030130 + 0.238005I$ $b = -0.144324 - 1.036660I$	$-2.01635 + 1.81696I$	$6.00000 - 4.70771I$
$u = 0.598781 - 0.454455I$ $a = -1.030130 - 0.238005I$ $b = -0.144324 + 1.036660I$	$-2.01635 - 1.81696I$	$6.00000 + 4.70771I$
$u = -1.319190 + 0.001997I$ $a = -1.73316 - 0.25842I$ $b = -1.114860 - 0.217275I$	$2.06676 - 0.04063I$	0
$u = -1.319190 - 0.001997I$ $a = -1.73316 + 0.25842I$ $b = -1.114860 + 0.217275I$	$2.06676 + 0.04063I$	0
$u = -1.320980 + 0.094418I$ $a = -2.08249 - 0.88815I$ $b = -0.299976 + 0.950759I$	$4.18219 - 2.56239I$	0
$u = -1.320980 - 0.094418I$ $a = -2.08249 + 0.88815I$ $b = -0.299976 - 0.950759I$	$4.18219 + 2.56239I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.338530 + 0.032041I$ $a = -1.57595 + 1.15586I$ $b = -0.97364 + 1.31873I$	$2.35208 + 2.63289I$	0
$u = 1.338530 - 0.032041I$ $a = -1.57595 - 1.15586I$ $b = -0.97364 - 1.31873I$	$2.35208 - 2.63289I$	0
$u = 1.34563$ $a = 0.292417$ $b = -0.308446$	6.43420	0
$u = 1.368210 + 0.031204I$ $a = -1.170500 + 0.572561I$ $b = -0.418859 + 1.321610I$	$2.43343 + 2.34353I$	0
$u = 1.368210 - 0.031204I$ $a = -1.170500 - 0.572561I$ $b = -0.418859 - 1.321610I$	$2.43343 - 2.34353I$	0
$u = -1.377550 + 0.076292I$ $a = 0.277805 - 1.369850I$ $b = 0.03758 - 1.95221I$	$3.92135 - 4.66086I$	0
$u = -1.377550 - 0.076292I$ $a = 0.277805 + 1.369850I$ $b = 0.03758 + 1.95221I$	$3.92135 + 4.66086I$	0
$u = 1.363690 + 0.248056I$ $a = -1.62981 - 0.29969I$ $b = -0.524954 - 1.166630I$	$-0.90590 + 5.22564I$	0
$u = 1.363690 - 0.248056I$ $a = -1.62981 + 0.29969I$ $b = -0.524954 + 1.166630I$	$-0.90590 - 5.22564I$	0
$u = -0.611023 + 0.040869I$ $a = -1.051260 + 0.666639I$ $b = -0.381510 + 0.069285I$	$0.818668 + 0.063255I$	$12.29924 + 0.65938I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.611023 - 0.040869I$ $a = -1.051260 - 0.666639I$ $b = -0.381510 - 0.069285I$	$0.818668 - 0.063255I$	$12.29924 - 0.65938I$
$u = 1.43265 + 0.11313I$ $a = 1.83238 + 0.76058I$ $b = 1.15364 + 1.26329I$	$7.20401 + 5.59825I$	0
$u = 1.43265 - 0.11313I$ $a = 1.83238 - 0.76058I$ $b = 1.15364 - 1.26329I$	$7.20401 - 5.59825I$	0
$u = -1.41877 + 0.23880I$ $a = -1.88730 + 0.46425I$ $b = -0.80880 + 1.16573I$	$1.63204 - 10.03090I$	0
$u = -1.41877 - 0.23880I$ $a = -1.88730 - 0.46425I$ $b = -0.80880 - 1.16573I$	$1.63204 + 10.03090I$	0
$u = -1.43734 + 0.07599I$ $a = 1.43588 - 0.53919I$ $b = 0.482283 - 1.151980I$	$4.24349 - 2.96705I$	0
$u = -1.43734 - 0.07599I$ $a = 1.43588 + 0.53919I$ $b = 0.482283 + 1.151980I$	$4.24349 + 2.96705I$	0
$u = 1.44484 + 0.07008I$ $a = 1.302600 + 0.430128I$ $b = 0.216338 + 0.513954I$	$6.58552 + 0.25931I$	0
$u = 1.44484 - 0.07008I$ $a = 1.302600 - 0.430128I$ $b = 0.216338 - 0.513954I$	$6.58552 - 0.25931I$	0
$u = -1.45805 + 0.02122I$ $a = 1.77281 + 2.58470I$ $b = 0.180425 + 0.937246I$	$4.70273 + 2.17240I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.45805 - 0.02122I$ $a = 1.77281 - 2.58470I$ $b = 0.180425 - 0.937246I$	$4.70273 - 2.17240I$	0
$u = -0.271871 + 0.439056I$ $a = -2.15900 - 0.28952I$ $b = 0.291940 + 0.860441I$	$1.11878 + 1.37649I$	$6.33692 + 2.07286I$
$u = -0.271871 - 0.439056I$ $a = -2.15900 + 0.28952I$ $b = 0.291940 - 0.860441I$	$1.11878 - 1.37649I$	$6.33692 - 2.07286I$
$u = -0.350138 + 0.374779I$ $a = -0.833386 - 0.521069I$ $b = -0.682826 + 1.206250I$	$1.47798 - 3.83735I$	$9.5830 + 10.7537I$
$u = -0.350138 - 0.374779I$ $a = -0.833386 + 0.521069I$ $b = -0.682826 - 1.206250I$	$1.47798 + 3.83735I$	$9.5830 - 10.7537I$
$u = -1.44495 + 0.36811I$ $a = -1.191740 - 0.398723I$ $b = -0.641528 + 0.893391I$	$9.82550 - 6.20178I$	0
$u = -1.44495 - 0.36811I$ $a = -1.191740 + 0.398723I$ $b = -0.641528 - 0.893391I$	$9.82550 + 6.20178I$	0
$u = -1.51367 + 0.15493I$ $a = 1.57679 + 0.51951I$ $b = 1.38997 + 0.31490I$	$12.94730 - 4.46201I$	0
$u = -1.51367 - 0.15493I$ $a = 1.57679 - 0.51951I$ $b = 1.38997 - 0.31490I$	$12.94730 + 4.46201I$	0
$u = 1.50470 + 0.30800I$ $a = 1.213970 - 0.300886I$ $b = 0.645180 + 0.817793I$	$10.20430 + 0.51681I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.50470 - 0.30800I$ $a = 1.213970 + 0.300886I$ $b = 0.645180 - 0.817793I$	$10.20430 - 0.51681I$	0
$u = -0.463361$ $a = -1.22093$ $b = -0.338405$	0.744582	13.7610
$u = 1.52183 + 0.21651I$ $a = -1.43233 + 0.55988I$ $b = -1.274880 + 0.268665I$	$11.4877 + 11.1816I$	0
$u = 1.52183 - 0.21651I$ $a = -1.43233 - 0.55988I$ $b = -1.274880 - 0.268665I$	$11.4877 - 11.1816I$	0
$u = -1.53535 + 0.19283I$ $a = -1.099040 - 0.202970I$ $b = -0.877186 - 0.233897I$	$7.16720 - 6.52031I$	0
$u = -1.53535 - 0.19283I$ $a = -1.099040 + 0.202970I$ $b = -0.877186 + 0.233897I$	$7.16720 + 6.52031I$	0
$u = 1.54781 + 0.10756I$ $a = 1.127950 - 0.138482I$ $b = 0.816167 - 0.259682I$	$8.26390 + 0.91408I$	0
$u = 1.54781 - 0.10756I$ $a = 1.127950 + 0.138482I$ $b = 0.816167 + 0.259682I$	$8.26390 - 0.91408I$	0
$u = 1.53130 + 0.27358I$ $a = 1.65900 + 0.28363I$ $b = 0.73536 + 1.33153I$	$9.6817 + 11.7095I$	0
$u = 1.53130 - 0.27358I$ $a = 1.65900 - 0.28363I$ $b = 0.73536 - 1.33153I$	$9.6817 - 11.7095I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.53199+0.31297I$ $a=-1.69028+0.19186I$ $b=-0.69130+1.32348I$	$8.1368-18.0090I$	0
$u=-1.53199-0.31297I$ $a=-1.69028-0.19186I$ $b=-0.69130-1.32348I$	$8.1368+18.0090I$	0
$u=-1.53930+0.28493I$ $a=\ \ 1.353570-0.191387I$ $b=\ \ 0.577835-1.165050I$	$5.60463-6.09906I$	0
$u=-1.53930-0.28493I$ $a=\ \ 1.353570+0.191387I$ $b=\ \ 0.577835+1.165050I$	$5.60463+6.09906I$	0
$u=\ \ 0.031819+0.432835I$ $a=\ \ 0.673328+0.407362I$ $b=\ \ 0.524926+0.467278I$	$-1.59343-1.35865I$	$-0.15444+1.54135I$
$u=\ \ 0.031819-0.432835I$ $a=\ \ 0.673328-0.407362I$ $b=\ \ 0.524926-0.467278I$	$-1.59343+1.35865I$	$-0.15444-1.54135I$
$u=\ \ 1.53179+0.35023I$ $a=-1.378750-0.101122I$ $b=-0.578888-1.190700I$	$4.32081+11.84680I$	0
$u=\ \ 1.53179-0.35023I$ $a=-1.378750+0.101122I$ $b=-0.578888+1.190700I$	$4.32081-11.84680I$	0
$u=\ \ 0.000582+0.412245I$ $a=\ \ 0.844273+0.142581I$ $b=\ \ 0.683194+0.703089I$	$-1.60023-1.33130I$	$-2.66231+0.62507I$
$u=\ \ 0.000582-0.412245I$ $a=\ \ 0.844273-0.142581I$ $b=\ \ 0.683194-0.703089I$	$-1.60023+1.33130I$	$-2.66231-0.62507I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.57713 + 0.22259I$ $a = -0.512379 + 0.491015I$ $b = -0.671814 + 0.691220I$	$10.41410 + 1.15655I$	0
$u = 1.57713 - 0.22259I$ $a = -0.512379 - 0.491015I$ $b = -0.671814 - 0.691220I$	$10.41410 - 1.15655I$	0
$u = 0.147452 + 0.360979I$ $a = 0.246092 + 0.907450I$ $b = 0.23079 - 1.53364I$	$-0.88848 + 3.18787I$	$-0.85305 - 11.96812I$
$u = 0.147452 - 0.360979I$ $a = 0.246092 - 0.907450I$ $b = 0.23079 + 1.53364I$	$-0.88848 - 3.18787I$	$-0.85305 + 11.96812I$
$u = -1.62268 + 0.16552I$ $a = 0.627568 + 0.513142I$ $b = 0.657699 + 0.776414I$	$10.32470 + 4.49901I$	0
$u = -1.62268 - 0.16552I$ $a = 0.627568 - 0.513142I$ $b = 0.657699 - 0.776414I$	$10.32470 - 4.49901I$	0
$u = 0.250122 + 0.070148I$ $a = -4.22464 + 0.58722I$ $b = -0.102242 - 1.039580I$	$-1.51133 + 2.06989I$	$5.39582 - 3.50708I$
$u = 0.250122 - 0.070148I$ $a = -4.22464 - 0.58722I$ $b = -0.102242 + 1.039580I$	$-1.51133 - 2.06989I$	$5.39582 + 3.50708I$
$u = 0.203055 + 0.029017I$ $a = -13.9313 - 20.5765I$ $b = -0.092638 - 1.025750I$	$-0.10500 - 2.04747I$	$48.5669 - 10.4108I$
$u = 0.203055 - 0.029017I$ $a = -13.9313 + 20.5765I$ $b = -0.092638 + 1.025750I$	$-0.10500 + 2.04747I$	$48.5669 + 10.4108I$

II. $I_2^u = \langle u^3 + b,\ -u^3 + 2u^2 + 3a + 2u - 1,\ u^4 - u^2 + 1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} \frac{1}{3}u^3 - \frac{2}{3}u^2 - \frac{2}{3}u + \frac{1}{3} \\ -u^3 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -\frac{2}{3}u^3 - \frac{1}{3}u^2 - \frac{2}{3}u + \frac{1}{3} \\ -\frac{4}{3}u^3 - \frac{1}{3}u^2 + \frac{5}{3}u + \frac{2}{3} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{4}{3}u^3 - \frac{2}{3}u^2 - \frac{2}{3}u + \frac{1}{3} \\ -u^3 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{3}u^3 - \frac{2}{3}u^2 + \frac{2}{3}u + \frac{1}{3} \\ 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{2}{3}u^2 + \frac{2}{3} \\ -\frac{2}{3}u^3 + \frac{1}{3}u^2 + \frac{4}{3}u + \frac{1}{3} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{2}{3}u^3 - \frac{1}{3}u^2 - \frac{2}{3}u - \frac{1}{3} \\ -2u^3 - u^2 + u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^2 + 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$(u^2-u+1)^2$
c_2, c_3, c_4 c_6, c_9	u^4-u^2+1
c_5, c_{12}	$(u^2+1)^2$
c_7	$(u^2+u+1)^2$
c_8	$9(9u^4+9u^2+6u+1)$
c_{10}	$9(9u^4+18u^3+18u^2+12u+4)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7, c_{11}	$(y^2+y+1)^2$
c_2, c_3, c_4 c_6, c_9	$(y^2-y+1)^2$
c_5, c_{12}	$(y+1)^4$
c_8	$81(81y^4+162y^3+99y^2-18y+1)$
c_{10}	$81(81y^4-36y^2+16)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.866025 + 0.500000I$ $a = -0.577350 - 0.577350I$ $b = -1.000000I$	$-1.64493 + 4.05977I$	$4.00000 - 6.92820I$
$u = 0.866025 - 0.500000I$ $a = -0.577350 + 0.577350I$ $b = 1.000000I$	$-1.64493 - 4.05977I$	$4.00000 + 6.92820I$
$u = -0.866025 + 0.500000I$ $a = 0.577350 + 0.577350I$ $b = -1.000000I$	$-1.64493 - 4.05977I$	$4.00000 + 6.92820I$
$u = -0.866025 - 0.500000I$ $a = 0.577350 - 0.577350I$ $b = 1.000000I$	$-1.64493 + 4.05977I$	$4.00000 - 6.92820I$

III. $I_3^u = \langle u^3 + b,\ -u^3 - u^2 + 3a + 2u - 1,\ u^4 - u^2 + 1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} \frac{1}{3}u^3 + \frac{1}{3}u^2 - \frac{2}{3}u + \frac{1}{3} \\ -u^3 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -\frac{1}{3}u^3 + \frac{1}{3}u^2 - \frac{4}{3}u \\ -\frac{4}{3}u^3 + \frac{2}{3}u^2 + \frac{5}{3}u - \frac{1}{3} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{4}{3}u^3 + \frac{1}{3}u^2 - \frac{2}{3}u + \frac{1}{3} \\ -u^3 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{2}{3}u^3 - \frac{2}{3}u^2 - \frac{1}{3}u + \frac{1}{3} \\ 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{1}{3}u^3 + \frac{2}{3}u^2 - \frac{1}{3}u \\ -\frac{2}{3}u^3 + \frac{1}{3}u^2 + \frac{4}{3}u - \frac{2}{3} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{1}{3}u^3 - \frac{1}{3}u^2 - \frac{5}{3}u + \frac{2}{3} \\ -2u^3 + u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$(u^2 - u + 1)^2$
c_2, c_3, c_4 c_6, c_9	$u^4 - u^2 + 1$
c_5, c_{12}	$(u^2 + 1)^2$
c_7	$(u^2 + u + 1)^2$
c_8	$9(9u^4 + 4)$
c_{10}	$9(9u^4 - 18u^3 + 18u^2 - 6u + 1)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7, c_{11}	$(y^2 + y + 1)^2$
c_2, c_3, c_4 c_6, c_9	$(y^2 - y + 1)^2$
c_5, c_{12}	$(y + 1)^4$
c_8	$81(9y^2 + 4)^2$
c_{10}	$81(81y^4 + 126y^2 + 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.866025 + 0.500000I$ $a = -0.077350 + 0.288675I$ $b = -1.000000I$	-1.64493	4.00000
$u = 0.866025 - 0.500000I$ $a = -0.077350 - 0.288675I$ $b = 1.000000I$	-1.64493	4.00000
$u = -0.866025 + 0.500000I$ $a = 1.077350 - 0.288675I$ $b = -1.000000I$	-1.64493	4.00000
$u = -0.866025 - 0.500000I$ $a = 1.077350 + 0.288675I$ $b = 1.000000I$	-1.64493	4.00000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^4)(u^{100}+35u^{99}+\cdots+5314u+169)$
c_2, c_6	$((u^4-u^2+1)^2)(u^{100}-3u^{99}+\cdots-20u+13)$
c_3, c_4, c_9	$((u^4-u^2+1)^2)(u^{100}-u^{99}+\cdots-14u-1)$
c_5, c_{12}	$((u^2+1)^4)(u^{100}-3u^{99}+\cdots-128u+52)$
c_7	$((u^2+u+1)^4)(u^{100}-5u^{99}+\cdots+22u-1)$
c_8	$42849(9u^4+4)(9u^4+9u^2+6u+1)$ $\cdot(529u^{100}+2323u^{99}+\cdots-55912752u-31168112)$
c_{10}	$42849(9u^4-18u^3+\cdots-6u+1)(9u^4+18u^3+\cdots+12u+4)$ $\cdot(529u^{100}+3841u^{99}+\cdots+8995520u-970300)$
c_{11}	$((u^2-u+1)^4)(u^{100}-5u^{99}+\cdots+22u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^4)(y^{100}+65y^{99}+\cdots-6927358y+28561)$
c_2, c_6	$((y^2-y+1)^4)(y^{100}-35y^{99}+\cdots-5314y+169)$
c_3, c_4, c_9	$((y^2-y+1)^4)(y^{100}-95y^{99}+\cdots-58y+1)$
c_5, c_{12}	$((y+1)^8)(y^{100}+53y^{99}+\cdots-89080y+2704)$
c_7, c_{11}	$((y^2+y+1)^4)(y^{100}-55y^{99}+\cdots-82y+1)$
c_8	$1836036801(9y^2+4)^2(81y^4+162y^3+99y^2-18y+1)$ $\cdot(2.80\times10^5y^{100}-5.04\times10^6y^{99}+\cdots-6.77\times10^{16}y+9.71\times10^{14})$
c_{10}	$1836036801(81y^4-36y^2+16)(81y^4+126y^2+1)$ $\cdot(279841y^{100}-18269015y^{99}+\cdots-953537733200y+941482090000)$